

**MATERIAL SAFETY DATA SHEET (MSDS) - HEPTANE****SECTION 1 PRODUCT AND COMPANY IDENTIFICATION****PRODUCT**

**Product Name:** HEPTANE  
**Product Description:** Aliphatic Hydrocarbon  
**Intended Use:** Solvent

**COMPANY IDENTIFICATION**

**Supplier:** PURE CHEMICALS CO.  
CHENNAI, TAMILNADU, INDIA

**24 Hour Health Emergency** (91) 8939878447  
(91) 9444038694

**Transportation Emergency** (91) 9444038517  
**Phone**

Company Name	Place	EMERGENCY TELEPHONE NUMBER
Pure Chemicals Co.	CHENNAI	Day Emergency - 044-26161803-26161809

This (M)SDS is a generic document with no country specific information included.

**SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS****Reportable Hazardous Substance(s) or Complex Substance(s)**

Name	CAS#	Concentration*
NAPHTHA (PETROLEUM), HYDROTREATED LIGHT	64742-49-0	100%

**Hazardous Constituent(s) Contained in Complex Substance(s)**

Name	CAS#	Concentration*
2,3-DIMETHYLPENTANE	565-59-3	0 - 5%
3-ETHYLPENTANE	617-78-7	0 - 5%
3-METHYLHEXANE	589-34-4	0 - 30%
HEXANE, 2-METHYL-	591-76-4	0 - 15%
METHYLCYCLOHEXANE	108-87-2	0 - 20%
N-HEPTANE	142-82-5	30 - 45%

\* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

**SECTION 3 HAZARDS IDENTIFICATION**

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

**POTENTIAL PHYSICAL / CHEMICAL EFFECTS**

Flammable. Material can release vapors that readily form flammable mixtures. Vapor accumulation could flash and/or explode if ignited. Material can accumulate static charges which may cause an ignition.

### POTENTIAL HEALTH EFFECTS

Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage. May be irritating to the eyes, nose, throat, and lungs. May cause central nervous system depression.

### ENVIRONMENTAL HAZARDS

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

<b>NFPA Hazard ID:</b>	Health: 1	Flammability: 3	Reactivity: 0
<b>HMIS Hazard ID:</b>	Health: 1*	Flammability: 3	Reactivity: 0

**NOTE:** This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

## SECTION 4 FIRST AID MEASURES

### Inhalation

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

### SKIN CONTACT

Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

### EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

### Ingestion

Seek immediate medical attention. Do not induce vomiting.

### NOTE TO PHYSICIAN

If ingested, material may be aspirated into the lungs and cause chemical pneumonitis. Treat appropriately. This light hydrocarbon material, or a component, may be associated with cardiac sensitization following very high exposures (well above occupational exposure limits) or with concurrent exposure to high stress levels or heart-stimulating substances like epinephrine. Administration of such substances should be avoided.

## SECTION 5 FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

**Appropriate Extinguishing Media:** Use foam, dry chemical, or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**Inappropriate Extinguishing Media:** Straight Streams of Water

### FIRE FIGHTING

**Fire Fighting Instructions:** Evacuate area. If a leak or spill has not ignited, use water spray to disperse the vapors and to protect personnel attempting to stop a leak. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective

equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

**Unusual Fire Hazards:** Highly flammable. Vapors are flammable and heavier than air. Vapors may travel across the ground and reach remote ignition sources causing a flashback fire danger.

**Hazardous Combustion Products:** Smoke, Fume, Incomplete combustion products, Oxides of carbon

#### FLAMMABILITY PROPERTIES

**Flash Point [Method]:** -8C (18F) [ ASTM D-56]

**Flammable Limits (Approximate volume % in air):** LEL: 1.1 UEL: 6.7

**Autoignition Temperature:** 282°C (540°F)

### SECTION 6

### ACCIDENTAL RELEASE MEASURES

#### NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

#### PROTECTIVE MEASURES

Avoid contact with spilled material. Warn or evacuate occupants in surrounding and downwind areas if required due to toxicity or flammability of the material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for Personal Protective Equipment.

#### SPILL MANAGEMENT

**Land Spill:** Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapor; but may not prevent ignition in closed spaces.

**Water Spill:** Stop leak if you can do it without risk. Eliminate sources of ignition. If the Flash Point exceeds the Ambient Temperature by 10 degrees C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may

greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

### ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

## SECTION 7

## HANDLING AND STORAGE

### HANDLING

Avoid contact with skin. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapors may be evolved from heated or agitated material. Use only with adequate ventilation. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance.

