Plan de Salud y Seguridad (HASP) para Operaciones de Vertederos de Temperaturas Elevadas (ETLF)

Respuesta al ETLF de Chiquita Canyon

Castaic, California

3 de octubre de 2025

Versión 2.3

Requirió Aprobación			
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(firma)	Steve Cassulo		
Ingeniero Regional de CCL:	Kate Logan	Fecha:	25/09/2025
(firma)	Kate Logan		

Información de Contacto para Emergencias

Vertedero de Chiquita Canyon	
Dirección del Sitio:	29201 Henry Mayo Drive, Castaic, CA 91384
Contacto de Emergencia del Sitio:	Steve Cassulo (661) 371 - 9214
Contactos Alternativos del Sitio:	Kate Logan (346) 807 – 5547 Louie Vargas (346) 740-1359
Vertedero de Chiquita Canyon	
Respuesta a Emergencias Locales:	911
Centro Médico:	Henry Mayo Newhall Hospital (661) 200 - 2000
Dirección del Centro Médico:	Henry Mayo Newhall Hospital, 23845 McBean Parkway, Valencia, CA 91355

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1.0 Introducción

La prioridad de Chiquita Canyon, LLC ("CCL") es la protección de la salud humana, de la seguridad y del medioambiente. Este plan identifica lo máximo posible los potenciales peligros en base a la información disponible que hay en el Vertedero de Chiquita Canyon (el Vertedero) ubicado en 29201 Henry Mayo Drive, Castaic, CA 91384 y describe las precauciones que deben seguir los trabajadores en todas las actividades mientras están en zonas de operación de Vertedero de Temperatura Elevada (ETLF). Se define como zonas de operación de ETLF del Vertedero como a las zonas del Vertedero afectadas por la reacción del ETLF (Apéndice B al final de este plan), que rodean las áreas de soporte de ETLF (ej. patios de descanso), los tanques de recolección/almacenamiento de lixiviados asociados y los parques de tanques de lixiviados.

Este plan es un documento en vivo que se irá actualizando a medida que vayan cambiando las condiciones, a medido que vaya habiendo información nueva disponible y a medida que vaya evolucionando la zona de operación del ETLF. Las actualizaciones que se realicen en este plan se documentarán y se proporcionarán a los trabajadores de la zona de operación del ETLF durante las reuniones de seguridad.

Tabla 1 Organización del Proyecto

Función del Proyecto	Nombre	Empresa	Número de Teléfono
Gerente de Seguridad en el Sitio de CCL	Louie Vargas	CCL	(346) 740-1359
Gerente de Distrito de CCL	Steve Cassulo	CCL	(661) 371-9214
Ingeniero Regional de CCL	Kate Logan	CCL	(346) 807-5547

1.1 Alcance del Trabajo

En las zonas de operación del ETLF, se han identificado los potenciales peligros aquí descritos. Todo el trabajo realizado en estas zonas por empleados o contratistas de CCL deberán cumplir con los protocolos aquí detallados y con todos los planes de seguridad correspondientes para las zonas de operación del ETLF y el Vertedero. El trabajo realizado en las zonas de operación del ETLF también cumplirán con el Programa de Prevención de Lesiones y Enfermedades (IIPP) de CCL como lo indica el Proyecto de Ley del Senado de California 198 y Aplicado por Cal-OSHA bajo la Sección 3203 de las Órdenes Generales de Seguridad Industrial.

1.2 Enmiendas al Plan de Salud y Seguridad en las Zonas de Operación del ETLF

Este Plan de Salud y Seguridad se basa en información disponible al momento de su elaboración. Podrán surgir condiciones imprevistas que requieran cambios en este plan. Las actividades y/o los cambios imprevistos en el estado del peligro deberán iniciar una revisión de los cambios importantes de este plan. Las modificaciones deben ser aprobadas por el equipo de gestión de incidentes antes de su implementación.

NO debe desecharse ninguna nota, documentación o registro después de su uso. Los documentos deben ser presentados al personal designado para que guarde los registros.

2.0 Códigos de Prácticas Seguras

Este plan fue desarrollado para CCL y para sus contratistas que trabajan dentro de la zona operativa de ETLF y proporciona procedimientos específicos de la zona para evitar incidentes en el Vertedero. Más allá de estos documentos, tratar la salud y la seguridad del trabajador dentro de las zonas de operación de ETLF es un proceso continuo que involucra la identificación de los peligros, análisis de los peligros, control de los peligros, reevaluación de los peligros y la participación y capacitación del personal de la zona operativa del ETLF.

Se recomienda la participación activa de cada empleado durante las revisiones de los peligros y las sesiones de seguridad que se programan de forma regular (ej. charlas de seguridad, reuniones informativas prácticas, etc.). Los contratistas y los grupos de trabajo individuales tienen la responsabilidad de realizar reuniones de seguridad o de asistir a las reuniones de seguridad de la Zona Operativa del ETLF si no realizan reuniones propias. El supervisor o la persona designada de un grupo de trabajo conducirá la reunión informativa de seguridad. La participación de los empleados es la piedra angular en la prevención de incidentes. Además, cada empleado debe cuidar a sus compañeros de trabajo cuando parezcan no estar enfocados en el trabajo que están realizando y debe cumplir con los siguientes principios.

- No desestime la importancia de la conciencia situacional y la práctica del buen sentido común al trabajar en la Zona Operativa de ETLF. Sea consistente y responsabilícese personalmente por su propia seguridad y por la de aquellos con quienes trabaja.

- Esté atento a los peligros de cada tarea en la que se está trabajando. Recuerde y siga los procedimientos de seguridad y las prácticas de trabajo seguro que se desarrollan para protegernos. Use Equipos de Protección Personal (PPE) apropiados, no tome atajos y no sea complaciente ni baje la guardia desarrollando un falso sentido de seguridad mientras está en el trabajo.

- Hay una variedad de procesos de planificación que se realizan antes de que se ejecute una tarea determinada, que incluyen análisis de los peligros del trabajo, que deben completar el trabajador o el grupo de trabajo.

- Personal de supervisión o representantes de seguridad conducirán inspecciones visuales del área de trabajo, con la intención de verificar que se cumplan los planes y procedimientos establecidos, que se identifiquen los cambios en las condiciones, que se evalúe la efectividad de los controles y que se identifiquen y comuniquen los nuevos peligros a todos los empleados.

Los contratos de operación, mantenimiento, monitoreo y actividades de construcción de varios sistemas de control ambiental dentro de la Zona Operativa del ETLF incluirán un requerimiento de que todos los involucrados en el trabajo cumplan con los procedimientos de seguridad, como se indican en este plan, con los planes de salud y seguridad del Vertedero y con los planes de salud y seguridad del Contratista. CCL asume el compromiso de proporcionar un ambiente de trabajo sano y seguro a todas las personas que realizan actividades laborales en el Vertedero.

2.1 Administración de Contratistas

La política de CCL es seleccionar, contratar y supervisar a los contratistas con la misma prioridad y énfasis sobre la seguridad que practicamos con nuestros empleados. Los contratistas están obligados por contrato a cumplir con las regulaciones de salud y seguridad de CCL, estatales y federales. El propósito del programa de gestión de la seguridad de los contratistas es verificar que CCL continúe mejorando el desempeño del contratista en salud, seguridad y medioambiente y establecer un estándar para la evaluación/selección y desarrollo de nuestros contratistas.

Este programa aplica a cualquier contratista que tenga una relación contractual con CCL en el Vertedero. Aquí se proporcionan requerimientos generales para la selección y la participación de contratistas en el Vertedero.

2.2 Requerimientos para la Selección y Aprobación de Contratistas

CCL obtendrá precalificaciones de los candidatos calificados (ej. plan de salud y seguridad) para cada contrato. La Administración de CCL realizará una revisión de la seguridad de los contratistas. El alcance de la revisión será acorde a la exposición a los peligros y a los riesgos involucrada y se hará una determinación sobre si el programa de seguridad del contratista cumple o excede el programa de seguridad de CCL o no. El contratista seleccionado deberá cumplir con los programas de salud y seguridad de CCL para el trabajo realizado en el Vertedero y en la Zona Operativa del ETLF. Si se considera que el programa de seguridad de un contratista es insuficiente o que tiene un estado de seguridad "No Calificado", no será utilizado por CCL en el Vertedero.

Los contratistas deberán seguir o implementar las prácticas y los sistemas de trabajo descritos a continuación al realizar trabajos relacionados con las operativas del ETLF:

- El programa de seguridad del contratista debe cumplir o exceder el programa de seguridad de CCL.
- La administración de CCL conducirá estudios de seguridad periódicos de los contratistas. Las observaciones de discrepancias relacionadas con la seguridad serán informadas al representante apropiado del contratista para que se realice una corrección inmediata.
- Hay un requerimiento que indica que cada contratista debe utilizar/proporcionar y mantener su propio programa de seguridad (análisis de peligros del trabajo, inspecciones, procedimientos operativos, estándares de seguridad) además del programa de CCL. El programa de seguridad debe estar fácilmente disponible para que lo revise el personal de la zona operativa del ETLF.
- Asistir a una orientación en la zona operativa del ETLF y a la reunión inicial previa al trabajo que proporciona CCL antes de que comience cualquier trabajo.
- Participar en las reuniones de seguridad que se programan de forma regular.

- Verificar que el personal cuente con la capacitación y la competencia requeridas para el trabajo.
- Cumplir con el proceso de permisos de CCL para trabajos de alto riesgo, que incluyen trabajos en caliente e ingresos a espacios confinados.
- Informar todas las lesiones, los derrames y las liberaciones y los incidentes de daño a la propiedad inmediatamente a CCL y a seguridad del sitio.
- Cumplir con las reglas de seguridad, que incluyen los límites de velocidad.
- Realizar inspecciones de los equipos.
- Usar los PPE requeridos.

3.0 Plan de Respuesta a Emergencias (EAP) en la Zona Operativa del ETLF

CCL supervisará la gestión de los procedimientos del Plan de Respuesta a Emergencias en la Zona Operativa del ETLF dentro del vertedero, implementando el Plan de Respuesta a Emergencias de CCL. En esta sección se indican los procedimientos del Plan de Respuesta Inicial a Emergencias dentro de zonas operativas del ETLF. Estos procedimientos serán implementados en las zonas operativas del ETLF cuando haya una situación de emergencia inminente o real y CCL le informará al personal por radio, teléfono, bocina u otro sistema de notificación. Una bocina de aire ubicada en el vertedero servirá como aviso primario y se utilizarán otros métodos si fueran necesarios, en base a una tarea de trabajo específica. La alerta de bocina de aire será uno de los siguientes dos tipos:

1. **EVACUACIÓN**: Tres tonos cortos tres veces darán la señal de evacuación del vertedero.
2. **PARAR EL TRABAJO**: Un tono largo dará la señal de parar el trabajo en todo el vertedero. Todos los trabajadores se quedarán en su lugar hasta próximo aviso.

Los empleados y contratistas de CCL deberán evacuar la zona operativa del ETLF donde ocurra una emergencia, conforme al Plan de Respuesta a Emergencias del Vertedero o a cualquier instrucción específica de la zona operativa del ETLF. Cuando se ordena una evacuación, los empleados y contratistas de CCL se reunirán en los puntos de encuentro designados para casos de evacuación.

Éste es un vertedero activo. El acceso y las calles de las laderas del Vertedero pueden cambiar y se cambiarán para acomodar áreas de trabajo, áreas de disposición de desechos y áreas de cara al trabajo. Esto podrá requerir diferentes rutas para viajar hacia el punto de encuentro de la oficina principal. Los empleados y contratistas de CCL verificarán que saben cómo salir de forma rápida y segura de la Zona Operativa del ETLF.

Todo el personal que ingresa o sale de áreas operativas de ETLF debe ser contabilizado en todo momento. El acceso a Chiquita Canyon debe obtenerse exclusivamente mediante el uso de una credencial autorizada

en la entrada principal. Este procedimiento asegura un seguimiento exacto del personal dentro de las áreas operativas de ETLF y ayuda a la contabilización efectiva en el caso de una emergencia. En el punto de encuentro (o el punto de reunión alternativo), el gerente de CCL o el supervisor del contratista rendirá cuenta del personal que está bajo su autoridad.

Toda lesión o enfermedad debe informarse a un representante del sitio de CCL apenas sea seguro hacerlo y al representante de seguridad del sitio. El representante del sitio de CCL y el representante de seguridad del sitio, en caso de una lesión o sospecha de lesión (incluso si se percibe como menor), se lo informará al Responsable de la Gestión de Incidentes apenas sea práctico hacerlo (consulte los Números de Teléfono de Emergencia que se encuentran en la tapa). Si el incidente es grave (es decir, una fatalidad, amputación, internación relacionada con el trabajo o pérdida de un ojo o un grado de desfiguración permanente grave), informe inmediatamente al Responsable de la Gestión de Incidentes. El Responsable de la Gestión de Incidentes informará a la oficina del Gerente de Distrito e implementará el EAP del vertedero.

No deben moverse los equipos involucrados en accidentes con lesiones graves hasta que el Responsable de la Gestión de Incidentes de CCL pueda inspeccionar la escena del accidente. Sin embargo, los equipos pueden moverse si es necesario hacerlo para sacar víctimas o para evitar más daños a los equipos.

Si CCL determina que la zona operativa del ETLF y/o el vertedero tuvieron una liberación, incendio o explosión que pueda amenazar a la salud humana, el Gerente de Distrito o alternos deberán llamar al **9-1-1** y ponerse en contacto inmediatamente con los Departamentos de Bomberos y del Alguacil de Los Ángeles. El Responsable de la Gestión de Incidentes y/o el Gerente de Distrito o los alternos coordinarán con agencias locales para determinar si es necesaria una evacuación local e implementarán el Plan de Respuesta a Emergencias del vertedero.

Después de terminada una emergencia, CCL proporcionará la limpieza, el tratamiento, el almacenamiento y la disposición de los desechos, líquidos, suelos afectados y agua recuperados. Los desechos sólidos, como el suelo afectado y las almohadillas absorbentes, se pondrán en un contenedor de volcado para que pueda perfilarse y desecharse en un centro de tratamiento, almacenamiento y disposición fuera del sitio. En base a los resultados del perfilado, podrá ser posible la disposición en el sitio.

3.1 Información de Contactos y Ubicación de Centros Médicos

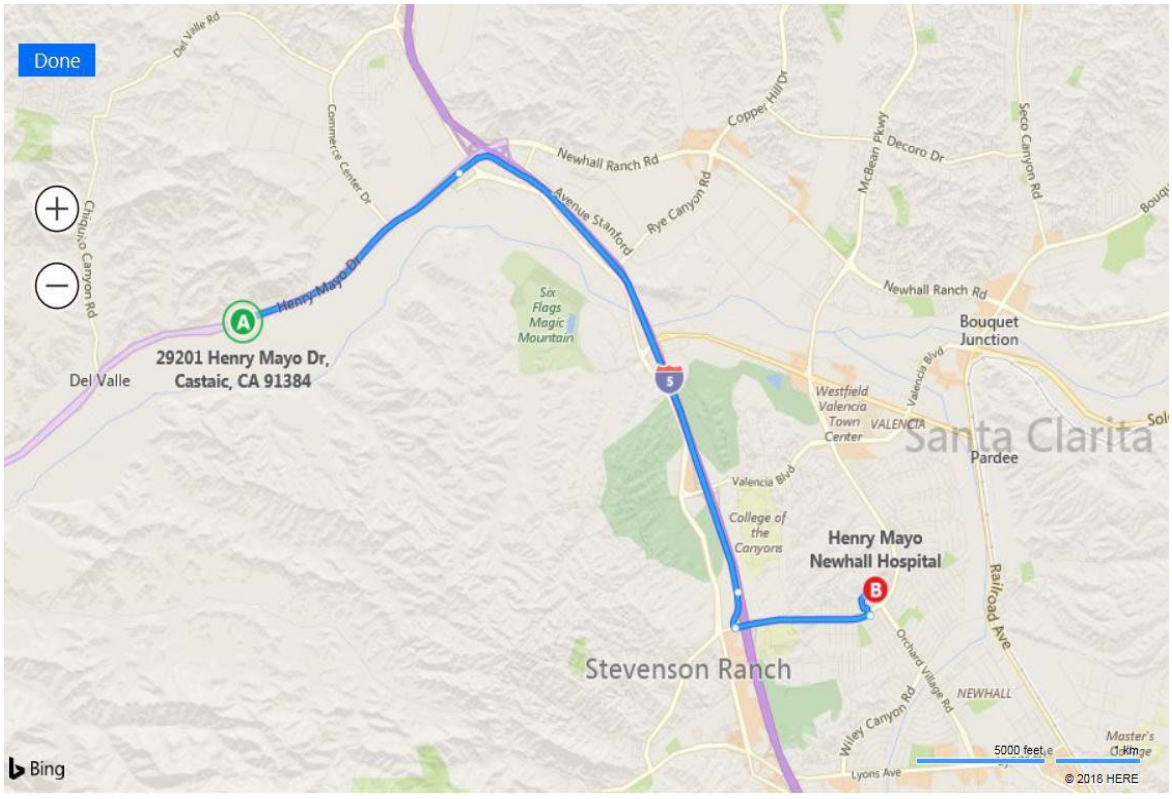
El centro médico más cercano se encuentra en Henry Mayo Newhall Hospital 23845 McBean Parkway, Valencia, CA 91355.

Figura 1. Mapa e Indicaciones al Centro Médico Más Cercano

A 29201 Henry Mayo Dr, Castaic, CA 91384

↑	1.	Depart **CA-126 / Henry Mayo Dr** toward Wolcott Way	2.0 mi
5	2.	Take ramp **right** for **I-5 South** toward **Los Angeles** ▲ *Moderate Congestion*	4.0 mi
↱	3.	At exit **168**, take ramp **right** for **McBean Pkwy** toward **California Institute of the Arts / Hospital**	0.3 mi
↰	4.	Bear **left** onto **McBean Pkwy**	1.0 mi
↰	5.	Turn **left** onto **road**	262 ft
↰	6.	Turn **left** onto **road**	0.2 mi
↱	7.	Turn **right** onto **road**	161 ft
	8.	Arrive on the left	

B Henry Mayo Newhall Hospital



3.2 Sistema de Alarmas para Empleados

Si ocurre un incidente o una emergencia que requiera una alarma. Los empleados o contratistas podrán activar una alarma llamando a uno o más contactos de emergencia del sitio que se encuentran indicados en la segunda página de este documento. Llame al 911 si es apropiado, para informar incendios y otras emergencias.

3.3 Rescate y Primeros Auxilios

Pare y/o suspenda el trabajo cuando ocurre una lesión, accidente o condición del sitio que se considere insegura. Se les sugiere a los empleados y contratistas de CCL que eleven cualquier inquietud de seguridad al representante de seguridad del sitio oportunamente y que suspendan el trabajo si sienten que las condiciones son inseguras.

Se proporcionarán primeros auxilios de forma voluntaria dentro del alcance de la capacitación del proveedor. Hay disponibles kits de primeros auxilios y matafuegos en cada camión de trabajo de CCL. Los Desfibriladores Externos Automáticos (AEDs) están ubicados en la oficina y en la oficina de mantenimiento.

Las duchas de seguridad y los colirios (portátiles) se encuentran distribuidos por todas las instalaciones donde puedan ocurrir salpicaduras y exposición química a lixiviados u otras exposiciones químicas.

4.0 Peligros en la Zona Operativa de ETLF

Los peligros principales asociados a la Zona Operativa de ETLF están relacionados a las temperaturas y presiones elevadas que hay presentes, a la ocurrencia de una descomposición rápida de los desechos y al asentamiento, a la exposición de los trabajadores a lixiviados y a los vapores de lixiviados. Como práctica de seguridad, se utilizará un sistema de pares o registros regulares para el personal que trabaja en la Zona Operativa del ETLF o para trabajos que se realizan después de hora dentro de la Zona Operativa del ETLF.

No se permite beber alcohol ni usar drogas ilegales en las zonas operativas del ETLF. Toda persona que se reporte al trabajo bajo la influencia de alcohol y/o drogas ilegales estará sujeta a una acción disciplinaria que podrá incluir su despido inmediato. Toda persona que traiga drogas ilegales a instalaciones de CCL estará sujeta a un despido inmediato. Los empleados bajo cuidados de un médico y/o que tomen narcóticos recetados deben informárselo al Gerente del Proyecto, al representante de seguridad o a su supervisor.

No está permitido comer ni beber, excepto agua u otras bebidas hidratantes (ej. Gatorade) y no está permitido fumar en la Zona Operativa del ETLF. Dentro de las zonas operativas del ETLF, se proporcionarán lugares donde puedan mantenerse estaciones adecuadas.

No se permite hacer payasadas ni bromas al trabajar en zonas operativas de ETLF.

4.1 Peligros Químicos

Deben considerarse los siguientes peligros químicos antes de realizar cualquier tarea o trabajo en el Vertedero. El análisis dependerá de que se comprendan muy bien las características físicas y químicas de las Zonas Operativas del ETLF

y de las tareas que se estén realizando. Al manipular o al estar cerca de productos químicos líquidos o vapores, podrán tener que usarse otros Equipos de Protección Personal (PPE) (ej. gafas de seguridad y escudos faciales). Consulte el Programa de Protección Personal del Vertedero de CCL para más información.

4.1.1 Peligros Químicos No Identificados

La disposición de desechos residenciales y comerciales da como resultado la creación de potenciales peligros químicos que tal vez no sea posible identificarlos durante las actividades laborales. Desechos residenciales y comerciales pueden incluir contenedores que estén llenos parcialmente o que contengan residuos de productos químicos desechados, peligros biológicos, materiales inflamables y otros peligros que, mientras que CCL no los acepte voluntariamente, podrán haber sido descartados inadecuadamente en el desecho recibido. Las etiquetas de estos contenedores podrán haberse degradado o salido y los contenedores podrán presentar fugas. En general, estas cosas estarán cubiertas de tierra u otras barreras, pero algunas actividades, como perforar y cavar, podrán descubrir estos peligros. Evite la interacción con contenedores no identificados y líquidos acumulados, para reducir el riesgo de exposición que representan estas sustancias y póngase en contacto con CCL si tiene alguna duda, antes de proceder con el trabajo.

4.1.2 Biogás

El biogás (LFG) varía entre una zona y otra. El LFG consiste principalmente de metano (aproximadamente un 55 por ciento) y dióxido de carbono (aproximadamente un 45 por ciento). Otros componentes que pueden estar presentes incluyen vapor de agua, nitrógeno, monóxido de carbono, ácido sulfhídrico y otros compuestos tóxicos. El LFG es inflamable y potencialmente explosivo. El LFG dentro de la Zona Operativa del ETLF podrá contener concentraciones elevadas de hidrógeno.

4.1.3 Hidrógeno Elevado

Como se mencionó, el LFG de las zonas operativas del ETLF puede tener un contenido de hidrógeno elevado. Al trabajar cerca de LFG, debe supervisarse la inflamabilidad para reducir el riesgo de explosión.

4.1.4 Metano

El gas metano se produce en los vertederos por la descomposición de desechos. El metano es un gas incoloro, inoloro, inflamable y potencialmente explosivo. El rango de metano inflamable es de entre un 5 y un 15 por ciento por volumen. El metano es un asfixiante simple, ya que tiene la capacidad de desplazar el oxígeno. El personal debe usar un monitore de 5 gases al trabajar en una zona donde pueda haber gas presente.

4.1.5 Ácido Sulfhídrico (H_2S)

El sulfuro de hidrógeno es incoloro, con un fuerte olor a "huevo podrido" que puede reducirse con el tiempo debido a la fatiga nasal.[1] Como resultado, el olor no es una propiedad de advertencia apropiada para notar la presencia de ácido sulfhídrico. El ácido sulfhídrico es muy inflamable, actúa directamente sobre el sistema nervioso y puede dar como resultado la muerte o una lesión permanente después de una breve exposición a cantidades cercanas a Inmediatamente Peligroso para la

[1] *La capacidad de oler ácido sulfhídrico regresa después de quitarlo de la fuente de exposición.*

Vida o Muerte (IDLH) de 100 ppm. La concentración de ácido sulfhídrico varía por zona, pero puede estar presente hasta en 200 partes por millón (ppm), que excede la concentración IDLH de 100 ppm. El sulfuro de hidrógeno puede acumularse en zonas bajas, como sumideros, agujeros, zanjas o depresiones. El sulfuro de hidrógeno es un peligro primario en la entrada a espacios confinados y espacios aéreos en los tanques y en otras zonas donde puedan haber lixiviados confinados. El personal debe usar su monitor de 5 gases al trabajar en una zona donde se espere que gases de ácido sulfhídrico presenten un peligro.

4.1.6 Benceno

El benceno es un carcinógeno humano conocido y puede dar como resultado efectos perjudiciales para el sistema de formación de células sanguíneas (hematopoyético) durante exposiciones prolongadas. El benceno está presente en el vapor de lixiviados y es un componente menor (< 0.1 % por peso) de los lixiviados y puede representar un mayor peligro cuando aumentan los VOCs totales, en particular cuando los VOCs totales son mayores al nivel de acción del sitio de la Tabla 2. Cuando los lixiviados están confinados en un tanque, caño u otro espacio cerrado, puede haber concentraciones de vapores de benceno presentes dentro del espacio cerrado en concentraciones que superen los límites de exposición ocupacional. Durante y después de perforar pozos en o cerca de la zona reactiva, podrá emitirse vapor de benceno hacia los alrededores, hasta la terminación final del pozo en concentraciones que superan el Límite de Exposición a Corto Plazo de Cal/OSHA de 5 ppm. El trabajo debe realizarse conforme a todos los requerimientos aplicables del Título 8 § 5218 de Cal/OSHA - Benceno, cuando pueda haber benceno presente que supere los límites de exposición ocupacional.

4.1.7 Peróxido de Hidrógeno

Los peligros asociados al uso de peróxido de hidrógeno (especialmente soluciones muy concentradas) están muy documentados. Las reacciones de peróxido pueden ser exotérmicas y generar altas temperaturas. La contaminación de peróxido concentrado hace que exista la posibilidad de que ocurra una explosión. Los materiales fácilmente oxidables o las sustancias alcalinas que contienen metales pesados pueden reaccionar de forma violenta. Los solventes (acetona, etanol, glicerol) detonarán en una mezcla con peróxido que tenga una concentración de más del 30%, aumentando la violencia con la concentración. El peróxido concentrado puede descomponerse violentamente en contacto con el hierro, cobre, cromo, la mayoría de los demás metales o sus sales y el polvo (que generalmente contienen óxido). Las mezclas de alcoholes con ácido sulfhídrico concentrado y peróxido de hidrógeno fuerte pueden causar explosiones. Las mezclas de alcohol etílico con peróxido de hidrógeno concentrado forman poderosos explosivos. Consulte la Hojas de Datos de Seguridad (SDS) del Apéndice C para más información.

4.1.8 Condensados de Lixiviados/LFG

Los lixiviados son líquidos que entran en contacto con los desechos. Cuando se libera líquido por los desechos, reacciona con los productos de descomposición, productos químicos y otros materiales, produciendo lixiviados. Se produce condensado de LFG cuando el LFG se enfría y se condensa humedad al pasar de la fase de vapor a la fase líquida. Los riesgos de los lixiviados de desechos y condensados se deben a sus altas concentraciones de contaminantes orgánicos y a su alto nitrógeno amoniacal. Algunos de estos compuestos pueden causar daños en la piel y en los ojos al entrar en contacto, pueden ser absorbidos por la piel o ser carcinogénicos. Se sabe que los lixiviados de la zona reactiva

contienen productos químicos carcinogénicos como benceno y otros compuestos orgánicos, metales como arsénico y otros compuestos peligrosos, tanto orgánicos como inorgánicos. El metano y el ácido sulfhídrico también pueden disolverse en los lixiviados o condensados y pueden representar un peligro en zonas mal ventiladas. Podrá haber presentes bacterias y otros microorganismos en los lixiviados, que pueden causar infección de heridas abiertas u otras enfermedades.

Los trabajadores deben evitar el contacto directo con los lixiviados y los condensados. Donde haya riesgo de salpicadura, derrame o vaporización de lixiviados o condensados, se deben tomar medidas apropiadas para evitar el contacto con la piel y los ojos. Si ocurre contacto con la piel, enjuague con una gran cantidad de agua por lo menos durante 15 minutos. Sáquese la ropa contaminada y deséchela. La estación de lavado de ojos portátil tiene un cabezal de ducha móvil para que pueda enjuagarse durante 15 minutos. Los trabajadores deben verificar que los PPE y la ropa contaminada se descontaminen correctamente y/o se desechen y deben evitar el contacto con esos objetos. Consulte con seguridad del sitio.

4.1.9 Compuestos Orgánicos Volátiles (VOCs)

Los Compuestos Orgánicos Volátiles (VOCs) son una amplia clase de productos químicos incluida en lixiviados y vapores de lixiviados. Los efectos para la salud y los límites de exposición ocupacional para estos compuestos varían por producto químico individual dentro de la mezcla y pueden presentar un peligro relativamente bajo (ej. alcohol isopropílico) o un peligro mayor (ej. benceno). Debido a la compleja mezcla de VOCs en los vapores de lixiviados, aumenta la probabilidad de que se desarrollen efectos adversos transitorios para la salud a corto plazo, como mareos, náuseas, dolores de cabeza y otros síntomas, a medida que van aumentando las concentraciones de VOCs. Al medir estos compuestos como VOCs totales, podrá ser difícil identificar la cantidad de un componente peligroso específico en el campo sin contar con equipos más especializados que el medidor de 5 gases. Mientras que no hay un límite de exposición establecido para la mezcla de VOCs en los vapores de lixiviados en CCL, se realizó un análisis de la mezcla de VOCs y se estableció que los niveles de acción de la Tabla 3 para los VOCs reducen la probabilidad de que se excedan los límites de exposición para los componentes individuales de la mezcla de VOCs.

4.1.10 Soda Cáustica (Hidróxido de Sodio)

La soda cáustica es una solución de hidróxido de sodio que es muy básica. El hidróxido de sodio reacciona rápido y exotérmicamente con ácidos orgánicos e inorgánicos, con anhídridos ácidos orgánicos e inorgánicos que incluyen óxidos de no metales como dióxido de azufre, trióxido de azufre, trióxido de fósforo, pentóxido de fósforo y con cloruros de ácido orgánicos e inorgánicos. La reacción con aluminio y zinc puede producir hidrógeno, un gas inflamable. Puede iniciar polimerización en materiales orgánicos polimerizables: dando como resultado una polimerización violenta. El contacto puede causar quemaduras graves en los ojos, la piel y en las membranas mucosas. Es necesario el uso ropa de protección contra productos químicos, guantes, gafas de seguridad y/o escudo facial apropiados al manipularla, para proteger la piel y los ojos. La solución debe manejarse de forma que se minimice la oportunidad de que ocurran derrames, salpicaduras y liberaciones presurizadas.

4.2 Peligros Físicos

Deben considerarse los siguientes peligros físicos antes de que todos los empleados y contratistas realicen cualquier tarea o trabajo en el vertedero junto con seguridad del sitio. Dependiendo de las tareas que se realicen, podrá haber presente cualquiera e incluso todos estos peligros.

La alta temperatura y presión aumenta el potencial de que haya condiciones peligrosas dentro de la Zona Operativa del ETLF. El personal debe evaluar atentamente las tareas a ser realizadas para identificar qué peligros están presentes y qué medidas de protección deben tomarse o ponerse en práctica.

ADVERTENCIA: El potencial de quemaduras en los ojos, rostro y manos o la liberación inesperada de gases o líquidos presurizados y calientes es una consideración primaria y continua. Deben tratarse los siguientes puntos indicados a continuación al trabajar en la Zona Operativa del ETLF.

4.2.1 Gas con Temperatura Alta

Además de los potenciales peligros de inhalación normalmente asociados al Biogás (LFG) la Zona Operativa del ETLF contiene LFG con temperaturas (>63 °C [145 °F]) que son mucho más altas de lo normal. Este gas caliente presenta un potencial peligro de quemaduras y/o escaldadura. Se debe tener la precaución de evitar una proximidad cercana a caños y válvulas que puedan liberar gas caliente. El LFG debe recolectares utilizando un sistema de vacío, cuando sea posible, para reducir o eliminar el peligro. Cerrar los pozos y dejar que se acumule presión puede ser perjudicial para el Funcionamiento del ETLF exotérmico y la eliminación del vacío y la introducción de presión en realidad pueden proporcionar un activador, permitiendo que la Operación del ETLF crezca y aumenten las temperaturas. Cuando sea posible, el LFG debe cortarse o aislarse para reducir o eliminar el peligro al realizar actividades en la Zona Operativa del ETLF. Debe evitarse la ventilación, ya que los olores generalmente son un problema en la Zona Operativa del ETLF.

