Conforms to HazCom 2012/United States

SAFETY DATA SHEET

LKD

Section 1. Identification

GHS product identifier : LKD
Other means of identification : LKD
Identified uses **:** Water treatment, Caustic agent, pH adjustment, Neutralization, Acid gas absorption, Construction
Supplier's details : Pete Lien & Sons, Inc.
PO Box 440
Rapid City, SD 57702
Emergency telephone number (hours of operation) : (605) 342-7224 (Monday-Friday 8am-5pm)

Section 2. Hazards identification

Classification of the substance or mixture : SKIN IRRITATION - Category 2
EYE DAMAGE - Category 1
SPECIFIC TARGET ORGAN TOXICITY SINGLE EXPOSURE [Respiratory System] - Category 3
CARCINOGEN - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger
Hazard statements : Causes skin irritation. Causes serious eye damage. May cause cancer through inhalation. May cause respiratory irritation. Reacts violently with water, releasing heat which can ignite combustible material. Causes damage to lungs through prolonged and repeated exposure.

Precautionary statements

Prevention : Wear protective gloves and eye protection. Wash exposed skin thoroughly after handling. Avoid breathing dust. Use only outdoors or in a well-ventilated area. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust. Do not eat, drink or smoke when using this product.

Response : IF ON SKIN: Wash exposed skin with plenty of water. If skin irritation occurs: get medical attention. Take off contaminated clothing and wash it before reuse.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Seek medical attention if you feel unwell
If exposed or concerned: Get medical advice

Storage **: Store to minimize dust generation**

Disposal : Dispose of contents or containers in accordance with applicable regulations.
Do not use water on material spills.

Hazards not otherwise classified : Calcium oxide reacts violently with water, releasing heat which can ignite combustible materials.

Ingredients with unknown toxicity : Not Applicable

Section 3. Composition/information on ingredients

Substance/mixture : LKD

CAS number/other identifiers

Component	CAS #	% by weight
Calcium Oxide	1305-78-8	>50
Magnesium Oxide	1309-48-4	<4
Crystalline Silica	14808-60-7	>0.1

Section 4. First aid measures

Description of necessary first aid measures

Eye Contact : Contact can cause severe irritation or burning of eyes, including permanent damage. Immediately flush eyes with generous amounts of water for at least 15 minutes. Pull back the eyelid to ensure that all lime dust has been washed out. Seek medical attention immediately. Do not rub eyes.

Skin Contact : Contact can cause severe irritation or burning of skin, especially in the presence of moisture. Wash exposed area with large amounts of water. Seek medical attention immediately.

Ingestion : This product can cause severe irritation or burning of gastrointestinal tract if swallowed. Do not induce vomiting. Seek medical attention immediately. Never give anything by mouth unless instructed to do so by medical personnel.

Inhalation :This product can cause severe irritation of the respiratory system. Move victim to fresh air. Seek medical attention if necessary. If breathing has stopped, give artificial respiration.

Most important symptoms/effects, acute and delayed : Irritation of skin, eyes, gastrointestinal tract or respiratory tract. Long-term exposure by inhalation may cause permanent damage. This product contains crystalline silica, which

has been classified by IARC as (Group I) carcinogenic to humans when inhaled. Inhalation of silica can also cause a chronic lung disorder, silicosis.

Indication of immediate medical attention and special treatment needed, if necessary: See first aid information above. Note to Physicians: Provide general supportive measures and treat symptomatically.

Section 5. Fire-fighting measures

Extinguishing Media :Use dry chemical fire extinguisher. Do not use water or halogenated compounds, except that large amounts of water may be used to deluge small quantities of LKD.

Fire Hazards :LKD is not combustible or flammable. However, LKD reacts violently with water, and can release heat sufficient to ignite combustible materials. LKD is not considered to be an explosion hazard, although reaction with water or other incompatible materials may rupture containers. Hazardous Combustion Products: None.

