MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**LEAD PERCHLORATE, DEHYDRATED**
Catalog #	5142
Version #	02
Revision date	29-Jan-2010
CAS #	13637-76-8
Manufacturer information	GFS Chemicals, Inc. P.O. Box 245 Powell, OH 43065 US www.gfschemicals.com Fax 740-881-5989 Phone 740-881-5501 Toll Free 800-858-9682 Emergency Assistance Chemtrec 800-424-8300

2. Hazards Identification

Emergency overview	DANGER -- OXIDIZER Contact with combustible material may cause fire. Toxic by inhalation. Toxic if swallowed. Toxic in contact with skin. Cancer hazard. Prolonged exposure may cause chronic effects.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Toxic in contact with eyes. Contact will irritate or burn eyes. Avoid contact with eyes.
Skin	Toxic in contact with skin. Causes skin irritation. Avoid contact with the skin.
Inhalation	Toxic by inhalation. May cause cancer by inhalation. Do not breathe dust/fume/gas/mist/vapors/spray.
Ingestion	Toxic if swallowed. Do not ingest.
Potential environmental effects	Very toxic to aquatic organisms. Components of this product are hazardous to aquatic life. May cause long-term adverse effects in the aquatic environment.

Health effects of additional components

WATER

Emergency overview: Health injuries are not known or expected under normal use.
Eyes: Health injuries are not known or expected under normal use.
Ingestion: Health injuries are not known or expected under normal use.
Inhalation: Health injuries are not known or expected under normal use.
Potential environmental effects: Ecological injuries are not known or expected under normal use.
Regulatory status: This product is considered not hazardous under 29 CFR 1910.1200 (Hazard Communication).
Skin: Health injuries are not known or expected under normal use.

3. Composition / Information on Ingredients

Components	CAS #	Percent
LEAD PERCHLORATE	13637-76-8	90 - 100

Composition comments Occupational Exposure Limits for constituents are listed in Section 8.

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention if irritation develops and persists. For minor skin contact, avoid spreading material on unaffected skin. Wash clothing separately before reuse.
Inhalation	Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician if symptoms develop or persist.
Ingestion	Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting without advice from poison control center. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth thoroughly. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Notes to physician	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General advice	IF exposed or concerned: Get medical advice/attention. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire Fighting Measures

Flammable properties	Contact with combustible material may cause fire. These substances will accelerate burning when involved in a fire. Some will react explosively with hydrocarbons (fuels). Some may decompose explosively when heated or involved in a fire. Runoff may create fire or explosion hazard.
Extinguishing media	
Suitable extinguishing media	Water. Water fog.
Protection of firefighters	
Specific hazards arising from the chemical	Fire may produce irritating, corrosive and/or toxic gases.
Protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	In the event of fire, cool tanks with water spray. Use water spray to cool unopened containers.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Isolate spill or leak area immediately for at least 50 to 100 meters (150 to 330 feet) in all directions. Keep upwind. Keep out of low areas. Keep people away from and upwind of spill/leak. Ventilate closed spaces before entering them. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Environmental precautions	Runoff from fire control or dilution water may cause pollution.
Methods for containment	Stop leak if you can do so without risk. Keep combustibles (wood, paper, oil, etc.) away from spilled material. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Prevent entry into waterways, sewer, basements or confined areas.

Methods for cleaning up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Following product recovery, flush area with water.

7. Handling and Storage

Handling DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Keep away from clothing and other combustible materials. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Do not use in areas without adequate ventilation. Wear personal protective equipment. Wash thoroughly after handling.

Storage Store locked up. Store in a well-ventilated place. Keep container tightly closed. Do not store near combustible materials. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

ACGIH

Material	CAS #	Type	Value	Form
LEAD PERCHLORATE	13637-76-8	TWA	0.05 mg/m3	

U.S. - OSHA

Material	CAS #	Type	Value	Form
LEAD PERCHLORATE	13637-76-8	TWA	0.05 mg/m3	

Engineering controls Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection Wear protective gloves.

Eye / face protection Chemical goggles are recommended. Face-shield.

Skin protection Wear chemical protective equipment that is specifically recommended by the manufacturer. Wear protective gloves.

General hygeine considerations When using do not smoke. Do not get in eyes. Do not get this material in contact with skin. Keep away from food and drink. Handle in accordance with good industrial hygiene and safety practice.