4.2.2 Líquidos con Temperatura Alta

También hay presentes líquidos calientes (>63 °C [145 °F]) en la Zona Operativa del ETLF. Los lixiviados calientes presentan un potencial peligro de quemaduras y/o escaldadura y tienen el potencial de causar exposición a constituyentes de productos químicos. Se debe tener la precaución de evitar una proximidad cercana a caños y válvulas que puedan liberar líquidos calientes. Los condensados de lixiviados y de LFG deben cortarse y drenarse al realizar operaciones en cañerías y pozos dentro de la Zona Operativa del ETLF. Además de las altas temperaturas, los líquidos de la Zona Operativa del ETLF generalmente pueden tener constituyentes de Demanda Biológica y/o de Oxígeno Químico y los líquidos pueden quedar más acídicos (<6). También pueden aumentar los Sólidos Suspendidos Totales (TSS), haciendo que los líquidos sean más conductivos a la electricidad. Algunos compuestos orgánicos pueden tener conductividad muy elevada.

4.2.3 Presión Alta y Mucho Flujo de Gas

Los gases o líquidos de los pozos de LFG, sumideros o sistemas de tuberías pueden representar peligros relacionados con la presencia de presiones más altas y por líquidos/vapores inflamables. Todo pozo, sumidero o línea de transporte que tenga el potencial de contener estos peligros debe evaluarse con cuidado antes de realizar cualquier trabajo. No abra un pozo o tubería sin seguir los procedimientos de seguridad detallados en el análisis de peligros del trabajo o plan de trabajo correspondiente. Como no puede ser viable purgar pozos y tuberías de todos los vapores o líquidos inflamables, los análisis de peligros del trabajo y el plan de trabajo correspondientes deben incluir procedimientos documentados y los equipos especiales necesarios para proporcionar una protección efectiva para los trabajadores. Debe realizarse el monitoreo del aire con un medidor de 5 gases durante estas tareas. Todo trabajo en caliente (ej. cortar/amolar/perforar) debe realizarse bajo un permiso de trabajo en caliente que incluya el monitoreo de la inflamabilidad. La presencia de gases o líquidos inflamables presenta peligros adicionales de incendio, explosión y aumento de temperatura.

4.2.4 Hundimiento del Terreno (Asentamiento)

El hundimiento o asentamiento de desechos en la Zona Operativa de ETLF debe supervisarse muy de cerca. Debido a la rápida naturaleza de la descomposición anaeróbica asociada al Funcionamiento del ETLF, es muy común que haya grandes zonas de hundimiento. Los cambios de nivelación debidos al hundimiento pueden causar fallas de los sistemas de transporte instalados, por ejemplo de las tuberías de recolección de gases o de lixiviados. Algunas de estas condiciones podrán ser visibles desde la superficie, mientras que otras ocurren fuera de la vista (debajo de la gradiente). Al caminar o conducir por la superficie de la Zona Operativa del ETLF, el personal siempre debe prestar mucha atención, ya que puede haber presentes huecos subterráneos o lugares suaves que pueden colapsar y hacer que los vehículos se queden atascados o pueden representar un peligro por resbalones, tropiezos o caídas. En algunos casos, los colapsos pueden hacer que una persona se quede atrapada. Al conducir vehículos o al caminar, manténgase en calles establecidas siempre que sea posible. Si trabaja fuera de la vista de otros trabajadores, deberá utilizar un sistema de pares o de comunicación con informes regulares.

4.2.5 Condiciones Climáticas:

El personal siempre debe estar consciente de la situación en condiciones climáticas cambiantes. Además, debe realizarse una reunión de seguridad entre los trabajadores si las condiciones climáticas pueden presentar un peligro para las operaciones de los trabajos. Las condiciones climáticas actuales del Vertedero pueden evaluarse a través de un código QR que se encuentra debajo o utilizando un sistema de informes meteorológicos:

Enlace a las condiciones climáticas actuales

El peligro de relámpagos aumenta cuando el trabajo se realiza en una superficie elevada de un vertedero. Los rayos pueden golpear a millas de distancia de una tormenta cuando no hay lluvia presente. Cuando se detecta un relámpago dentro de las 10 millas de la zona de trabajo, debe haber una pausa de 30 minutos. La pausa continuará hasta 30 minutos después del último relámpago detectado en un radio de 10 millas del sitio de trabajo. Todo el personal debe buscar un refugio fuera de la superficie elevada del vertedero y permanecer dentro de un edificio (primario) o vehículo (secundario) hasta que pase el peligro. No utilice como refugio lugares que estén cerca de objetos altos como líneas de corriente eléctrica, árboles, antenas o sistemas de antorchas.

4.2.6 Estrés Térmico

Los peligros de estrés térmico (estrés por calor o estrés por frío) y las estrategias para mitigar el impacto en la seguridad y en la salud de los trabajadores pueden tratarse en base a la información obtenida en la aplicación de Seguridad contra el Calor de OSHA-NIOSH.

Los trabajadores que queden expuestos a extremo calor o que trabajen en entornos calientes pueden estar en riesgo de sufrir estrés térmico por el calor. La exposición a un calor extremo puede dar como resultado enfermedades y lesiones ocupacionales. El estrés térmico puede causar insolación, golpes de calor, calambres por calor o sarpullidos por calor. El calor también puede aumentar el riesgo de lesiones en los trabajadores, ya que puede dar como resultado sudor en las palmas, que las gafas de seguridad se empañen y causar vértigo. Cuando las temperaturas exceden los 80 °F y los 95 °F, se deben tomar otras acciones para manejar el estrés térmico, como lo requiere el Título 8 § 3395 de Cal/OSHA.

Se implementarán las siguientes medidas en el sitio del Vertedero de Chiquita Canyon para proteger a los empleados que trabajan en ambientes calientes:

Requerimiento (8 CCR 3395)	Implementación en el Sitio del Vertedero de Chiquita Canyon
Acceso a Agua para Consumo	El agua potable se proporcionará en recipientes limpios y frescos, ubicados lo más cerca de las áreas de trabajo que sea prácticamente posible, en cantidad suficiente (≥ 1 cuarto de galón por empleado por hora). Se les recordará a los empleados que beban agua con frecuencia.
Acceso a Sombra	Se proporcionarán estructuras con sombra o áreas refrigeradas que estarán disponibles en todo momento cuando las temperaturas excedan los 80 °F. Los empleados pueden tomar recesos en la sombra cuando lo necesiten. Se implementarán otros procedimientos para que haya sombra cuando la temperatura supere los 95 °F.

Recesos para Descansar y Refrescarse	Los empleados tienen permitido y se les sugiere que se tomen descansos de ≥ 5 minutos para refrigerarse cuando sientan síntomas de malestares por el calor. Los supervisores monitorearán la recuperación.
Procedimientos para Casos de Mucho Calor (≥ 95°F)	Se mantendrá una comunicación efectiva. Se utilizará un sistema de compañeros y de radio de dos vías. Los supervisores les recordarán a los empleados que se hidraten, que realicen reuniones informativas de seguridad antes de los turnos sobre el trabajo con alta temperaturas y monitorearán los malestares que surjan por el calor.
Aclimatación	Los empleados nuevos o quienes regresan después de >14 días serán observados de cerca durante los primeros 14 días de trabajo en clima de mucho calor. Se ajustarán la carga de trabajo/los horarios si fuera necesario.
Capacitación	Se capacitará a los empleados y supervisores sobre los factores de riesgo, los procedimientos del empleador y los derechos bajo 8 CCR 3395. Se mantendrán registros de las capacitaciones.
Respuesta a Emergencias	Los empleados que demuestren síntomas de malestar por el calor serán llevados a la sombra y se les proporcionará agua. Se contactará a EMS si fuera necesario. Se mantendrán indicaciones para emergencias específicas del sitio.
Obligaciones de Supervisión	Los supervisores son responsables de hacer cumplir los procedimientos para la prevención de enfermedades generadas por calor, asegurando el acceso a agua/sombra, monitoreando el cumplimiento e iniciando una respuesta de emergencia cuando sea necesario.

Nota: Esto es obligatorio para todos los empleados y contratistas que trabajan en el sitio del Vertedero de Chiquita Canyon. El cumplimiento de estos procedimientos es una condición de empleo y los supervisores son los responsables de este cumplimiento.

En invierno, existe el potencial de sufrir lesiones por el frío, que incluyen deshidratación, congelamiento, tiritar fuerte, fatiga excesiva, somnolencia, irritabilidad y euforia. Si los trabajadores exhiben estos síntomas, se debe parar el trabajo y el personal afectado debe descansar en edificios o vehículos calefaccionados.

Los supervisores o el jefe del equipo de trabajo debe conocer las condiciones climáticas previstas para su turno, deben monitorear las condiciones durante el día y deben consultar el plan de gestión de estrés por calor y frío apropiado para conocer más detalles cuando sea necesario.

4.2.7 Peligros Vehiculares

La velocidad máxima dentro de la Zona Operativa del ETLF y en el Vertedero es de 9 mph. La velocidad debe ajustarse hacia abajo según las condiciones y deben cumplirse todas las señales de control de tránsito que aparecen en los carteles.

Tenga cuidado en todos los vehículos a motor. Como peatón, mire a 360° antes de caminar, para identificar si hay vehículos en movimiento en su cercanía. El personal debe usar equipos de seguridad reflectantes en la capa que esté más afuera de su ropa, en zonas operativas del ETLF, tanto de día como de noche.

El personal no tiene permitido operar vehículos a motor sin usar cinturón de seguridad correctamente. Al operar un vehículo a motor, mire a ambos lados antes de ingresar a una calle o cruce. Mire si hay peatones en o cerca de las calles. No envíe ni reciba e-mails ni mensajes de texto mientras opera un vehículo a motor. Conducir al anochecer y al amanecer y con poca luz reduce la visibilidad del conductor y también debe tener en cuenta que los animales están mucho más activos durante estos horarios. Conducir en calles mojadas, con nieve, gravilla o tierra requiere que el vehículo se maneje a una velocidad conservadora. No todos los cruces de calles de gravilla son cruces controlados; algunos no tienen carteles de Pare (STOP). Los conductores deben cumplir con los límites de velocidad indicados de 9 millas por hora (MPH). El personal debe acatar las pautas de los clientes en lo relacionado a conducir mientras utilizan teléfonos celulares. Bajo ninguna circunstancia el personal tendrá permitido enviar o recibir mensajes de texto o e-mails mientras conduce. El personal debe estacionar el vehículos de forma segura, fuera del tráfico, para utilizar un teléfono celular o comunicaciones por radio. Una vez que se haya puesto el cinturón de seguridad, por favor, ajuste su ventana y los espejos del conductor. No bloquee las ventanas con contenido de forma que su vista quede obstruida mientras conduce.

Equipos pesados: podrá haber presentes excavadoras, topadoras, volquetes, camiones aspiradores, furgonetas comerciales y otras maquinarias pesadas en el Vertedero o en las zonas operativas del ETLF durante actividades de remediación. Manténgase alejado del radio del brazo extensible de cualquier maquinaria pesada nivelada. Los equipos pesados tienen prioridad de paso; siempre asegure el contacto visual con el operador antes de realizar cualquier movimiento. Los equipos de transporte con carga tienen prioridad de paso sobre equipos de transporte vacíos.

4.2.8 Iluminación

En zonas donde se realizarán operaciones de noche, debe utilizarse iluminación para que el trabajo sea seguro. Todas las áreas donde ocurran actividades de medición de tanques, transferencia de lixiviados u otros trabajos nocturnos debe estar bien iluminadas.

4.2.9 Ruido

Las zonas operativas del ETLF se consideran no tradicionales y generalmente son difíciles de caracterizar las exposiciones a ruidos. Por favor, tenga protección auditiva fácilmente accesible. En áreas de trabajo que experimentan altos niveles de ruido (mayores a 85 dB) y/o a ruido por impacto (mayor a 140 dB), por favor, utilice protección auditiva. Las tareas que requieren protección auditiva incluyen bombeo hacia y fuera de los tanques de fraccionamiento, trabajar cerca de ventiladores, generadores y plantas eléctricas o trabajos alrededor de equipos pesados funcionando.

4.2.10 Peligros de Resbalones, Tropiezos y Caídas

Los terrenos desparejos y resbaladizos proporcionan un ambiente donde deben considerarse resbalones, tropiezos y caídas. Esté atento al camino antes de caminar o cambiar de dirección. Busque si hay obstrucciones que puedan representar un peligro de tropiezo. Se sabe que las tuberías de los equipos y las tuberías de los camiones presentan peligros de tropiezo.

Los niveles traicioneros en pendientes (ej. suelo arenoso/arcilloso), equipos pesados o serpientes y otros animales que puedan estar presentes en pendientes o en matorrales representan todos peligros en el Vertedero. Caminar, conducir y operar equipos pesados en colinas empinadas o en terreno desparejo puede ser peligroso. Estas zonas deben evitarse siempre que sea posible. Cuando sea necesario caminar o conducir en estos lugares, se debe tener mucho cuidado. Muévase lentamente y esté atento a los materiales sueltos o pozos que pueda haber presentes. También podrá haber cosas filosas o materiales derramados que deben evitarse. Al atravesar terrenos empinados, conduzca recto en pendientes cuesta arriba o cuesta abajo para reducir la posibilidad de volcar. Podrá haber presentes pozos, fosas y zanjas. Caer en estos peligros o conducir en ellos puede evitarse si se familiariza con el Vertedero. El césped o la vegetación alta pueden ocultar estas cosas. No conduzca en zonas con las que no está familiarizado. Converse sobre las rutas de acceso y los peligros con personal del sitio. Una buena regla básica para conducir es: "Cuando tenga dudas - salga". Para reducir las oportunidades de que haya peligros de resbalones, tropiezos y caídas:

- Todo el material debe guardarse de forma que se verifique que el material está seguro aunque haya movimientos inesperados, que no pueda caerse, salir rodando, salir volando o que tenga cualquier otro movimiento descontrolado.

- Los materiales y suministros deben mantenerse fuera de los bordes de los pisos, escaleras y vías de acceso/egreso (36 pulgadas mínimo).

- Deben retirarse los moldes y las maderas con clavos protuberantes y otros residuos de las zonas de trabajo, pasillos, escaleras y dentro y alrededor de los edificios u otras estructuras.

- Deben ir eliminándose los peligros de tropiezos, los clavos protuberantes, los vertidos de combustible, los materiales chatarra y otras condiciones peligrosas que ocurran durante el transcurso del trabajo, a medida que va progresando el trabajo.

- Las herramientas y equipos no deben quedar esparcidas en cualquier lugar donde puedan causar tropiezos o peligros de caída y al final de cada día de trabajo deben recogerse y guardarse o desecharse como corresponda.

- El acero de refuerzo saliente (rebaba) debe taparse bien o debe protegerse para evitar una condición peligrosa.
- Todos deben mantener limpia y ordenada el área de trabajo y otras áreas donde puedan caminar personas.
- Los peligros de tropiezo deben marcarse o quitarse.
- Los empleados deben estar informados sobre los peligros asociados a caminar sobre superficies resbaladizas o desparejas.
- Cuando sea posible, el tránsito de peatones debe ser dirigido alrededor de zonas potencialmente peligrosas.
- Los derrames de aceite y los lugares resbaladizos deben limpiarse inmediatamente.
- Se debe tener precaución adicional al caminar sobre pisos de acero durante condiciones climáticas húmedas/con hielo.
- Nunca camine sobre tuberías, nunca tome atajos peligrosos y evite saltar de lugares elevados.
- Utilice las barandas y los escalones al montar y desmontar equipos.

4.2.11 Peligros Eléctricos

Debe determinarse cuál será el lugar de todas las líneas de corriente eléctrica antes de que se realice cualquier cavado o excavación. Debe determinarse si hay líneas de corriente eléctrica suspendidas para poder evitar el contacto con equipos altos (cargadores, retroexcavadoras sobre orugas, etc.). Deben utilizarse servicios localizadores contratados antes de excavar o perforar y/o se deben utilizar medidas de protección física (barreras o cobertores de líneas) para evitar dañar o golpear líneas de corriente eléctrica. Algunos de los requerimientos de seguridad más básicos al manejar peligros eléctricos son los siguientes:

- Solo electricistas calificados deben realizar la instalación y reparaciones en sistemas eléctricos.
- Al trabajar con dispositivos eléctricos, conozca y utilice un procedimiento de bloqueo, que incluye los que requieren las regulaciones del gobierno.
- Si deben tenderse cables eléctricos en el suelo, designe los cruces y coloque una cubierta de protección sobre el cable. Resguarde otras áreas para que los vehículos no pasen sobre cables expuestos.
- Utilice herramientas con enchufes de tres patas y asegúrese de que las conexiones estén bien sujetas.
- Revise con frecuencia las herramientas, los equipos y los cables para observar si sus condiciones son seguras.

- Desconecte las herramientas antes de realizar ajustes o reparaciones.

- Tenga precaución al usar herramientas eléctricas en lugares mojados, ya que aumenta el riesgo de peligro de descarga eléctrica.

- Los prolongadores utilizados con herramientas y aparatos eléctricos portátiles deben ser del tipo de tres patas. Nunca deben quitarse las conexiones a tierra de un prolongador. Los cables eléctricos o prolongadores no deben tenderse en el suelo en pasillos, a menos que cuenten con la protección adecuada.

- Deben utilizarse Interruptores de Circuito por Falla a Tierra en todos los prolongadores.

- Las luces temporales deberán contar con guardas para evitar el contacto accidental con las bombillas de luz.

- Los empalmes deben tener un aislamiento equivalente al del cable.

- A menos que trabaje con una caja de paneles, deben estar cubiertos en todo momento.

- El acceso a disyuntores o interruptores eléctricos debe estar sin obstrucciones (se recomiendan 3 pies de distancia delante de los disyuntores o interruptores).

- Las escaleras portátiles deben tener barandas laterales no conductoras si se utilizan en lugares donde el empleado o la escalera puedan entrar en contacto con partes energizadas expuestas.

- Deben instalarse cobertores en todas las cajas de conexiones, salidas, adaptadores e interruptores, para evitar el contacto accidental con partes vivas.

Al trabajar en un espacio confinado, espacio cerrado u otro lugar reducido que contenga partes energizadas expuestas:

- Se proporcionarán y utilizarán escudos de protección, barreras y materiales aislantes para evitar el contacto inadvertido con partes energizadas.

- Las puertas y los paneles con bisagras deben sujetarse bien para evitar que se muevan hacia un empleado y haga que entre en contacto con partes energizadas expuestas.

4.2.12 Peligros de Incendio y Explosión

En el Vertedero hay presentes combustibles, como gasolina y diésel. El riesgo principal asociado a estos materiales es un incendio. Los lixiviados también pueden ser inflamables y producir vapores inflamables. Mantenga todas las fuentes de ignición fuera de materiales inflamables.

La naturaleza de la zona operativa de ETLF y la existencia de una fuente de ignición, incendio, presión variable y fuente desconocida variable pueden crear peligros de explosión. La protección de incendios en áreas de trabajo incluye los siguientes objetivos:

- Prevenir la pérdida de la vida y de la propiedad personal.
- Proteger la propiedad.
- Proporcionar operaciones sin interrupciones.
- Prevenir la generación de incendios.

Los contenedores con lixiviados u otros materiales inflamables pueden explotar cuando se calientan. Los vapores pueden viajar a fuentes de ignición y regresar. Algunos vapores son más pesados que el aire y pueden esparcirse por el suelo y juntarse en áreas bajas o confinadas (cuencas, drenajes, tanques), creando peligros de incendio o explosión. Consulte en la Tabla 3 la información sobre los niveles de acción de las zonas operativas del ETLF para atmósferas inflamables.

Debido a la presencia de vapores potencialmente inflamables, debe haber conexiones a tierra y empalmes al cargar y descargar camiones. Todos los tanques estáticos también deben estar conectados a tierra y empalmados. Al cargar tanques en autopistas, los tanques deben ventilarse para evitar un aumento de presión. Todos los equipos deben cortarse y se los debe dejar enfriar antes de que puedan comenzar las operaciones de carga de combustible.

Las operaciones pueden incluir trabajo en caliente (ej. cortar y amolar). Debido a los potenciales peligros de incendio y explosión de varios hidrocarburos y gases presentes en los tanques y sistemas conectados, **NO SE PERMITE REALIZAR SOLDADURAS, USAR ANTORCHAS, AMOLAR, CORTAR, PERFORAR O REALIZAR OTRAS ACTIVIDADES SIMILARES SIN UN PERMISO DE TRABAJO EN CALOR.** Antes de que se inicie el monitoreo del aire para el trabajo en calor, una **persona calificada** y otros contratistas o personal involucrado deben analizar el proyecto planeado completamente, incluyendo el tipo de trabajo en caliente a ser realizado, los peligros del lugar y las disposiciones del permiso. Si se realizan trabajos en calor, se realizará el monitoreo del aire para el permiso de trabajo en calor, que incluirá como mínimo el monitoreo de LEL (confirmado por lecturas de VOC), para determinar si se detectan vapores combustibles en o cerca de los Niveles de Acción.

Los matafuegos deben estar colocados en lugares visibles y prácticos en toda la zona operativa del ETLF y en equipos pesados; todos los matafuegos deben estar claramente identificados. Se usarán matafuegos ABC de polvo seco a menos que un peligro específico requiera otro tipo. Los matafuegos deben recargarse e inspeccionarse con regularidad y deben contener etiquetas que indiquen la fecha de recarga. Durante climas fríos, los matafuegos deben protegerse para que no se congelen. Se les debe enseñar a los trabajadores a usar los matafuegos y cómo seleccionar el tipo de matafuegos correcto en la asignación inicial y posteriormente todos los años. Cambie o recargue un matafuego siempre que lo haya

usado. Aunque podrá no estar vacío, tal vez el matafuegos no funcione bien cuando lo necesite una segunda vez.

Una fuente de peligro de incendio dentro de nuestro control es la poca limpieza. La limpieza regular del material de desecho, los trapos con aceite, el aceite, las latas de grasa y otros residuos de las operaciones de construcción no solo eliminarán o reducirán el peligro de incendio sino que también promoverán la seguridad general. La ropa con manchas de aceite o pintura no debe colocarse en espacios confinados; se debe colgar al aire libre. No se debe permitir que se acumulen o guarden trapos con aceite o desechos en espacios cerrados, sino que deben desecharse cuando ya no se necesiten. Los lugares donde se guardan combustibles no deben contener ninguna fuente de calor, o si es necesario que haya calor, se deben colocar de forma que se evite el sobrecalentamiento de estos materiales y que tengan la ventilación adecuada. Una buena limpieza eliminará parte del peligro del material combustible.

Debe haber botes de basura metálicas con tapas que se cierran o sellan solas en varios lugares prácticos y especialmente donde se produzcan solo desechos con aceite, por ejemplo en las áreas de mantenimiento.

Dependiendo del tamaño del trabajo y del peligro de incendio particular involucrado, será necesario que el supervisor realice una inspección periódica de los sitios de trabajo. Deben revisarse con regularidad las siguientes fuentes de peligro de incendio:

- Dispositivos de calentamiento temporal.
- Cableado eléctrico y equipos eléctricos.
- Almacenamiento de líquidos y materiales inflamables.
- Prolongadores.
- La cercanía de la soldadura y las operaciones de corte; es necesaria una vigilancia contra incendios después de que terminan las soldaduras y los cortes.
- Se debe cumplir la regla de "Prohibido Fumar" en zonas con peligro de incendio.
- Todos los lugares expuestos a chispas y calor si se quema basura.
- Compresores, generadores a motor y otros motores de combustión interna y sus suministros de combustible.
- Recámaras explosivas (ej. carteles de conexión a tierra y de No Fumar).

4.2.13 Polvo y Partículas en el Aire

Como mínimo, se deben usar gafas de seguridad dentro de las zonas operativas del ETLF, excepto dentro de un vehículo o estructura. El Vertedero y las zonas operativas del ETLF pueden incluir condiciones de polvo o peligros de partículas

de otros orígenes. Si hay condiciones de polvo presentes, las gafas montadas en cascos deben reemplazar las gafas de seguridad para proteger mejor la vista de lesiones en los ojos inducidas por partículas. Todas las protecciones de la vista deben cumplir con el Estándar Z87.1 de ANSI. Consulte la Sección 6.0 y el programa de Equipos de Protección Personal de CCL para conocer más detalles.

4.2.14 Trabajo en Altura

Al medir tanques o al trabajar en una elevación que exceda los cuatro pies, debe haber protección contra caídas apropiada para evitar que los trabajadores se caigan desde alturas si no hay colocada una baranda correctamente diseñada. Todos los trabajos de medición de tanques deben utilizar los sistemas de escaleras proporcionados o una escalera para el camino de acceso. No está permitido caminar desde la parte de arriba de un tanque hacia la parte de arriba de otro tanque. Los trabajos elevados con escaleras o protección contra caídas también deben ser realizados utilizando un sistema de observación.

4.2.15 Zonas de Recolección de Agua

Las zonas bajas donde se juntan agua o desechos que se retiene a una profundidad donde los trabajadores puedan caerse y quedar sumergidos deben contar con cercos, barreras o barandas, que queden instaladas temporal o permanentemente. Estas barreras no deben permitir que los trabajadores caigan a las zonas bajas o deben quedar a una distancia en la que los trabajadores no puedan caer al peligro de agua.

4.2.16 Seguridad en el Funcionamiento de los Equipos

En el vertedero hay presentes excavadoras, topadoras, motoniveladoras, palas cargadoras sobre ruedas, retroexcavadoras, zanjadoras, volcadores articulados, raspadores, compactadoras de suelo, cargadores de cadenas compactos o montacargas de minicargadoras, camiones grandes y otros vehículos. El uso de equipos pesados en un sitio de trabajo es vital y necesario para el éxito general del Vertedero, para la Zona Operativa del ETLF y para los proyectos de construcción. Opere únicamente los equipos para los que está calificado operar. El uso no autorizado o desacertado de equipos pesados puede resultar en una lesión personal, pérdida de la vida o pérdida grave de los materiales necesarios para completar las actividades del trabajo. Además, llegan al sitio camiones de basura de varias formas y tamaños para vaciar sus cargas. El ruido fuerte, las condiciones del tránsito, las condiciones climáticas y la visibilidad limitada pueden aumentar la amenaza de ser pasador por encima o ser aplastados por estos vehículos.

Use chalecos o sacos de mucha visibilidad y coordine con los operadores de los vehículos o con los observadores al trabajar cerca de estos equipos. Hay presentes especialmente peligros por los equipos pesados en o cerca del frente de trabajo, en actividades de movimiento de suelo y dentro de la Zona Operativa del ETLF. Al trabajar en estos lugares, se les debe informar a los operadores de los equipos. Antes de arrancar o mover equipos, recorra los alrededores para asegurarse de que no haya personas ni equipos. Estos vehículos no deben ser operados dentro de los 50 pies de una persona a pie. Debe utilizarse una segunda persona (como observadora) al trabajar en estas zonas. Cuando se están arrancando o haciendo funcionar equipos, no debe haber ningún empleado parado directamente delante ni detrás de ellos.

Las correas, poleas, garruchas, engranajes, cadenas, ejes, garras, tambores, circuitos compensadores y otras partes reciprocantes o giratorias de los equipos representan potenciales puntos de mordedura o agarre. No deben quitarse ninguna guarda, aparato de seguridad o dispositivo ni deben estar inefectivos, a menos que se requieran reparaciones o ajustes inmediatos y en ese caso, únicamente después de haber cortado la corriente y se hayan implementado los procedimientos de bloqueo/etiquetado adecuados. Apenas se hayan completado las reparaciones y los ajustes, deben volver a colocarse las guardas y los dispositivos.

Las líneas y equipos a alta temperatura pueden poner en peligro a los empleados o crear un peligro de incendio. Las salidas de todos los equipos a vapor o con motor de combustión interna deben estar libres y ubicadas de forma que no pongan en peligro a los trabajadores y no deben obstruir la visión del operador.

Las plataformas, pasarelas, escalones y escaleras que se utilicen para acceder a equipos pueden presentar peligros de resbalones y/o caídas. Es obligatorio tener tres (3) puntos de contacto al subir o bajar de equipos.

Los equipos que soportan o mueven cargas o baldes, brazos y contrapesos representan riesgos graves para el personal que está en tierra. Debe haber contacto visual con el operador antes de acercarse a maquinaria o equipos en movimiento.

Siempre se debe mantener una buena limpieza, especialmente manteniendo las pasarelas y las cabinas de los vehículos limpios. Las cosas que se suban a los equipos (termos, cajas de almuerzo, herramientas) deben sujetarse bien para evitar lesiones o daños a los equipos.

Los malos funcionamientos de los equipos deben ser informados a un supervisor. Revise todos los equipos antes de operarlos. Al estacionar o realizar un servicio de mantenimiento a un equipo, asegúrese de que esté bien bloqueado para evitar el movimiento y que todas las sujeciones elevadas o cajas estén bloqueadas y/o sujetas para evitar que se bajen.

Ningún pasajero, excepto que esté capacitado o para realizar controles mecánicos, tiene permitido operar los equipos. Estas personas deben usar cinturones de seguridad u otras restricciones de seguridad.

Al estacionar equipos, baje todos los accesorios, por ejemplo las hojas empujadoras, las descuartizadoras o los baldes, al suelo.

4.2.17 Seguridad en la Reparación de Equipos

Revise las herramientas antes de usarlas. Si no están en condiciones seguras y operables, los operadores deben ajustarlas, repararlas o cambiarlas como sea necesario, para hacer que sean lo más seguras posible.

Bloquee todas las cosas elevadas en las que esté trabajando que puedan caerse o lesionar al personal. Por ejemplo, al trabajar en equipos pesados y al cambiar filos de corte, por ejemplo para minicargadoras o raspadores, asegúrese de bloquear el mandril para que no se suelte hacia abajo. No asuma que los sistemas hidráulicos continuarán manteniéndose en su posición.

Revise todo el equipo antes de arrancarlo o moverlo para realizar una operación de prueba. Asegúrese de que no haya equipos ni personal cerca.

Debe colocarse una etiqueta que diga "No Operar" en la zona de control o si no es posible, en otro lugar donde se pueda ver fácilmente. Esto ayudará a proteger al personal de un arranque o movimiento inesperado de otra persona.

Coloque los tubos de oxígeno y acetileno vacíos sobre un bastidor con las tapas puestas y sujételos con la cadena proporcionada en el bastidor. Cierre los tubos de oxígeno y de acetileno cuando no estén en uso; enrolle las mangueras y guárdelas correctamente.

4.2.18 Seguridad en las Escaleras

Requerimientos Generales

- Los peldaños, listones y escalones de las escaleras deben estar nivelados, paralelos y espaciados de manera uniforme.
- Mantenga las escaleras libres de aceite, grasa, lodo y hielo y de otros peligros de resbalones.
- Mantenga el área alrededor de la parte de arriba y de la parte de abajo de la escalera libre de residuos y de otras obstrucciones.
- Las personas que utilizan una escalera deben mirar a la escalera y tener ambas manos libres al subir y bajar (tres puntos de contacto). Las herramientas y otros elementos pueden llevarse en bolsillos o cinturones para herramientas a menos que se utilice una línea de mano para levantar o bajar el objeto.
- No deben usarse escaleras que estén rotas, débiles o que le falten peldaños. A menos que las reparaciones se realicen inmediatamente, deben etiquetarse diciendo "Peligro - No Usar". Si la escalera está en reparación, debe retirarse inmediatamente del sitio de trabajo.
- Las escaleras no deben pintarse; hacerlo podrá ocultar defectos.
- No deben usarse escaleras de metal cerca de equipos eléctricos.
- Las escaleras deben ser inspeccionadas antes de que se usen.
- Al guardar escaleras, verifique que estén bien sujetas, enganchadas o apoyadas. Utilice ganchos, soportes o sistemas de guardado adecuados que sostengan el peso de la escalera. Esto eliminará el riesgo de daños o lesiones porque la escalera se cayó o se movió.