Special Protective Equipment and Fire Fighting Instructions:

Keep personnel away from and upwind of fire. Wear full fire-fighting turn-out gear (full Bunker gear), and respiratory protection (SCBA)

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Spill/Leak Procedures :Do NOT use water on bulk material spills. Lime reacts violently with water, releasing heat. Use proper protective equipment.

Small Spills **:**Use dry methods to collect spilled materials. Avoid generating dust. Do not clean up with compressed air. Store collected materials in dry, sealed plastic or metal containers. Residue on surfaces may be water washed.

Large Spills :Use dry methods to collect spilled materials. Evacuate area downwind of clean-up operations to minimize dust exposure. Store spilled materials in dry sealed plastic or metal containers.

Methods and materials for containment and cleaning up

Containment : For large spills, as much as possible, avoid the generation of dusts. Prevent release to sewers or waterways.

Cleanup : Residual amounts of material can be flushed with large amounts of water. Equipment can be washed with either mild vinegar and water solution, or detergent and water.

Section 7. Handling and storage

Precautions for safe handling

Keep in tightly closed containers. Protect containers from physical damage. Avoid direct skin contact with the material.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry, and well-ventilated location. Do not store near incompatible materials (see Section 10 below). Keep away from moisture. Long-term storage in aluminum containers is not recommended, as calcium oxide may corrode aluminum over long periods of time.

Section 8. Exposure controls/personal protection

Exposure limits

Component	CAS #	Exposure limits
Calcium Oxide	1305-78-8	OSHA PEL: 5mg/m^3 ACGIH TLV: 2mg/m^3
Magnesium Oxide	1309-48-4	OSHA PEL: 15mg/m^3 ACGIH TLV: 10mg/m^3
Crystalline Silica	14808-60-7	OSHA PEL: 10mg/m^3 divided by (the percentage of silica in the dust plus 2) (respirable) ACGIH TLV: 0.025 mg/m^3

Engineering controls : Provide ventilation adequate to maintain PELs.

Individual Protection Measures

Respiratory Protection :Use NIOSH/MSHA approved respirators if airborne concentration exceeds PEL.

Skin Protection :Use appropriate gloves to prevent skin contact. When there is a risk of skin contact, wear suitable clothing to prevent such contact.

Eye Protection : Use safety glasses with side shields or safety goggles. Contact lenses should not be worn when working with lime products.

Other : Eye wash fountain and emergency showers are recommended

Section 9. Physical and chemical properties

Physical State	: Solid
Appearance	: White or grayish-white material
Odor	: Odorless
Odor threshold	: Not applicable
pH at 25 degrees C	: 12.45
Melting point	: 4658°F, 2570°C
Initial boiling point	: 5162°F, 2850°C
Flash point	: Not applicable.
Evaporation rate	: Not applicable.
Flammability (solid, gas)	: Not applicable.
Lower and upper explosive (flammable) limits	: Not applicable.
Vapor pressure	: Not applicable.
Vapor density	: Not applicable.
Relative density	: Not applicable.
Solubility in water	: Negligible, but reacts with water to produce calcium hydroxide and heat

Partition coefficient: n octanol/water	: Not applicable.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not applicable.
Viscosity	: Not applicable.

Section 10. Stability and reactivity

Reactivity	: LKD reacts violently with water to form calcium hydroxide, releasing heat. See also Incompatibility below
Chemical stability	:LKD is chemically stable
Possibility of hazardous reactions	: See above
Conditions to avoid	: Do not allow LKD to come in contact with incompatible materials
Incompatible materials	: LKD should not be mixed or stored with the following materials, due to the potential for violent reaction and release of heat: WATER ACIDS REACTIVE FLUORIDATED COMPOUNDS REACTIVE BROMINATED COMPOUNDS REACTIVE POWDERED METALS ALUMINUM POWDER ORGANIC ACID ANHYDRIDES NITRO-ORGANIC COMPOUNDS REACTIVE PHOPHOROUS COMPOUNDS INTERHALOGENATED COMPOUNDS
Hazardous decomposition products	**:** None

