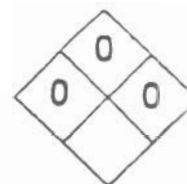




MATERIAL SAFETY DATA SHEET



SECTION I - PRODUCT IDENTIFICATION

MANUFACTURER'S NAME: Various	EMERGENCY TELEPHONE NUMBER: CHEMTREL (800) 255-3924
ADDRESS: 610 South 38th Street Kansas City, KS 66106 (Layne Christensen Safety Dept.)	
CHEMICAL NAME: Bentonite (powder, chips, pellets)	TRADE NAME AND SYNONYMS: Drill Mud, Common Clay
CHEMICAL FAMILY: Natural Mineral	FORMULA: n/a

SECTION II - HAZARDOUS INGREDIENTS

HAZARDOUS COMPONENT(S) (Chemical and Common Names)	%	OSHA PEL	ACGIH TLV	CAS NUMBER
Sodium Montmorillonite (Western Bentonite)	100	10 mg/m ³	5 mg/m ³	n/a
Silica (SiO ₂) as quartz, cristobalite or tridymite	< 0.01			

SECTION III - PHYSICAL AND CHEMICAL CHARACTERISTICS

APPEARANCE AND COLOR: Fine, brownish-gray powder, no odor.

BOILING POINT: n/a	VAPOR DENSITY (Air = 1): n/a	SPECIFIC GRAVITY (H ₂ O = 1): 2.5	VAPOR PRESSURE: n/a
SOLUBILITY IN WATER: Forms mud		EVAPORATION RATE (BUTYL ACETATE = 1): n/a	

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: n/a	FLAMMABLE LIMITS	LEL: n/a	UEL: n/a
AUTO-IGNITION TEMPERATURE: n/a	EXTINGUISHING MEDIA: Appropriate for surrounding fire		
SPECIAL FIRE FIGHTING PROCEDURES: n/a			
UNUSUAL FIRE AND EXPLOSION HAZARDS: n/a			

SECTION V - HEALTH HAZARD DATA

EXPOSURE LIMITS	TLV: 5 mg/m ³		STEL: n/a	CEILING: 10 mg/m ³	
IS CHEMICAL A CARCINOGEN?	YES		IS CHEMICAL A MUTAGEN?	YES	
	NO	x		NO	x

EFFECTS OF EXPOSURE

INHALATION: Primary route of exposure. Avoid breathing dust. Long term exposure could result in Silicosis or other respiratory disorders.

SKIN CONTACT/ABSORPTION: Prolonged contact may irritate skin.

EYE CONTACT: Eye irritation can result.

INGESTION: n/a

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Avoid breathing dust. Remove to fresh air.

INGESTION: n/a

SKIN CONTACT: Wash skin after use.

EYE CONTACT: Flush eyes with water for at least 15 minutes. Get medical aid if irritation persists.

SECTION VI - PHYSICAL HAZARDS (REACTIVITY DATA)

STABILITY

STABLE

X

CONDITIONS TO AVOID: n/a

UNSTABLE

INCOMPATIBILITY (Materials to Avoid): n/a

HAZARDOUS DECOMPOSITION PRODUCTS: n/a

HAZARDOUS
POLYMERIZATION

MAY OCCUR

WILL NOT OCCUR

X

CONDITIONS TO AVOID: n/a

SECTION VII - SPILL OR LEAK DATA

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Sweep up for disposal or reuse. Do not flush with water as material can become very slippery. Waste material may be landfilled.

SECTION VIII - PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (Specify Type): NIOSH/MSHA approved dust mask.

PROTECTIVE GLOVES: Cloth

EYE PROTECTION: Safety glasses

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: n/a

VENTILATION: As necessary to keep dust levels down.

WORK/HYGIENIC PRACTICES: Avoid inhalation of dusts. Avoid skin contact.

SECTION IX - TRANSPORTATION AND STORAGE DATA

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Store in dry area. Do not remove or deface labels.