**Loading/Unloading Temperature:** [Ambient]

**Transport Temperature:** [Ambient]

**Transport Pressure:** [Ambient]

**Static Accumulator:** This material is a static accumulator. A liquid is typically considered a nonconductive, static accumulator if its conductivity is below 100 pS/m (100x10E-12 Siemens per meter) and is considered a semiconductive, static accumulator if its conductivity is below 10,000 pS/m. Whether a liquid is nonconductive or semiconductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, anti-static additives and filtration can greatly influence the conductivity of a liquid.

### STORAGE

Ample fire water supply should be available. A fixed sprinkler/deluge system is recommended. The container choice, for example storage vessel, may effect static accumulation and dissipation. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Outside or detached storage preferred. Storage containers should be grounded and bonded. Fixed storage containers, transfer containers and associated equipment should be grounded and bonded to prevent accumulation of static charge.

**Storage Temperature:** [Ambient]

**Suitable Containers/Packing:** Tank Cars; Barges; Drums; Tank Trucks

**Suitable Materials and Coatings (Chemical Compatibility):** Carbon Steel; Polyethylene; Stainless Steel; Polypropylene; Teflon

**Unsuitable Materials and Coatings:** Natural Rubber; Butyl Rubber; Ethylene-propylene-diene monomer (EPDM); Polystyrene

## SECTION 8

## EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE LIMIT VALUES

**Exposure limits/standards (Note: Exposure limits are not additive)**

Source	Form	Limit / Standard			NOT E	Source
2,3-DIMETHYLPENTANE		TWA	2000	500	N/A	OSHA Z1

			mg/m3	ppm		
2,3-DIMETHYLPENTANE		STEL	500 ppm		N/A	ACGIH
2,3-DIMETHYLPENTANE		TWA	400 ppm		N/A	ACGIH
3-ETHYLPENTANE		TWA	2000 mg/m3	500 ppm	N/A	OSHA Z1
3-ETHYLPENTANE		STEL	500 ppm		N/A	ACGIH
3-ETHYLPENTANE		TWA	400 ppm		N/A	ACGIH
3-METHYLHEXANE		TWA	2000 mg/m3	500 ppm	N/A	OSHA Z1
3-METHYLHEXANE		STEL	500 ppm		N/A	ACGIH
3-METHYLHEXANE		TWA	400 ppm		N/A	ACGIH
HEXANE, 2-METHYL-		TWA	2000 mg/m3	500 ppm	N/A	OSHA Z1
HEXANE, 2-METHYL-		STEL	500 ppm		N/A	ACGIH
HEXANE, 2-METHYL-		TWA	400 ppm		N/A	ACGIH
METHYLCYCLOHEXANE		TWA	2000 mg/m3	500 ppm	N/A	OSHA Z1
METHYLCYCLOHEXANE		TWA	400 ppm		N/A	ACGIH
N-HEPTANE		TWA	2000 mg/m3	500 ppm	N/A	OSHA Z1
N-HEPTANE		STEL	500 ppm		N/A	ACGIH
N-HEPTANE		TWA	400 ppm		N/A	ACGIH
NAPHTHA (PETROLEUM), HYDROTREATED LIGHT	Vapor.	RCP - TWA	1600 mg/m3	395 ppm	Total Hydr ocarb ons	ExxonMobil

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

### ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

### PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

**Respiratory Protection:** If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Half-face filter respirator

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

**Hand Protection:** Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:  
Chemical resistant gloves are recommended.

**Eye Protection:** If contact is likely, safety glasses with side shields are recommended.

**Skin and Body Protection:** Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:  
Chemical/oil resistant clothing is recommended.

**Specific Hygiene Measures:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

#### ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

#### SECTION 9

#### PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

#### GENERAL INFORMATION

**Physical State:** Liquid  
**Form:** Clear  
**Color:** Colorless  
**Odor:** Mild Petroleum/Solvent  
**Odor Threshold:** N/D

#### IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

**Relative Density (at 15.6 C):** 0.696  
**Density (at 15.6 °C):** 697 kg/m<sup>3</sup> (5.82 lbs/gal, 0.7 kg/dm<sup>3</sup>)  
**Flash Point [Method]:** -8C (18F) [ ASTM D-56]  
**Flammable Limits (Approximate volume % in air):** LEL: 1.1 UEL: 6.7  
**Autoignition Temperature:** 282°C (540°F)  
**Boiling Point / Range:** 94C (201F) - 98C (208F)  
**Vapor Density (Air = 1):** 3.5 at 101 kPa  
**Vapor Pressure:** 5.904 kPa (44.39 mm Hg) at 20 C  
**Evaporation Rate (n-butyl acetate = 1):** 4.2  
**pH:** N/A  
**Log Pow (n-Octanol/Water Partition Coefficient):** N/D  
**Solubility in Water:** Negligible  
**Viscosity:** 0.49 cSt (0.49 mm<sup>2</sup>/sec) at 40 C | 0.58 cSt (0.58 mm<sup>2</sup>/sec) at 25C  
**Oxidizing Properties:** See Hazards Identification Section.

