HAMMOND LEAD PRODUCTS

US - OSHA SAFETY DATA SHEET

Issue Date 05-Jan-2015 **Revision Date** 16-Jul-2018 **Version** 2

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Lead monosilicate

Other means of identification

UN/ID No. 3077

Synonyms Monosilicate-Ground, Monosilicate-Granular, Monosilicate-Ultra High Purity.

Recommended use of the chemical and restrictions on use

Recommended Use Not available.

Uses Advised Against Not available.

Details of the supplier of the safety data sheet

Manufacturer Address

Hammond Lead Products
Hammond Plant
Hammond Group, Inc.
2308 165th Street
Hammond, IN 46323

Hammond Lead Products
Pottstown Plant
Hammond Group, Inc.
10 South Grosstown Road
Pottstown, PA 19464

Emergency telephone number

Company Phone Number 219-845-0031

24 Hour Emergency Phone Number Chemtrec (US): 1-800-424-9300.

2. HAZARDS IDENTIFICATION

Classification

Health Hazards

Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1A
Specific target organ toxicity (repeated exposure)	Category 1

Physical Hazards

Not classified.

OSHA Regulatory Status

This product is considered hazardous by the 2012 OSHA Hazard Communication Standard/Globally Harmonized System of Classification and Labelling of Chemicals (GHS); (29 CFR 1910.1200; Revision 3).

Label elements

Emergency Overview

Danger

Hazard Statements
May cause cancer.
May damage fertility or the unborn child.
May cause harm to breast-fed children.
Causes damage to central nervous system, blood formation and kidneys and cardiovascular system through prolonged or repeated exposure

Appearance Not available. **Physical State** Powder or granules **Odor** Not available.

Precautionary Statements - Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash face, hands and any exposed skin thoroughly after handling.
Do not eat, drink, or smoke when using this product.
Do not breathe dust/fume/gas/mist/vapors/spray.
Wear protective gloves/clothing/eye protection/face protection.

Precautionary Statements - Response
If exposed or concerned: Get medical attention.
Get medical attention if you feel unwell.

Precautionary Statements - Storage
Store locked up.

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal facility.

Hazards not otherwise classified (HNOC)
Not available.

Other information
Very toxic to aquatic life with long lasting effects

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200; Revision 3).

Synonyms Monosilicate-Ground, Monosilicate-Granular, Monosilicate-Ultra High Purity.
Chemical Family Lead Silicate Glass Frit: CAS# 65977-18-4.

Chemical Name	CAS No.	Weight-%
Lead Monoxide/Litharge	1317-36-8	80-90
Silicon Dioxide	14808-60-7	10-20

4. FIRST AID MEASURES

First aid measures

Eye Contact In case of eye contact, immediately flush eyes with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. Get medical attention if irritation persists. Do not rub affected area.

Skin Contact Wash off immediately with soap and plenty of water. If skin irritation persists, call a physician.

Inhalation Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. If conscious, have victim clear nasal passages.

Ingestion Seek immediate medical attention. Rinse mouth. Drink plenty of water. Induce vomiting, but only if victim is fully conscious.

Most important symptoms and effects, both acute and delayed

Symptoms Symptoms of chronic lead poisoning include an ashen skin color, premature aging, lack of appetite, cramping abdominal pain (LEAD COLIC), headache, constipation, muscle weakness, peripheral motor-neuropathy, anemia, hypertension, and irreversible kidney damage.

Indication of any immediate medical attention and special treatment needed

Note to Physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Unknown.

Specific hazards arising from the chemical
Lead oxide fumes and oxides of silicon.

Explosion data
Sensitivity to Mechanical Impact None known.
Sensitivity to Static Discharge None known.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Evacuate personnel to safe areas. Avoid contact with skin, eyes and inhalation of dusts. Avoid creating dust. Use personal protection recommended in Section 8.

For emergency responders Wear respiratory protection. Wear proper personal protective equipment (gloves and goggles). Wear appropriate outer garment to protect clothing.