HAZARD CLASS: n/a

DOT CLASSIFICATION: none

PLACARDING REQUIREMENTS: none

PREPARER: Jim Wright

TITLE: Industrial Hygienist

DATE: 1/97

MATERIAL SAFETY DATA SHEET
HEXANE

PRODUCT CODE NUMBER(S): 5600-1, 5600-2, 5600-3, 5600-4, 5601-2, 5601-7, 5602-2, 5603-7, 5604-2, 5605-1, 5604-4

PRODUCT IDENTIFICATION

Chemical Name and Synonyms: Hexane; Normal hexane; Hexanes

Chemical Family: Aliphatic hydrocarbon

Chemical Formula: C_6H_{14}

Product Use: Laboratory solvent

Manufacturer's Name and Address:

Caledon Laboratories Ltd.

40 Armstrong Avenue

Georgetown, Ontario, L7G 4R9

Telephone No: (905) 877-0101

Fax No: (905) 877-6666

Emergency Telephone No: CANUTEC (613) 996-6666

HAZARDOUS INGREDIENTS OF MATERIALS

Ingredients	%	TLV Units	CAS No.
n-Hexane	>85	50 ppm	110-54-3
Methylpentanes, may include 2-methylpentane	<5	500 ppm	107-83-5
Methylcyclopentane	<10	Not established	96-37-7

PHYSICAL DATA

Physical State: Liquid

Odour and Appearance: Clear, colourless volatile liquid, gasoline-like odour

Odour Threshold (ppm): 64-244 ppm. Poor warning properties, odour threshold exceeds TLV.

Vapour Pressure (mm Hg): 124 mm Hg at 20°C

Vapour Density (Air = 1): 2.97

Evaporation Rate: 0.3 (Ethyl ether = 1)

Boiling Point (°C): 67-69°C

Freezing Point (°C): -95°C

pH: Not applicable

Specific Gravity: 0.66 at 20°C

Coefficient of Water/Oil distribution: Not available

SHIPPING DESCRIPTION

UN: 1208

T.D.G. Class: 3.1

Pkg. Group: II

REACTIVITY DATA

Chemical Stability: Stable

Incompatibility with other substances: Oxygen and strong oxidizing agents can increase risk of fire and explosion.

Reactivity: Avoid heat, sparks and open flame. Confined materials may explode upon heating.

Hazardous Decomposition Products: CO_x

FIRE AND EXPLOSION DATA

Flammability: Flammable. Readily ignited in most ambient conditions. Vapour is heavier than air and may "flash back" to an ignition source.

Extinguishing Media: Dry chemical, foam, or carbon dioxide. Water may be used to cool containers, but is not suitable for fighting fire involving this material.

Flash Point (Method Used): -21°C (TCC)

Autoignition Temperature: 225°C

Upper Flammable Limit (% by volume): 7.5

Lower Flammable Limit (% by volume): 1.1

Hazardous Combustion Products: CO_x

Sensitivity to Impact: Probably not sensitive

Sensitivity to Static discharge: May be ignited by static discharge.

TOXICOLOGICAL PROPERTIES AND HEALTH DATA
Toxicological Data:

LD₅₀: (rat, oral) 28,710 mg/kg; (dermal, rabbit) >2g/kg

LC₅₀: (inh, mouse) 35,000 ppm/1h

Effects of Acute Exposure to Product:

Inhaled: 10 minute exposure at 1,500 ppm can cause irritation of respiratory tract, nausea, and headache; 10 minutes at 5,000 ppm can cause dizziness, drowsiness. Massive exposures can cause central nervous system depression, unconsciousness and death.

In contact with skin: May cause mild irritation. Can be absorbed through skin in harmful amounts.

In contact with eyes: Vapour can cause irritation; liquid can cause pain and irritation.

Ingested: May cause vomiting, headache, depression and swelling of the intestines. May be aspirated into the lungs if swallowed, which may result in pulmonary edema and chemical pneumonitis.

Effects of Chronic Exposure to Product: Causes harm to the nervous system producing numbness or tingling in the extremities, spasms in the legs, tiredness, muscle weakness and more severe nerve damage. Peripheral neuropathy developed within 7 months in mice at 250 ppm. Methyl pentanes have produced kidney damage in male rats only, but no comparable health hazard for kidney