Section 11. Toxicological Information

Information on the likely routes of exposure: See First Aid discussion above.
Symptoms related to the physical, chemical and toxicological characteristics: See First Aid discussion above.
Delayed and immediate effects and also chronic effects from exposure: See First Aid discussion above.
Numerical measures of toxicity: No LD50/LC50 have been identified for this product's components.
Carcinogen listing: LKD is not listed by MSHA, OSHA, or IARC as a carcinogen, but this product contains crystalline silica, which has been classified by IARC as (Group I) carcinogenic to humans when inhaled

Section 12. Ecological information

Ecotoxicity	: Because of the high pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems in high concentrations.
Persistence and degradability	**:** There is no data available.

Bioaccumulative potential **:** This material shows no bioaccumulation effects of food chain concentration toxicity.
Mobility in soil : There is no data available.
Other adverse effects : This material is alkaline and if released into water or moist soil will cause an increase in pH.

Section 13. Disposal considerations

Dispose of in accordance with all applicable federal, state, and local environmental regulations. If this product as supplied, and unmixed, becomes a waste. It will not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act.

Section 14. Transport information

UN number	: UN1910
UN proper shipping name	**:** LKD
Transport hazard class(es)	: When transported by air only: Hazard Class 8-Corrosive
Packing group	: When transported by air only: Packing Group III
Environmental hazards	: This material is alkaline and if released into water or moist soil will cause an increase in pH.
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	: Not available.

Special Precautions which a user needs to be aware of , or needs to comply with, in connection with transport or conveyance either within or outside their premises: When being transported by air, LKD is classified in the Department of Transportation (DOT) regulations as a hazardous material. (49 CFR 172.101). For aircraft transport only, Calcium Oxide is classified as Hazard Class 8-Corrosive, UN1910, Packing Group III. For passenger aircraft, the maximum net quantity allowed per container is 25 kg. For cargo aircraft the maximum net quantity allowed per container is 100kg. For quantities greater than 25kg up to and including 100kg, the container shall be labeled with CARGO AIRCRAFT ONLY. Because express carriers (i.e., Federal Express, Airborne Express, and United Parcel Service) ship by air, LKD presented to these carriers for shipment must be packaged, marked, and labeled in accordance with IATA requirements, and must be accompanied by the appropriate shipping documentation. Only personnel trained and certified under applicable DOT Hazardous Materials Regulations (contained in Title 49 of the Code of Federal Regulations) may prepare any LKD product for air transport. LKD is not classified as a hazardous material by DOT when transported by means other than air.

Section 15. Regulatory information

EPA Regulations:

RCRA Hazardous Waste Number: not listed (40 CFR 261.33)
RCRA Hazardous Waste Classification (40 CFR 261): not classified
CERCLA Hazardous Substance (40 CFR 302.4) unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4); CWA, Sec. 307(a), CAA, Sec. 112
CERCLA Reportable Quantity, not listed.
SARA 311/312 Codes: not listed.
SARA Toxic Chemical (40 CFR 372.65): not listed.
SARA EHS (Extremely Hazardous Substance) (40 CFR 355): Not listed, Threshold Planning Quantity (TPQ): not listed

OSHA/MSHA Regulations:

Air Containment (29 CFR 1910.1000, Table Z-1, Z-1-A): 5 mg/M^3 TWA-8

MSHA: not listed

OSHA Specifically Regulated Substance (29 CFR 1910) not listed

State Regulations:

Consult state and local authorities for guidance

Section 16. Other information

History

Date of issue (mm/dd/yyyy) : 06/01/2015

Version : 1

Disclaimer: The information contained in this document applies to this specific material as supplied. Pete Lien & Sons, Inc. believes that the information contained in this SDS is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all use circumstances can be anticipated. The suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement.

It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, Pete Lien & Sons, Inc. , assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users. Product must not be used in a manner which could result in harm.