General Ensure that eyewash stations and safety showers are close to the workstation location.

9. Physical & Chemical Properties

Appearance Deliquescent. Crystalline.

Color White.

Odor Odorless.

Odor threshold Not available.

Physical state Solid.

Form Solid.

pH 3 - 5 (5% aqueous solution)

Melting point Not available.

Freezing point Not available.

Boiling point Not available.

Flash point Not available.

Evaporation rate Not available.

Flammability Not available.

Flammability limits in air, upper, % by volume Not available.

Flammability limits in air, lower, % by volume Not available.

Vapor pressure Not available.

Vapor density	Not available.
Specific gravity	Not available.
Relative density	Not available.
Solubility (water)	very soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Molecular weight	406.1000
Molecular formula	Pb(ClO4)2

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid contact with combustibles (wood, paper, organic matter) and strong reducing agents.
Incompatible materials	Reducing agents and Combustible material.
Hazardous decomposition products	Lead oxides.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Local effects	Toxic by inhalation, in contact with skin and if swallowed.
Chronic effects	Hazardous by OSHA criteria. Prolonged exposure may cause chronic effects.
Carcinogenicity	Hazardous by OSHA criteria. Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs: Evidence of carcinogenicity in humans

LEAD PERCHLORATE	13637-76-8	Limited data.

US ACGIH Threshold Limit Values: A3 carcinogen

LEAD PERCHLORATE	13637-76-8	A3 Confirmed animal carcinogen with unknown relevance to humans.

US NTP Report on Carcinogens: Anticipated carcinogen

LEAD PERCHLORATE	13637-76-8	Anticipated carcinogen.

Mutagenicity	Mutagenic effects have been investigated.
Human experience	The perchlorate ion competes with iodide in the mechanism that governs uptake into the thyroid gland for growth hormone production. This effect is routinely countered by ensuring sufficient dietary intake of iodine, as perchlorate does not accumulate in the body. Studies on workers in plants where perchlorates are manufactured have shown no thyroid abnormalities; various clinical studies are ongoing. Perchlorates occur naturally in trace amounts in the environment, and are not classified as carcinogenic.

12. Ecological Information

Ecotoxicity	Expected to be very toxic to aquatic organisms. The product contains a substance which may cause long-term adverse effects in the environment.
Persistence and degradability	Not available.

13. Disposal Considerations

Waste codes	D001: Waste Flammable material with a flash point <140 F D008: Waste Lead
Disposal instructions	Dispose of this material and its container to hazardous or special waste collection point. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose in accordance with all applicable regulations.

14. Transport Information

DOT

Basic shipping requirements:

Proper shipping name	Lead perchlorate, solid
Hazard class	5.1
Subsidiary hazard class	6.1
UN number	UN1470
Packing group	II
Additional information:	
Special provisions	IB6, IP2, T3, TP33
Packaging exceptions	152
Packaging non bulk	212
Packaging bulk	242
ERG number	141

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

LEAD PERCHLORATE	13637-76-8	0.1 % N420 Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

LEAD PERCHLORATE	13637-76-8	N420 Listed.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold

LEAD PERCHLORATE	13637-76-8	100 LBS N420

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance	No
Section 311 hazardous chemical	Yes

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of New and Existing Chemicals (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

LEAD PERCHLORATE	13637-76-8	Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

LEAD PERCHLORATE	13637-76-8	Listed: October 1, 1992 Carcinogenic.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

LEAD PERCHLORATE	13637-76-8	Listed: February 27, 1987 Developmental toxin.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

LEAD PERCHLORATE	13637-76-8	Listed: February 27, 1987 Female reproductive toxin.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

LEAD PERCHLORATE	13637-76-8	Listed: February 27, 1987 Male reproductive toxin.

US - New Jersey Community RTK (EHS Survey): Reportable threshold

LEAD PERCHLORATE	13637-76-8	500 LBS

16. Other Information

Further information HMIS® is a registered trade and service mark of the NPCA.

HMIS® ratings
Health: 3
Flammability: 0
Physical hazard: 2

NFPA ratings
Health: 3
Flammability: 0
Instability: 0
Special hazards: OX

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Issue date 29-Jan-2010

This data sheet contains changes from the previous version in section(s): This document has undergone significant changes and should be reviewed in its entirety.