#### OTHER INFORMATION

**Freezing Point:** N/D

**Melting Point:** N/A  
**Pour Point:** -57°C (-71°F)  
**Molecular Weight:** 102  
**Hygroscopic:** No  
**Coefficient of Thermal Expansion:** 0.00088 V/VDEGC

<b>SECTION 10</b>	<b>STABILITY AND REACTIVITY</b>
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**STABILITY:** Material is stable under normal conditions.  
**CONDITIONS TO AVOID:** Avoid heat, sparks, open flames and other ignition sources.  
**MATERIALS TO AVOID:** Strong oxidizers  
**HAZARDOUS DECOMPOSITION PRODUCTS:** Material does not decompose at ambient temperatures.  
**HAZARDOUS POLYMERIZATION:** Will not occur.

<b>SECTION 11</b>	<b>TOXICOLOGICAL INFORMATION</b>
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**ACUTE TOXICITY**

<u>Route of Exposure</u>	<u>Conclusion / Remarks</u>
<b>Inhalation</b>	
Toxicity: No end point data.	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Elevated temperatures or mechanical action may form vapors, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. Based on test data for structurally similar materials.
<b>Ingestion</b>	
Toxicity: LD50 > 15000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
<b>Skin</b>	
Toxicity: LD50 > 3000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Mildly irritating to skin with prolonged exposure. Based on test data for structurally similar materials.
<b>Eye</b>	
Irritation: No end point data.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

**CHRONIC/OTHER EFFECTS**

**For the product itself:**

Vapor/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness and other central nervous system effects including death.

Prolonged and/or repeated skin contact with low viscosity materials may defat the skin resulting in possible irritation and dermatitis.

Small amounts of liquid aspirated into the lungs during ingestion or from vomiting may cause chemical pneumonitis or pulmonary edema. Very high exposure (confined spaces / abuse) to light hydrocarbons may result in abnormal heart rhythm (arrhythmias). Concurrent high stress levels and/or

co-exposure to high levels of hydrocarbons (above occupational exposure limits), and to heart-stimulating substances like epinephrine, nasal decongestants, asthma drugs, or cardiovascular drugs may initiate arrhythmias.

Additional information is available by request.

**The following ingredients are cited on the lists below:** None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC

3 = IARC 1

5 = IARC 2B

2 = NTP SUS

4 = IARC 2A

6 = OSHA CARC

## SECTION 12

## ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

### ECOTOXICITY

Material -- Expected to be toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

### MOBILITY

Material -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

### PERSISTENCE AND DEGRADABILITY

#### Biodegradation:

Material -- Expected to be readily biodegradable.

#### Hydrolysis:

Material -- Transformation due to hydrolysis not expected to be significant.

#### Photolysis:

Material -- Transformation due to photolysis not expected to be significant.

#### Atmospheric Oxidation:

Material -- Expected to degrade rapidly in air

### OTHER ECOLOGICAL INFORMATION

**VOC (EPA Method 24):** 5.808 lbs/gal

## SECTION 13

## DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

### DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

### REGULATORY DISPOSAL INFORMATION

RCRA Information: Disposal of unused product may be subject to RCRA regulations (40 CFR 261). Disposal of the used product may also be regulated due to ignitability, corrosivity, reactivity or toxicity as determined by the Toxicity Characteristic Leaching Procedure (TCLP). Potential RCRA



characteristics: IGNITABILITY.

**Empty Container Warning** Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

## SECTION 14

## TRANSPORT INFORMATION

### LAND (DOT)

**Proper Shipping Name:** HEPTANES  
**Hazard Class & Division:** 3  
**ID Number:** 1206  
**Packing Group:** II  
**Marine Pollutant:** Yes  
**ERG Number:** 128  
**Label(s):** 3  
**Transport Document Name:** UN1206, HEPTANES, 3, PG II, MARINE POLLUTANT

### LAND (TDG)

**Proper Shipping Name:** HEPTANES  
**Hazard Class & Division:** 3  
**UN Number:** 1206  
**Packing Group:** II  
**Marine Pollutant:** Yes

Footnote: Marine Pollutant designation is applicable only if shipped over water.

