



HYDRATED LIME

SECTION I: IDENTIFICATION OF PRODUCT

COMPANY: **Diversity Technologies Corp.** DATE: **October 6, 2015**
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PRODUCT NAME: **Hydrated Lime**

PRODUCT USE: Oilwell drilling fluid and cement additive.
 CHEMICAL FAMILY: Alkaline earth hydroxide CAS #: 1305-62-0

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: D2A; E
 WORKPLACE HAZARD: Potential carcinogen; corrosive solid.

TRANSPORTATION OF DANGEROUS GOODS (TDG)

PROPER SHIPPING NAME: Not regulated under TDG (except by air)
 TDG CLASSIFICATION: Not applicable
 UN NUMBER (PIN): Not applicable
 PACKING GROUP: Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	% (w/w)	CAS NUMBER	LD ₅₀ Oral-Rat	LC ₅₀ Inhal-Rat	ACGIH-TLV
Calcium hydroxide	92-100	1305-62-0	7340 mg/kg	Not available	5 mg/m ³
Crystalline silica, quartz	0.1 - 1.0 & 0 – 0.1*	14808-60-7	Not available	Not available	0.025 mg/m ³ respirable

* Concentration of crystalline silica in a series of lime products will vary from source to source. It was not detected on some samples (<0.1% w/w), therefore two ranges are being disclosed.

SECTION III: HEALTH HAZARDS

ROUTE OF ENTRY: EYE CONTACT SKIN CONTACT INHALATION INGESTION
 EYE CONTACT: Corrosive solid. Will cause severe irritation, intense watering of the eyes, possible lesions, possible blindness when exposed for prolonged period.
 SKIN CONTACT: Acute contact may cause irritation. Can penetrate the skin slowly, producing soft, necrotic, deeply penetrating chemical burns.
 INGESTION: Effects could include severe pain and burning of the mouth, throat and esophagus, stomach cramps, vomiting and diarrhea. Ingestion of large quantities may be corrosive to the gastrointestinal tract; may cause perforation of the esophagus or stomach. Low oral toxicity.

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INHALATION:	Inhalation of dust will cause irritation of the upper respiratory tract. Solubility of product allows further penetration that may continue for several days. Breathing silica dust may not cause noticeable injury or illness even though permanent lung damage may be occurring. Long-term inhalation may cause silicosis, a progressive, disabling and sometimes-fatal lung disease. Chronic inhalation exposure to crystalline silica quartz has been observed to cause lymph node effects, kidney effects and auto-immune disease.
CARCINOGENICITY:	Calcium hydroxide is not listed by IARC, NTP, OHSA or ACGIH. Crystalline silica when inhaled in the form of quartz from occupational sources is carcinogenic to humans: IARC has concluded that this chemical is carcinogenic to humans (Group 1). ACGIH has designated this chemical as a suspected human carcinogen (A2). NTP has listed this chemical as a known human carcinogen.
TERATOGENICITY:	No information available.
REPRODUCTIVE TOXICITY:	No information available.
MUTAGENICITY:	Crystalline silica has been shown to cause mutagenic effects in human cells in-vitro.
SYNERGISTIC PRODUCTS:	No information available.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Quickly and gently brush away excess product. Flush with running water for 15 to 20 minutes while removing contaminated clothing. Obtain medical attention if large area is exposed or irritation persists.
EYE CONTACT:	Flush eyes with gently running warm water for minimum 30 minutes, or until irritation ceases; hold eyelids open to ensure thorough flushing. Neutral saline may be used as soon as it is available. Obtain medical attention only when flushing is complete.
INGESTION:	Do not induce vomiting. Obtain immediate medical attention. If immediate medical attention is unavailable; rinse mouth thoroughly with water, then give one glass of water followed by one glass of milk (if available). If spontaneous vomiting occurs, readminister water. Never give anything by mouth if patient is unconscious, rapidly losing consciousness or convulsing.
INHALATION:	Move patient to fresh air. Give oxygen or apply artificial respiration if required. Get immediate medical assistance.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Fine white powder; slight earthy odour
SPECIFIC GRAVITY:	2.3 – 2.4
BOILING POINT (°C):	Not applicable
MELTING POINT (°C):	580
SOLUBILITY IN WATER:	0.165g/100g @ 20°C pH: 12.45 (sat'd sol'n)