Environmental precautions

Environmental Precautions Prevent entry into waterways, sewers, surface drainage systems and poorly ventilated

areas.

Methods and material for containment and cleaning up

Methods for Containment Avoid creating dust. Safely stop source of spill. Restrict non-essential personnel from area. All personnel involved in spill cleanup should avoid skin and eye contact by wearing appropriate personal protection equipment. Do not breathe dust.

Methods for Cleaning Up Avoid dust formation. Clean up dusts with high efficiency particulate air (HEPA) filtered vacuum equipment or by wet cleaning.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Use personal protection recommended in Section 8. Avoid generation of dust. Be familiar with the requirements set forth in the OSHA Lead Standard, 29 CFR 1910.1025.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible materials Hydrogen peroxide, strong oxidizing agents and acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, contains the following hazardous materials with occupational exposure limits established by the region-specific regulatory bodies.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Lead Monoxide/Litharge 1317-36-8	TWA: 0.05 mg/m^3 Pb	TWA: 0.05 mg/m^3 Pb	IDLH: 100 mg/m^3 Pb TWA: 0.050 mg/m^3 Pb
Silicon Dioxide 14808-60-7	TWA: 0.025 mg/m^3 respirable particulate matter	TWA: (30)/(%SiO2 + 2) mg/m total dust TWA: (250)/(%SiO2 + 5) mppcf respirable fraction TWA: (10)/(%SiO2 + 2) mg/m^3 respirable fraction	IDLH: 50 mg/m^3 respirable dust TWA: 0.05 mg/m^3 respirable dust

Appropriate engineering controls

Engineering Controls Use contained process enclosures, local exhaust ventilation or other engineering controls to maintain aerosols below the exposure limit.
If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit

Individual protection measures, such as personal protective equipment

Eye/Face Protection Use safety glasses with side shields or chemical goggles.

Skin and Body Protection Protective clothing is required if exposure exceeds the PEL or TLV or where possibility of skin or eye irritation exists. Full body cotton or disposable coveralls and disposable gloves should be worn during use and handling. Clothing should be left at work site and be properly disposed of or laundered after use. The wash water should be disposed of in accordance with local, state and federal regulations. Personal clothing should be protected from contamination.

Respiratory Protection If engineering controls cannot maintain airborne concentrations below exposure limits, use appropriate, approved respiratory protection (a 42 CFR 84 Class N, R, or P-100 particulate filter cartridge). When exposure levels are unknown, a self-contained breathing apparatus which supplies a positive air pressure within a full face-piece mask should be worn. Utilization of respiratory equipment should be in accordance with 29 CFR 1910.1025 and 29 CFR 1910.134.

General Hygiene Considerations Do not eat, drink, or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Wear disposable gloves and eye/face protection. Wash face, hands and any exposed skin thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Powder or granules		
Appearance	Not available.	**Odor**	Not available.
Color	Pale yellow	**Odor Threshold**	Not available.

Property	**Values**	**Remarks**
pH	Not available.	
Melting Point/Freezing Point	Not available.	
Boiling Point/Boiling Range	Not available.	
Flash Point	Not applicable.	
Evaporation Rate	Not available.	
Flammability (solid, gas)	Not applicable.	
Flammability Limit in Air		
Upper Flammability Limit:	Not available.	
Lower Flammability Limit:	Not available.	
Vapor Pressure	Not available.	
Vapor Density	Not available.	
Specific Gravity	6.50-6.65	
Water Solubility	> 0.005g/100cc	
Solubility in Other Solvents	Not available.	
Partition Coefficient	Not available.	
Autoignition Temperature	Not available.	
Decomposition Temperature	Not available.	
Kinematic Viscosity	Not available.	
Dynamic Viscosity	Not available.	
Explosive Properties	Not available.	
Oxidizing Properties	Not available.	

Other information

Softening Point	Not available.
Molecular Weight	Not available.
VOC Content (%)	Not available.
Density	Not available.
Bulk Density	Not available.

10. STABILITY AND REACTIVITY

Reactivity
Stable at normal conditions.

Chemical stability
Stable under normal conditions.