### SEA (IMDG)

**Proper Shipping Name:** HEPTANES  
**Hazard Class & Division:** 3  
**EMS Number:** F-E, S-D  
**UN Number:** 1206  
**Packing Group:** II  
**Marine Pollutant:** Yes  
**Label(s):** 3  
**Transport Document Name:** UN1206, HEPTANES, 3, PG II, (-8°C c.c.), MARINE POLLUTANT

### AIR (IATA)

**Proper Shipping Name:** HEPTANES  
**Hazard Class & Division:** 3  
**UN Number:** 1206  
**Packing Group:** II  
**Label(s) / Mark(s):** 3  
**Transport Document Name:** UN1206, HEPTANES, 3, PG II

**SECTION 15**
**REGULATORY INFORMATION**

**OSHA HAZARD COMMUNICATION STANDARD:** When used for its intended purpose, this material is classified as hazardous in accordance with OSHA 29CFR 1910.1200.

**NATIONAL CHEMICAL INVENTORY LISTING:** AICS, IECSC, DSL, EINECS, ENCS, KECI, PICCS, TSCA

**EPCRA:** This material contains no extremely hazardous substances.

**CERCLA:** This material is not subject to any special reporting under the requirements of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Contact local authorities to determine if other reporting requirements apply.

**CWA / OPA:** This product is classified as an oil under Section 311 of the Clean Water Act (40 CFR 110) and the Oil Pollution Act of 1990. Discharge or spills which produce a visible sheen on either surface water, or in waterways/sewers which lead to surface water, must be reported to the National Response Center at 800-424-8802.

**SARA (311/312) REPORTABLE HAZARD CATEGORIES:** Fire. Delayed Health.

**SARA (313) TOXIC RELEASE INVENTORY:** This material contains no chemicals subject to the supplier notification requirements of the SARA 313 Toxic Release Program.

**The following ingredients are cited on the lists below:**

Chemical Name	CAS Number	List Citations
2,3-DIMETHYLPENTANE	565-59-3	1, 4, 5, 9, 13, 16, 17, 19
3-ETHYLPENTANE	617-78-7	1, 4, 5, 9, 13, 16, 17, 18, 19
3-METHYLHEXANE	589-34-4	1, 4, 5, 9, 13, 16, 17, 18, 19
HEXANE, 2-METHYL-	591-76-4	1, 4, 9, 13, 16, 17, 18, 19
METHYLCYCLOHEXANE	108-87-2	1, 4, 13, 16, 17, 19
N-HEPTANE	142-82-5	1, 4, 5, 9, 13, 16, 17, 18, 19

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

**SECTION 16**
**OTHER INFORMATION**

N/D = Not determined, N/A = Not applicable

**THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:**

Revision Changes:

Section 04: First Aid Notes was modified.

Section 07: Handling and Storage - Storage Phrases was modified.

Section 11: Other Health Effects was modified.

Section 07: Handling and Storage - Handling was modified.

Section 07: Static Accumulator was modified.

Section 14: TDG Footnote was added.

Composition: Component table was modified.

Section 08: Exposure Limits Table was modified.

Section 15: List Citations Table was modified.

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**PRECAUTIONARY LABEL TEXT:**

**Contains:** NAPHTHA (PETROLEUM), HYDROTREATED LIGHT WARNING!

**HEALTH HAZARDS**

Repeated exposure may cause skin dryness or cracking. If swallowed, may be aspirated and cause lung damage.

**PHYSICAL HAZARDS**

Flammable. Material can accumulate static charges which may cause an ignition.

**PRECAUTIONS**

Avoid contact with skin. Prevent exposure to ignition sources, for example use non-sparking tools and explosion-proof equipment. Potentially toxic/irritating fumes/vapors may be evolved from heated or agitated material. Use only with adequate ventilation. Use proper bonding and/or ground procedures. However, bonding and grounds may not eliminate the hazard from static accumulation.

**FIRST AID**

**Inhalation:** Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

**Eye:** Flush thoroughly with water. If irritation occurs, get medical assistance.

**Oral:** Seek immediate medical attention. Do not induce vomiting.

**Skin:** Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

**FIRE FIGHTING MEDIA**

Use water fog, foam, dry chemical or carbon dioxide (CO<sub>2</sub>) to extinguish flames.

**SPILL/LEAK**

**Land Spill:** Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do it without risk. Prevent entry into waterways, sewer, basements or confined areas. A vapor suppressing foam may be used to reduce vapors. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

**Water Spill:** Stop leak if you can do it without risk. Eliminate sources of ignition. Report spills as required to appropriate authorities. If the Flash Point exceeds the Ambient Temperature by 10 degrees C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

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