Escaleras Rectas

- Las escaleras rectas se deben sujetar para que no resbalen:
    - Colocando un taco delante.
    - Sujetándolas/atándolas arriba.
    - Colocándoles bases de seguridad.
- Las escaleras rectas deben colocarse a un ángulo de inclinación de 1 pie horizontal por cada elevación vertical de 4 pies.
- Las escaleras rectas deben extenderse por lo menos 3 pies por encima de la plataforma a la que debe subir. Ambos lados de la escalera deben estar apoyados sobre un soporte.

- La parte de arriba de la escalera debe estar sujeta o la escalera debe ser sostenida por otra persona si hay peligro de que resbale.

- Las secciones de las escaleras no pueden atarse juntas para aumentar el largo general.

Escaleras de Tijera

- No se deben utilizar tablones en la parte superior de las escaleras de tijera.

- Las escaleras de tijera no deben usarse como escaleras rectas. Está prohibido apoyar o dejar una escalera de tijera contra un apoyo.

- Debe usarse un dispositivo de bloqueo de metal o espaciador para sostener la parte de adelante y de atrás en posición abierta cuando está en uso.

- Está prohibido trepar por el segundo escalón desde la parte de arriba de una escalera de tijera.

4.2.19 Levantamientos Manuales

El manejo o guardado incorrecto de materiales puede resultar en lesiones. El manejo manual de materiales (es decir, levantar, transportar, empujar y tirar) es la causa más común de lesiones relacionadas con el trabajo en la gran mayoría de las lesiones de espalda. Este tipo de lesiones puede variar de esfuerzos relativamente leves a lesiones importantes que incapacitan a una persona de forma permanente. Las lesiones en la espalda y en los músculos abdominales por levantar cargas pesadas son una de las lesiones informadas más comunes. Los principales peligros relacionados con el uso, manipulación y guardado de materiales involucran:

- Levantamiento o transporte manual inadecuado de cargas pesadas, grandes o difíciles de manejar.

- Quedar bloqueado por los materiales.

- Quedar atrapado en puntos de agarre.

- Lesionarse o ser aplastado por caerse o por materiales que se guardaron mal.

Antes de levantar algo, analice el acceso por el que viajará y observe si hay obstrucciones y/u obstáculos y que pueda ver por encima de la carga al mover un objeto. Inspeccione si los materiales tienen lasca, están rugosos o tienen bordes filosos, rebabas o superficies ásperas o resbaladizas. Limpie todos los objetos engrasados, mojados, resbaladizos o sucios antes de intentar manipularlos. Sepa cuál es el peso del objeto antes de levantarlo; busque asistencia para cosas que pesen más de 50 libras.

Nunca doble la cintura para levantar cosas. La espalda debe mantenerse recta y los brazos deben quedar casi paralelos al cuerpo. Deben doblarse las rodillas para agarrar la carga con un agarre firme. Se deben levantar las cosas

enderezando las piernas, con la espalda siempre en posición casi vertical. No gire su torso; en cambio, mueva sus pies. El procedimiento para bajar la carga es el inverso al utilizado para levantarla.

Si el objeto es demasiado voluminoso o demasiado pesado para que lo maneje una sola persona, deberán asignarse dos personas o más a la tarea. Cuando dos o más personas transporten un objeto, deben ajustar la carga de forma que vaya nivelada y que la carga sea transportada por cada persona llevando el mismo peso. Además, ambas personas deben saber cuál es el destino y la vía de acceso al que se está transportando la carga.

Apilar materiales puede ser peligroso, debido a objetos que pueden caerse o a que la carga colapse. Prácticas de trabajo seguro incluyen:

- Observe las limitaciones de altura de varios materiales.
- Confirme que las pilas sean estables y se sustenten a sí mismas.
- Apile cartones y tambores sobre una base firme.
- Apile los caños sobre bastidores sólidos y nivelados y bloquéelos para evitar que rueden.
- Apile las bolsas o los materiales empaquetados en filas que se bloqueen entre sí para mantenerlos bien sujetos.

4.2.20 Peligros de las Excavaciones

Deben cumplirse las normas Cal/OSHA sobre la seguridad en las excavaciones (8 CCR Sección 1539 a 1543) en todo momento durante actividades de excavación. Excavaciones incluyen "cualquier corte realizado por el hombre, cavidad, trinchera o depresión en una superficie de la tierra, formada por la extracción de tierra". Esta norma aplica cualquiera sea la profundidad de la excavación, aunque varios de los requerimientos no aplican hasta que ingrese personal o hasta que la profundidad exceda los 5 pies. Antes de excavar, compruebe con las empresas de servicios públicos locales cuáles son las ubicaciones de las líneas de alcantarillas, líneas telefónicas, líneas de agua, líneas de gas natural o combustible y líneas eléctricas. Compruebe con Operaciones de CCL si hay otros servicios enterrados, tuberías u otros peligros subterráneos. Todos los contratistas que realicen excavaciones deben tener un plan de seguridad para la excavación puesto en práctica y deben proporcionar un plan a seguridad del sitio.

4.3 Peligros Biológicos

Los roedores, los insectos venenosos, las serpientes, otros animales y/o plantas son una parte natural de cualquier ecosistema. A veces son difíciles de eliminar o evitar en algunos sitios del vertedero porque esos sitios son rurales y remotos. Los empleados deben ser conscientes de que existe la probabilidad de que se encuentren con estos tipos de animales y plantas. Donde sea posible, deben quitarse los lugares donde haya nidos o su acceso deberá ser limitado. Si ocurren varias infestaciones, las remediaciones deben ser analizadas con el representante de seguridad del sitio. Podrá encontrarse con los siguientes al desempeñar sus trabajos de operación, mantenimiento y monitoreo de un proyecto:

4.3.1 Abejas

Se deben identificar las áreas que se sabe que contienen abejas y se deben evitar. En particular, las Abejas Africanizadas son agresivas e impredecibles. Responden rápido y pican en grandes cantidades; sienten las amenazas de personas o animales a 50 pies o más del nido; sienten las vibraciones de equipos eléctricos a 100 pies o más del nido. Se mueven en manada con frecuencia para colocar nuevos nidos; persiguen a un enemigo a 3 millas o más; y anidan en pequeñas cavidades y zonas resguardadas.

4.3.2 Serpientes

Hay serpientes de cascabel en el sitio y son venenosas. No todas las serpientes de cascabel dan una advertencia audible antes de morder. Se debe tener mucha precaución si se caen herramientas u otros materiales en zonas con vegetación muy alta, alrededor de piedras, en pilas de caños u otros objetos o al caminar por zonas de mucha vegetación donde la visibilidad (del suelo) es limitada). Los momentos más activos para las serpientes de cascabel son a la mañana, a altas horas de la tarde y temprano de noche; sin embargo, los encuentros pueden ocurrir en cualquier momento del día. Esté atento a zonas donde pueda haber serpientes. Si se identifica una serpiente, no se acerque e informe a otros que estén en la zona sobre el peligro.

4.3.3 Coyotes

Los coyotes generalmente son cautelosos con los humanos y tienden a evitar a las personas a cualquier costo; sin embargo, pueden ocurrir ataques de coyotes. Si ve un coyote en su área pero mantiene distancia y no se le acerca, deje al coyote solo y no se le acerque. Si se le acerca un coyote, usted deberá parecer lo más amenazante y peligroso posible. Acóselo gritándole, moviendo sus brazos, arrojándole objetos, tirándole agua y/o haciendo ruido con sus pies. La mayoría de los coyotes se disuaden haciendo esto y lo dejarán tranquilo. Si lo hacen, no es necesario hacer nada más. Si un coyote lo embiste o si hubo un ataque real, busque su seguridad e informa a seguridad del sitio.

4.3.4 Pumas

Si se encuentra con un Puma, recuerde que los objetivos son convencerlo de que usted no es una presa y que puede ser peligroso. Siga los siguientes consejos de seguridad:

- No se acerque a un puma. La mayoría de los pumas intentará evitar una confrontación. Ofrézcales una vía de escape.

- No salga corriendo cuando vea un puma. Correr podrá estimular el instinto de caza del puma. En cambio, párese y mire al animal. Haga contacto visual. Si tiene niños pequeños con usted, recójalos si es posible para que no entren en pánico y corran. Aunque puede ser incómodo, levántelos sin inclinarse o girar hacia el otro lado del puma.

- No se agache ni se incline. Un ser humano de pie no tiene la forma correcta de la presa de un león. En cambio, una persona que agacha o se inclina se parece más a un animal de presa de cuatro patas.

En campos donde hay pumas, evite agacharse, agazaparse o inclinarse, incluso al levantar niños.

- Haga todo lo que pueda para parecer más grande. Levante sus manos. Abra su campera si tiene una puesta. Nuevamente, levante a los niños pequeños. Arroje piedras, ramas o lo que tenga a su alcance sin agacharse o girar su espalda. Mueva sus brazos lentamente y hable con firmeza con voz fuerte. La idea es convencer al puma de que no es una presa y que puede representar un peligro para él.

- Defiéndase si lo ataca. Un caminante del sur de California usó una piedra para sacar a un puma que estaba atacando a su hijo. Otros se han defendido muy bien con palos, gorros, camperas, herramientas de jardín y sus manos desnudas. Como un puma generalmente trata de morder la cabeza o el cuello, trate de mantenerse parado y mire al animal que lo ataca.

5.0 Monitoreos del Aire

Se revisaron los datos de la caracterización de la zona operativa del ETLF para determinar qué compuestos o materiales peligrosos podría haber presentes en concentraciones potencialmente poco seguras. Monitorear las zonas operativas del ETLF incluye tanto tomar muestras para evaluar la exposición Promedio en el Tiempo (TWA) como leer directamente equipos de monitoreo y tratar las evaluaciones de la zona y del personal para evaluar potenciales riesgos en la Zona Operativa del ETLF y las actividades del personal. Se designarán estrategias para tomar muestras para tareas individuales y se identificarán en un plan de toma de muestras y análisis. Generalmente se utilizarán métodos de monitoreo de lecturas directas para los siguientes elementos estratégicos:

- Procesos de evaluación de empleados en sus propias actividades, para identificar o detectar condiciones cambiantes que puedan alterar posibilidades de exposición.

- Uso de instrumentos/equipos de lectura directa para estudiar zonas de sospecha utilizando técnicas de toma de muestras para detectar la posibilidad de que cambien las exposiciones (ej. variaciones en las concentraciones de vapor).

- Uso de instrumentos/equipos de lectura directa para estudiar periódicamente las zonas utilizando técnicas de toma de muestras para detectar la posibilidad de que cambien las exposiciones debido a cambios no reconocidos en las condiciones.

- Uso de instrumentos/equipos de lectura directa para estudias zonas de sospecha utilizando técnicas de toma de muestras para establecer prioridades para tomar muestras de TWA.

- Uso de equipos de lectura directa para realizar estudios de los permisos para determinar si pasa/no pasa (ej. ingreso a un espacio confinado, Permisos de Trabajo en Calor o actividades de respuesta a emergencias).

Se utilizarán muestras integradas (o TWA) para caracterizar el riesgo de exposición promedio durante un período de tiempo extendido, cuando las concentraciones necesiten mediciones con mayor precisión o cuando no haya métodos de lectura directa.

5.1 Monitoreos de Exposiciones

Las tomas de muestras y el monitoreo de las exposiciones personales se realizará periódicamente para toda las actividades que se les den a los empleados (a diferencia de evaluar el área). La toma de muestras del área o personal cumplirá con los métodos de EPA, NIOSH, OSHA, Cal/OSHA u otros métodos reconocidos de forma similar, cuando haya disponibles. El monitoreo se realizará conforme a las instrucciones operativas del fabricante de los equipos. Como mínimo, se tomarán seis muestras de exposición personal de las actividades de trabajo en el peor de los casos. Los resultados de las muestras y del monitoreo serán evaluados comparándolos con los límites de exposición de ACGIH, Cal/OSHA u OSHA de EE.UU.

Cuando se hayan tomado por lo menos seis muestras, se podrá considerar que el proceso de trabajo fue caracterizado. Los compuestos monitoreados y sobre los que se tomaron muestras incluyen, de forma enunciativa más no limitativa, los que se encuentran en la Tabla 2. Consulte el Plan de Muestreo y Análisis de la Zona Operativa del ETLF para más información.

Tabla 2 Compuestos de las Muestras de Aire

Parámetro	Cal OSHA-PEL	ACGIH TLV	NIOSH IDLH	Acción del Sitio Nivel	Equipo de Monitoreo
Oxígeno (O_2)	Rango aceptado = 19.5% al 23.5%	N/A	<19.5%	<19.5% >23.5%	Monitor personal de 5 gases
% Explosivo Más Bajo Límite (%LEL)	N/A	N/A	100% de LEL	5%	Monitor personal de 5 gases
Monóxido de Carbono (CO)	25 ppm TWA de 8 horas 200 ppm TECHO	25 ppm STEL	1,200 ppm	25 ppm	Monitor personal de 5 gases Sensor de CO
Ácido Sulfhídrico (H_2S)	10 ppm TWA de 8 horas 15 ppm STEL 20 ppm TECHO 50 ppm PICO	1 ppm TWA 5 ppm STEL	100 ppm	0.5 ppm	Monitor personal de 5 gases de H2S Sensor de CO
Hidrógeno	N/A	N/A	40,000 ppm (100% de LEL)	4,000 ppm (10% de LEL)	Analizador de Hidrógeno o Gastec Números de Tubo 30
Peróxido de Hidrógeno	1 ppm	1 ppm	75 ppm	0.5	Número de Tubo Gastec 32
Benceno	0.5 ppm 8-hr TWA AL 1 ppm TWA de 8 horas 5 ppm STEL	0.02 ppm TWA	500 ppm	0.25 ppm	UltraRAE con Sep de Benceno Tubo
Tetrahidrofurano	200 ppm TWA de 8 horas 250 ppm STEL	50 ppm TWA 100 ppm STEL	2,000 ppm (10% de LEL)	25 ppm	PID/FID con factor de corrección apropiado, Tubo Gastec número 159, Draeger X-PID
Cloruro de Vinilo (Cloroeteno)	0.5 ppm 8-hr TWA AL 1 ppm TWA de 8 horas 5 ppm STEL	1 ppm TWA	N/A	0.25 ppm	PID/FID con factor de corrección apropiado, Tubo Gastec número 131L, Drager X-PID
Tetracloroetileno (Percloroetileno)	25 ppm TWA de 8 horas 100 ppm STEL 300 ppm TECHO	25 ppm TWA 100 ppm STEL	150 ppm	13 ppm	PID/FID con factor de corrección apropiado, Tubo Gastec número 133M, Draeger X-PID
Tricloroetileno	25 ppm TWA de 8 horas 100 ppm STEL 300 ppm TECHO	10 ppm TWA 25 ppm STEL	1,000 ppm	5 ppm	PID/FID con factor de corrección apropiado, Tubo Gastec número 132M, Drager X-PID
Orgánico Volátil Compuestos (VOCs)	N/A	N/A	N/A	25 ppm	Monitor personal de 5 gases

AL: Nivel de Acción de OSHA en California que si se excede, requiere que se cumplan ciertos requerimientos reglamentarios.

PEL: Los límites de Exposición Permisibles de OSHA, federales o estatales, son límites de exposición de empleados reglamentarios a un material tóxico a la que una persona promedio sana puede estar expuesta todos los días sin sufrir efectos negativos para la salud. Los PELs se basan en períodos de tiempo específicos, generalmente de 8 horas (consulte también Techo, TWA y STEL).

TLV: Los Valores de los Límites del Umbral (TLVs) son pautas (no normas) elaboradas por la American Conference of Governmental Industrial Hygien- ists, Inc. (ACGIH), para ayudar a higienistas industriales a tomar decisiones sobre los niveles seguros de exposición a varios peligros que se encuentran en el trabajo.

NIOSH IDLH: Una atmósfera que es inmediatamente peligrosa para la vida o la salud (causaría efectos negativos irreversibles para la salud o perjudicarían la capacidad de una persona de escaparse de una atmósfera peligrosa).

TWA: Los Promedios en el Tiempo son una concentración promedio durante un cierto período de tiempo (ej. período de trabajo de 8 horas o semana de trabajo de 40 horas).

STEL: El Límite de Exposición a Corto Plazo es la concentración química promedio máxima en la que un empleado puede estar expuesto hasta por 15 minutos. En ningún momento la concentración de exposición del empleado puede exceder el límite del "Techo".

Techo: La concentración química instantánea máxima en la que un empleado puede estar expuesto en cualquier momento.

Pico - Se permite que ocurra una sola vez durante el trascurso de 10 minutos, siempre y cuando no ocurra otra exposición medible.

%: Porcentaje de gas por volumen.

% LEL: Porcentaje del límite explosivo más bajo.

PPM: Partes por millón.

También podrá haber presentes otros peligros no indicados arriba. La administración del sitio y los trabajadores deben evaluar continuamente su lugar de trabajo y la tarea de trabajo para observar si hay nuevas potenciales fuentes de exposición y deben informar a seguridad del sitio si tienen preguntas, dudas o necesidades, para una mayor evaluación de la exposición.

5.2 Monitores Personales de 5 Gases y Equipos de Monitoreo de Mano

Como práctica de seguridad, CCL requiere que los trabajadores usen un monitor personal de 5 gases (ej. monitor Blackline G7 o equivalente) cuando realizan trabajos dentro de la Zona Operativa de ETLF para detectar la presencia de biogás que pueda ser tóxico, asfixiante y/o combustible. Debido al potencial de exposición a condiciones atmosféricas peligrosas (portadas en aire) dentro de la Zona Operativa del ETLF y/o del Vertedero, el monitoreo del aire se realiza con un monitore de 5 gases para observar las concentraciones de oxígeno (O_2), ácido sulfhídrico (H_2S), monóxido de carbono (CO), atmósferas inflamables (límite explosivo inferior, LEL) y con un detector de fotoionización (PID, para constituyentes peligrosos) para proteger la salud y la seguridad del empleado. Como práctica de seguridad, debe realizarse un monitoreo para cada trabajador individual y/o grupo utilizando un monitor personal de 5 gases.

La advertencia de la alarma audible del monitor de cinco gases indica a los usuarios que evalúen las condiciones peligrosas que puedan no ser aparentes de otra manera. Al configurarlo y usarlo de forma adecuada, las alarmas del monitor suenan si alguno de los valores excede los puntos de ajuste. La alarma también suena si falla alguno de los sensores mientras el monitor está en uso. Para observar las instrucciones sobre cómo configurar las alarmas, revise el manual, comuníquese con el fabricante o con el representante de seguridad a cargo del mantenimiento de los equipos.

Si se excede el nivel de acción bajo de la alarma/el sitio del instrumento por cualquiera de los gases monitoreados (O_2, H_2S, CO, LEL y PID), primero salga inmediatamente de la zona y después evalúe el potencial origen desde un lugar seguro y deje que el lugar se ventile naturalmente, altere las prácticas de trabajo o implemente controles de ingeniería para reducir la exposición por debajo de los niveles de acción del sitio. Se le debe informar a la administración del sitio, que incluye a CCL y a seguridad del sitio, cuando la exposición no puede mantenerse por debajo de los niveles de acción del sitio. Además, en el caso de una alarma en el PID (VOCs totales), a menos que haya un monitor con capacidad de medir benceno, comuníquese con seguridad del sitio para realizar un mayor análisis del peligro y del vapor, ya que los VOCs pueden contener benceno que no pueda medirse con exactitud con un medidor de 5 gases. Para alarmas altas y bajas, el monitoreo se debe realizar al volver a ingresar (a barlovento si es posible) para confirmar que las concentraciones en el aire estén por debajo de los niveles de acción del sitio. Si no se pueden alterar las prácticas de trabajo o la implementación de otros controles de exposiciones, podrá ser necesario utilizar protección respiratoria siguiendo un programa de protección respiratoria escrito. La Tabla 3 a continuación indica los puntos de ajuste actuales para equipos de monitoreo de mano.

Tabla 3. Puntos de Ajuste de Alarmas del Monitor Personal de 5 Gases

Producto Químico/Parámetro	Cal OSHA-PEL	ACGIH TLV	NIOSH IDLH	Nivel de Acción del Sitio y Punto de Ajuste de la Alarma Baja)	Configuración de Alarma Alta	Equipo de Monitoreo
Oxígeno (O_2)	Rango aceptado = 19.5% al 23.5%	N/A	<19.5%	<19.5%	>23.5%	Monitor personal de 5 gases O_2 Sensor de CO
Explosivo Más Bajo Límite (LEL)	N/A	N/A	(100% de LEL)	5% de LEL	10% de LEL	Monitor personal de 5 gases LEL Sensor de CO
Monóxido de Carbono (CO)	25 ppm TWA de 8 horas 200 ppm TECHO	25 ppm STEL	1,200 ppm	25 ppm	100 ppm	Monitor personal de 5 gases Sensor de CO
Ácido Sulfhídrico (H_2S)	10 ppm TWA de 8 horas 15 ppm STEL 20 ppm TECHO 50 ppm PICO	1 ppm TWA 5 ppm STEL	100 ppm	2.5 ppm	5 ppm	Monitor personal de 5 gases H_2S Sensor de CO
Benceno	0.5 ppm 8-hr TWA AL 1 ppm TWA de 8 horas 5 ppm STEL	0.02 ppm TWA	500 ppm	0.25 ppm	2.5 ppm	UltraRAE con Sep de Benceno Tubo
Orgánico Volátil Compuestos (VOCs)	N/A	N/A	N/A	25 ppm	50 ppm	Monitor personal de 5 gases PID Sensor de CO

PEL de OSHA de California - Los límites de Exposición Permisibles de la Administración de Seguridad y Salud Ocupacional son límites de exposición de empleados reglamentarios a un material tóxico a la que una persona promedio sana puede estar expuesta todos los días sin sufrir efectos negativos para la salud. Los PELs se basan en períodos de tiempo específicos, generalmente de 8 horas (consulte también Techo, TWA y STEL).

ACGIH TLV - Los Valores de los Límites del Umbral (TLVs) son pautas (no normas) que ayudan a higienistas industriales a tomar decisiones sobre los niveles seguros de exposición a varios peligros que se encuentran en el trabajo.

NIOSH IDLH - Después el National Institute of Occupational Safety and Health Immediately Dangerous to Life and Health refleja niveles en la atmósfera que son inmediatamente peligrosos para la vida o la salud (causarían efectos negativos irreversibles para la salud o perjudicarían la capacidad de una persona de escaparse de una atmósfera peligrosa).

AL: Nivel de Acción de OSHA en California que si se excede, requiere que se cumplan ciertos requerimientos reglamentarios.

TWA - Los Promedios en el Tiempo son una concentración promedio durante un cierto período de tiempo (ej. período de trabajo de 8 horas o semana de trabajo de 40 horas).

STEL- El Límite de Exposición a Corto Plazo es la concentración química promedio máxima a la que un empleado puede estar expuesto hasta por 15 minutos. En ningún momento la concentración de exposición del empleado puede exceder el límite del "Techo".

Techo - La concentración química instantánea máxima a la que un empleado puede estar expuesto en cualquier momento.

Pico - Se permite que ocurra una sola vez durante el trascurso de 10 minutos, siempre y cuando no ocurra otra exposición medible.

%: Porcentaje de gas por volumen.

El LEL es la concentración más baja de gas o vapor en el aire con capacidad de producir un destello o incendio.

PPM - Partes por millón.

6.0 Análisis de Peligros y Evaluación de Equipos de Protección Personal

Se requiere un análisis de peligros del trabajo para todas las tareas laborales realizadas en la Zona Operativa del ETLF dentro del Vertedero, para cumplir con los requerimientos de este HASP. El análisis de peligros en el trabajo está diseñado para identificar medidas que involucran potenciales peligros para los empleados y deben revisarse y comprenderse (y firmarse para proporcionar una constancia de su entendimiento) antes de realizar cualquier tarea. Si hay otras medidas u otros peligros presentes, debe revisarse el análisis de peligros (y la revisión debe ser firmada por todos los empleados afectados) indicando que estos puntos fueron tratados correctamente y que se comprendieron antes de proceder con la tarea. Debe reenviarse una copia del análisis de peligros más reciente al gerente de seguridad del sitio y al gerente del distrito para su revisión y aprobación. A medida que van cambiando las condiciones, se deberá ir proporcionando un análisis de peligros actualizado al gerente de seguridad del sitio antes de comenzar/retomar el trabajo.

Para tareas donde se requiere protección respiratoria, seguridad del sitio verificará que haya en práctica un programa de protección respiratoria (incluyendo los requerimientos de evaluación médica y pruebas de adaptación) y que se cumpla, con asistencia, si fuera necesaria, de un Profesional de Seguridad Certificado y/o un Higienista Industrial Certificado.

6.1 Selección de Equipos de Protección Personal

Los Equipos de Protección Personal (PPE) se deben seleccionar en base a los peligros a los que están expuestos o potencialmente expuestos los trabajadores dentro de la zona operativa del ETLF y forman parte del plan global de CCL para la seguridad de los empleados. Los PPE se utilizan como último recurso después de eliminar el peligro y se haber tratado los controles de diseño y administrativos. Las selecciones de PPE se realizarán con información de seguridad del sitio, de los gerentes, de los supervisores y de los trabajadores. Podrán requerirse otros PPE y otros equipos de seguridad como se indica en el análisis de peligros para una tarea dada. Toda degradación de PPE debe ser aprobada por el representante de seguridad del Vertedero y si es necesario, en colaboración con un Higienista Industrial Certificado.

Cuando sea práctico, se asignarán lo PPE a operarios individuales para su uso exclusivo. Los empleados serán responsables de los equipos de PPE que se les asigne o que utilicen. Los PPE se deberán limpiar, inspeccionar y guardar de forma regular siguiendo las instrucciones dadas durante las sesiones de capacitación o como lo indiquen los supervisores o gerentes. No deben usarse los PPE que estén defectuosos o dañados. Los empleados deben informar los equipos que están defectuosos o dañados a su supervisor para que se reparen o cambien.

Los siguientes son los PPE mínimos requeridos en las zonas operativas del ETLF. Podrán requerirse otros PPE y otros equipos/medidas de seguridad para las tareas establecidas en la evaluación de peligros del trabajo aplicable o en el plan específico.

Tabla 4 Matriz de Selección

	PPE Estándar					PPE Específico de la Tarea Cuando se Necesitan, en Base a un JHA									
Ubicación/Tarea	**Casco**	**Botas con Punta de Seguridad**	**Chaleco Refractario de Alta Visibilidad**	**Gafas de Seguridad con Escudos Laterales**	**Dispositivo de Monitoreo de 5 Gases en el Aire**	**Guantes de Trabajo**	**Protección Auditiva**	**Gafas para Productos Químicos**	**Escudo Facial**	**Guantes para Productos Químicos**	**Ropa Resistente a Llamas**	**Protección del Cuerpo a Productos Químicos**	**Botas para Productos Químicos**	**Protección de Caídas**	**Respirador**
Áreas de Oficina/No Operativas															
Estacionamientos y Áreas de Tráfico			•												
Parques de Tanques/Recolección de Lixiviados															
Área de Trabajo en General	•	•	•	•	•	•									
Tanques Medidores	•	•	•	•	•	•	•			•	•				•
Mezcla de Productos Químicos	•	•	•	•	•	•	•	•	•	•	•	•	•		
Transferencia de Líquidos	•	•	•	•	•	•	•	•	•	•	•	•	•		
Inspecciones de Tanques	•	•	•	•	•	•					•				
Tanques para la Toma de Muestras	•	•	•	•	•	•	•			•	•				•
Perforación en la Cubierta Superior															
Operador de Taladro	•	•	•	•	•	•	•				•				•
Ayudante de Perforación/Aseguramiento de la Calidad	•	•	•	•	•	•	•			•	•				•
Operador de Equipos	•	•	•	•	•	•	•				•				
Mantenimiento de Pozos	•	•	•	•	•	•	•	•	•	•	•	•	•		•
Personal del Área de Trabajo en General	•	•	•	•	•	•	•				•				

Los cascos deben cumplir con el Título 8, Subcapítulo 7, Grupo 2, Artículo 10 3381 de Cal OSHA. Las botas con punta de seguridad deben cumplir con el Título 8, Subcapítulo 7, Grupo 2, Artículo 10 3385 de Cal OSHA. La ropa resistente a llamas debe cumplir con NFPA 2112 y debe estar clasificada como CAT 2.

Las gafas y anteojos de protección deben cumplir con el Título 8, Subcapítulo 7, Grupo 2, Artículo 10 3382 de Cal OSHA.

Los PPE Marcados como Específicos para la Tarea deben usarse en la tarea específica como lo indique el plan de trabajo o el análisis de peligros del trabajo. Los guantes de protección deben cumplir con el Título 8, Subcapítulo 7, Grupo 2, Artículo 10 3384 de Cal OSHA.

Se debe usar protección auditiva en niveles que superen los 85 dBa o en equipos excesivamente ruidosos. Las gafas de seguridad y los escudos faciales se deben utilizar en base a las tareas específicas.

Guantes compatibles incluyen caucho butílico, caucho natural, neopreno, nitrilo y Vitón.

Los materiales para la Protección del Cuerpo compatibles, resistentes a productos químicos, incluyen Tychem 2000 (QC), 4000 (SL), 5000 (CPF3), 6000 (F and FR), 9000 (BR), Responder CSM, 10000 (TK), 10000 FR

Debe utilizarse protección de caídas en alturas que superen los 4 pies donde no haya barandas con un punto de apoyo calificado para el peso aprobado.

Respirador con suministro de aire, de rostro completo, con un factor de protección asignado de 50. Se debe evaluar si los trabajadores están aptos, están bien médicamente y están capacitados conforme al programa de protección respiratoria del empleador. Se utilizan para tareas donde los controles viables de diseño y administrativos no evitan exposiciones potencialmente dañinas.

6.2 Botas/Calzado de Seguridad

Deben usarse botas/calzado de seguridad con punta de acero que cumplan con los requerimientos y las especificaciones de ANSI Z41.1 al trabajar en el campo. Las botas/el calzado debe estar en buenas condiciones de reparación y deben estar bien atados o sujetados. No deben usarse sandalias ni zapatillas de ningún tipo al trabajar en el Vertedero. Es necesario usar botas de seguridad con punta resistente a productos químicos cuando exista el potencial de entrar en contacto con productos químicos.

6.3 Cascos de Seguridad

Deben usarse cascos de seguridad aprobados que cumplan con los requerimientos y especificaciones establecidos en ANSI Z89.1 al estar en Zonas Operativas del ETLF. Esto es de particular importancia durante operaciones de perforación donde es probable que haya residuos voladores.

No es necesario usar cascos en vehículos (autos de pasajeros o camiones) o en oficinas. No es necesario usar cascos en equipos de construcción con cabinas cerradas. Deben usarse cascos en cualquier equipo de construcción (ej. cargadores, montacargas, excavadoras, volcadores, retroexcavadoras, etc.) que no tengan cabinas cerradas.

6.4 Protección de los Ojos

Como mínimo, deben usarse en el campo gafas de seguridad que cumplan con ANSI Z87.1, con escudos laterales, al trabajar en zonas operativas del ETLF. Durante operaciones nocturnas, se deben usar gafas de seguridad transparentes con escudos laterales. Los operadores de equipos deben usar gafas de seguridad, a menos que los peligros de la vista estén bien controlados utilizando otros métodos (ej. cabina cerrada) que se revisen y que el Gerente del Distrito o el representante de seguridad del sitio determinen que son aceptables.

Debe usarse protección de la vista adecuada (gafas, anteojos de seguridad, escudo facial, etc.) al realizar trabajos con un peligro reconocido para los ojos, por ejemplo al usar cepillos de alambre, al martillar, pulir, cortar, amolar, soldar, cortar soga de alambre o al trabajar con óxido, cadenas sucias y cables o al manipular productos químicos. Si el trabajo puede resultar en una lesión para los ojos, se debe usar protección en los ojos.

Se deben usar gafas de soldadura o una máscara de soldar al ayudar o al trabajar dentro del rango cerrado de los soldadores. Se deben usar gafas de seguridad y/o escudo facial cuando exista un peligro de salpicadura de lixiviados u otros peligros químicos, como se detalle en el análisis de peligros de las tareas de trabajo.