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PERCENT VOLATILE BY VOLUME:	Not applicable
EVAPORATION RATE:	Not applicable
VAPOUR PRESSURE (mmHg):	Not applicable
VAPOUR DENSITY (air = 1):	Not applicable
BULK DENSITY:	320 – 690 kg/m ³

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMITS:	Not applicable
EXTINGUISHING MEDIA:	Use extinguishing media appropriate for packaging and surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained breathing apparatus required for fire-fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Not available.
HAZARDOUS COMBUSTION PRODUCTS:	Thermal decomposition at 540°C will produce calcium oxide and water.

SECTION VII: REACTIVITY DATA

STABILITY:	<input checked="" type="checkbox"/> STABLE	<input type="checkbox"/> UNSTABLE
INCOMPATIBILITY (CONDITIONS TO AVOID):	Boron trifluoride, chlorine trifluoride, ethanol, fluorine, hydrogen fluoride, phosphorus pentoxide, and acids (violent reaction generating heat and possible explosion in confined area). Absorbs CO ₂ from the air to form calcium carbonate.	
CONDITIONS OF REACTIVITY:	Reacts violently with strong acids. Reacts exothermically with acids and many other compounds and chemical elements to form calcium based compounds. Explosive when mixed with nitro compounds.	
HAZARDOUS DECOMPOSITION PRODUCTS:	Calcium oxides.	
HAZARDOUS POLYMERIZATION:	<input checked="" type="checkbox"/> WILL NOT OCCUR	<input type="checkbox"/> MAY OCCUR

SECTION VIII: PREVENTIVE MEASURES

SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	NIOSH approved filter mask or respirator with dust filters recommended.
VENTILATION:	Use local exhaust ventilation, process enclosure or other engineering control to maintain level of airborne dust below TLV.
PROTECTIVE GLOVES:	Impervious gloves should be worn. Suggest rubber.

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EYE PROTECTION: Chemical goggles should be worn. Contact lenses should not be worn when handling this material.

OTHER PROTECTIVE EQUIPMENT (SPECIFY): Recommend coveralls and chemical resistant footwear. Ensure eyewash station and emergency shower are available.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

This product is corrosive. Wear appropriate protective equipment. Avoid creating dust. Avoid breathing dust. Avoid skin and eye contact. After handling lime, employees must shower. If exposed daily, use oil, Vaseline, silicone base crème etc. to protect exposed skin, particularly neck, face and wrists. Launder contaminated clothing before reuse. Discard contaminated leather articles. Clean spills promptly to avoid making dust. Store in cool, dry area away from incompatibles. Keep containers away from contact with water. Dry all equipment before use. Wash all equipment thoroughly with water when handling is completed. Empty packages contain residual hazardous material and should be handled as if full.

STEPS TO BE TAKEN IN CASE THE MATERIAL IS SPILLED OR RELEASED

Use appropriate safety equipment. Keep spilled material away from organic materials and other incompatible materials. Vacuum up, if possible, to avoid generating airborne dust. Collect uncontaminated material for repackaging. Collect contaminated material in approved containers for disposal. Flush spill area with copious quantities of water.

WASTE DISPOSAL METHOD

Dispose of in accordance with federal, provincial and local regulations. It is the responsibility of the end-user to determine if material meets the criteria of hazardous waste at the time of disposal. Empty containers, which have not been cleaned and purged, contain residual hazardous material and must be recycled, or disposed of, in accordance with local regulations.

SECTION IX: PREPARATION

The information contains herein is given in good faith, but no warranty, expressed or implied, is made.

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