Possibility of hazardous reactions
None under normal processing.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to avoid
Avoid excessive exposure to heat or flames.

Incompatible materials
Hydrogen peroxide, strong oxidizing agents and acids.

Hazardous decomposition products
Lead oxide fumes and oxides of silicon.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information Inorganic lead compounds are slowly absorbed by ingestion and inhalation and poorly absorbed through the skin. If absorbed, lead will accumulate in the body with low rates of excretion, leading to long-term build up. Part of risk management is to take blood samples from workers for analysis to ensure that exposure levels are acceptable.

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50	Intravenous LD50
Lead Monoxide/Litharge 1317-36-8	> 10000 mg/kg (Rat)	> 2000 mg/kg (Rat)	> 5 mg/L/4 hr (Rat)	-

Information on toxicological effects

Symptoms Symptoms of chronic lead poisoning include an ashen skin color, premature aging, lack of appetite, cramping abdominal pain (LEAD COLIC), headache, constipation, muscle weakness, peripheral motor-neuropathy, anemia, hypertension, and irreversible kidney damage.

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

Skin Corrosion/Irritation Studies of lead monoxide and similar compounds have shown that sparingly soluble inorganic lead compounds are not corrosive or irritating to the skin of rabbits. This is supported by the lack of reports of irritant effects from occupational settings. No symptoms of respiratory irritation were noted in rats during long-term inhalation studies involving lead monoxide.

Serious Eye Damage/Eye Irritation Studies of lead monoxide and similar compounds have shown that sparingly soluble inorganic lead compounds are not corrosive or irritating to the eyes of rabbits.

Sensitization There is no evidence that lead monoxide causes respiratory or skin sensitization.

Germ Cell Mutagenicity The evidence for genotoxic effects of highly soluble inorganic lead compounds is contradictory, with numerous studies reporting both positive and negative effects. Responses appear to be induced by indirect mechanisms, mostly at very high concentrations that lack physiological relevance.

Carcinogenicity An inhalation study of lead monoxide in rats showed that it did not induce, initiate or promote tumors of the lung. However, there is evidence that soluble lead compounds may have a carcinogenic effect, particularly on the kidneys of rats. However, the mechanisms by which this effect occurs are still unclear. Epidemiology studies of workers exposed to inorganic lead compounds have found a limited association with stomach cancer. This has led to the classification by IARC that inorganic lead compounds are probably carcinogenic to humans (Group 2A). There is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources. There is sufficient evidence in experimental animals for the carcinogenicity of quartz and cristobalite.

Chemical Name	ACGIH	IARC	NTP	OSHA
Lead Monoxide/Litharge 1317-36-8	A3	Group 2A	Reasonably Anticipated	X
Silicon Dioxide 14808-60-7	A2	Group 1	Known	X

Reproductive Toxicity Exposure to high levels of lead monoxide may cause adverse effects on male and female fertility, including adverse effects on sperm quality. Prenatal exposure to lead and its compounds is also associated with adverse effects on fetal development.

Teratogenicity Pregnancy exposure to lead might cause miscarriage or premature birth, but reports on these effects are old and might have involved higher lead exposures than are currently encountered. Maternal blood lead concentrations above 30 mcg/dL can be associated with detectable abnormalities in cognitive/behavioral testing in infants. Lower concentrations (less than 10 mcg/dL) might be associated with subtle neurobehavioral effects, but these effects might be transient. Breastfeeding is not recommended if the maternal blood lead concentration is 40 mcg/dL or higher.

STOT - Single Exposure Lead monoxide has been found to be of relatively low acute toxicity by ingestion, in contact with skin, and by inhalation, with no evidence of any local or systemic toxicity from such exposures.

STOT - Repeated Exposure Lead monoxide is a cumulative poison and may be absorbed into the body through ingestion or inhalation. Inorganic lead compounds have been documented in observational human studies to produce toxicity in multiple organ systems and body function including the hematopoietic (blood) system, kidney function, reproductive function and the central nervous system. Postnatal exposure to lead compounds is associated with impacts on neurobehavioral development in children.