Debe haber presentes estaciones para lavarse los ojos en zonas operativas del ETLF donde haya presentes peligros de salpicadura de lixiviados o productos químicos. Las estaciones portátiles para lavarse los ojos deben inspeccionarse en cumplimiento con las recomendaciones del fabricante.

6.5 Protección de Manos

La selección de guantes se basará en las tareas realizadas, en las condiciones presentes, en la duración del uso y en los peligros y potenciales peligros identificados. Por ejemplo, al manejar o trabajar con botellas de vidrio, se deben usar guantes resistentes a cortes y pinchaduras. Los contratistas que trabajen dentro de zonas operativas del ETLF

tendrán una variedad de guantes disponibles para las tareas que requieren tipos de guantes específicos (ej. guantes de protección de productos químicos).

6.6 Protección Auditiva

Se define como nivel de ruido alto a una zona donde los niveles de ruido exceden o pueden exceder los 85 decibeles con ponderación A (dBA). Deben usarse tapones de oídos u orejeras en áreas con niveles de mucho ruido. Se colocarán controles administrativos que consistan de carteles, si fuera necesario.

6.7 Chalecos de seguridad

El personal que trabaja debe usar en todo momento chalecos, camisas o camperas de seguridad de mucha visibilidad en el Vertedero y dentro de las zonas operativas del ETLF. Este requerimiento también aplica a operadores de equipos cuyas tareas involucren salir de una cabina de sus equipos y trabajar en la Zona Operativa del ETLF.

6.8 Vestimenta

- Deben usarse pantalones largos. Los pantalones deben cubrir la parte de arriba de la bota de trabajo.
- No debe usarse ropa harapienta.

7.0 Capacitación

Cada contratista y sus empleados solo realizarán tareas en las que fueron capacitados adecuadamente. Debe haber disponible una copia del registro de capacitación de cada empleado en la oficina del contratista, que debe ponerse a disposición de la administración del Vertedero y de seguridad del sitio cuando se solicite.

7.1 Operaciones con Desechos Peligrosos y Respuesta a Emergencias

Todos los trabajadores dentro de las zonas operativas del ETLF deben recibir capacitación en *Operaciones con Desechos Peligrosos y Respuesta a Emergencias* consistente con 8 C.C.R. § 5192. Incluye, de forma enunciativa más no limitativa, operadores de equipos, obreros generales y otra personas expuestas a sustancias peligrosas, peligros para la salud o peligros de seguridad y sus supervisores y responsable administrativo de la zona operativa. Estos trabajadores deben cumplir con los requerimientos de capacitación indicados en 8 C.C.R. § 5192 que serán acorde a su participación.

7.2 Comunicación de Peligros Químicos

7.2.1 Productos Químicos Identificados

Todos los trabajadores deben recibir capacitación sobre los peligros químicos identificados que puedan encontrar durante su trabajo cuando se los asigne a un lugar o tarea nuevos por primera vez y cuando se identifiquen peligros con productos químicos nuevos. La capacitación para cada peligro químico debe cumplir con los requerimientos detallados en 8 CCR § 5194(h) – Información y Capacitación a Empleados sobre la Comunicación de Peligros. Las personas que trabajan con productos químicos podrán estar expuestas, dependiendo de la zona de trabajo, que incluye, de forma enunciativa más no limitativa, las indicadas en la Sección 4.1.

7.2.2 Benceno

Además de los requerimientos de capacitación de la Sección 7.0, todos los trabajadores de Operaciones en el ETLF deben recibir información y capacitación sobre los peligros del benceno, que cumpla con los requerimientos de 8 CCR § 5218(j)(3). Cada trabajador que quede potencialmente expuesto sobre el nivel de acción debe recibir esta información y capacitación todos los años.

7.3 Equipos de Protección Personal

Cada empleado que deba usar PPE o implementar cualquier otro control de peligros establecido dentro de la Zona Operativa del ETLF será capacitado en lo siguiente:

- Por qué y cuándo son necesarios los PPE y los controles de peligros.
- Qué PPE son necesarios y las opciones de equipos alternativos o controles de equipos.
- Cómo colocarse, quitarse, ajustarse y usar PPE correctamente y sobre el uso de otras medidas de control de peligros seleccionadas.
- Las limitaciones de los PPE y el cuidado, mantenimiento, guardado, vida útil y disposición correcta de PPE/controles de peligros y sobre los equipos de seguridad aplicables proporcionados.

La capacitación generalmente será realizada por los contratistas que trabajan en la Zona Operativa del ETLF e incluirá darles a los empleados la oportunidad de manejar PPE u otras medidas de control de peligros. Cada empleado afectado debe demostrar que comprende la capacitación y que puede usar los PPE/controles de peligros adecuadamente. La capacitación será documentada a través de una certificación escrita; la documentación incluirá los nombres de cada empleado capacitado, las fechas de las capacitaciones y el tema cubierto.

Si un empleado que fue capacitado demuestra falta de conocimiento o un comportamiento que haga que el supervisor crea que el empleado no comprende completamente los PPE/controles de peligros involucrados, se volverá a capacitar a ese empleado. Si hay cambios dentro de la Zona Operativa del ETLF o en los procesos que cambien las exposición o los tipos de PPE/controles de peligros a ser utilizados, se volverá a capacitar a los empleados afectados.

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8.0 Página de Acuse de Recibo

Los miembros del equipo de proyectos de LRI que estén realizando trabajos en el proyecto y en el sitio deben revisar, comprender y cumplir con este plan antes de comenzar a realizar el trabajo. Este plan debe estar disponible para que los empleados lo revisen y debe haber una copia presente en el sitio. Los contratistas de LRI también deben revisar, comprender y cumplir con este plan. La revisión de este plan de cada empleado debe documentarse utilizando el siguiente formulario u otro método de documentación.

"He leído el Plan de Salud y Seguridad adjunto para la Zona Operativa del ETLF. He conversado sobre las preguntas y/o dudas que tengo sobre el contenido de este documento, con el representante del proyecto de LRI designado, comprendo su propósito y sus requerimientos y otorgo mi consentimiento para que se cumplan sus políticas, procedimientos y pautas".

Nombre	Firma	Empresa	Fecha

Apéndice A: Enmiendas al Plan de Seguridad y Salud

Apéndice A: Enmiendas al Plan de Salud y Seguridad

Versión 1.0		
Descripción del Cambio (incluir las secciones):		
Versión inicial del plan.		
	Nombre/cargo	**Fecha**
Elaborado Por:	Jason Callahan – Científico de Salud Sénior	15/03/2024

Versión 1.1		
Descripción del Cambio (incluir las secciones):		
Agregados *Anexo D Evaluaciones de Peligros del Trabajo Estilo de plan formateado.*		
	Nombre/cargo	**Fecha**
Elaborado Por:	Jason Callahan – Científico de Salud Sénior	17/04/2024

Versión 2.0

Descripción del Cambio (incluir las secciones):

Agregados
Sección 4.1.1 sobre Productos Químicos No Identificados Sección 4.1.6 sobre Benceno
Sección 4.1.7 sobre 1,4-dioxano
Sección 4.1.9 sobre VOCs
Sección 4.1.10 sobre Soluciones cáusticas de hidróxido de sodio Sección 7.2 sobre la Comunicación de Peligros Químicos

Actualizados
Sección 3.0 para que contenga una descripción de las señales de las bocinas de emergencia y sus acciones. Sección 4.1.5 para incluir información adicional sobre H2S.
Sección 4.1.8 para que deje de indicar que no existe una SDS de Lixiviados. Sección 4.1.9 sobre e peróxido de hidrógeno en la sección 4.1.8
Sección 4.2.5 sobre las condiciones climáticas por claridad y estilo.
Sección 4.2.6 para proporcionar orientación adicional para la prevención de malestares por el calor.
Sección 4.2.12 en el texto que trata sobre la limpieza para que utilizar "lo que se debe hacer" y no "lo que se debería hacer". Sección 4.3.1 para hacer referencias más amplias sobre las abejas en lugar de solo hablar de las abejas africanizadas.
Sección 5.2 sobre los monitores personales de 5 gases para aclarar las acciones para las excedencias a nivel acción en el sitio. Sección 7.2 sobre PPE hasta la Sección 7.3
Sección 8 sobre los Acuses de Recibo para permitir el uso de otras formas de documentación. Tabla 4 para aclarar que ciertos PPE son específicos de algunas tareas.

Eliminados
Sección 3.0 El requerimiento para la descontaminación durante la evacuación era excesivamente amplio.

Versión 2.0		
Sección 4.1.8 sobre oxidantes Sección 4.1.9 sobre Talon Sección 4.1.10 sobre Concentrados de Talon Sección 4.1.11 sobre corrosivos Sección 4.2.12 Requerimiento general para conflictos de FRC con el requerimiento de FRC basado en JHA. Se volvió a cambiar la prohibición redundante sobre fumar.		
	Nombre/cargo	**Fecha**
Elaborado Por:	Jason Callahan – Científico de Salud Sénior	28/6/2024

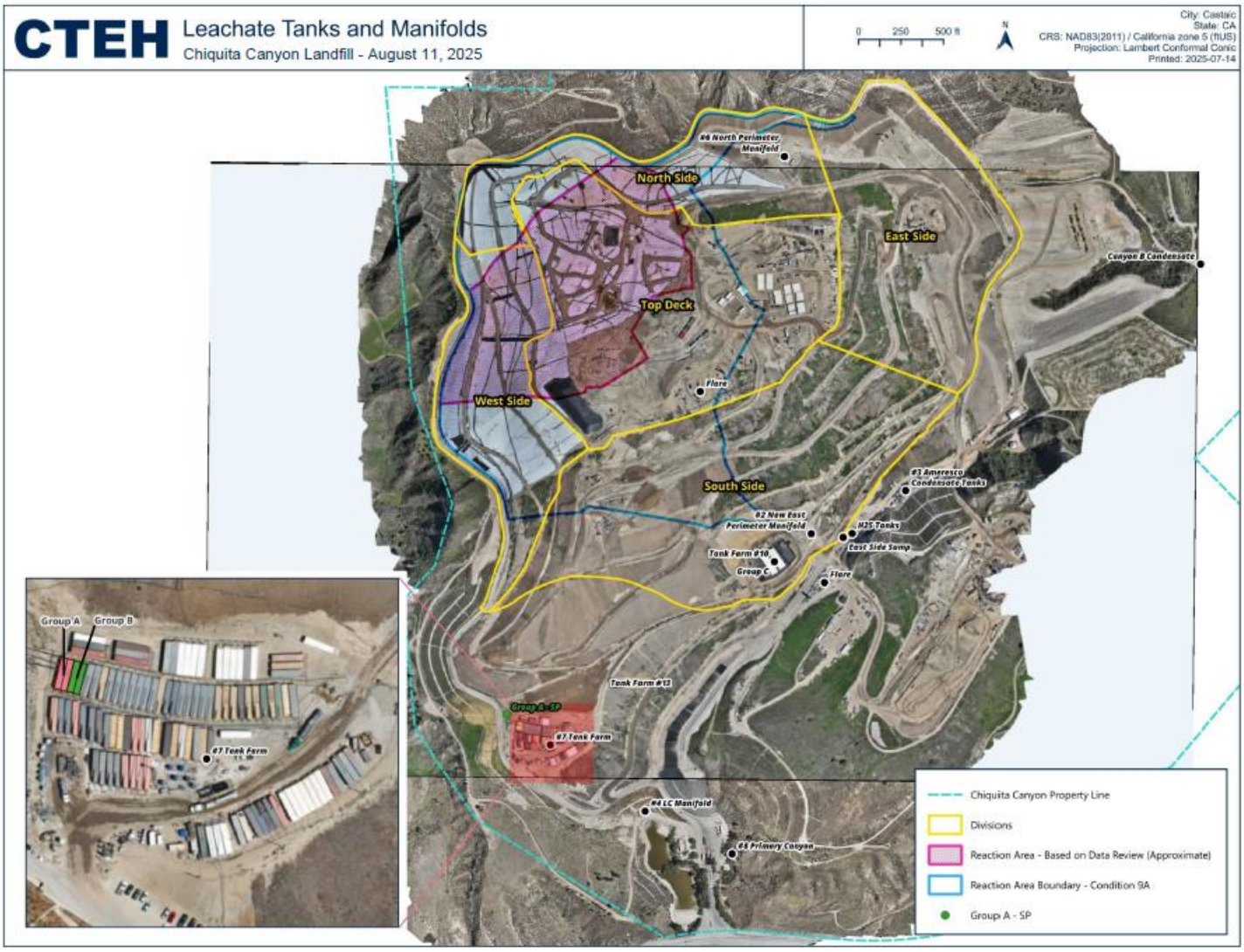
Versión 2.1		
Descripción del Cambio (incluir las secciones):		
Actualizados *Sección 4.2.6 para proporcionar orientación adicional para la prevención de malestares por el calor. Sección 5.2 para aclarar los niveles de acción en el sitio y los puntos de ajuste de las alarmas de los instrumentos. La página de la tapa y los nombres de la Tabla 1.*		
	Nombre/cargo	**Fecha**
Elaborado Por:	Jason Callahan – Científico de Salud Sénior	2/7/2024

Versión 2.2		
Descripción del Cambio (incluir las secciones):		
Actualizados *El nivel de acción del sitio de H2S se actualizó de 0.5 a 2.5 ppm y el nivel de acción del sitio para el %LEL se actualizó del 1% al 5% y para CO de 13 ppm a 25 ppm.*		
	Nombre/cargo	**Fecha**
Elaborado Por:	Jason Callahan – Científico de Salud Sénior	14/8/2024

Versión 2.3		
Descripción del Cambio (incluir las secciones):		
Actualizados *Puntos de contacto Información de Contacto para Emergencias: contacto de emergencia alternativo. Sección 1.0 Introducción Tabla 1 Organización de contactos del proyecto. Sección 4.2.6 Estrés Térmico: para proporcionar orientación adicional detallada para la prevención de malestares por el calor.*		
	Nombre/cargo	**Fecha**
Elaborado Por:	Louie Vargas - Gerente de Seguridad del Sitio	25/9/2025

Apéndice B: Zona Operativa del ETLF

Mapa


CTEH
Leachate Tanks and Manifolds
Chiquita Canyon Landfill - August 11, 2025
0 250 500 ft
N
City: Castaic
State: CA
CRS: NAD83(2011) / California zone 5 (ftUS)
Projection: Lambert Conformal Conic
Printed: 2025-07-14
#6 North Perimeter Manifold
North Side
East Side
Canyon B Condensate
Top Deck
Flare
West Side
South Side
#3 Ameresco Condensate Tanks
#2 New East Perimeter Manifold
M25 Tanks
East Side Sump
Tank Farm #10
Group C
Flare
Group A
Group B
#7 Tank Farm
Tank Farm #12
Group A - SP
#7 Tank Farm
#4 LC Manifold
#8 Primary Canyon
Chiquita Canyon Property Line
Divisions
Reaction Area - Based on Data Review (Approximate)
Reaction Area Boundary - Condition 9A
Group A - SP

Apéndice C: Hojas de Datos de Seguridad

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Product Name

Landfill Leachate

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Acute toxicity, Oral (Category 4), H302, H332
Skin irritation (Category 5), H313
Eye irritation (Category 2), H320
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 4), H413

For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)

Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H227 Combustible Liquid
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000097 - 0.000093 %
Arsenic: 0.00003 - 0.000085 %
Barium: 0.00012 - 0.00028 %

Chromium: 0.000027 - 0.000042 %
Cobalt: 0.0000018 - 0.0000054 %
Lead: 0.0000039 - 0.0000097 %
Molybdenum: 0.0000042 - 0.0000085 %
Nickel: 0.000013 - 0.000023 %
Vanadium: 0.000011 - 0.000015 %
Zinc: 0.00033 - 0.00051 %
Mercury: 0.0000029 - 0.000021 %
1, 4-Dichlorobenzene: 0.000002 - 0.00003 %
2-Butanone: 0.0087-0.0160 %
Benzene: 0.00006 - 0.00015 %
2-Methylphenol: 0.00004 - 0.00017 %
3-,4-Methylphenol: 0.0011 - 0.0032 %
Pyridine: 0.000082 - 0.00025 %

These compounds are assumed to be present in trace amounts in the leachate: Copper, Selenium, 1,2-Dichloroethane, Chlorobenzene. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at

the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:
Antimony: .5 mg/m^3 8 hour TWA
Arsenic: 0.01 mg/m^3 8 hour TWA
Barium: 0.5 mg/m^3 8 hour TWA
Chromium: 1 mg/m^3 8 hour TWA
Cobalt: 0.02 mg/m^3 8 hour TWA
Lead: 0.05 mg/m^3 8 hour TWA
Molybdenum: 0.5 mg/m^3 8 hour TWA

Nickel: 0.5 mg/m^3 8 hour TWA
Vanadium: 0.05 mg/m^3 8 hour TWA
Zinc: 10 mg/m^3 8 hour TWA
Mercury: 0.1 mg/m^3 8 hour TWA
1, 4-Dichlorobenzene: 75 ppm 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
2-Methyphenol: 5 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.54-6.05

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

180 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SOx), (NOx) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H2S), Basic conditions- Ammonia (NH3)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available
Dermal: No data available
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity
IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Combustible liquid, n.o.s.

Hazard Class

Comb. liq

Identification Number

NA1993

Label Codes

None

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312
If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the material with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the material. Chiquita Canyon Landfill shall not be held liable for any damage resulting from the handling or from contact with the above material.

HMIS Rating
Health hazard: 1
Flammability: 2
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 2
Reactivity Hazard: 0

GHS Full Text Phrases

H227 Combustible Liquid.
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).
P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Media summary

Photo 1

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Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - LC Manifold

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Combustible Liquid (Category 4), H227
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)

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Media summary

Photo 1

P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
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Media summary

Photo 1

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Hazard Pictograms (GHS-US)

Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

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P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
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P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000076 - 0.000026 %
Arsenic: 0.000021 - 0.000053 %
Barium: 0.00033 - 0.00046 %

Chromium: 0.000021 - 0.000029 %
Cobalt: 0.0000029 - 0.0000067 %
Copper: 0.0000024 - 0.0000079 %
Molybdenum: 0.0000039 - 0.0000097 %
Nickel: 0.000032 - 0.000065 %
Vanadium: 0.000044 - 0.000057 %
Zinc: 0.0000079 - 0.000061 %
1, 4-Dichlorobenzene: 0.000001 - 0.000003 %
2-Butanone: 0.00012-0.0024 %
Benzene: 0.0000008 - 0.000004 %
2-Methylphenol: 0.000018 - 0.00071 %
3-,4-Methylphenol: 0.00002 - 0.00039 %
Pyridine: 0.000024 - 0.000082 %

These compounds are assumed to be present in trace amounts in the leachate: Lead, Selenium, Mercury, Chloroform. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:
Antimony: 0.5 mg/m^3 8 hour TWA
Arsenic: 0.01 mg/m^3 8 hour TWA
Barium: 0.5 mg/m^3 8 hour TWA
Chromium: 1 mg/m^3 8 hour TWA
Cobalt: 0.02 mg/m^3 8 hour TWA
Copper: 1 mg/m^3 8 hour TWA
Molybdenum: 0.5 mg/m^3 8 hour TWA
Nickel: 0.5 mg/m^3 8 hour TWA
Vanadium: 0.05 mg/m^3 8 hour TWA
Zinc: 10 mg/m^3 8 hour TWA

1, 4-Dichlorobenzene: 75 PPM 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
2-Methyphenol: 5 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

7.04-7.73

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

158 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SOx), (NOx) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H2S), Basic conditions- Ammonia (NH3)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available
Dermal: No data available
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity
IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Combustible liquid, n.o.s.

Hazard Class

Comb. liq

Identification Number

NA1993

Label Codes

None

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312
If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the material with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the material. Chiquita Canyon Landfill shall not be held liable for any damage resulting from the handling or from contact with the above material.

HMIS Rating
Health hazard: 1
Flammability: 2
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 2
Reactivity Hazard: 0

GHS Full Text Phrases

H227 Combustible Liquid.
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).
P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.

P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Media summary

Photo 1

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safetyculture.com

Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - North Perimeter

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Flammable Liquid and Vapor (Category 3), H226
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)


Photo 1


Photo 2

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H226 Flammable Liquid and Vapor.
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000048 - 0.00007 %
Arsenic: 0.0000056 - 0.00004 %
Barium: 0.00018 - 0.00048 %

Chromium: 0.000022 - 0.000062 %
Cobalt: 0.0000023 - 0.0000056 %
Copper: 0.000002 - 0.000019 %
Nickel: 0.0000051 - 0.000021 %
Vanadium: 0.000009 - 0.000029 %
Zinc: 0.0000085 - 0.002 %
1,4-Dichlorobenzene: 0.0000009 - 0.000004 %
2-Butanone: 0.0017 - 0.0086 %
Benzene: 0.00004 - 0.00027 %
3-,4-Methylphenol: 0.00096 - 0.0022 %
Pyridine: 0.000015 - 0.00052 %

These compounds are assumed to be present in trace amounts in the leachate: Lead, Molybdenum, Selenium, Silver, Chlorobenzene, Tetrachloroethene, 2-Methylphenol. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:
Antimony: 0.5 mg/m^3 8 hour TWA
Arsenic: 0.01 mg/m^3 8 hour TWA
Barium: 0.5 mg/m^3 8 hour TWA
Chromium: 1 mg/m^3 8 hour TWA
Cobalt: 0.02 mg/m^3 8 hour TWA
Copper: 1 mg/m^3 8 hour TWA
Nickel: 0.5 mg/m^3 8 hour TWA
Vanadium: 0.05 mg/m^3 8 hour TWA
Zinc: 10 mg/m^3 8 hour TWA
1,4-Dichlorobenzene: 75 ppm 8 hour TWA

2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.58-6.20

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

124 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SOx), (NOx) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H2S), Basic conditions- Ammonia (NH3)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available
Dermal: No data available
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity
IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Flammable liquids, n.o.s.

Hazard Class

3

Identification Number

UN1993

Label Codes

3

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312
If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

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HMIS Rating
Health hazard: 1
Flammability: 2
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 2
Reactivity Hazard: 0

GHS Full Text Phrases

H226 Flammable Liquid and Vapor (Category 3).
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).
P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Media summary

Photo 1

Photo 2

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Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - Primary Canyon

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)

Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC)

Precautionary Statements (GHS-US)

P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000073 - 0.000024 %
Arsenic: 0.000008 - 0.000046 %
Barium: 0.0000025 - 0.0006 %
Copper: 0.000015 - 0.00015 %
Zinc: 0.000023 - 0.00038 %

1,4 - Dichlorobenzene: 0.000002 - 0.000003 %
2-Butanone: 0.00031-0.00078 %
Benzene: 0.0000008 - 0.0000009 %
3-,4-Methylphenol: 0.000091 - 0.00019 %
Pyridine: 0.000031 - 0.00006 %

These compounds are assumed to be present in trace amounts in the leachate: Beryllium, Chromium, Cobalt, Lead, Molybdenum, Nickel, Vanadium, 2-Methylphenol. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas.

Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and

other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:
Antimony: 0.5 mg/m^3 8 hour TWA
Arsenic: 0.01 mg/m^3 8 hour TWA
Barium: 0.5 mg/m^3 8 hour TWA
Copper: 1 mg/m^3 8 hour TWA
Zinc: 10 mg/m^3 8 hour TWA
1,4 - Dichlorobenzene: 10 ppm 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.05-5.78

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

212 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SOx), (NOx) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H2S), Basic conditions- Ammonia (NH3)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available
Dermal: No data available
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity
IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Not regulated as dangerous goods.

Hazard Class

NA

Identification Number

NA

Label Codes

NA

Packing Group

NA

ERG Number

NA

14.2 In Accordance with IMDG

Proper Shipping Name

NA

Hazard Class

NA

Subsidiary Risk(s)

NA

Identification Number

NA

Packing Group

NA

Label Codes

NA

EmS-No. (Fire)

NA

EmS-No. (Spillage) S-C

NA

MFAG Number

NA

14.3 In Accordance with IATA

Proper Shipping Name

Not regulated as dangerous goods IATA.
Not regulated as dangerous goods.

Packing Group

NA

Identification Number

NA

Hazard Class

NA

Label Codes

NA

Subsidiary Risk(s)

NA

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312
If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

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HMIS Rating
Health hazard: 1
Flammability: 1
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 1
Reactivity Hazard: 0

GHS Full Text Phrases

H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Media summary

Photo 1

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Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - Tank Farm A

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Combustible Liquid (Category 4), H227
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)

Photo 1

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H227 Combustible Liquid
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H320 Causes eye irritation.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC)

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000047 - 0.000043 %
Arsenic: 0.000015 - 0.000037 %

Barium: 0.00016 - 0.00029 %
Chromium: 0.000037 - 0.000075 %
Cobalt: 0.000002 - 0.0000063 %
Copper: 0.0000023 - 0.000028 %
Nickel: 0.000011 - 0.000028 %
Vanadium: 0.000012 - 0.000022 %
Zinc: 0.0000078 - 0.000038 %
2-Butanone: 0.00051-0.0061 %
Benzene: 0.00003 - 0.00007 %
3-,4-Methylphenol: 0.00082 - 0.0032 %
Pyridine: 0.000021 - 0.000055 %

These compounds are assumed to be present in trace amounts in the leachate: Lead, Molybdenum, Selenium, Silver, Mercury, 2-Methylphenol. Analytical testing did not confirm detection across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:
Antimony: 0.5 mg/m^3 8 hour TWA
Arsenic: 0.01 mg/m^3 8 hour TWA
Barium: 0.5 mg/m^3 8 hour TWA
Chromium: 1 mg/m^3 8 hour TWA
Cobalt: 0.02 mg/m^3 8 hour TWA
Copper: 1 mg/m^3 8 hour TWA
Nickel: 0.5 mg/m^3 8 hour TWA
Vanadium: 0.05 mg/m^3 8 hour TWA
Zinc: 10 mg/m^3 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA

Benzene: 1 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

6.49-6.93

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

176 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SOx), (NOx) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H2S), Basic conditions- Ammonia (NH3)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available
Dermal: No data available
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity
IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Combustible liquid, n.o.s.

Hazard Class

Comb. liq

Identification Number

NA1993

Label Codes

None

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312
If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

License granted to make unlimited paper copies for internal use only. The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the material with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the material. Chiquita Canyon Landfill shall not be held liable for any damage resulting from the handling or from contact with the above material.

HMIS Rating
Health hazard: 1
Flammability: 2
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 2
Reactivity Hazard: 0

GHS Full Text Phrases

H227 Combustible Liquid.
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).
P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

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Media summary

Photo 1

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Inspection

SECTION 1: IDENTIFICATION

1.1 Product Identifier

Product Form

Aqueous Solution

Product Name

Landfill Leachate - Tank Farm B

Synonyms

Landfill Leachate
Landfill Wastewater

1.2 Intended Use of the Product

Use of the substance/mixture

None

1.3 Name, Address, and Telephone of the Responsible Party/Company

Chiquita Canyon Landfill
29201 Henry Mayo Dr
Castaic, CA 91384
USA
Phone number: (661) 257-3655

Emergency Telephone Number

Steve Cassulo 661-371-9214
Nicole Ward 661-425-4619
IF MEDICAL EMERGENCY, DIAL 911

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the Substance or Mixture (GHS-US Classification)

Skin irritation (Category 2), H313
Flammable Liquid and Vapor (Category 3), H226
Hazard Not Otherwise Classified (HNOC)
For the full text of the Hazard Statements mentioned in this Section, see Section 16.

2.2 Label Elements (GHS-US Labeling)

Hazard Pictograms (GHS-US)

Photo 1

Photo 2

Signal Word (GHS-US)

WARNING

Hazard Statements (GHS-US)

H226 Flammable Liquid and Vapor
H303 May be Harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be Harmful if inhaled.
Hazard Not Otherwise Classified (HNOC)

Precautionary Statements (GHS-US)

P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing .
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

2.3 Other Hazards

May cause eye irritation.

2.4 Unknown Acute Toxicity (GHS-US)

None

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Landfill Leachate, Landfill Wastewater

3.2 Mixture (Include percentage of components)

No chemicals in excess of 0.1% have been detected. If leachate exhibits a change in characteristics described in Section 9, contact a supervisor and reevaluate PPE. Below table shows the detected compounds from analytical lab testing and the % of each detected compound (percent by weight assuming 1 liter of solution weighs 1000 grams):

Antimony: 0.0000073 - 0.000072 %
Arsenic: 0.0000049 - 0.000068 %
Barium: 0.00002 - 0.00068 %

Beryllium: 0.00000021 - 0.00000044 %
Chromium: 0.000028 - 0.00013 %
Cobalt: 0.0000016 - 0.000011 %
Copper: 0.0000022 - 0.000016 %
Lead: 0.0000046 - 0.0010 %
Molybdenum: 0.0000038 - 0.000011 %
Nickel: 0.0000038 - 0.000028 %
Vanadium: 0.0000026 - 0.000063 %
Zinc: 0.0002 - 0.0033 %
2-Butanone: 0.0021-0.011 %
Benzene: 0.000008 - 0.00008 %
2-Methyphenol: 0.000012 - 0.00023 %
3-,4-Methylphenol: 0.0011 - 0.0022 %
Pyridine: 0.000031 - 0.00028 %

These compounds are assumed to be present in trace amounts in the leachate: Cadmium, Selenium, Silver, Mercury, 1,4-Dichlorobenzene, Tetrachloroethene, Pentachlorophenol. Analytical testing did not confirm detection of the analytes across all samples tested.

Component (include percentage & GHS-US classification)

Full text of H-phrases: see section 16

SECTION 4: FIRST AID MEASURES

4.1 Description of First-aid Measures

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact, wash off with soap and plenty of water. Consult a physician.

In case of eye contact, rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to medical treatment.

4.2 Most Important Symptoms and Effects Both Acute and Delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or in section 11.

4.3 Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing Media

Suitable extinguishing media.
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special Hazards Arising From the Substance or Mixture

No data available.

5.3 Advice for Firefighters

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment (see section 8.2.2). Avoid becoming contaminated; do not touch your face of body; do not smoke, eat, or drink unless you have washed your hands and face thoroughly with soap and water; clean all exposed wounds, however small, and cover with a sterile, waterproof dressing; change out of contaminated clothing before eating, drinking, or smoking. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. If skin contact occurs, wash thoroughly with soap and water.

6.1.1 For Non-Emergency Personnel

See section 6.1.

6.1.2 For Emergency Personnel

See section 6.1 and section 8.2 for proper PPE requirements for any clean up of spills.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and Materials for Containment and Cleaning Up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed and labeled containers for disposal. Don proper PPE as described in section 8.2.

6.4 Reference to Other Sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. For precautions see section 2.2.

7.2 Conditions for Safe Storage, Including Any Incompatibilities

Keep container closed in a well-ventilated space.

7.3 Specific End Use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control Parameters

8.2 Exposure Controls

8.2.1 Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at

the end of the workday.

8.2.2 Personal Protective Equipment (PPE)

Avoid dermal (skin) contact with leachate by using appropriate chemical-resistant gloves, boots, and/or body protection constructed from a material that is fire resistant and has a chemical permeation time sufficient to prevent dermal contact during the task. Benzene will permeate PPE constructed of nitrile, butyl rubber, and neoprene in less than one hour and should be removed and replaced if contaminated. Cloth, leather, and other glove materials that do not afford any chemical protection cannot be used for connecting/disconnecting transfer lines or other tasks where sufficient leachate contact may occur to permeate the glove material. For work tasks requiring extended contact with leachate (>1 hr.), chemical protective clothing such as Tychem 6000 FR must be worn. Chemical protective boots must be worn if required to walk through spilled or pooled leachate. To prevent dermal absorption, non-chemical protective clothing which has become contaminated with leachate should not be worn and may need to be discarded depending on the amount of contamination.

Due to the potential presence of flammable liquids and vapors, fire resistant clothing must be worn when conducting leachate transfers, working near open tank hatches, and when in the vicinity of spilled leachate, seeps, and other exposed leachate sources.

When conducting transfer of leachate by hose or other method where splash or spray hazard is present, a face shield must be worn at minimum. If transfer hoses were under sufficient pressure during transfer that an improperly depressurized line, or line failure, could result in heavy soaking spray face shield and/or goggles must be worn during line disconnect. If an overhead hazard exists (e.g., transferring from an elevated container) goggles must be worn with face shield.

Include photos or pictograms of PPEs

8.2.3 Materials for Protective Clothing

Eye/face protection: Safety glasses with side shields or safety goggles worn at all times. If conducting a leachate transfer, safety face shield also must be worn. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH or EN 166.

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands. Use Nitrile Rubber gloves, minimum layer thickness 0.2mm with break through time of 60 min. IF GLOVES BECOME CONTAMINATED, REMOVE AND REPLACE.

Body protection: Full Tychem 6000 FR chemical protective clothing suit plus chemical resistant boots.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH.

8.2.4 Environmental Exposure Controls

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

8.2.5 Other Information

OSHA PEL for reliably detected Chemicals in Material:
Antimony: 0.5 mg/m^3 8 hour TWA
Arsenic: 0.01 mg/m^3 8 hour TWA
Barium: 0.5 mg/m^3 8 hour TWA
Beryllium: 0.0002 mg/m^3 8 hour TWA
Chromium: 1 mg/m^3 8 hour TWA
Cobalt: 0.02 mg/m^3 8 hour TWA
Copper: 1 mg/m^3 8 hour TWA

Lead: 0.05 mg/m^3 8 hour TWA
Molybdenum: 0.5 mg/m^3 8 hour TWA
Nickel: 0.5 mg/m^3 8 hour TWA
Vanadium: 0.05 mg/m^3 8 hour TWA
Zinc: 10 mg/m^3 8 hour TWA
2-Butanone: 200 ppm 8 hour TWA
Benzene: 1 ppm 8 hour TWA
2-Methyphenol: 5 ppm 8 hour TWA
3-,4-Methylphenol: 5 ppm 8 hour TWA
Pyridine: 5 ppm 8 hour TWA

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on Basic Physical and Chemical Properties

Physical State

Liquid

Appearance

Clear/colorless to light brown

Odor

Light Leachate odor

pH

5.1-6.87

Evaporation Rate

Similar to water.

Melting Point

Similar but likely above water.

Freezing Point

Similar but likely below water.

Boiling Point

No data available.

Flash Point

127 deg F.

9.2 Other Information

No other data available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity

Potentially reactive with strong acids or strong oxidizers.

10.2 Chemical Stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available.

10.4 Conditions to Avoid

No data available.

10.5 Incompatible Materials

No data available. Do not mix Leachate with any other materials.

10.6 Hazardous Decomposition Products

Hazardous decomposition products formed under fire conditions. - Nitrogen oxides, Sulfur Oxides (SOx), (NOx) Other decomposition products – Under acidic conditions – Hydrogen Sulfide (H2S), Basic conditions- Ammonia (NH3)
In the event of fire: see section 5

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Acute toxicity: Leachate may contain waterborne pathogens that could cause infections and disease.

Inhalation: No data available
Dermal: No data available
Skin corrosion/irritation: No data available
Serious eye damage/eye irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity
IARC: No known component of this material present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No known component of this material present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No known component of this material present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Note that the material does contain carcinogenic components, but not at sufficient percentages for the material itself to be classified as carcinogenic.

Reproductive toxicity
No data available
Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure
No data available
Aspiration hazard
No data available

Additional Information
RTECS: Not available

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity

T22 Fish Toxicity Test - No fatalities.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative Potential

No data available.

12.4 Mobility in Soil

No data available.

12.5 Other Adverse Effects

An environmental hazard cannot be excluded in the event of improper handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Provide wastewater treatment in a licensed facility.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name

Flammable liquids, n.o.s.

Hazard Class

3

Identification Number

UN1993

Label Codes

3

Packing Group

III

ERG Number

128

14.2 In Accordance with IMDG

Proper Shipping Name

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

EmS-No. (Fire)

NA - Only ship by ground transportation.

EmS-No. (Spillage) S-C

NA - Only ship by ground transportation.

MFAG Number

NA - Only ship by ground transportation.

14.3 In Accordance with IATA

Proper Shipping Name

NA - Only ship by ground transportation.

Packing Group

NA - Only ship by ground transportation.

Identification Number

NA - Only ship by ground transportation.

Hazard Class

NA - Only ship by ground transportation.

Label Codes

NA - Only ship by ground transportation.

Subsidiary Risk(s)

NA - Only ship by ground transportation.

SECTION 15: REGULATORY INFORMATION

15.1 US Federal Regulations

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
No components are subject to reporting levels established by SARA Title III, Section 313.

SARA 311/312
If reporting thresholds are exceeded.

15.2 US State Regulations

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Other Information

Revision Date: Rev 1, 3/18/2024

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HMIS Rating
Health hazard: 1
Flammability: 2
Physical Hazard 0

NFPA Rating
Health hazard: 1
Fire Hazard: 2
Reactivity Hazard: 0

GHS Full Text Phrases

H226 Flammable Liquid and Vapor (Category 3).
H303 May be harmful if swallowed.
H313 May be harmful in contact with skin.
H333 May be harmful if inhaled.
Hazard Not Otherwise Classified (HNOC).
P210 Keep away from heat, hot surface, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink, or smoke while using this product.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.

P280 Wear protective gloves, protective clothing, eye protection, face protection.
P301+P312+P330 IF SWALLOWED: Call a Poison Center/ doctor if you feel unwell. Rinse mouth.
P301+P330+331 IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.
P353 Rise skin with water/shower.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Disclaimer:

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Media summary

Photo 1

Photo 2

SAFETY DATA SHEET

Hydrogen Peroxide 34%

Solugen

Section 1. Identification

GHS product identifier : Hydrogen Peroxide 34%

Product code : 1010007-00

Other means of identification : Not available.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Product use : Industrial Use Only

Supplier's details : Solugen Blending, LLC
14549 Minetta St.
Houston, Texas 77035
info@solugentech.com
713-380-2134

Emergency telephone number : ChemTel US: 1-800-255-3924
ChemTel International: +1-813-248-0585
Contract Number: MIS8823660

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : OXIDIZING LIQUIDS - Category 1
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION - Category 1B
EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1

Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 66%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 66%

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : May cause fire or explosion; strong oxidizer.
Harmful if swallowed or if inhaled.
Causes severe skin burns and eye damage.
May cause cancer. (oral)

Precautionary statements

Prevention : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear fire resistant or flame retardant clothing. Wear protective gloves, protective clothing and eye or face protection. Keep away from heat. No smoking. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Use only outdoors or in a well-ventilated area. Avoid breathing vapor. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

Section 2. Hazards identification

Response : In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion. IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor. IF SWALLOWED: Immediately call a POISON CENTER or doctor. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention. IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

Ingredient name	%	CAS number
hydrogen peroxide solution	≥25 - <35	7722-84-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Get medical attention immediately. Call a poison center or physician. Rinse immediately contaminated clothing and skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in

Section 4. First aid measures

recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Harmful if inhaled.

Skin contact : Causes severe burns.

Ingestion : Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Strongly oxidizing material. May cause fire or explosion. In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e,g, sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Wear fire resistant clothing. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from reducing agents and combustible materials. Store away from grease and oil. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
hydrogen peroxide solution	**ACGIH TLV (United States, 1/2021).** TWA: 1 ppm 8 hours. TWA: 1.4 mg/m³ 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1 ppm 8 hours. TWA: 1.4 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 1 ppm 10 hours. TWA: 1.4 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 1 ppm 8 hours. TWA: 1.4 mg/m³ 8 hours.
hydrogen peroxide solution	**ACGIH TLV (United States, 1/2021).** TWA: 1 ppm 8 hours. TWA: 1.4 mg/m³ 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1 ppm 8 hours. TWA: 1.4 mg/m³ 8 hours. **NIOSH REL (United States, 10/2020).** TWA: 1 ppm 10 hours. TWA: 1.4 mg/m³ 10 hours. **OSHA PEL (United States, 5/2018).** TWA: 1 ppm 8 hours. TWA: 1.4 mg/m³ 8 hours.

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Gloves impervious to the chemical substance are required. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 10. Stability and reactivity

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:
contact with combustible materials
Reactions may include the following:
risk of explosion

Conditions to avoid : Drying on clothing or other combustible materials may cause fire.

Incompatible materials : Highly reactive or incompatible with the following materials:
combustible materials
reducing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
hydrogen peroxide solution	Eyes – Severe irritant	Rabbit	-	1 mg	-
hydrogen peroxide solution	Eyes – Severe irritant	Rabbit	-	1 mg	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
hydrogen peroxide solution	-	3	-

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
hydrogen peroxide solution	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Harmful if inhaled.

Skin contact : Causes severe burns.

Ingestion : Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : May cause cancer if swallowed. Risk of cancer depends on duration and level of exposure.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
hydrogen peroxide solution	500	N/A	N/A	11	N/A
hydrogen peroxide solution	500	N/A	N/A	11	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
hydrogen peroxide solution	Acute EC50 1.2 mg/l Marine water	Algae - Dunaliella tertiolecta - Exponential growth phase	72 hours
	Acute EC50 2320 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 93 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 100 mg/l Fresh water	Fish - Micropterus salmoides	28 days
hydrogen peroxide solution	Acute EC50 1.2 mg/l Marine water	Algae - Dunaliella tertiolecta - Exponential growth phase	72 hours
	Acute EC50 2320 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 93 ppm Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Chronic NOEC 100 mg/l Fresh water	Fish - Micropterus salmoides	28 days

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
hydrogen peroxide solution	-1.36	-	low
hydrogen peroxide solution	-1.36	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	IATA
UN number	UN2014	UN2014	UN2014	UN2014	UN2014
UN proper shipping name	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	PEROXIDO DE HIDROGENO EN SOLUCION ACUOSA	HYDROGEN PEROXIDE, AQUEOUS SOLUTION	Hydrogen peroxide, aqueous solution

Section 14. Transport information

Transport hazard class(es)	5.1 (8) 	5.1 (8) 	5.1 (8) 	5.1 (8) 	5.1 (8) 
Packing group	II	II	II	II	II
Environmental hazards	No.	No.	No.	No.	No.

Additional information

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.23-2.25 (Class 5), 2.40-2.42 (Class 8).
Explosive Limit and Limited Quantity Index 1
Passenger Carrying Vessel Index Forbidden
Passenger Carrying Road or Rail Index Forbidden

Mexico Classification : **Special provisions** 65

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: Forbidden, Cargo Aircraft Only: Forbidden. Limited Quantities - Passenger Aircraft: Forbidden.
Remarks Air regulation permit shipment of Hydrogen Peroxide (<=40%) in non-vented containers for Air Cargo Only aircraft, as well as for Passenger and Cargo aircraft. HOWEVER, all Solugen Hydrogen Peroxide containers are vented and therefore, air shipments of Solugen H2O2 are not permitted. IATA air regulations state that venting of packages containing oxidizing substances is not permitted for air transport.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ (lbs)	SARA 302 TPQ (gallons)	SARA 304 RQ (lbs)	SARA 304 RQ (gallons)
hydrogen peroxide solution	≥25 - <35	Yes.	1000	106.1	1000	106.1

SARA 304 RQ : 1000 lbs / 454 kg [106.1 gal / 401.8 L]

Section 15. Regulatory information

SARA 311/312

Classification : OXIDIZING LIQUIDS - Category 1
ACUTE TOXICITY (oral) - Category 4
ACUTE TOXICITY (inhalation) - Category 4
SKIN CORROSION - Category 1B
EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1

Composition/information on ingredients

Name	%	Classification
hydrogen peroxide solution	≥25 - <35	OXIDIZING LIQUIDS - Category 1 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

State regulations

Massachusetts : The following components are listed: HYDROGEN PEROXIDE

New York : The following components are listed: Hydrogen peroxide

New Jersey : The following components are listed: HYDROGEN PEROXIDE

Pennsylvania : The following components are listed: HYDROGEN PEROXIDE

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Japan : **Japan inventory (CSCL)**: All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Thailand : All components are listed or exempted.

Turkey : All components are listed or exempted.

United States : All components are active or exempted.

Section 15. Regulatory information

Viet Nam : All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	*	3
Flammability		0
Physical hazards		3

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Procedure used to derive the classification

Classification	Justification
OXIDIZING LIQUIDS - Category 1	Expert judgment
ACUTE TOXICITY (oral) - Category 4	Calculation method
ACUTE TOXICITY (inhalation) - Category 4	Calculation method
SKIN CORROSION - Category 1B	Calculation method
EYE IRRITATION - Category 2A	On basis of test data
CARCINOGENICITY - Category 1	Expert judgment

History

Date of printing : 12/28/2021

Date of issue/Date of revision : 12/28/2021

Date of previous issue : 5/17/2021

Version : 3

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SGG = Segregation Group
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Univar Solutions

Safety Data Sheet

CAUSTIC SODA 50%

Version 1.10 Revision Date: 11/11/2023

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CAUSTIC SODA 50%

Recommended use of the chemical and restrictions on use

Recommended use : Reserved for industrial and professional use.

Manufacturer or supplier's details

Company : Univar Solutions USA
Address 3075 Highland Pkwy Suite 200
Downers Grove, IL 60515
United States of America (USA)

Emergency telephone number:
Transport North America: CHEMTREC (1-800-424-9300)
CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
E-mail: SDSNA@univarsolutions.com
SDS Requests: 1-855-429-2661
Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals	:	Category 1
Acute toxicity (Oral)	:	Category 4
Skin corrosion	:	Category 1A
Serious eye damage	:	Category 1
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system)

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary statements : **Prevention:**
P234 Keep only in original container.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical name	Weight percent
1310-73-2	Sodium hydroxide	50 - 70

Actual concentration is withheld as a trade secret
Any Concentration shown as a range is due to batch variation.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficul-

ty.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact	:	Small amounts splashed into eyes can cause irreversible tissue damage and blindness. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Continue rinsing eyes during transport to hospital. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist. Take victim immediately to hospital.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Carbon dioxide (CO_2) Foam Dry powder Water mist
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for	:	Soak up with inert absorbent material (e.g. sand, silica gel,

containment and cleaning up		acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. To avoid spills during handling keep bottle on a metal tray. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Recommended storage temperature	:	16 - 65 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1310-73-2	Sodium hydroxide	C	2 mg/m3	ACGIH
		C	2 mg/m3	NIOSH REL
		TWA	2 mg/m3	OSHA Z-1
		C	2 mg/m3	OSHA P0
		C	2 mg/m3	CAL PEL

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	No data available
Odour	:	No data available
Odour Threshold	:	No data available
pH	:	14
Freezing Point (Melting point/freezing point)	:	12 - 15 °C (54 - 59 °F)
Boiling Point (Boiling point/boiling range)	:	140 - 145 °C (284 - 293 °F)
Flash point	:	does not flash
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	No data available
Relative vapour density	:	No data available
Relative density	:	1.5298
Density	:	12.76 lb/gal
Water solubility	:	No data available
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Thermal decomposition	:	No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	Corrosive to metals Exothermic reaction with acids.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No decomposition if stored and applied as directed.
Conditions to avoid	:	Freezing temperatures.

Incompatible materials	:	Heat Acids Metals Oxidizing agents Halogenated compounds organic nitro compounds Zinc
Hazardous decomposition products	:	Hydrogen

SECTION 11. TOXICOLOGICAL INFORMATION

Skin corrosion/irritation

Components:
1310-73-2:
Species: Rabbit
Result: Causes severe burns.

Serious eye damage/eye irritation

Components:
1310-73-2:
Species: Rabbit
Result: Risk of serious damage to eyes.

Carcinogenicity

IARC	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

STOT - single exposure

Product:
Assessment: The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

Further information

Product:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity
No data available

Persistence and degradability
No data available

Bioaccumulative potential
No data available

Mobility in soil
No data available

Other adverse effects

Product:

Ozone-Depletion Potential	:	Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
Additional ecological information	:	No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues	:	Dispose of in accordance with all applicable local, state and federal regulations. For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):
UN1824, Sodium hydroxide solution, 8, II

IATA (International Air Transport Association):
UN1824, Sodium hydroxide solution, 8, II

IMDG (International Maritime Dangerous Goods):
UN1824, SODIUM HYDROXIDE SOLUTION, 8, II

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Sodium hydroxide	1310-73-2	1000	2000

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Corrosive to metals
Skin corrosion or irritation
Serious eye damage or eye irritation
Acute toxicity (any route of exposure)
Specific target organ toxicity (single or repeated exposure)

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:
1310-73-2 Sodium hydroxide
The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:
1310-73-2 Sodium hydroxide
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

1310-73-2 Sodium hydroxide

Pennsylvania Right To Know

1310-73-2 Sodium hydroxide
7732-18-5 Water

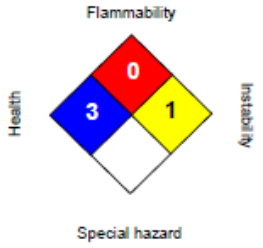
California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

TSCA	:	On TSCA Inventory
DSL	:	All components of this product are on the Canadian DSL
AICS	:	On the inventory, or in compliance with the inventory
NZIoC	:	Not in compliance with the inventory
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory

SECTION16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3/
FLAMMABILITY	0
PHYSICAL HAZARD	4

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 11/11/2023

Material number:
16212043, 16212042, 16212041, 16212039, 16212038, 16210888, 16149051, 16210426, 16208930, 16208441, 16207958, 16207089, 16206212, 16206172, 16195419, 16196593, 16203117, 16193663, 16191539, 16188943, 16188859, 16188905, 40509, 16144372, 85833, 16187875, 16187706, 16187503, 16187172, 16184289, 16184571, 16183215, 16183115,

16181535, 16174812, 16176162, 16176725, 16175550, 16177057, 16176719, 16176286, 16175611, 16175549, 16177342, 16174633, 16176146, 16175652, 16175317, 16174795, 16174563, 16176924, 16180636, 16169042, 16168322, 16168270, 16168140, 16168139, 16179411, 16169006, 16168617, 16150547, 16162842, 16162538, 16144429, 16173515, 16168911, 16162950, 16162022, 16144216, 16143594, 16162020, 16168720, 16166706, 16152119, 16173289, 16179365, 16166192, 16137935, 16161861, 16143735, 16151817, 85472, 52714, 71460, 54298, 16168314, 16146819, 16163462, 16148908, 16144035, 16166958, 16166445, 16137825, 16151508, 16151289, 16160192, 16147037, 16156058, 16155066, 16135486

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Govern-ment Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substanc-es List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemi-cals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenar-io Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chem-icals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commer-cial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composi-tion, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Suite 450
One North Shore Center
12 Federal Street
Pittsburgh, PA 15212

Safety Data Sheet

KR-DF7018

1. IDENTIFICATION

Product name	KR-DF7018
Description	Organic Defoamer / Antifoam
Product class	Antifoam / Defoamer
Supplier address	Suite 450 One North Shore Center 12 Federal Street Pittsburgh, PA 16212
Telephone numbers	
Company Phone Number	(412) 321-9800
Emergency Telephone	CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

OSHA Regulatory Status	HNOC: This product is considered a hazardous chemical according OSHA GHS Hazard Communication regulation 29 C.F.R. § 1910.1200.
Hazard classification	NA
Signal word	NA
Hazard statements	NA
Pictograms of related hazards	NA
Hazards not otherwise classified	Defatting to the skin. Prolonged or repeated contact may dry skin and cause irritation.
Precautionary statements	NA

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous or Regulated Components

Chemical Name	CAS #	Weight %
Distillates (petroleum), hydrotreated heavy naphthenic	647-52-5	88-96

The precise concentration is being withheld as a proprietary trade secret. Bona fide requests for disclosure to medical personnel must be made in accordance with the procedures in 29 C.F.R. § 1910.1200(i)1-13.

4. FIRST-AID MEASURES

Eye contact	Flush eyes with gently flowing water for a minimum of fifteen minutes. Check for and remove contact lenses. Hold eyelids apart to ensure rinsing of the entire surface of the eye and lids with water. If irritation develops, seek medical attention immediately.
Skin contact	Wash exposed areas with soap and water. Remove contaminated clothing while washing continuously. Discard contaminated clothing and shoes.
Ingestion	If swallowed, dilute with two glasses of water. Seek medical attention immediately. INDUCE VOMITING ONLY UPON ADVICE OF A PHYSICIAN. Never give anything by mouth if victim is unconscious or having convulsions.
Inhalation	Move victim to fresh air. Assist in breathing, if necessary, and seek immediate medical attention.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	This product will ignite when exposed to an ignition source while at a temperature at or above its flash point. Use carbon dioxide, dry chemical or alcohol-type foam or universal-type foams to extinguish flames. Water spray may be used to cool fire-exposed containers.
Unsuitable extinguishing media	No information available.
Protective equipment and precautions for firefighters	Wear self-contained breathing apparatus and protective clothing when combating a chemical fire in a confined area.
Specific hazards	Thermal breakdown of this product will evolve the following decomposition products: fumes, smoke, carbon monoxide, carbon dioxide and traces of incompletely burned hydrocarbon compounds. Overexposure to the products of combustion may result in respiratory irritation.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions Remove spills promptly as they may make floors slippery. Several washes and/or the use of detergents may be necessary to completely clean any spill. Wear recommended protective equipment outlined in Section 8 of this document and provide adequate ventilation during clean-up.

Methods for clean-up Spills should be contained, solidified with absorbent, noncombustible material and placed in labeled containers for disposal. Material should be disposed of at a licensed facility. As supplied, this material is not regulated by RCRA or CERCLA.

7. HANDLING AND STORAGE

Advice on safe handling Avoid contact with eyes, skin and clothing. Use with adequate ventilation. Wash thoroughly after handling. Ensure that containers are properly secured prior to moving.

Storage conditions Keep container closed during any storage. Protect from moisture and foreign materials. Avoid direct sunlight. Store product away from combustible materials. For optimum storage conditions, store between 45°F and 100°F.

Materials to avoid No information available

Storage Stability Keep out of sun and away from heat, sparks or open flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	OSHA PEL	ACGIH TLV
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	5 mg/m³ (Mist) 8 Hours	5 mg/m³ (Inhalable fraction) 8 Hours

Occupational exposure controls Control airborne concentrations below the exposure guideline. General Ventilation is recommended.

Eye protection Safety glasses with side shields are recommended as a minimum, but chemical goggles or a face shield provide better protection.

Skin protection Skin contact should be minimized. Wash all affected areas prior to eating and at completion of handling. Contaminated clothing should be removed at completion of handling. Impervious gloves (butyl, neoprene, nitrile), coveralls or apron and boots are recommended.

Respiratory protection	If proper ventilation is unavailable, use an NIOSH approved air-purifying respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

pH	ND
Appearance	Tan to pale amber opaque liquid
Odor	mild odor
Specific Gravity	0.885
Pour point	35°F
Melting/freezing point	ND
Boiling point/boiling range	ND
Flash point	> 149°C (>300°F)
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability	No information available
Vapor pressure	No data available
Vapor density	No data available
VOC content	3.2%, EPA Test Method 24
Solubility	Dispersible in water
Partition coefficient n-octanol/water	Not determined
Auto-ignition temperature	No information available
Decomposition temperature	No information available
Viscosity	600-1500 cP

10. STABILITY AND REACTIVITY

Reactivity	Non-reactive product under normal use conditions.
Chemical stability	Stable under normal conditions of storage and handling.
Hazardous polymerization	Polymerization will not occur under normal use conditions.
Conditions to avoid	Heat, sparks and open flames
Incompatibilities	Strong acids, alkalis and strong oxidizing agents.
Hazardous decomposition products	Not anticipated under normal use conditions.

11. TOXICOLOGICAL INFORMATION

Likely routes of exposure Skin, eyes, ingestion

Acute toxicity

Test Material	Parameter	Result
Distillates (petroleum), hydrotreated heavy naphthenic (CAS 64742-52-5)	LD50, Oral (rat)	>5000 mg/L
	LD50, Dermal (rabbit)	>2000 mg/L
	LD50, Inhalation dust & mist (rat)	5.7 mg/L / 4 hours

Irritation and corrosion

Eye (acute) May cause transient irritation, redness and/or tearing.

Eye (chronic) No chronic effects anticipated.

Skin (acute) May cause skin irritation and defatting of the skin.

Skin (chronic) Prolonged and repeated contact can de-fat the skin and lead to irritation, cracking and/or dermatitis.

Ingestion (acute) May result in nausea/intestinal discomfort.

Ingestion (chronic) No chronic effects anticipated.

Inhalation (acute) May irritate mouth, throat and stomach.

Inhalation (chronic) No chronic effects anticipated.

Long term toxicity

Reproductive effects None known.

Mutagenicity None known.

Embryotoxicity None known.

Sensitization to product None known.

Synergistic products None known.

Carcinogenicity None known. Oil contains less than 3 % DMSO extract as measured by IP 346.

Chronic None known.

12. ECOLOGICAL INFORMATION

No data available.

Mobility No information.

Biological degradability: No information

Bioaccumulative potential	No information

13. DISPOSAL CONSIDERATIONS

Disposal	Discarded product is not considered a hazardous waste under RCRA, 40 CFR 261. Please dispose of in accordance with all local, state and federal regulations. It is recommended that the waste be incinerated or land filled at a licensed facility. Do not distribute, make available, furnish or reuse empty container except for storage and shipment of original product.

14. TRANSPORT INFORMATION

US Department of Transportation (DOT) Not classified as dangerous in the meaning of transport regulations.

UN Number

Proper shipping name

Primary hazard class/division

Packing group

Label

15. REGULATORY INFORMATION

SARA Section 311/312 Categories
Acute

SARA 302 Extremely Hazardous Substances
None Present ()

SARA 313 - Specific Toxic Chemical Listings
As supplied, no chemical in this product exceeds the de minimis reporting level established by SARA Title III, Section 313 and 40 CFR 372.

California Proposition 65
This product does not intentionally contain any chemicals known by the State of California to cause birth defects, cancer and/or other reproductive harm. Additionally, based on theoretical calculations using vendor toxicity data, it was determined that this product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a notification/action under the statute.

Notification status
All components of this product are included on or exempt from the following national chemical inventories:

United States (TSCA)
Canada (DSL)
Australia (AICS)
China (IECSC)
Korea (KECL)
Philippines (PICCS)
Japan (ENCS)
Europe (EINECS)

16. OTHER INFORMATION

HMIS Ratings	Health—1; Flammability—0; Reactivity—0
NFPA Codes	Health—1; Flammability—0; Reactivity—0; Special Hazard—None
Hazard Rating Scale	Minimal—0; Slight—1; Moderate—2; Serious—3; Severe—4
SDS Issue Date	January 18, 2018
Revision Date	Version 1

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Safety Data Sheet
Polytec PT-135

Revision Date 5/15/15

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name Ferric Chloride Solution DWG Grade
UN/ID No. UN2582
Synonyms Iron (III) Chloride, Iron trichloride, $FeCl_3$
Recommended Use Water treatment chemical
Uses advised against Consumer uses: Private households (= general public = consumers).

Company Name
Polytec, Inc.
191 Barley Park Lane
Mooresville, NC 28115

24 Hour Emergency Phone Number CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1

Emergency Overview

DANGER

Hazard statements Causes severe skin burns and eye damage
Harmful if swallowed

Physical hazards Corrosive
May be corrosive to metals

Precautionary statements

Prevention
- Wear eye/face protection
- Wear protective gloves/protective clothing/eye protection/face protection
- Do not breathe dust/fume/gas/mist/vapors/spray
- Do not eat, drink or smoke when using this product
- Wash face, hands and any exposed skin thoroughly after handling

Response
- Immediately call a POISON CENTER or doctor/physician
- Specific treatment (see section 4 on this Safety Data Sheet)

Storage
- Store in a secure area

Disposal
- Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC) None known.

Other Information

Other hazards
- Toxic to aquatic life with long lasting effects
- Toxic to aquatic life

Unknown Acute Toxicity — 0.85% of the mixture consists of ingredient(s) of unknown toxicity

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	EC No.	Weight-% *
Water	7732-18-5	231-791-2	55-69
Iron trichloride	7705-08-0	231-729-4	31-45
Hydrogen chloride	7647-01-0	231-595-7	0.0-1.0
Ferrous chloride	7758-94-3	231-843-4	0.0-0.7

*The exact percentage (concentration) of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

General advice
- Immediate medical attention is required

Eye contact
- Immediate medical attention is required
- Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes
- Do not rub affected area

Skin Contact
- Immediate medical attention is required
- Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes
- Wash contaminated clothing before reuse

Inhalation
- Call a physician or poison control center immediately
- Remove to fresh air
- If not breathing, give artificial respiration
- If breathing is difficult, give oxygen

Ingestion
- Call a physician or poison control center immediately
- Do NOT induce vomiting
- Rinse mouth
- Drink 4 to 8 ounces (120-240 ml) of water or milk as soon as possible after ingestion.
- Never give anything by mouth to an unconscious person

Note to physician

Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. Treat symptomatically.

Self-protection for first aid personnel

Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
- Dry chemical, CO2, water spray or alcohol-resistant foam
- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

Unsuitable extinguishing media
- Caution: Use of water spray when fighting fire may be inefficient
- Do not use a solid water stream as it may scatter and spread fire

Specific hazards arising from the chemical
- The product causes burns of eyes, skin and mucous membranes
- Thermal decomposition can lead to release of irritating and toxic gases and vapors
- In the event of fire and/or explosion, do not breathe fumes

Protective equipment and precautions for firefighters	• Wear a self-contained breathing apparatus and chemical protective clothing
Flammable properties	• No information available
Explosive properties	• No information available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	• Evacuate personnel to safe areas • Use personal protective equipment as required • Avoid contact with skin, eyes or clothing • Keep people away from and upwind of spill/leak
Environmental precautions	• For small spills, absorb material with clay absorbent or other compatible material. Dispose of the waste material according to local, state and governmental requirements. • For large spills, contain the material using barriers of absorbent pigs, clay absorbent or earth dams. • US regulations require reporting spills of this material that could reach any surface waters. The toll-free phone number for the US Coast Guard National Response Center is 1-800-424-8802
Methods for cleaning up	• Neutralize with soda ash or lime • Take up mechanically, placing in appropriate containers for disposal • Clean contaminated surface thoroughly • Soak up with inert absorbent material
Other Information	• Spills exceeding the Reportable Quantity (RQ) of 1000 pounds or more must be reported to the National Response Center, (800) 424-8802.

7. HANDLING AND STORAGE

Advice on safe handling	• Use personal protective equipment as required • Avoid contact with skin, eyes or clothing • Ensure adequate ventilation, especially in confined areas • In case of insufficient ventilation, wear suitable respiratory equipment • Use only with adequate ventilation and in closed systems
Storage Conditions	• Keep container tightly closed in a dry and well-ventilated place • Keep out of the reach of children • Keep containers tightly closed in a dry, cool and well-ventilated place • Keep in properly labeled containers
Incompatible materials	Incompatible with strong acids and bases, oxidizers, steel, and most metals

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Iron trichloride 7705-08-0	TWA: 1 mg/m^3 Fe	-	TWA: 1 mg/m^3 Fe
Hydrogen chloride 7647-01-0	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m^3	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m^3
Ferrous chloride 7758-94-3	TWA: 1 mg/m^3 Fe	(vacated) TWA: 1 mg/m^3 Fe	TWA: 1 mg/m^3 Fe

Exposure Guidelines .

Engineering Controls Ensure adequate ventilation, especially in confined areas.

Individual protection measures, such as personal protective equipment

Respiratory protection • A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant the use of a respriator.