Chronic Toxicity Lead is a cumulative poison. Increasing amounts of lead can build up in the body and may reach a point where symptoms and disabilities occur. Continuous exposure may result in decreased fertility. May cause adverse kidney effects.

Aspiration Hazard Not available.

12. ECOLOGICAL INFORMATION

This product contains a chemical which is listed as a marine pollutant according to DOT.

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Lead Monoxide/Litharge 1317-36-8	0.072-0.388: 72 h Pseudokirchneriella subcapitata, Chlorella kesslerii mg/L ErC50 (pH 5.5-6.5) 0.026-0.080: 72 h Pseudokirchneriella subcapitata, Chlorella kesslerii mg/L ErC50 (pH >6.5-7.5) 0.021-0.050: 72 h Pseudokirchneriella subcapitata, Chlorella kesslerii mg/L ErC50 (pH <7.5-8.5)	0.298: 96 h Pimephales promelas mg/L LC50 static 0.041-0.810: 96 h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH 5.5-6.5) 0.052-3.60: 96 h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH >6.5-7.5) 0.114-3.25: 96 h Pimephales promelas, Oncorhynchus mykiss mg/L LC50 (pH >7.5-8.5) 56000: 96 h Gambusia affinis mg/L LC50 static		0.074-0.656: 48 h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH 5.5-6.5) 0.029-1.18: 48 h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH >6.5-7.5) 0.026-3.12: 48 h Daphnia magna, Ceriodaphnia dubia mg/L LC50 (pH >7.5-8.5)

Persistence and degradability
Not readily biodegradable.

Bioaccumulation
While lead metal and its compounds are generally insoluble, its processing or extended exposure in aquatic and terrestrial environments may lead to the release of lead in bioavailable forms. Lead compounds are not particularly mobile in the aquatic environment, but can be toxic for organisms, especially fish, at low concentrations. Water hardness, pH and dissolved organic carbon content are factors which regulate the degree of toxicity. In soil, lead and lead compounds are generally not very bioavailable.

Mobility
Lead and lead compounds will partially settle out due to their fairly low solubility and partially dissolve. In soil, lead and lead compounds are generally not very mobile or bioavailable, as they can be strongly absorbed on soil particles, increasingly over time. It also forms complexes with organic matter and clay minerals that limit its mobility. When released into the soil, this material is not expected to leach into groundwater.

Other adverse effects
Not available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of Wastes Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging Disposal should be in accordance with applicable regional, national and local laws and regulations.

Chemical Name	California Hazardous Waste Status
Lead Monoxide/Litharge 1317-36-8	Toxic

14. TRANSPORT INFORMATION

Note: This product is not regulated for domestic transport by land, air or rail. Under 49 CFR 171.8, individual packages that contain lead metal (<100 micrometers) below the reportable quantity (RQ) are not regulated. Under 49 CFR 171.4, except when transporting aboard a vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicles, rail cars and aircrafts.

DOT

UN/ID No.	3077
Proper shipping name	RQ, Environmentally Hazardous Substance, Solid, N.O.S (Lead)
Hazard Class	9
Packing Group	III
Reportable Quantity (RQ)	10 lbs
Marine pollutant	This product contains a chemical which is listed as a marine pollutant according to DOT.
Emergency Response Guide Number	NAERG-171

15. REGULATORY INFORMATION

US Federal Regulations

SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Lead Monoxide/Litharge - 1317-36-8	1317-36-8	80-90	0.1

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

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
Lead Monoxide/Litharge 1317-36-8		X		

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

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

Chemical Name	California Proposition 65
Lead Monoxide/Litharge - 1317-36-8	Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Lead Monoxide/Litharge 1317-36-8	X	X	
Silicon Dioxide 14808-60-7	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable.

16. OTHER INFORMATION

Issue Date	05-Jan-2015
Revision Date	16-Jul-2018
Revision Note	Changes in Section 2, 3, 4, 7, 8, 10, 11 and 15.

Disclaimer

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.

End of Safety Data Sheet