Eye/Face protection	• Tight sealing safety goggles • Face protection shield
Skin and body protection	• Wear suitable protective clothing • Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact
General Hygiene Considerations	• Do not eat, drink or smoke when using this product • Wash contaminated clothing before reuse • Contaminated work clothing should not be allowed out of the workplace • Regular cleaning of equipment, work area and clothing is recommended • Avoid contact with skin, eyes or clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Clear to slightly hazy
Color	Red brown
Odor	Slight Iron acidic
Odor threshold	No information available

Property	Values	Remarks • Method
pH	<2	
Melting point/Freezing Point	-26 °C / -15 °F	
Boiling point / boiling range	110 °C / 230 °F	
Flash point	No information available	
Evaporation rate	<1	n-Butyl acetate =1
Flammability (solid, gas)	No information available	
Flammability Limit in Air		Not flammable
Upper flammability limit (%)	No information available	
Lower flammability limit (%):	No information available	
Vapor pressure	No information available	negligible
Vapor density	No information available	
Specific Gravity	1.40	
Water solubility	Miscible in water	
Solubility in other solvents	No information available	
Partition coefficient	No information available	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Kinematic viscosity	No information available	
Dynamic viscosity	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

Other Information

Softening point °C	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Density	No information available
Bulk density	11.7 Pounds per gallon (lb/gal), Typical

10. STABILITY AND REACTIVITY

Stability	• Stable under recommended storage conditions
Conditions to avoid	• Exposure to air or moisture over prolonged periods
Incompatible materials	• Incompatible with strong acids and bases, oxidizers, steel, and most metals

Hazardous Decomposition Products • Thermal decomposition can lead to release of irritating and toxic gases and vapors

Possibility of Hazardous Reactions • None under normal processing and storage

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principle Routes of Exposure	Inhalation Skin Contact Eye contact
Inhalation	May cause irritation of respiratory tract. Avoid breathing vapors or mists.
Ingestion	May cause adverse kidney effects. May cause adverse liver effects.
Skin Contact	Contact causes severe skin irritation and possible burns.
Eye contact	Corrosive to the eyes and may cause severe damage including blindness.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Iron trichloride 7705-08-0	= 450 mg/kg (Rat)	>2000 mg/kg (rat)	-
Hydrogen chloride 7647-01-0	= 700 mg/kg (Rat)	> 5010 mg/kg (Rabbit)	= 3124 ppm (Rat) 1 h
Ferrous chloride 7758-94-3	450	-	-

Information on toxicological effects

Symptoms Vomiting, Hypoxemia (reduced O2 in the blood), Metabolic Acidosis

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.

Chemical Name	ACGIH	IARC	NTP	OSHA
Hydrogen chloride 7647-01-0	-	Group 3	-	-

Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Chronic toxicity	Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen. Avoid repeated exposure. Possible risk of irreversible effects. May cause adverse liver effects.
Target Organ Effects	Eyes, Gastrointestinal tract (GI), Liver, Respiratory system, Skin.
Aspiration hazard	No information available.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity 0.85% of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on chapter 3.1 of the GHS document . mg/kg

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity Toxic to aquatic life with long lasting effects

0.85% of the mixture consists of components(s) of unknown hazards to the aquatic environment

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Iron trichloride 7705-08-0	-	20.95 - 22.56: 96 h Pimephales promelas mg/L LC50 semi-static 20.26: 96 h Lepomis macrochirus mg/L LC50 semi-static	27.9: 48 h Daphnia magna mg/L EC50 9.6: 48 h Daphnia magna mg/L EC50 Static

Persistence and degradability	No information available.
Bioaccumulation	No information available

Chemical Name	Partition coefficient
Iron trichloride 7705-08-0	-4

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Disposal of wastes • This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261)
Contaminated packaging • Do not reuse container
US EPA Waste Number • D002

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Iron trichloride 7705-08-0	Toxic Corrosive

14. TRANSPORT INFORMATION

DOT

Proper shipping name	FERRIC CHLORIDE, SOLUTION
Hazard Class	8
UN/ID No.	UN2582
Packing Group	III
RQ (lbs)(dry)	1000
RQ as is (lbs)(wet)	2222 (45% Ferric Chloride)
Description	UN2582, Ferric chloride, solution, 8, III
Special Provisions	B15, IB3, T4, TP1
Emergency Response Guide Number	154

IATA

UN/ID No.	UN2582
Proper shipping name	FERRIC CHLORIDE SOLUTION
Hazard Class	8
Packing Group	III
ERG Code	8L
Special Provisions	A3

IMDG

UN/ID No.	UN2582
Proper shipping name	FERRIC CHLORIDE, SOLUTION
Hazard Class	8
Packing Group	III
EmS-No.	F-A, S-B
Special Provisions	223

15. REGULATORY INFORMATION

US Federal Regulations

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	No

SARA 313 Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act) This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Iron trichloride 7705-08-0	1000 lb	-	-	X
Hydrogen chloride 7647-01-0	5000 lb	-	-	X
Ferrous chloride 7758-94-3	100 lb	-	-	X

CERCLA This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	RQ (lbs)(dry)
Iron trichloride 7705-08-0	1000 lb	-	RQ 1000 lb final RQ RQ 454 kg final RQ
Hydrogen chloride 7647-01-0	5000 lb	5000 lb	RQ 5000 lb final RQ RQ 2270 kg final RQ
Ferrous chloride 7758-94-3	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ

US State Regulations

California Proposition 65 This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Iron trichloride 7705-08-0	X	X	X
Ferrous chloride 7758-94-3	X	X	X

Chemical Name	U.S. - DEA - List I or Precursor Chemicals	U.S.- DEA - List II or Essential Chemicals
Hydrogen chloride 7647-01-0	-	50 gallon, Export Volume 27 kg, Export Weight 0 kg, Domestic Sales Weight

International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Does not comply
IECSC	Complies
KECL	Complies
PICCS	Complies
AICS	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

16. OTHER INFORMATION

NFPA	Health hazards 3	Flammability 0	Instability 0	Physical and Chemical Properties -
HMIS	Health hazards 3	Flammability 0	Physical hazards 0	Personal protection D

Issue Date	5/15/2015
Version	1

Disclaimer

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End of Safety Data Sheet

SAFETY DATA SHEET
POLYTEC PT-180

Section 1. Identification

GHS product identifier : ALUMINUM CHLORHYDRATE SOLUTION & POLYMER BLEND

Other means of identification : Not available.

Relevant identified uses of the substance or mixture and uses advised against

Not available.

Supplier's details : Polytec, Inc.
191 Barley Park Lane
Mooresville, NC 28115
704-660-5195

e-mail address of person responsible for this MSDS: customerservice@polytecinc.net

Emergency telephone number : CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3887
CCN# 17585

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

Other means of: Not available.

Identification:

CAS number/other identifiers

Typical Composition	CAS #'s	%
Aluminum Chlorohydrate	12042-91-0	50
Water	7732-18-5	Balance

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	:	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	:	Flush contaminated skin with plenty of water. Get medical attention if symptoms occur.
Ingestion	:	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	No known significant effects or critical hazards.
Inhalation	:	No known significant effects or critical hazards.
Skin contact	:	No known significant effects or critical hazards.
Ingestion	:	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	:	No known significant effects or critical hazards.
Inhalation	:	No known significant effects or critical hazards.
Skin contact	:	No known significant effects or critical hazards.
Ingestion	:	No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	No specific treatment.
Protection of first-aiders	:	No action shall be taken involving any personal risk or without suitable training.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
halogenated compounds
metal oxide/oxides

Special protective actions for fire-fighters : No special measures are required.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Spill : Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	:	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	:	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls	:	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
Environmental exposure controls	:	Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures	:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	:	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection	:	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Body protection	:	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	:	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection : Use a properly fitted, air-purifying or supplied air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Colorless to light yellow.

Odor : None

Odor threshold : Not available.

pH : 4 to 5

Melting point : -7°C (19.4°F)

Boiling point : 110°C (230°F)

Flash point : Not applicable.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 1 [Air = 1]

Relative density : 1.33 to 1.35

Solubility : Easily soluble in the following materials: cold water and hot water.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and metals.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

There is no data available.

Irritation/Corrosion

Skin : There is no data available.

Eyes : There is no data available.

Respiratory : There is no data available.

Sensitization

Skin : There is no data available.

Respiratory : There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact	: No known significant effects or critical hazards.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects	: No known significant effects or critical hazards.
Potential delayed effects	: No known significant effects or critical hazards.

Long term exposure

Potential immediate effects	: No known significant effects or critical hazards.
Potential delayed effects	: No known significant effects or critical hazards.

Potential chronic health effects

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

There is no data available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Aluminium Chlorohydrate Solution	Chronic EC50 6999 mg/L Chronic LC50 3623 mg/L	Daphnia - Daphnia magna Fish - Fathead Minnow	- -

Persistence and degradability

There is no data available.

Bioaccumulative potential

There is no data available.

Mobility in soil

Section 12. Ecological information

Soil/water partition coefficient (K_{OC}) : -2.49

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Additional information	-	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Pennsylvania : The following components are listed: Dialuminium Chloride Pentahydroxide

California Prop. 65

No products were found.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Section 15. Regulatory information

Chemical Weapons Convention List Schedule II Chemicals : Not listed

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Section 16. Other information

History

Date of issue mm/dd/yyyy : 06/15/2014

Version : 1

Revised Section(s) : Not applicable.

Prepared by : KMK Regulatory Services Inc.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

Product name: **Polytec PT-516**

Company:
Polytec, Inc.
191 Barley Park Lane
Mooresville, NC 28115

Telephone: 704-660-5195
Telefax: 704-662-3498
E-mail: customerservice@polytecinc.net

Emergency telephone number: 800-424-9300 CHEMTREC (CCN 17585), Outside U.S. 703-527-3887

Product Use: Processing aid for industrial applications.

2. HAZARDS IDENTIFICATION

Appearance and Odor:

Form: Viscous liquid

Color: Milky

Odor: Aliphatic

Potential Health Effects:
See Section 11 for more information.

Eye: May cause slight irritation.

Potential Physical/Chemical Effects:
Spills produce extremely slippery surfaces.

OSHA Regulatory Status:
This material is not considered hazardous in accordance with OSHA 29 CFR 1910.1200.

Potential Environmental Effects:
None. See Section 12 for more information.

Other information No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Identification:
anionic water-soluble polymer in emulsion

Regulated Components:

Chemical Name	CAS Number:	Concentration/ -range:
Distillates (petroleum), hydrotreated light	64742-47-8	20 - 45%
Poly(oxy-1,2-ethanediyl), a-tridecyl-w-hydroxy-, branched	69011-36-5	< 5%

4. FIRST AID MEASURES

Inhalation: Move to fresh air immediately.

Skin contact: Wash off immediately with soap and plenty of water. In case of persistent skin irritation, consult a physician.

Eye contact: Rinse thoroughly with plenty of water, also under the eyelids. Get medical attention.

Ingestion: Rinse mouth with water. Do not induce vomiting. Call a physician immediately.

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide (CO2). Dry powder. Water. Water spray. Foam.

Unsuitable extinguishing media: None.

Precautions: Spills produce extremely slippery surfaces.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

Specific methods: Keep personnel removed and upwind of fire.

Specific hazards: In the event of fire the following can be released: Carbon Oxides. Nitrogen Oxides. Hydrogen cyanide (hydrocyanic acid) may be produced in the event of combustion in an oxygen deficient atmosphere.

Flash point (°C): Does not flash.

Autoignition temperature (°C): Not determined.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: No special precautions required. Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection). Spills produce extremely slippery surfaces. Keep people away from spill/leak.

Environmental precautions: As with all chemical products, do not flush into surface water.

Methods for cleaning up: Do not flush with water. Dam up. Soak up with inert absorbent material. If liquid has been spilt in large quantities clean up promptly by scoop or vacuum. Keep in suitable and closed containers for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. When preparing the working solution ensure there is adequate ventilation. When using do not smoke. Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection).

Storage: Keep in a dry cool place (0 - 30 °C). Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

Technical measures/Precautions: No special precautions required.

Incompatible products: Oxidizing agents may cause exothermic reactions.

Technical measures/Storage conditions: No special storage conditions required.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures: Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.

Personal protective equipment:

Respiratory protection: Not required ; except in case of aerosol formation.

Hand protection: PVC or other plastic material gloves.

Eye protection: Safety glasses with side-shields. Do not wear contact lenses where this product is used.

Skin and body protection: Chemical resistant apron or protective suit if splashing or repeated contact with solution is likely.

Hygiene measures: Wash hands before breaks and at the end of workday. When using do not eat, drink or smoke. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	Viscous liquid
Color:	Milky
Odor:	Aliphatic
pH:	5 - 8 @ 5 g/L
Specific Gravity:	1.0 - 1.1
Melting point/range (°C):	< 5
Flash point (°C):	Does not flash.
Boiling point (°C):	> 100
Autoignition temperature (°C):	Not determined.
Vapor pressure (mm Hg):	2.3 kPa @ 20°C
Viscosity (mPa.s):	See Technical Bulletin
Water solubility:	Completely miscible
LogPow:	Not applicable.
Kinematic viscosity @ 40°C (mm^2/s):	> 20.5

10. STABILITY AND REACTIVITY

Conditions to avoid: Avoid extremes of temperature. Protect from light, moisture and damage.

Stability: Stable. Hazardous polymerisation does not occur.

Materials to avoid: Oxidizing agents may cause exothermic reactions.

Hazardous decomposition products: Thermal decomposition may produce: nitrogen oxides (NOx), carbon oxides (COx), hydrogen cyanide (hydrocyanic acid).

11. TOXICOLOGICAL INFORMATION

Product Information

Acute toxicity:

Oral: LD50/oral/rat > 5000 mg/kg

Dermal: LD50/dermal/rat > 5000 mg/kg

Inhalation: The product is not expected to be toxic by inhalation.

Irritation:

Skin: Not irritating.

Eyes: May cause slight eye irritation.

Sensitization: Not sensitizing.

Mutagenicity: Not mutagenic.

Carcinogenicity: Not carcinogenic.

Reproductive effects: Not toxic for reproduction.

Chronic toxicity: No chronic effects.

Other information: Due to the viscosity, this product does not present an aspiration hazard.

Component Information

Distillates (petroleum), hydrotreated light

Acute toxicity:

Oral: LD50/oral/rat > 5000 mg/kg (OECD 401)

Dermal: LD50/dermal/rabbit > 5000 mg/kg (OECD 402)

Inhalation: LC50/inhalation/4 h/rat = 4951 mg/m^3 (OECD 403)

Irritation:

Skin: Not irritating. (OECD 404) Repeated exposure may cause skin dryness or cracking

Eyes: Not irritating. (OECD 405)

Sensitization: By analogy with similar products, this product is not expected to be sensitizing. (OECD 406)

Mutagenicity: Not mutagenic. (OECD 471, 473, 474, 476, 478, 479)

Carcinogenicity: Carcinogenicity study in rats (OECD 451): Negative

Reproductive effects: By analogy with similar substances, this substance is not expected to be toxic for reproduction.
NOAEL/rat = 300 ppm (OECD 421)

Chronic toxicity: No chronic effects.

Other information: May be fatal if swallowed and enters airways.

Poly(oxy-1,2-ethanediyl), a-tridecyl-w-hydroxy-, branched

Acute toxicity:

Oral: LD50/oral/rat = 200 - 300 mg/kg

Dermal: LD50/dermal/rabbit > 2000 mg/kg

Inhalation: No data available.

Irritation:

Skin: Not irritating.

Eyes: Causes serious eye irritation

Sensitization: The results of testing on guinea pigs showed this material to be non-sensitizing.

Mutagenicity: Not mutagenic.

Carcinogenicity: Not carcinogenic.

Reproductive effects: Two-Generation Reproduction Toxicity (OECD 416)
NOAEL/rat > 250 mg/kg/day Prenatal Development Toxicity Study (OECD 414)
NOAEL/Maternal toxicity/rat > 50 mg/kg/day
NOAEL/Developmental toxicity/rat > 50 mg/kg/day

Chronic toxicity: NOAEL/oral/rat/600 days = 50 mg/kg/day

12. ECOLOGICAL INFORMATION

Product Information

Aquatic toxicity:

Toxicity to fish: LC50/Fish/96 hours > 100 mg/L

Toxicity to daphnia: EC50/Daphnia/48 hours > 100 mg/L

Toxicity to algae: IC50/Algae/72 hours > 100 mg/L

Environmental fate:

Persistence and degradability: Not readily biodegradable.

Hydrolysis: Does not hydrolyse.

Bioaccumulation: The product is not expected to bioaccumulate.

LogPow: Not applicable.

LogKow: Not determined.

Component Information

Distillates (petroleum), hydrotreated light

Acute toxicity to fish:

Toxicity to fish: LC0/Oncorhynchus mykiss/96 hours > 1000 mg/L (OECD 203)

Toxicity to daphnia: EC0/Daphnia magna/48 hours > 1000 mg/L (OECD 202)

Toxicity to algae: IC0/Pseudokirchneriella subcapitata/72 hours > 1000 mg/L (OECD 201)

Environmental fate:

Persistence and degradability: Readily biodegradable.

Hydrolysis: Does not hydrolyse.

Bioaccumulation: The product is not expected to bioaccumulate.

LogPow: 3 - 6

LogKow: Not determined.

Poly(oxy-1,2-ethanediyl), a-tridecyl-w-hydroxy-, branched

Toxicity to fish: LC50/Cyprinus carpio/96 hours = 1 - 10 mg/L (OECD 203)

Toxicity to daphnia: EC50/Daphnia/48 hours = 1 - 10 mg/L (OECD 202)

Toxicity to algae: IC50/Desmodesmus subspicatus/72 hours = 1 - 10 mg/L (OECD 201)

Environmental fate:

Persistence and degradability: Readily biodegradable. > 60% / 28 days (OECD 301 B)

Hydrolysis: Does not hydrolyse.

Bioaccumulation: No data available

LogPow: > 3

LogKow: Koc > 5000

13. DISPOSAL CONSIDERATIONS

Disposal: Dispose of in accordance with local, state and federal regulations.

Container: Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated, when in compliance with local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT:
Not classified as dangerous in the meaning of DOT regulations.

IMDG/IMO:
Not classified as dangerous in the meaning of IMO/IMDG regulations.

ICAO/IATA:
Not classified as dangerous in the meaning of ICAO/IATA regulations.

15. REGULATORY INFORMATION

Product Information

US SARA Reporting Requirements: None.

RCRA status : Not RCRA hazardous.

SARA (Section 311/312) hazard class: Not concerned.

California Proposition 65 Information: WARNING! This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm, Acrylamide.

International Inventories:

USA (TSCA): All components of this product are either listed on the inventory or are exempt from listing.

Canada (DSL): All components of this product are either listed on the inventory or are exempt from listing.

China (IECSC): All components of this product are either listed on the inventory or are exempt from listing.

European Union (REACH): All components of this product have been registered or pre-registered with the European Chemicals Agency or are exempt from registration.

Australia (AICS): All components of this product are either listed on the inventory or are exempt from listing.

Japan (ENCS): All components of this product are either listed on the inventory or are exempt from listing.

Korea (ECL): All components of this product are either listed on the inventory or are exempt from listing.

Philippines (PICCS): All components of this product are either listed on the inventory or are exempt from listing.

Taiwan (CSNN): All components of this product are either listed on the inventory or are exempt from listing.

New Zealand (NZIoC): All components of this product are either listed on the inventory or are exempt from listing.

16. OTHER INFORMATION

NFPA and HMIS Ratings :

NFPA:

Health:	1
Flammability:	1
Instability:	0

HMIS:

Health:	1
Flammability:	1
Physical Hazard:	0
PPE Code:	B

This MSDS was prepared in accordance with the following:
ISO 11014-1: Material Safety Data Sheet for Chemical Products
ANSI Z400.1-2004; Material Safety Data Sheets - Preparation

Revision Number: 14.01a ENAC001

SAFETY DATA SHEET

COMPANY IDENTITY: EP CHEMICAL SDS DATE: 05/01/2023
PRODUCT IDENTITY: HACHA

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH CFR 1910.1200 (HAZARD COMMUNICATIONS STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: HACHA
SDS NUMBER: CR8254
COMPANY IDENTITY: EP CHEMICAL
COMPANY ADRESS: 591 J ST WASCO, CA. 93280
COMPANY PHONE: 800-767-9112
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)

SECTION 2. HAZARDS IDENTIFICATION

HAZARD STATEMENTS:
H100s = General, H200s = Physical, H300 = Health, H400s = Environmental

H315	May cause skin irritation.
H320	Causes eye irritation.
H335	Inhalation of mist may cause mucous membrane and respiratory irritation.

PRECAUTIONARY STATEMENTS:
P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P262	Do not get in eyes, on skin, or on clothing.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do – Continue rinsing.
P309+311	If exposed or you feel unwell: Call a POISON CENTER or doctor/physician.
P405+102	Store locked up. Keep out of reach of children.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#
Water	7732-18-5
Aluminum Chlorhydrate	12042-91-0
Proprietary Compound	----------

Trace components: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant Additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SECTION 4. FIRST AID MEASURES

EYE CONTACT:
If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. Roll eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

SKIN CONTACT:
If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

INHALATION:
Move person to fresh air, if effects occur, consult a physician.

SWALLOWING:
If swallowed, CALL PHYSIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis Should be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation). Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of the label and SDS to physician or health professional with victim.

SECTION 5. FIRE FIGHTING MEASURES

FIRE & EXPLOSIONS PREVENTIVE MEASURES: None.

EXTINGUISHING MEDIA:
Use media appropriate for surrounding fire. Cool fire exposed containers and structures with water.

SPECIAL FIRE FIGHTING PROCEDURES: None.

UNUSUAL EXPLOSION AND FIRE PROCEDURES: None.

FLASH POINT: None.

AUTOIGNITION TEMPERATURE: None.

SECTION 6. ACCIDENTAL RELEASE MEASURES

SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

PERSONAL PRECAUTIONS:
Spilled material may cause a slipping hazard. Isolate area. Keep unnecessary and unprotected personnel from entering the area. Use appropriate safety equipment.

ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container, keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

CONTAINMENT AND CLEAN-UP MEASURES:
Absorb spilled liquid with poly pads or other suitable absorbent materials. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. Dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13- Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

HANDLING:
Product shipped/handled hot can cause thermal burns. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

STORAGE:
Store in a cool, dry, well-ventilated area away from heat and incompatible materials. Protect from physical damage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	CAS#	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-15	None Known	None Known
Aluminum Chlorhydrate	12042-91-0	2 mg/m3	2 mg/m3
Proprietary Compound	----------	None Known	None Known

MATERIAL	CAS#	CEILING	STEL (OSHA/ACGIH)	HAP
Aluminum Chlorhydrate	12042-91-0	N/A	None Known	No

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

RESPIRATORY EXPOSURE CONTROLS:
A respiratory protective program that meets OSHA CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

VENTILATION:
LOCAL EXHAUST: None MECHANICAL (General): None
SPECIAL: None OTHER: None
Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

PERSONAL PROTECTION:
Wear OSHA Standard full face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers. Wash at the end of each work shift & before eating, smoking or using the toilet. Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES:

APPEARANCE:	Clear to straw colored liquid.
ODOR:	Odorless
ODOR THRESHOLD:	Not Available
pH (Neutrality):	3.5-4.5
MELTING POINT/FREEZING POINT:	-16°C
BOILING RANGE (IBP, 50%, Dry Point):	101°C (212°F)
FLASH POINT (TEST METHOD):	None
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C:	Not Available
VAPOR DENSITY (air = 1):	Not Available
SPECIFIC GRAVITY (Water = 1):	1.33-1.36
POUNDS/GALLON:	11.259
WATER SOLUBILITY:	Complete
VISCOSITY (mPa.s):	N/A
AUTO IGNITION TEMPERATURE:	None
DECOMPOSITION TEMPERAURE:	Not Available

SECTION 10. STABILITY & REACTIVITY

STABILITY:
Stable under most conditions.

CONDITIONS TO AVOID:
Isolate from extreme heat, and open flame.

MATERIALS TO AVOID:
Oxidizing materials can cause a reaction. Caustics will precipitate aluminum hydroxide.

HAZARDOUS DECOMPOSITION PRODUCTS:
Chlorine compounds, metal oxides.

HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION 11. TOXICOLOGIGAL INFORMATION

No Data Available

CONDITIONS AGGRAVATED:
None Known.

CHRONIC HAZARDS

CHRONIC TOXICITY:
In animals, effects have been reported on the following organs after ingestions: Gastrointestinal tract, heart, and kidney. Does levels producing theses effects were many time a strong association between elevated blood pressure and prolonged dietary overuse. Related effects could occur in the kidneys.

CARCINOGENICITY:
This product is not classified as a carcinogen by NTP, IARC or OSHA.

MUTAGENIC DATA:
In vitro genectic toxicity studies were negative.

DEVELOPMENTAL TOXICITY:
Did not cause birth defects or any other fetal effects in laboratory animals.

SECTION 12. ECOLOGICAL INFORMATION

PIMELPHALES PROMELAS:
LC50/HRS: 1056 mg/L 24 hrs. 832 mg/L 48 hrs. 684 mg/L 72 hrs. 609 mg/L 96 hrs.

DAPHNIA MAGNA:
LC50/HRS: 642 mg/L 24 hrs. 397 mg/L 48 hrs.

BIOACCUMULATION:
Does not bioaccumulate.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste management options. Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies.

SECTION 14. TRANSPORT INFORMATION

UN/NA: N/A
Classification: NON-REGULATED
Proper Shipping Name: LIQUID NON-REGULATED
D.O.T Hazard Name (49CFR 172.101): NONE
D.O.T. ID Number (49CFR 172.101): NONE
D.O.T. Hazard Class (49CFR 172.101): Non D.O.T. Regulated
RCRA Hazard Class (40cfr261) (If discarded): NONE
E.P.A. Priority pollutants (40CFR 122.53): NONE

HAZARD RATINGS:
HEALTH (NFPA): 1, HEALTH (HMIS): 1, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating system.

SECTION 15. REGULATORY INFORMATION:

TSCA Chemical Substances Inventory:

All components of this product are either listed on the inventory or exempt from listing.

California Proposition 65 Information:

This product contains no listed substances known to the state of California to cause cancer, birth defects or other reproductive harm.

7/7HACHA

NOTICE

All information, recommendations, and suggestions appearing herein concerning this product are based upon data obtained from the manufacturer and/or recognized technical sources; however, EP CHEMICAL makes no warranty, representation, or guaranty as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling, and disposal of the product. Additional product literature may be available upon request. Since actual use by others is beyond our control, no warranty, express or implied is made by EP CHEMICAL as to the effects of such use, the results to be obtained or the safety and toxicity of the product nor does EP CHEMICAL assume any liability arising out of use by others of this product.

Hydrosil International LTD.
125 Prairie Lake Road - East Dundee, IL 60118
Phone: 847-844-0680
Emergency Phone: 847-844-0680
Fax: 847-844-0799

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HS-200

Media to Remove Oil, Heavy Metals and Similar Organics from Water Safety Data Sheet

Revision date : 2017

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 - Product Identifier

Product Name: HS-200

1.2 - Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Filtration

1.3 - Details of the supplier of the safety data sheet

Hydrosil International Ltd.
125 Prairie Lake Rd
East Dundee, IL 60118

T 847-844-0680 - F 847-844-0799
www.hydrosilintl.com

1.4 - Emergency telephone number

Emergency number : 1-847-844-0680

Section 2: Hazards Identification

2.1 - Classification of the substance or mixture

GHS-US classification
Eye Dam. 1 H318
STOT SE 3 H335

2.2 - Label Elements

GHS-US labeling
Hazard pictograms (GHS-US) :

Signal word (GHS-US) : Danger
Hazard statements (GHS-US) :

H318 - Causes serious eye damage
H335 - May cause respiratory irritation

Precautionary statements (GHS-US) :

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a POISON CENTER/doctor/…
P312 - Call a POISON CENTER/doctor/…/if you feel unwell
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to ...

2.3 - Other Hazards

No additional information available

2.4 - Unknown acute toxicity (GHS US)

No data available

SECTION 3: Composition/information on ingredients

3.1 - Substances

Not applicable

3.2 - Mixture

Name	Product Identifier	%	GHS-US Classification
Zeolite	(CAS No.) 1318-02-1	85.2 - 86.2	STOT SE 3, H335
Water	(CAS No.) 7732-18-5	8.4 - 11.4	Not classified
N,N,N-Trimethyl-1-hexadecanaminium chloride	(CAS No.) 112-02-7	3.4 - 5.4	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400

SECTION 4: First aid measures

4.1 - Description of first aid measures

First-aid measures after inhalation : Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Get immediate medical attention.
First-aid measures after skin contact : If skin reddening or irritation develops, seek medical attention.
First-aid measures after eye contact : Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists get medical attention.
First-aid measures after ingestion : If the material is swallowed, get immediate medical attention or advice. DO NOT induce vomiting unless directed to do so by medical personnel.

4.2 - Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.
Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after eye contact : Causes serious eye irritation.
Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 - Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1 - Extinguishing media

Suitable extinguishing media : If involved with fire, flood with plenty of water.
Unsuitable extinguishing media : None.

5.2 - Special hazards arising from the substance or mixture

Fire hazard : None known.
Explosion hazard : None known.

5.3 - Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear.

SECTION 6: Accidental release measures

6.1 - Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.
For non-emergency personnel : No additional information available
For emergency responders : No additional information available

6.2 - Environmental precautions

None.

6.3 - Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.
Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 - Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1 - Precautions for safe handling

Precautions for safe handling : Wet carbon/coal removes oxygen from air causing a severe hazard to workers inside carbon vessels or confined spaces.

7.2 - Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Store in dry, cool, well-ventilated area.

7.3 - Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1 - Control parameters

No additional information available

8.2 - Exposure controls

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.
Hand protection : Use impervious gloves.
Eye protection : Safety glasses.
Skin and body protection : Wear suitable working clothes.
Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

SECTION 9: Physical and chemical properties

9.1 - Information on basic physical and chemical properties

Physical state : Solid
Appearance : Irregular shaped.
Color : White
Odor : No data available
Odor threshold : No data available
pH : No data available
Relative evaporation rate (butyl acetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapor pressure : No data available
Relative vapor density at 20 °C : No data available
Relative density : 57-59 lb/ft3
Solubility : No data available
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematics : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidizing properties : No data available
Explosive limits : No data available

9.1 - Other information

No additional information available

SECTION 10: Stability and Reactivity

10.1 - Reactivity

No additional information available

10.2 - Chemical stability

Stable under normal conditions.

10.3 - Possibility of hazardous reactions

Will not occur

10.4 - Conditions to avoid

None

10.5 - Incompatible materials

Strong oxidizing and reducing agents.

10.6 - Hazardous decomposition products

Organic chlorides, amines, hydrogen chloride may be produced.

SECTION 11: Toxicological information

11.1 - Information on toxicological effects

Acute toxicity : Not classified

Zeolite (1318-02-1)	
LD50 oral rat	5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat (mg/l)	2.4 mg/l (Exposure time: 1 h)
ATE (oral)	5000 mg/kg

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye damage.
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Zeolite (1318-02-1)	
IARC group	3

Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1 - Toxicity

Zeolite (1318-02-1)	
LC50 fishes 1	1800 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [semi-static])
EC50 Daphnia 1	1000 - 1800 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 other aquatic organisms 1	18 mg/l (Exposure time: 96 h - Species: Desmodesmus subspicatus)
LC50 fish 2	3200 - 5600 mg/l (Exposure time: 96 h - Species: Oryzias latipes [semi-static])

12.2 - Persistence and degradability

No additional information available

12.3 - Bioaccumulative potential

No additional information available

12.4 - Mobility in soil

No additional information available

12.5 - Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1 - Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

SECTION 14: Transport information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 - UN number

Not applicable

14.2 - UN proper shipping name

Not applicable

SECTION 15: Regulatory information

15.1 - US Federal regulations

15.2 - US State regulations

No additional information available

SECTION 16: Other information

Full text of H-phrases:

Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard Category 1
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H400	Very toxic to aquatic life

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt
medical attention is given.
NFPA fire hazard : 0 - Materials that will not burn.
NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water

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Hydrosil International LTD.
125 Prairie Lake Road - East Dundee, IL 60118
Phone: 847-844-0680
Emergency Phone: 847-844-0680
Fax: 847-844-0799

HS-300

HS-300 Safety Data Sheet

Revision date : 2022

Section 1: Product and Company Information

Product Name	Product Type	Manufacturer ID	Emergency Phone Number	Address	Common Use of Product
HS-300	Modified Organoclay	Hydrosil International Ltd.	847-844-0680	125 Prairie Lake Rd. East Dundee, IL 60018	Filtration

Section 2: Hazard(s) Identification

2.1 Classification of the substance or mixture (GHS-US)

Pictogram	Signal Word	Hazard Statement
	Warning	Eye Irritation 2B H320; Acute Oral Tox 4, H302; Respiratory Irritation H335

2.2 Precautionary statements (GHS-US) :

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking
P220 Keep/Store away from clothing/combustible materials
P221 Take any precaution to avoid mixing with combustibles
P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P271 Use only outdoors or in a well-ventilated area
P280 Wear protective gloves/protective clothing/eye protection/face protection
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing
P312 Call a POISON CENTER/doctor if you feel unwell
P370+P378 In case of fire: Use for extinction
P403+P233 Store in a well-ventilated place. Keep container tightly closed
P405 Store locked up
P501 Dispose of contents/container

2.3 Other Hazards

No additional information available

2.4 Unknown acute toxicity (GHS US)

No data available

Section 3: Composition/Information on Ingredients

Name	Product Identifier	Percent By Weight (%)	GHS-US Classification
Zeolite	(CAS No.) 1318-02-1	79.5-81.5	STOT SE 3, H335
Water	(CAS No.) 7732-18-5	12.5-14.5	Not Classified
Proprietary Active Ingredient		3.0-3.8	Not Classified

Section 4: First-Aid Measures

4.1 Description of first aid measures

Inhalation First Aid	Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Seek immediate medical attention.
Skin Contact First Aid	If skin reddening or irritation develops, seek medical attention.
Eye Contact First Aid	Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists seek medical attention.
Ingestion First Aid	If the material is swallowed, rinse mouth thoroughly. DO NOT induce vomiting unless directed to do so by medical personnel. Seek medical attention if large amounts are ingested.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.
Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after eye contact : Causes eye irritation.
Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 Indication of any immediate medical attention and special treatment needed

No additional information available

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

5.2 □Special hazards arising from the substance or mixture

Fire hazard : None known.
Explosion hazard : None known.

5.3 □Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear (chemical protective clothing and breathing apparatus).

Section 6: Accidental Release Measures

6.1 □Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.
For non-emergency personnel : No additional information available
For emergency responders : No additional information available

6.2 □Environmental precautions

None.

6.3 □Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.
Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 □Reference to other sections

No additional information available

Section 7: Handling and Storage

7.1 □Precautions for safe handling

Avoid generation of dust.

7.2 □Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Keep container tightly closed and store in dry, cool, well-ventilated area. Protect material from water and contaminated gases.

7.3 □Specific end use(s)

No additional information available

Section 8: Exposure Controls/Personal Protection

8.1 □Control parameters

No additional information available

8.2 □Exposure controls/Person Protection

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection : Use impervious gloves to minimize skin contact.
Eye protection : Safety glasses.
Skin and body protection : Wear suitable working clothes.
Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state : Solid
Appearance : Granules
Colour : White
Odour : No data available
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : 57-59 lb/ft3
Solubility : No data available
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

Section 10: Stability and Reactivity

10.1 Reactivity

No additional information available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

Strong oxidizing and reducing agents.

10.5 Incompatible materials

Strong oxidizers such as ozone, liquid oxygen, chlorine, etc.

10.6 Hazardous decomposition products

Organic chlorides, amines, hydrogen chloride may be produced.

Section 11: Toxicological Information

11.1 □Information on toxicological effects

Acute toxicity : Not classified

Zeolite (CAS No. 1318-02-1)	
LD50 Oral Rat	5000 mg/kg
LD50 Dermal Rabbit	>2000 mg/kg
LC50 Inhalation Rat	2.4 mg/l (Exposure Time: 1Hr
ATE (Oral)	5000 mg/kg

Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Zeolite (CAS No. 1318-02-1) IARC Group: 3

Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified

Section 12: Ecological Information

12.1 □Toxicity

Zeolite (CAS No. 1318-02-1)	
LC50 Fishes 1	1800 mg/l (Exposure time: 96 h □Species: Brachydanio rerio [semi-static])
EC50 Daphnia 1	1000 □1800 mg/l (Exposure time: 48 h □ Species: Daphnia magna)
EC50 Other Aquatic Organisms 1	18 mg/l (Exposure time: 96 h □Species: Desmodesmus subspicatus)
LC50 Fish 2	3200 □5600 mg/l (Exposure time: 96 h □ Species: Oryzias latipes [semi-static])

12.2 □Persistence and degradability

No additional information available

12.3 □Bioaccumulative potential

No additional information available

12.4 □Mobility in soil

No additional information available

12.5 □Other adverse effects

No additional information available

Section 13: Disposal Considerations

13.1 □Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14: Transport Information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 □UN number

Not applicable

14.2 □UN proper shipping name

Not applicable

Section 15: Regulatory Information

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.1 □US Federal regulations

OSHA: This product is not known to be hazardous by OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.
CERCLA/SARA Hazardous Substances: Not applicable.

15.2 □US State regulations

Review specific state regulations.

Section 16: Other Information

Full text of H-phrases:

Eye Dam. 1	Series eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

NFPA health hazard : 1 □Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard : 0 □Materials that will not burn
NFPA reactivity : 0 □Normally stable, even under fire exposure conditions, and are not

reactive with water

Hydrosil International LTD.
125 Prairie Lake Road - East Dundee, IL 60118
Phone: 847-844-0680
Emergency Phone: 847-844-0680
Fax: 847-844-0799

HS-ACC

Coal Based Activated Carbon Safety Data Sheet

Revision date : 2023

Section 1: Product and Company Information

Product Name: HS-ACC
Product Type: Coal Based Activated Carbon
Manufacturer ID: Hydrosil International Ltd.
Emergency Phone Number: 847-844-0680
Address: 125 Prairie Lake Rd. East Dundee, IL 60118

Section 2: Hazard(s) Identification

2.1 Classification of the substance or mixture (GHS-US)

Pictogram	Signal Word	Hazard Statement
	Warning	Eye Irritation 2B H320; Acute Oral Tox 4, H302; Respiratory Irritation H335

2.2 Precautionary statements (GHS-US) :

P261: Avoid breathing dust/fume/gas/mist/vapours/spray
P264: Wash & thoroughly after handling
P271: Use only outdoors or in a well-ventilated area
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact
lenses, if present and easy to do. Continue rinsing
P312: Call a POISON CENTER/doctor/&/if you feel unwell
P337+P313: If eye irritation persists: Get medical advice/attention
P403+P233: Store in a well-ventilated place. Keep container tightly closed
P405: Store locked up
P501: Dispose of contents/container to &

2.3 Other Hazards

No additional information available

2.4 Unknown acute toxicity (GHS US)

No data available

Section 3: Composition/Information on Ingredients

Name	Product Identifier	Percent By Weight (%)	Impurities
Carbon	(CAS No.) 7440-44-0	100	None

Section 4: First-Aid Measures

4.1 Description of first aid measures

Inhalation **First Aid**	Remove person to fresh air. If not breathing, administer CPR or artificial respiration. Seek immediate medical attention.
Skin Contact **First Aid**	If skin reddening or irritation develops, seek medical attention.
Eye Contact **First Aid**	Immediately flush eyes with plenty of water for at least 15 minutes. If irritation persists seek medical attention.
Ingestion **First Aid**	If the material is swallowed, rinse mouth thoroughly. DO NOT induce vomiting unless directed to do so by medical personnel. Seek medical attention if large amounts are ingested.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory irritation.
Symptoms/injuries after skin contact : Causes skin irritation.
Symptoms/injuries after eye contact : Causes eye irritation.
Symptoms/injuries after ingestion : May be harmful if swallowed.

4.3 Indication of any immediate medical attention and special treatment needed

No additional information available

Section 5: Fire-Fighting Measures

5.1 Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.

5.2 Special hazards arising from the substance or mixture

Fire hazard : None known.
Explosion hazard : None known.

5.3 Advice for firefighters

Protection during firefighting : Firefighters should wear full protective gear (chemical protective clothing and breathing apparatus).

Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

General measures : Avoid contact with the skin and the eyes.
For non-emergency personnel : No additional information available
For emergency responders : No additional information available

6.2 Environmental precautions

None.

6.3 Methods and material for containment and cleaning up

For containment : If possible, stop flow of product.
Methods for cleaning up : Shovel or sweep up and put in a closed container for disposal.

6.4 Reference to other sections

No additional information available

Section 7: Handling and Storage

7.1 Precautions for safe handling

Avoid generation of dust.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions : Protect containers from physical damage. Keep container tightly closed and store in dry, cool, well-ventilated area. Protect material from contaminated water and gases.

7.3 Specific end use(s)

No additional information available

Section 8: Exposure Controls/Personal Protection

8.1 Control parameters

No additional information available

8.2 Exposure controls/Person Protection

Appropriate engineering controls : Local exhaust and general ventilation must be adequate to meet exposure standards.
Hand protection : Use impervious gloves to minimize skin contact.
Eye protection : Safety glasses.
Skin and body protection : Wear suitable working clothes.
Respiratory protection : If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

Physical state : Solid
Appearance : Granules
Color : Black
Odor : No data available
Odor threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : No data available
Boiling point : No data available
Flash point : No data available
Self ignition temperature : No data available
Decomposition temperature : No data available
Flammability (solid, gas) : No data available
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : 29-31 lb/ft3
Solubility : No data available
Log Pow : No data available
Log Kow : No data available
Viscosity, kinematic : No data available
Viscosity, dynamic : No data available
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : No data available

Section 10: Stability and Reactivity

10.1 Reactivity

Contact with strong oxidizers such as ozone, liquid oxygen, chlorine, etc. may result in fire.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

None.

10.4 Conditions to avoid

None.

10.5 Incompatible materials

Strong oxidizers such as ozone, liquid oxygen, chlorine, etc.

10.6 Hazardous decomposition products

Carbon monoxide may be generated in the event of fire.

Section 11: Toxicological Information

11.1 Information on toxicological effects

Acute toxicity : Not classified

Carbon (CAS No. 7440-44-0)

LD50 Oral Rat	> 1000 mg/kg

Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Reproductive toxicity : Not classified
Specific target organ toxicity (single exposure) : May cause respiratory irritation.
Specific target organ toxicity (repeated exposure) : Not classified
Aspiration hazard : Not classified

Section 12: Ecological Information

12.1 Toxicity

No additional information available

12.2 Persistence and degradability

No additional information available

12.3 Bioaccumulative potential

No additional information available

12.4 Mobility in soil

No additional information available

12.5 Other adverse effects

No additional information available

Section 13: Disposal Considerations

13.1 Waste treatment methods

Waste disposal recommendations : Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14: Transport Information

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

Section 15: Regulatory Information

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.1 US Federal regulations

OSHA: This product is not known to be hazardous by OSHA Highly Hazardous Process Safety Standard, 29 CFR 1910.119.
CERCLA/SARA Hazardous Substances: Not applicable.

15.2 US State regulations

Review specific state regulations.

Section 16: Other Information

Full text of H-phrases:

Eye Irrit. 2B	Serious eye damage/eye irritation Category 2B
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H335	May cause respiratory irritation

NFPA health hazard : 1 Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard : 0 Materials that will not burn
NFPA reactivity : 0 Normally stable, even under fire exposure conditions, and are not reactive with water

Anexo D Análisis de Peligros del Trabajo

SECTION 1: JOB/TASK/PROCESS *(Document General Information Below)*

SCOPE OF WORK:			DURATION OF PROJECT/TASK:
WWT system Media and filter changeout.			TBD
JOB HAZARD ANALYSIS LED BY (Print Name):	**TITLE:**	**ORIGINAL ANALYSIS DATE:**	**REVISION DATE:**
Steve Cozak	Field Service Project Manager	11/29/22	03/18/24
JOB HAZARD ANALYSIS REVIEWED BY (Print Name)::	**TITLE:**	**APPROVED BY:**	**TITLE:**
Greg Bird, CSP	Sr. Health and Safety Manager	G. Bird	Sr. H&S Mgr.

SECTION 2: Chemical/Physical/ Biological Hazards *(Describe Job Hazard Agents Identified)*

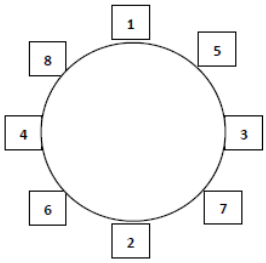
Chemical Agents (HAZCOM/ WHMIS MSDS Review)	Physical Agents	Biological Agents
Landfill Leachate, VOCs (trace), Hydrogen Peroxide, Talon(non-Cl Brake cleaner), Defoaming agent.	Slip, Trips, Falls, Pinch Points, Noise, Pressurized systems.	Heat Stress, Cold Stress

SECTION 3: PPE HAZARD ASSESSMENT SUMMARY

Head	☒ Hard Hat ☐ Side Impact Hard Hat ☐ DOT Approved Helmet ☐ Lock-On-Life Support Helmet ☐ Other:
Eyes/Face/Neck	☒ Safety Glasses with Side Shields ☒ Goggles – Chemical ☐ Goggles – Dust ☒ Face Shield ☐ Welding Helmet ☐ Balaclava (F.R.) ☐ Other: _____
Respiratory	☐ Dust Mask ☐ Half Face Respirator/Cartridge Type: _____ ☐ Full Face AP Respirator/Cartridge Type: ☐ PAPR/ Cartridge Type: _____ ☒ SABA ☐ SCBA ☐ Lock-On-Life Support Helmet ☐ Other: _____
Ears/Hearing	☒ Ear Plug ☐ Ear Muff ☐ Double (Combination Ear Plugs & Ear Muffs) ☐ Other:
Hands/Arms	☐ Cotton Gloves ☒ Leather Gloves ☐ Puncture/Cut Resistant ☒ PVA ☒ Nitrile Liner ☐ Anti-vibration ☐ Impact Protection ☐ Thermal ☐ Sleeves ☐ Wristlets/Type: _____ ☐ Other: _____
Body	☐ Fire Retardant Coveralls/Uniform ☐ Chemical Protective Clothing/Type: ☐ Tyvek/Type: ☐ Apron ☐ Sleeves ☐ Life Jacket/Vest ☒ High Visibility Vest/Shirt ☐ Heat Reflective Suit ☐ Foul Weather Gear ☐ Cool Vest ☐ Kevlar Cut Resistant Suits ☐ Other:
Feet	☒ Safety Boots – Leather or Rubber ☐ Metatarsals (Feet & Shin) ☐ Ice Cleats (Slip-Overs) ☐ Booties/ Type: _____ ☐ Other: _____
Covid-19	☒ Cloth Face covering within 6ft of others ☒ Refer to CHES Pandemic Management Plan

SECTION 4: HAZARD ANALYSIS PROCESS ***(Document Hazard Analysis and Controls Based on each Job Step/ Task Sequence)***			
Sequence Of Job Steps/Tasks (Number)	**Hazards/Potential Hazards & Effects (What could go wrong?)**	**Recommended Hazard Control Or Safe Job Procedures (How can harm be prevented?)**	**Required PPE (List PPE required for each Job Step)**
1.Set-up of Hurricane (Vacuum Truck), Rol-Off Container and Containments	a) Truck placement b) Slips, trips, falls c) Back strain/injuries	a) Inspect the staging area and make sure everything is level and secured. Utilize a spotter to guide into the area. inspect area overhead before moving vehicle b) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways. c) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance.	Level-D Hard Hat Safety Glasses Steel toe boots Leather Gloves with nitrile liners Safety Vest Hearing protection as needed
2. Removal of Spent Media	a) Slips, trips, and falls b) Back strain/injuries c) Utilize Vacuum hopper unit d) Utilize forklift or other mechanical means to move drums/equipment	a) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways. b) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance. c) Discharge vapors downwind away from personnel. d) Only authorized personnel will be allowed to operate Forklift/mechanical equipment. Use seat belt at all times. Do not lift loads in uneven ground/surfaces. BE aware of your surroundings	Level-D Hard Hat Safety Glasses Steel toe boots Leather Gloves with nitrile liners Safety Vest Hearing protection as needed

3. Moving and loading the hurricane/hopper and dumping media into a roll-off for disposal	a) Slips, trips, and falls b) Struck by equipment c) Back strain/injuries d) Pinch Points	a) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways. b) Stay clear of equipment during load out. Never approach equipment unless the operator is aware of your approach. Do not get under suspended loads. c) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance. d) Always be aware of your surroundings and where you are placing your hands and fingers. Never place your hands in areas you cannot see.	Level D: Hard Hat Steel toe boots Safety Glasses PVA Gloves Nitrile Inner gloves Safety Vest Hearing protection, as needed
4. Reload Vessel with new media	a) Slips, Trips, and Falls b) Working from a ladder c) Back strain/injuries d) Hand Lacerations e) Pinch Points	a) Tour and inspect work area to find slip trip fall hazards. Remove, protect, or mark all slip trip fall hazards. Create safe pedestrian pathways. b) Set ladder base on a stable flat surface. Always keep three points in contact while on the ladder. Tie ladder with rope to the dome on top of the vessel. Do not allow your belt buckle to go beyond the ladder c) Use proper lifting techniques. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance. d) Use only scissors or shears to cut with. Open blade cutters, including safety cutters are not permitted. e) Always be aware of your surroundings and where you are placing your hands and fingers. Never place your hands in areas you cannot see.	Level D: Hard Hat Steel toe boots Safety Glasses PVA Gloves Nitrile Inner gloves Safety Vest Hearing protection, as needed

5. Filter Change-out: - Pressurize filter housing to purge water; - Open lid and replace bags	a) Sudden Release of Pressure when opening the filter unit.	a) Perform the LOTO/Shut-down procedure attached to this JHA to assure all energy has been eliminated. When pressurizing the filter vessel: - Use pressure regulator on compressor. - Set max pressure to 20psi. - After pressurizing, release pressure from lid bleed valve before attempting to loosen lid bolts. - Once pressure gage reads ZERO (0), unbolt vessel lid in the following manner: Note: There are 24 lid bolts. Loosen/Tighten the bolts in an opposing manner such as in step 1 below. 1- Loosen anchor bolts symmetrically in the following order: but keep snug until all have been initially loosened.  2- After initial loosening, free all anchors in the same order. 3- Once filter bags have been replaced, check gasket and close lid. 4- Secure and tighten all anchor bolts in the same order as above.	Level D: Hard Hat Steel toe boots Safety Glasses PVA Gloves Nitrile Inner gloves Safety Vest Hearing protection, as needed .
	b) Skin contact with impacted water.	b) Assure all lines are drained before opening. Wear liquid goggles, face shield or FF Respirator for splash protection. Wear impervious gloves listed in section 3 of this JHA.	
	c) Strains/sprains when lifting lids, filters and other object.	c) Lift lid using screw jack. Utilize proper body positioning knees bent, back straight and shoulders square. Utilize mechanical means, forklifts, to move equipment. DO not lift anything over 50 pounds without assistance.	
	d) Strains when tightening/loosening vessel access bolts.	d) Use the correct tool that is large enough for leverage or use air impact wrench. Inspect tool before use. Never use a "cheater bar" on a wrench.	

SECTION 5: Atmospheric Monitoring Required: ☐ Yes ☐ No

[For assistance determining exposure action levels please refer to Clean Harbors' Respiratory Protection Standard - Appendix 9]

List Substance(s) or Material(s) of Concern Below:	Monitoring Instrument	Substance / Material Exposure Action Levels			
		Level A	Level B	Level C	Level D
Air Monitoring is not planned for this task.					

SECTION 6: Training ***(Document the required Job Task Training)***

See Section 4.0 of HASP

SECTION 7: Emergency Procedures ***(Document the Emergency Response Procedures – i.e. First Aid, Emergency Call #'s, etc.)***

See Appendix B of the HASP

SECTION 8: Decontamination Procedures ***(Document the Decontamination Procedures –i.e. People and Equipment)***

Hazmat decontamination is not anticipated. System components will be flushed prior to demobilization.

SECTION 9: Additional Job Specific Considerations: ☐ Yes ☐ No

SECTION 10: Job Hazard Analysis Verification (Crew Supervisor Review and Sign Off)

The Job Hazard Analysis Team has assessed the worksite conditions and confirms:

- The JHA addresses the significant Task Steps and applicable hazards and necessary controls.
- The Team has the appropriate resources (people and equipment) to do the job safely.
- Others that could be affected by the work have been informed.
- Energy isolation (if applicable) has been VERIFIED AND DEMONSTRATED.
- This document facilitates compliance of the PPE assessment and hazard analysis pursuant to company, legislative and client requirements.

CREW SUPERVISOR (Please Print):	POSITION:	SIGNATURE:	DATE:

SECTION 11: CREW REVIEW AND SIGN-OFF

NAME (Print)	Signature	NAME (Print)	Signature	NAME (Print)	Signature

CleanHarbors	**JOB HAZARD ANALYSIS**	Document Control ID: HS.00023.FM-10HS Revision Date: 05/29/2018 — Revision #: 8 Owner: Health & Safety

SECTION 1: JOB/TASK/PROCESS *(Document General Information Below)*

SCOPE OF WORK			DURATION OF PROJECT/TASK:
Set-Up and Operation of Temporary Water Treatment System			
Original JOB HAZARD ANALYSIS LED BY (Print Name):	**TITLE:**	**ORIGINAL ANALYSIS DATE:**	**REVISION DATE:**
Steve Cozak	Project Manager	02/24/22	03/18/24
JOB HAZARD ANALYSIS REVIEWED BY (Print Name)::	**TITLE:**	**APPROVED BY:**	**TITLE:**
Greg Bird	Sr. H&S Manager	Greg Bird	Sr. H&S Manager

SECTION 2: Chemical/Physical/ Biological Hazards *(Describe Job Hazard Agents Identified)*

Chemical Agents (HAZCOM/ WHMIS MSDS Review)	Physical Agents	Biological Agents
Landfill Leachate, VOCs (trace), Hydrogen Peroxide, Talon(non-Cl Brake cleaner), Defoaming agent.	Slip, Trips, Falls, Pinch Points, Noise, Pressurized systems.	Heat Stress, Cold Stress

SECTION 3: PPE HAZARD ASSESSMENT SUMMARY

Head	☒ Hard Hat ☐ Side Impact Hard Hat ☐ DOT Approved Helmet ☐ Lock-On-Life Support Helmet ☐ Other:
Eyes/Face/Neck	☒ Safety Glasses with Side Shields ☒ Goggles – Chemical ☐ Goggles – Dust ☒ Face Shield ☐ Welding Helmet ☐ Balaclava (F.R.) ☐ Other: _____
Respiratory	☐ Dust Mask ☐ Half Face Respirator/Cartridge Type: _____ ☐ Full Face AP Respirator/Cartridge Type: ☐ PAPR/ Cartridge Type: _____ ☐ SABA ☐ SCBA ☐ Lock-On-Life Support Helmet ☐ Other: _____
Ears/Hearing	☒ Ear Plug ☐ Ear Muff ☐ Double (Combination Ear Plugs & Ear Muffs) ☐ Other:
Hands/Arms	☐ Cotton Gloves ☒ Leather Gloves ☐ Puncture/Cut Resistant ☐ PVC ☒ Nitrile ☐ Anti-vibration ☐ Impact Protection ☐ Thermal ☐ Sleeves ☐ Wristlets/Type: _____ ☐ Other: _____
Body	☐ Fire Retardant Coveralls/Uniform ☐ Chemical Protective Clothing/Type: _____ ☐ Tyvek/Type: ☐ Apron ☒ Sleeves ☐ Life Jacket/Vest ☒ High Visibility Vest/Shirt ☐ Heat Reflective Suit ☐ Foul Weather Gear ☐ Cool Vest ☐ Kevlar Cut Resistant Suits ☐ Other:
Feet	☐ Safety Boots – Leather or Rubber ☐ Metatarsals (Feet & Shin) ☐ Ice Cleats (Slip-Overs) ☐ Booties/ Type: ☒ Other: leather Safety Shoes w/safety toe
Covid-19	☒ Cloth Face covering within 6ft of others ☒ Refer to CHES Pandemic Management Plan

SECTION 4: HAZARD ANALYSIS PROCESS ***(Document Hazard Analysis and Controls Based on each Job Step/ Task Sequence)***

Sequence Of Job Steps and Tasks	Hazards/Potential Hazards & Effects (What could go wrong?)	Recommended Hazard Control Or Safe Job Procedures (How can harm be prevented?)	Required PPE (List PPE required for each Job Step)
For all tasks	a. Slip, Trip, Fall hazards	a. Tour and inspect work area to find all STF hazards; remove, protect, or mark all STF hazards; Create safe pedestrian paths; locate hoses, materials, equipment in vehicles away from pedestrian pathways.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
	b. Lifting, strains,	b. Use available mechanical equipment with appropriate attachments; use safe lifting techniques, such as keeping lower back straight, lifting with leg muscles, "build-a-bridge" by placing one hand on a stable object; get help with anything that weighs more than 50 pounds.	
Set up of Equipment	a. Crushed by/Struck by equipment during movement.	a. Ensure spotter is used when backing equipment in place. Personnel to keep clear a minimum of 5ft from equipment/vehicles during positioning	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
	b. Pinch points,	b. Review and locate equipment labels for any pinch point warnings. Check for other pinch points such as camlock connectors. Keep hands and feet clear of heavy items being placed	
	c. Working from height	c. System trailers are less than 4ft high. However, inspect and set up railing systems on portable storage units. Use small work platforms to access equipment, avoid step stools and ladders if possible.	
	d. Cuts, bruises, broken bones when un-coiling hoses	d. Never release a coiled hose without assistance. Never uncoil a hose vertically, always set hose horizontally on the ground when releasing tie straps.	
	e. Struck by compressor or generator.	e. Assure compressors or Generator wheels are chocked. Un-hitch trailer from tow vehicle in case of emergency evacuation from the area	

Start System Pumps	a. Pressure hazards b. Skin contact with impacted water from leaks in the system. c. Struck by system components if not secured. Hoses can jump suddenly and cause direct injury or injury from a fall, especially on corners and bends. d. Exposure to substances of concern. e. High noise levels from generator or compressor engines f. Electric shock from Generators	a. Release all stored pressure before working with hoses. Secure camlock fittings on hoses with camlock clamps or heavy-duty wire ties. Ensure that any chemical injection lines are secure. b. Before starting the system, perform system leak checks as required in the WWTS SOP. c. Secure all hoses using ratchet straps or some other robust method. Do not secure with ropes. When laying hose, minimize curves and corners. d. Wear PPE prescribed in Section 3. e. Wear hearing protection prescribed in Section 3. f. Inspect wiring for excess wear or damage. Ensure the GFCI is operational or use an in-line GFCI.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Monitor system: - Flow meter readings - Process sampling	a. Water pressure b. Splashes and skin contact with impacted water	a. Ensure all pumping lines are connected and secured. Secure camlock fittings on hoses. Ensure that injection lines are secure. b. Wear PPE prescribed in Section 3, including face shield or goggles.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Water Storage: -Frac Tanks -Weir tanks -Water Separators	a. Falls from height. b. Skin contact with impacted water c. Leaks and spills from vessels, hoses, connections.	a. Ensure vessel have railings. If no railings, Contact H&S for a personal fall protection plan b. Wear PPE as described in Section 3. Close files and bleed hoses into secondary containment before disconnecting lines. c. Perform periodic checks on system for leaks. Ensure frank tanks, weird tanks, separators R set within the secondary containment. Ensure basic spill response equipment is available.	

Decon and clean up materials.	a. Exposure b. Strains	a. Use PPE when wiping down equipment, b. Use Safe lifting techniques such as: - Keeping back straight - Lift with legs, not the back - Get assistance from others - Use available mechanical assist	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Pump operation	a. Fire and spills during refueling. b. Pressure and Splash exposure to contaminants of concern.	a. Assure fuel container and pump fuel tank static has been dissipated by touching the pump, then the fuel container with bare hands. Assure a 20lb fire Extinguisher is in the immediate vicinity. Never lock and/or leave the fill spigot unattended. Remove locking pin from dispenser. Place secondary containment at the fueling station to capture incidental spills. Check fuel tank caps to assure they are tight. b. Shut down pump and bleed effluent line before disconnecting hose, troubleshooting or any other maintenance task	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Operation of Treated Water Injection pump	a. Uncontrolled release of pressure. b. High Noise	a. Assure the injection hydrant valve is open before starting pump. During recirculation, monitor pressure gage for max pressure not to exceed 150psi. When shutting down, shut down pump first, then close injection hydrant valve. Drain/Bleed lines before disconnecting hoses. b. Wear prescribed hearing protection.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection
Waste Characterization and Handling	a. Skin exposure from samples and sample preservatives.	a. Wear prescribed PPE in Section 3 when handling samples and preservatives.	Hard hat Safety Glasses Impervious Gloves under leather gloves Safety Shoes High visibility vest Hearing protection

Add other identified site hazards here			

SECTION 5: Atmospheric Monitoring Required: ☐ **Yes** ☐ **No**

[For assistance determining exposure action levels please refer to Clean Harbors' Respiratory Protection Standard - Appendix 9]

List Substance(s) or Material(s) of Concern Below:	Monitoring Instrument	Substance / Material Exposure Action Levels			
		Level A	Level B	Level C	Level D

SECTION 6: Training ***(Document the required Job Task Training)***

- Site orientation

SECTION 7: Emergency Procedures ***(Document the Emergency Response Procedures - i.e. First Aid, Emergency Call #'s, etc.)***

- Refer to site/facility emergency procedures

SECTION 8: Decontamination Procedures ***(Document the Decontamination Procedures –i.e. People and Equipment)***

N/A

SECTION 9: Additional Job Specific Considerations: ☐ **Yes** ☐ **No**

SECTION 10: Job Hazard Analysis Verification (Crew Supervisor Review and Sign Off)

The Job Hazard Analysis Team has assessed the worksite conditions and confirms:

- The job and site specific conditions have been reviewed to ensure additional hazards have been addressed as warranted.
- The JHA addresses the significant Task Steps and applicable hazards and necessary controls.
- The Team has the appropriate resources (people and equipment) to do the job safely.
- Others that could be affected by the work have been informed.
- Energy isolation (if applicable) has been VERIFIED AND DEMONSTRATED.
- This document facilitates compliance of the PPE assessment and hazard analysis pursuant to company, legislative and client requirements.

SUPERVISOR / PM/ GM (Please Print):	POSITION:	SIGNATURE:	DATE:

SECTION 11: Job Hazard Analysis Review (Work Team Reviews and Sign-Off)

NAME (Print)	Signature	NAME (Print)	Signature	NAME (Print)	Signature

CTEH Job Hazard Analysis

Leachate Tank Gauging

Risk Values			Gain Values
Low Moderate High Very High	**High**	**Vs.** **Moderate**	Low Moderate High

Accept Task Only with Management Endorsement

Communicate risk vs gain to management, implement controls and continually evaluate conditions and task for change.

Section 01 – Job Site and Communication		
Project Number(s) PROJ-037822	**Job Site:** Chiquita Canyon Landfill	**Area(s) of Operation:** Tank Farms and Tank Manifolds
Communication: ☐ 2-Way Radios ☒ Cell Phone ☐ Hand Signals ☐ Air Horn ☒ Facility Horn/Siren ☐ Other _____		

Section 02 – Personal Protective Equipment (PPE)
Head and Eyes: ☒ Hardhat ☒ Safety Glasses w/ Side Sheilds ☐ Safety Goggles ☐ Face Shield
Hearing: ☐ Ear Plugs/Caps ☐ Earmuffs ☐ Double Hearing Protection
Clothing and Torso: ☒ High Visibility Clothing ☒ Long Sleeves ☒ Fire Resistant Clothing (FRC) ☐ Personal Flotation Device ☐ Chemical Protective Clothing ☐ Fall Arrest/Restraint Harness
Hands: ☒ Gloves ☐ Gauntlets *Features:* ☒ *Impact Resistant* ☐ *Cut Resistant* ☐ *Temperature Resistant* ☐ *Chemical Resistant*
Feet: ☐ Safety Shoes ☒ Safety Boots *Features:* ☒ *Safety Toe* ☒ *Ankle Support* ☒ *Slip Resistant* ☐ *Shank* ☐ *Metatarsal* ☐ *Temperature Resistant* ☐ *Chemical Resistant*
Respiratory: ☐ Dust Mask/N95 ☒ Air Purifying Respirator ☐ SCBA/SAR ☐ PAPR ☒ Air Monitoring Equip.
Other PPE: Sunscreen

Section 03 – Special Hazard Description

- Leachate vapors can contain high concentrations of Volatile Organic Compounds (VOCs), benzene, hydrogen sulfide (H_2S), Carbon Monoxide (CO) which exceed occupational exposure limits inside tanks and near tank hatches. Low oxygen may exist near tank hatches and inside tanks below 19.5%. Chemical vapors and decreased oxygen content may cause dizziness and unconsciousness. Flammable vapors may be present above the lower explosive limit inside tanks and near hatches.
- Air purifying respirator organic vapor cartridges do not provide protection from carbon monoxide. Ensure selected cartridges provide protection from hydrogen sulfide.
- Tank conditions are unpredictable and change frequently. Previous non-hazardous conditions in a tank does not predict future conditions.

Section 04 – Job Task			
	Job Step	**Hazard**	**Controls**
Moderate	Vehicle/roadway	• Uneven, muddy, unpaved, and loose roadbeds resulting in reduced stopping distance and vehicle stability. • Heavy commercial truck and equipment traffic.	• Always wear seatbelts. • Do not exceed landfill speed limit of 10 mph. • Yield to heavy vehicle traffic.
Low	Accessing tank farms and manifolds	• Tanks may be surrounded by soil berms and uneven terrain with loose soil/rock. Soil can form slick mud following rain. • Tanks are connected by hosing laid on the ground.	• Wear high visibility clothing in areas with vehicle traffic. • Wear fire resistant clothing (FRC). • Do not step on hosing and do not jump over hosing. • Maintain sure footing when walking on uneven and loose terrain. • Wear footwear with lugged outsole, defined heal and ankle support.
Moderate	Accessing tank hatches	• Stairs. • Elevated work surfaces. • Open hatches may release chemical vapors and/or flammable vapors.	• Use stair railings when ascending. • Do not stand or crawl on top of tanks. Never jump from one tank to another. • Approach open hatches from upwind and conduct air monitoring in breathing zone while approaching. Don respiratory protection, if necessary, before climbing stairs.
High	Opening tank hatches	• Open hatches may release chemical vapors and/or flammable vapors. Oxygen levels may be decreased below 19.5% in hatch vicinity. Chemical vapors and decreased oxygen content may cause dizziness and unconsciousness.	• Don respiratory protection before opening hatch. • Observe Magnehelic pressure gauge prior to opening. Do not open tanks under positive pressure. • Monitor air between hatch and breathing zone while opening hatch. • Stand upwind of hatch when opening. Never stand above hatch when opening. • Leave area and allow tank to ventilate if chemical site-specific action levels in site HASP are exceeded. • Do not use non-intrinsically safe equipment in hatch vicinities.
High	Gauging tank	• Persisting chemical hazards. • Confined space	• Conduct continuous air monitoring in breathing zone. • Do not gauge tank if chemical site-specific action levels in site HASP are exceeded. • Do not place any part of body inside tank.
Low	Closing hatch/complete gauging tank	• Hand injury from hatch. Tank hatches are heavy and may pinch or crush hands. • Stairs	• Wear impact resistant gloves and ensure hands are clear of hatch when closing. • Use stair railing when descending. Be aware of trip hazards such as hoses when transitioning from stairs to ground.

Section 05 - Additional Notes
Not all tanks may be equipped with Magnehelic pressure gauges. The amount of negative pressure, if any, cannot be identified for these tanks. Use additional caution as tanks with neutral and positive pressure may result in increased exposure to leachate vapors.

Job Hazard Assessment

Date:	Location:	Project Manager:
2/27/2024	Chiquita Canyon	Jamie Beck

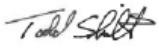
Description:

Contract employee inspects FRAC tanks on behalf of Waste Connetions

	Job Step:	Hazard:	Controls:	Person Responsible:
1	Visual inspection of FRAC tanks:	Slips, Trips, Falls	Eyes on path	CTEH Team
	Grade	Contact with heavy equipment	Do not walk while inspecting FRACs	
	Ascending/Descending stairs		Do not walk while inputting data	
	Data entry		Work inside handrail	
			3-points contact	
			Get eye contact with equipment operator	
			Step away from high traffic areas to input data	
			Constantly check surroundings	
			Stop in a safe location to input data	
			PPE*	

*Standard PPE: Hardhat, safety glasses with sideshields, FRC, steel toed shoes, gloves (as needed), reflective vest.

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature
Todd Shilt			

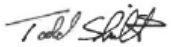
Job Hazard Assessment

Date:	Location:	Project Manager:
2/26/2024	Chiquita Canyon	Jason Callahan

Description:
CTEH employees conducting air sampling and monitoring on behalf of the client.

	Job Step:	Hazard:	Controls:	Person Responsible:
1	Calibrate equipment	Calibrate using gas bottles	Use in a well-ventilated area	CTEH Team
2	Drive to/from work locations	Heavy equipment	Watch traffic, reflective vest, buddy system	
3	Ascend/Descend FRAC tanks	Slips, trips, falls	3-points of contact, eyes on path	
4	Monitor head space of FRAC tanks	Chemical exposure, pinch points	Sample upwind, ensure lid does not fall, chemical gloves. If concentration above established limits wear Full-face respirator with organic vapor cartridges. Wear 5-gas meter or equivalent.	
			Wear PPE*	
* Standard PPE: Hardhat, safety glasses with sideshields, FRC, reflective vest, steel-toed shoes, gloves (leather/chemical as needed).				

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature
Todd Shilt			

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

CTEH Employee collecting samples from hot wells

	Job Step:	Hazard:	Controls:	Person Responsible:
1	Add air to the well system	pressurized lines, pinch points	Utilize proper PPE (e.g safety glasses and gloves)	CTEH
2	Don appropriate PPE	pressurized lines, unknown atmosphere (leachate)	Utilize proper PPE (e.g. heat/liquid resistant gloves, safety shield, APR, 5-gas monitor	
3	Open valves	Unexpected release, burns	Utilize proper PPE (e.g. heat/liquid resistant gloves, safety shield, APR, 5-gas monitor, FR Clothing	
4	Transfer leachate into bowl for sampling	Spray hazard due to to much pressure in the lines	secure hoze and use proper PPE (e.g. heat/liquid resistant gloves, safety shield,	
5	Transfer leachate from the bowl into sample bottle jar for pouring	Splash hazard, unknown atmosphere	Use proper PPE (e.g. heat/liquid resistant gloves, safety shield, APR	
6	Transfer leachate from bottle jar to lab sample (VOA)	Splash hazard, unknown atmosphere	Use proper PPE (e.g. heat/liquid resistant gloves, safety shield, APR	
7	Doff PPE	Contaminated PPE	Dispose/Decon properly	
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	Example:	Example:	Example:	Example:
Ex	*Open gate to location*	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Areas	Jason Callahan

Description:

Performing well drilling operations and installing well pipe

	Job Step:	Hazard:	Controls:	Person Responsible:
1	Grading area for drill benching (excavator)	Struck bys, roll over	Spotters, 2-way radios, proper equipment use	Continuum
2	Vac box setup (pulling vacuum)	slips, trips, falls, pinch points, sharp edges	working surface observations, proper PPE (e.g. slip resistant shoes, gloves)	
3	Setup drill equipment (rig)	struck bys, roll over	Spotters, 2-way radios, proper equipment use	
4	Drill Operations	Debris, unknown atmospheres, struck bys	Clean work area with excavator, 5-gas montior, spotters	
5	Remove vac box	Sharp edges, debris in working area	working surface observations, proper PPE (e.g. slip resistant shoes, gloves)	
6	Set Well Grate	slips, trips, falls, falling into hole	Utilize proper PPE and 100% tie off with harness	
7	Set Piping	slips, trips, falls, falling into hole	Utilize proper PPE and 100% tie off with harness	
8	Dump dirt and rock into hole	debris in work area, struck bys,	Clean work area with excavator, spotters	
9	Cap Well	Struck bys, pinch points	Utilize proper PPE (e.g. gloves and safety glasses), spotters for traffic and equipment	
10				
	Example:	Example:	Example:	Example:
	Open gate to location	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Installing vacuum lines on Frac Tanks

	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Gather Parts (HDPE)	Slips, trips, falls, work area	PPE- slip resistant work boots, good housekeeping	Continuum Environmental Services	
2	Set pipe pieces into clamp	pinch points, unknown atmosphere	PPE (e.g. gloves) 5-gas monitor		
3	Cleaning pipe edges (edge cutter blade placed into clamp)	Utilizing edge cutter blade, sharp edges, pinch points, unknown atmosphere	Proper procedures, PPE (e.g. gloves, safety glasses) 5-gas monitor		
	Remove edge cutter blade	Utilizing edge cutter blade, sharp edges, pinch points, unknown atmosphere	Proper procedures, PPE (e.g. gloves, safety glasses) 5-gas monitor		
	Insert hot plate	burns and pinch points	Proper procedures, PPE (e.g. gloves, safety glasses)		
	Fusion welding parts	burns and pinch points, unknown atmosphere of work area	Proper procedures, PPE (e.g. gloves, safety glasses, hart hat) 5-gas monitor		most are prefab except large pipe sections
	Remove hot plate	burns and pinch points, unknown atmosphere of work area	Proper procedures, PPE (e.g. gloves, safety glasses, hart hat) 5-gas monitor		
	Placing melted pipe ends together and letting pipe cool (test by touch)	pinch points, unknown atmosphere of work area	Proper procedures, PPE (e.g. gloves, safety glasses, hart hat) 5-gas monitor		
	Tie into vacuum lines with HDPE pipe and to Frac Tanks with Kamaflex	hand tools, pinch points, unknown atmosphere of work area	Proper procedures, PPE (e.g. gloves, safety glasses, hart hat) 5-gas monitor		Once all pipe sections are added together
	Example:	Example:	Example:	Example:	
	Open gate to location	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*	

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/7/2024	ETLF Area	Jason Callahan

Description:
Well maintenance - leak and pressure testing wells

	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Access well location	Slips, trips, falls, pressurized lines (air and hot temperature liquid)	PPE - Boots, safety glasses, face shield, hard hat/ work procedures.	SCS	
2	Connect gauge to force main to determine line pressure	pressurized lines (air and hot temperature liquid)	PPE - Boots, safety glasses, face shield, hard hat/ work procedures.		if pressurized line or leaking air, remove pump
3	Leaving well location	Slips, trips, falls	PPE - Boots, safety glasses, face shield, hard hat/ work procedures.		
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	Example:	Example:	Example:	Example:	
	Open gate to location	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*	

Sign if all of your questions have been answered and you are ready to proceed.			
Name	Signature	Name	Signature
Jarrod Robinson			

Job Hazard Assessment

Date:	Location:	Project Manager:
3/7/2024	ETLF Area	Jason Callahan

Description:

Well maintenance - pump removal and cleaning

	Job Step:	Hazard:	Controls:	Person Responsible:
1	Access well location	Slips, trips, falls, pressurized lines (air and hot temperature liquid)	PPE - Boots, safety glasses, face shield, hard hat/ work procedures.	SCS
2	Extract pump	Pressurized lines (air and hot temperature liquid), hand tools, pinch points	PPE - Boots, safety glasses, face shield, hard hat / work procedures.	
3	Take pump apart	Hand tools ,pinch points	PPE - Boots, safety glasses, face shield, hard hat	
4	Soak parts in cleaning solution	exposure to cleaning solution	PPE - nitrile gloves	
5	Pressure wash and scrape excess debris from pump	Exposure to excess debris on pump	PPE - Boots, safety glasses, face shield, hard hat/ work procedures.	
6	Recontruct pump	Hand tools ,pinch points	PPE - Boots, safety glasses, face shield, hard hat	
7	Test pump	Pressurized air lines	PPE - Boots, safety glasses, face shield, hard hat/ work procedures.	
8	Reinstall pump	Pressurized lines (air and hot temperature liquid), hand tools, pinch points	PPE - Boots, safety glasses, face shield, hard hat / work procedures, valve cap to prevent liquid from coming out	
9	repressurize lines	temperature liquid)	shield, hard hat / work procedures	
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	Example:	Example:	Example:	Example:
	Open gate to location	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment (JHA)

	Date:	Location:	JHA Certified By:	
	3/5/2024	ETLF Area	Jason Callahan	
	Description:			
	Equipment operation including heavy equipment operations (e.g. dozers, excavators, rollers)			
	Job Step:	Hazard:	Controls:	Person Responsible:
1	Determining area of operation	Struck by; Slips trips, falls	Safe working surface evaluation, Spotter depending on job and work area, Hot Zone Procedure	
2	Getting in and out of equipment	Slips, trips, falls, slippery surfaces	Proper PPE, slip-resistant surfaces	
3	Operating equipment	Struck bys/ traffic of work area, unknown atmosphere of work area	Spotter depending on job and work area/isolating working area, 5-gas monitor in equipment cab	
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment (JHA)

	Date:	Location:	JHA Certified By:	
	3/1/2024	Chiquita Canyon		Jason Callahan
	Description:			
	Chiquita Canyon employee provides oversight for all activities in the tank farms			
	Job Step:	Hazard:	Controls:	Person Responsible:
1	Walk around tank farm area providing oversight and work direction.	Slips/Trips/Falls, dust in eyes, contact with heavy equipment, chemical contact on boots	Eyes on path, safety glasses, hi-viz safety vest, headlamp for night ops, light towers, light sticks for directing traffic, chemical boots if walking in leachate or avoid walking through leachate	Dave Matthews
2	Turn valves	Pinch points, cuts, lacerations, leachate spraying	Leather or cut-resistant gloves, safety glasses with sideshields with faceshield/goggles	Dave Matthews
3	Climbing on top of FRAC tank	Fall	Use a spotter when near edge of FRAC tank, fall protection, headlamp for night ops, install transmitters (long term control)	Dave Matthews
4	Backing/Spotting traffic	Contact with heavy equipment	Hi-viz vest, light wands for night ops, eye contact with driver, radios	Dave Matthews
5	Checking tank level	Climbing on top of tank, Fall Hazard,	Utilize on site glass/level indicator to determine tank level, fall protection	
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment (JHA)

Date:	Location:	JHA Certified By:	
3/2/2024	Chiquita Canyon Landfill	Jason Callahan	
Description:			
Chiquita Canyon Operations Specialist			
Job Step:	Hazard:	Controls:	Person Responsible:
1 WC employee walks the reaction area looking for seepage.	Slips, Trips, Falls, engulfment, heavy traffic, working alone	PPE - reflective vest, steel-toed boots, accountability process (short term process), radio, 5-gas monitor with man-down feature	John Boucher, Tom Roe
2 Paperwork in office	Poor posture	Adjust workstation to fit employee, take frequent breaks	John Boucher, Tom Roe
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment (JHA)

	Date:	Location:	JHA Certified By:	
	3/3/2024	Tank Farms	Jason Callahan	
	Description:			
	Chiquita Canyon employee(s) perform tank gauging operations of Frac Tanks at the tank farms			
	Job Step:	Hazard:	Controls:	Person Responsible:
1	Climbing onto tanks (attached ladder)	Slips, trips, falls, slippery surfaces	Railing on ladder steps, utilizing slip-resistance shoes	Geradro, Chan, Armando, Phil
2	Opening tank lid to determine tank level (no site glass)	Potentially hazardous atmospheres when opening tank lid, pressurized lid popping open	Utilizing 5 gas monitors to check atmospheric levels and utilize APR per the HASP, appropriate PPE and gloves, and proper opening operations to stay out of line of fire.	
3	Opening tank lid to determine tank level (site glass)	Slips, trips, falls, slippery surfaces at ground level	Utilizing slip-resistance shoes, stay vigilant to walking-working surfaces	
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment (JHA)

Date:	Location:	Project Manager:	
3/3/2024	Tank Farms	Jason Callahan	
Description:			
Chiquita Canyon employee performing liquid transfer operations between Frac Tanks and trucks			
Job Step:	Hazard:	Controls:	Person Responsible:
1 Determining tanks for transfer	Slips, trips, falls	Inspect work area and walking surfaces	Dave Matthews
2 Connect/Disconnect hoses for transfers	Residual liquid in hose, chemical contact on skin, pinch points, improper hose connection	Clearing out each hose after use via compressed air or vac truck, utilizing gloves, utilize appropriate hoses and connections	Dave Matthews
3 Utilizing pumps and air hoses for transfer	Noise during transfer, compressed air lines, pressurized lines	Stay clear of presssurized lines, utilizing hearing protection, inspect hoses prior to use, verify hoses are compatible with product being transfered, verify hoses are inspected/pressure tested per manufacturer recommendations	Dave Matthews
4 Disconnecting hoses and air lines	Bleed off hoses and air lines.	Confirm line and hose bleed off, utilize vac truck to clear line vapors (insure vac truck is grounded and bonded)	Dave Matthews
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Performing maintenance including repairing Frac Tank valves and fittings

	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Determine tank for repair	Slips, Trips, Falls, Working Surfaces	House keeping of working surfaces	Waste Connections Employee	
2	Empty Tank	Pressurized Lines, Liquid Exposure, Generator Fumes, unknown atmosphere around work area	Staying clear of pressurized lines (liquid and air), Utilizing air-lines to clear hoses of product, Utilizing proper PPE (e.g. gloves, safety glasses), 5 gas monitors to measure the unknown atmosphere,		
3	Removing Valve	Pressurized tank and lines, hand tools injury, pinch points	Confirm tank and lines are clear of product and unpressurized, utilize proper PPE when using hand tools (e.g. gloves)		
4	Install new valve	Hand tools injury, pinch points	utilize proper PPE when using hand tools (e.g. gloves)		
5					
6	Changing Fitting	Hand tools injury, pinch points	utilize proper PPE when using hand tools (e.g. gloves)		Tank does not have to be empty to change hose fitting
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	Example:	Example:	Example:	Example:	
	Open gate to location	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*	

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature
Jarrod Robinson			

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Performing spill cleanup and Impacted storm water areas

	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Stop source of spill	chemical exposure, hand tool injury	utilize proper PPE (e.g. gloves and safety glasses) and 5-gas monitor to measure atmosphere	Waste Connections Employee	
2	Clean up product	chemical exposure, vac truck fumes	Utilize proper PPE (e.g. gloves and safety glasses) and a 5-gas monitor to measure atmosphere, ground and bond vac truck during product cleanup		
3	Utilize Floor Dry to soak up excess spilled product	potential irritation to Floor-Dry (maybe)	Utilize proper PPE (e.g. gloves) when dispersing Floor Dry		
4					
5	Clean up product	chemical exposure, vac truck fumes	Utilize proper PPE (e.g. gloves and safety glasses) and a 5-gas monitor to measure atmosphere, ground and bond vac truck during product cleanup		When cleaning up impacted storm water areas
6	Offloading impacted storm water product into Frac Tank	Pressurized Lines, Liquid Exposure, Generator Fumes, unknown atmosphere around the work area, hand tool injury when connecting lines	Staying clear of pressurized lines (liquid and air), 5 gas monitors to measure the unknown atmosphere, Utilizing air-lines to clear hoses of product, Utilizing proper PPE (e.g. gloves, safety glasses),		
7	Unconnecting lines	chemical exposure, hand tool injury	Utilizing air-lines or Vac Truck to clear hoses of product, Utilizing proper PPE (e.g. gloves)		
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Buiding Pipelines

	Job Step:	Hazard:	Controls:	Person Responsible:
1	Getting into equipment	Struck bys; Slips trips, falls	Safe working surface evaluation, Spotter depending on job and work area	Waste Connections Employee
2	Utilizing equipment to move pipeline sections to designated location	Struck bys/Traffic,	Safe driving operations, spotter if needed	
3	Setting pipeline	Slips trips, falls, working surfaces	Safe working surface evaluation, Spotter depending on job and work area	
4	Cutting pipeline to match fitting ends	hand tool injury	Utilizing proper PPE (e.g. gloves and safety glasses),	
5	Performing HDPE Fusion Welding	hand tool injury, burns	Utilizing proper PPE (e.g. gloves and safety glasses, heat-resistant gloves)	
6	Pinching lines together	hand tool injury, pinch points	Utilizing proper PPE (e.g. gloves)	
7	Connecting pipeline to source	chemical exposure, pressurized lines	5-gas monitor for unknown atmospheres	
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Moving Frac Tank from one location to another

	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Connecting Lines to Frac Tank	Liquid Exposure, Generator Fumes, unknown atmosphere around work area	Staying clear of pressurized lines (liquid and air), Utilizing proper PPE (e.g. gloves, safety glasses), 5 gas monitors to measure the unknown atmosphere,	Waste Connections Employee or Contractor?	
2	Emptying Frac Tank	Pressurized Lines, Liquid Exposure, pinch points, Generator Fumes, unknown atmosphere around work area	5 gas monitor, and proper PPE (e.g. gloves and safety glasses), proper hand tool use		
	Disconnecting Lines to Frac Tank	Liquid Exposure, pressurized lines	Utilizing air-lines to clear hoses, removing pressure off lines		
3	Connecting empty Frac Tank to equipment for moving via shackle	struck bys, pinch points	Utilizing a spotter, closing off work area		
4	Connecting Lines to Frac Tank	Hand tool injury, pinch points	Utilizing proper PPE (e.g. gloves)		
5					
6					Tanks needed to be moved between tank farms will be moved with a truck
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Refueling equipment for the ETLF area (e.g. fans, generators, light plants, etc.)

	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Driving to location to fill truck (8000 gal tank)	Struck bys, diesel fumes, pinch points	Spotter if needed, PPE - gloves, safety glasses,	Waste Connections Employee	
2	Filling up gas truck	diesel fumes, pinch points, falling off filling platform	PPE - gloves, safety glasses, fall protection		
3	Drive to fill up machines around the facility (e.g. light plants, orchard fans, hall trucks, etc.)	struck bys, traffic	spotter if needed		
4	Filling up machines	gas fume exposure	PPE if needed		small equipment is filled by gas nozzle, big equipment is filled by quick connect
5	Driving to location to fill truck (8000 gal tank)	Struck bys, diesel fumes, pinch points	Spotter if needed, PPE - gloves, safety glasses,		
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Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

Job Hazard Assessment

Date:	Location:	Project Manager:
3/5/2024	ETLF Area	Jason Callahan

Description:

Installing electronic tank gauges on Frac Tanks.

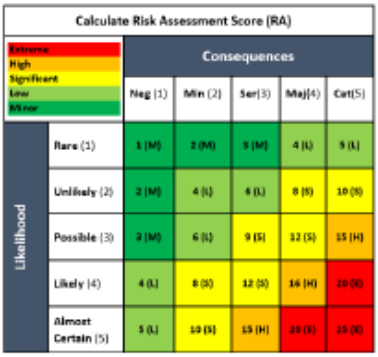
	Job Step:	Hazard:	Controls:	Person Responsible:	
1	Getting up onto tank	Slips, trips, falls	Utilize PPE (e.g. Steel does/Slip Resis.)	Wes Devilbiss	
2	Remove tank cap where gauge will go	Hand tools, pinch points, unknown atmosphere	Utilize PPE (e.g. gloves), 5-gas monitor		
3	Install piping into tank	Hand tools, pinch points, unknown atmosphere	Utilize PPE (e.g. gloves), 5-gas monitor		
4	Attaching electronic gauge	Hand tools, pinch points, unknown atmosphere	Utilize PPE (e.g. gloves), 5-gas monitor		
5					
6	Getting up onto tank	Slips, trips, falls	Utilize PPE (e.g. Steel does/Slip Resis.)		When there is not port hole to use on tank
7	Removing Frac Tank lid	Hand tools, pinch points, unknown atmosphere, chemical exposure	Utilize PPE (e.g. chemical glove), 5-gas monitor, wipe down lid before removing		
8	Using hole popper to install port hole in lid (at trailer/not Frac tank)	Hand tools, pinch points	Utilize PPE (e.g. gloves)		
9	Replace Frac Tank Lid	Hand tools, pinch points, unknown atmosphere	Utilize PPE (e.g. chemical glove), 5-gas monitor		
10	Install piping into tank	Hand tools, pinch points, unknown atmosphere	Utilize PPE (e.g. gloves), 5-gas monitor		
11	Attaching electronic gauge	Hand tools, pinch points, unknown atmosphere	Utilize PPE (e.g. gloves), 5-gas monitor		
	Example:	Example:	Example:	Example:	
	Open gate to location	*Insects, Heavy Object, Pinch Point*	*Visually inspect work area, Use proper lifting techniques, wear gloves, watch hand placement*	*James Smith*	

Sign if all of your questions have been answered and you are ready to proceed.

Name	Signature	Name	Signature

JOB HAZARD ANALYSIS

Project Name:	Waste Connections – VOC&SVOC Treatment Rapid Response	
Location:	Chiquita Canyon Landfill	
Date Prepared:	03/08/2024 (updated 4/4/24)	
Activity/Work Task:	Site Operations	
Prepared By:	TJS	**Signature:**
Reviewed By:	Ricardo Vera	**Signature:**



Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
General – Site Requirements	SIMOPS – Active Landfill, H2S Gas, VOC's, Hot Liquids	Fire/ Explosion	• Staff working onsite are required to don – Hard Hat, Safety, Glasses, and Safety Boots Require – gloves are task dependent – See HASP Emergency Response • Staff are required to use 5 gas meters when working in areas where VOC's are present (example: frac tank area, landfill, etc.,)	

Unloading Equipment/Set-up	Lull Operation	Pinch/Crush/Equipment Damage	• Client will provide a lull and qualified operator to move equipment and assist with medial loading.
			• Lull - properly rated, inspected and in good working order
			• ECT2 personnel to stay out of the work zone – do not approach the lull during operation unless acknowledged by the operator and the forks have been placed on the ground
			• If ECT2 personnel are to play a role in the equipment placement, high vis clothing or vest shall be worn.
			  ○ Establish communication protocol with operator
			  ○ Avoid line of fire and operator blind spots
			Verify equipment was inspected prior to use and operator is qualified to operate the equipment.
				8S

	Hand and Power Tools	Cuts/Scrapes	• Keep all tools in good condition with regular maintenance. • Use the right tool for the job. Do not use a tool for which it was not designed. • Examine each tool for damage before use and do not use damaged tools.	6L

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Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
			• Operate tools according to the manufacturers' instructions. • Use the appropriate personal protective equipment. • All electrically powered hand tools will be connected through a ground fault circuit interrupter (GFCI). • For those tool(s) that are damaged or otherwise defective, the tool will be red-tagged and taken out of service.	
	Manual Lifting	Sprain/Strain	• Use mechanical means as first option when available. • Under no circumstances should any one person lift more than 49 pounds unassisted. • Whenever possible use at least two people to lift the item. • Bend the knees; it is the single most important aspect of lifting. • Always push, not pull, the object when possible. • Size up the load before you lift. Test by lifting one of the corners or pushing. If it's heavy or feels clumsy, get mechanical aid or help from another worker. When in doubt, do not lift alone! • Bend the knees; it is the single most important aspect of lifting and limit and twisting of the back.	6L
Media Loading	Suspended Load (media super sacks)	Crushed By	Inspect the super sack straps are not damaged. Ensure proper position on forks – test lift the super sack to verify proper strap position. Do not stand under or near the suspended load Designated spotter while sack is positioned above the vessel - High Visibility Vest - Use tools provided to open supersack over the Jacky bin. Only qualified / certified operator to operate equipment for rigging	6L
	Suspended load (jacky bin over vessel)	Crushed By	- Good comms between lull operator and staff member operating jack bin gate. Maintain line of sight. - Use 3rd man as spotter	6L
	Manlift to open manhole for media loading, inhalation of	Unconsciousness, death, splash from impacted material	- Utilize 5 gas monitor prior to opening & during any work near manway. - Equipment requiring maintenance that may expose a worker to hazardous energy or exposure	6L

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Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
	gases, fire/explosion, stored energy		to impacted water/leachate requires proper isolation - If more than one hazardous energy source requires isolation execute an Energy Isolation Procedure – test for dead prior to executing work - Utilize locks/tags as required Coordinate work first with Project Manager - PPE: face shield, gauntlet gloves - Wash facilities in the event of contact with skin – use Eyewash unit with wand - When unbolting manway, do NOT remove bolts until manlift has been tested verified for zero pressure. This is performed by lifting manway up utilizing 2 x 4 board or equivalent to ensure stored energy is not in the system.	
	Manlift to guide Media loading	Falls, crushed, fatality	- Always use proper fall prevention while operating or inside of manlift. - Do not stand or use rails as steps - Stay out of line of fire when media super sacks are being guided to vessel - Utilize 5 gas meter to while opening and when performing work near the vessels - Utilize proper PPE when opening supersacks, and never place your body in the line of fire when opening sack underneath manway. - Only qualified MEWP operator to operate manlift - When introducing water into vessels for breaking of media or to put water in system for offgasing. Keep body out of line of fire so that you don't get backsplash. Wear a faceshield and protective clothing when appropriate.	6L
Operations	Ladder Use	Fall/Injury	• Ladders shall be maintained in good condition at all times. • Secure ladder when in use by tying off or having a second person provide support. • Safety feet and other auxiliary equipment shall be kept in good condition to ensure proper performance. • Ladders shall be inspected prior to use, and those which have developed defects shall be withdrawn from service for repair or destruction and tagged or marked as "Dangerous, Do Not Use." • Rungs should be kept free of grease and oil. • If a ladder is involved in any of the following, immediate inspection is necessary: ○ If ladders tip over, inspect the ladder for side rails dents or bends or excessively dented rungs. Check all rung-to-side-rail connections; check hardware connections and rivets for shear.	6L

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
			○ If ladders are exposed to oil and grease, equipment should be cleaned of oil, grease or slippery materials. This can easily be done with a solvent or steam cleaning. Ladders having defects are to be marked (as indicated above) and taken out of service until repaired by an authorized party.	
	Slips/Trip – area is muddy (wet soil), also working in area with hoses and parts running throughout site	Injury	• Keep work areas clean and free of clutter. • Communicate hazards to on-site personnel – remove hazards as appropriate. • Take your time and pay attention to where you are going • Adjust your stride to a pace that is suitable for the walking surface and the tasks you are doing. NO RUNNING. • Check the work area to identify hazards - beware of trip hazards such as uneven surfaces or terrain. • Establish and utilize a pathway free of slip and trip hazards. • Choose a safer and dry walking route. Carry loads you can see over.	6L
	VOCs	Inhalation	• VOC emissions are anticipated to be minimal for ECT2 tasks. • PID – (5 gas)to monitor general work area and frac tank head space, work zone. See HASP Environmental Monitoring.	4L
	Sampling	Exposure VOC/SVOC impacted water	• Proper sampling technique to minimize splashing • PPE – nitrile gloves, face shield or goggles • Accessible handwashing station – wash hands before eating and prior to leaving the site.	3M
Maintenance	Hazardous Energy	Shock/water under pressure	• Equipment requiring maintenance that may expose a worker to hazardous energy requires proper isolation • If more than one hazardous energy source requires isolation execute an Energy Isolation Procedure – test for dead prior to executing work • Utilize locks/tags as required Coordinate work first with Project Manager • Only QEW to isolate power/electricity if electrical isolation is required.	6L
Line Breaking	Hazardous Energy	Shock/water under pressure/splash	• Only QEW to isolate power/electricity if electrical isolation is required. • Equipment requiring maintenance that may expose a worker to hazardous energy or exposure to impacted water/leachate requires proper isolation	6L

Task/Step	Potential Hazards	Impact	Recommended Safe Job Procedures/Controls	Risk Outcome
			• If more than one hazardous energy source requires isolation execute an Energy Isolation Procedure – test for dead prior to executing work • Utilize locks/tags as required Coordinate work first with Project Manager • PPE: face shield, gauntlet gloves • Wash facilities in the event of contact with skin – use Eyewash unit with wand	
	Hazardous Gases	Losing consciousness, death, serious injury	• Utilize 5 gas monitor at source before, during and after to ensure no gases are present. • Keep body and face away from area being opened • Utilize proper tools • Utilize proper PPE depending on contaminants and work being performed.	
Media Removal/ Vac Truck	High Noise	Hearing Damage	• Vac truck operation produces high noise levels above 85 dBA. • Use hearing protection when in the vicinity of the vac truck. • Limit activity to staff only involved in media removal • Utilize exclusion zone to keep personnel out of work zones	6L
	Impacted Media/ waste	Improper Disposal	• The client is responsible for disposal of spent media.	6L

Personal Protective Equipment			Equipment	
X Hard Hat	X Safety Glasses	☐Hearing Protection	X Fire Extinguisher – Type: ABC 10 lb	
X Safety Shoes	☐Safety Goggles	☐Double Hearing	☐Barricades	
☐Metatarsal Guards	XFace Shield	X Gloves	X Tape: Caution	
X High Vis Vest	XRespirator	Type: Nitrile	☐Four Gas Meter	
X Nomex/FRC	XHalf or ☐ Full	Type: Work Glove	X PID – 5 gas monitor	Other:
X Harness/SRL	Cartridge: Acid/VOC	☐Other:	Other: Portable eye wash w/wand	

Applicable Permits					
☐LOTO	☐Confined Space	☐Hot Work	☐Underground Utility	☐Standard Lift Plan	☐Other:

Signatures		

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