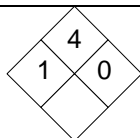











NFPA / WHMIS	Personal Protection	DOT/TDG Road/Rail
  	     	

Section I. Product Identification and Uses

Common/Trade name	Alkylate (Lima)		
Synonyms	Full Range Alkylation Naphtha	CAS #	64741-64-6
Chemical family	Hydrocarbon	DSL	This product is on the Domestic Substances List (DSL). TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
Supplier	Husky Lima Refinery, 1150 South Metcalf Street, Lima OH, 45804 403-298-6111 (General Information)	Manufacturer	Husky Lima Refinery 1150 South Metcalf Street Lima, OH 45804
Material uses	Motorfuels, Petrochemicals		

Section 2. First Aid Measures

Eye contact	Flush eyes for at least 15 minutes with clean water. Patch lightly, allowing drainage. Seek medical attention.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with soap and water. Seek medical attention if irritation develops.
Inhalation	Protect rescuer. Move exposed person to fresh air. If breathing has stopped apply artificial respiration. Seek medical attention.
Ingestion	If swallowed, do not induce vomiting or give liquids. Seek immediate medical attention.

Section 3. Hazardous Ingredients

Name	CAS #	ACGIH TLVs (OSHA PELs in Section 7)						% by Weight
		TWA (ppm)	TWA (Mg/M3)	STEL (ppm)	STEL (Mg/M3)	CEIL (ppm)	CEIL (Mg/M3)	
Full Range Alkylation Naphtha	64741-64-6	300	n/av	n/av	n/av	n/av	n/av	100
Octane (and isomers)	111-65-3	300	n/av	n/av	n/av	n/av	n/av	0-85
Hexane (and isomers)	110-54-3	50	n/av	n/av	n/av	n/av	n/av	0-11
Heptane (and isomers)	143-82-5	400	n/av	n/av	n/av	n/av	n/av	0-10
Butane	106-97-8	1000	n/av	n/av	n/av	n/av	n/av	0-10
Pentane - iso	78-78-4	600	n/av	n/av	n/av	n/av	n/av	0-5
Pentane	100-41-4	600	n/av	n/av	n/av	n/av	n/av	0-5
Toluene	108-88-3	20	n/av	n/av	n/av	n/av	n/av	0-2
Nonane	111-84-2	200	n/av	n/av	n/av	n/av	n/av	0-2

Toxicity values of the hazardous ingredients	<p>Octane LC50 Rat inhalation 118 g/cu m/4 hr Hexane LD50 Rat oral 28,710 mg/kg Hexane LC50 Rat inhalation 48000 ppm/< 4 hr Heptane LD50 Mouse iv 222 mg/kg Heptane LC50 Rat inhalation 103 g/cu m/4 hr Butane LC50: 278,000 ppm (Rat 4 hr) Pentane - iso LC50 Mouse inhalation 1000 mg/L/1 hr (estimated) Pentane LC50 Rat inhalation 364 g/cu m/4H Toluene LD50: 5000 mg/kg (Rat, oral) Toluene LC50: 8000 ppm (Rat, inhalation) Toluene LD50: 14000 mg/kg (Rabbit, dermal) Nonane LD50 Mouse iv 218 mg/kg Nonane LC50 Rat inhalation 3200 ppm/4 hr</p>
---	--

Section 4. Physical Data

Physical state and appearance	Colorless to light yellow liquid.
Odor	Gasoline - Petroleum Odor Pleasant.
pH (1% soln/water)	Not applicable.
Odor threshold	Not available
Evaporation rate	Not available
Freezing point	-51.15 C (-60.1F)
Boiling point	27.8°C (82°F) (initial boiling point)
Specific gravity	0.7 (Water = 1) at 60F
Volatility	100 (%vol)
Vapor density	3.6 (weighted average) (air =1)
Vapor pressure	Not available
Water/oil dist. coeff.	Not available.
Solubility	Not available.
Molecular Weight	Not applicable.
Melting Point	Not available.
Density	Not available.

Section 5. Fire and Explosion Data

Auto-ignition temperature	287°C (548.6°F)
Flash points	CLOSED CUP: -57.15°C (-70.9°F)
Flammable limits	LFL = 1% UFL = 6%
Extinguishing Media	Use DRY chemicals, CO2, or foam to extinguish fire. Water may not be an effective medium to extinguish fire. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special fire fighting procedures	Use supplied air or self contained breathing apparatus (SCBA) for large fires or for fires in enclosed areas. Qualified persons wearing full fire-fighting suits and approved/certified self-contained breathing apparatus.
Flammability	Highly flammable liquid. Released vapors may form flammable/explosive mixtures at or above the flash point. Vapors may travel considerable distances to ignition sources and cause a flash fire. All storage containers and pumping equipment must be grounded.
Remark	

Continued on Next Page

No additional remark.

Risks of explosion This material is sensitive to static discharge. This product is not sensitive to mechanical impact.

Remark

No additional remark.

Section 6. Reactivity Data

Stability The product is stable.

Hazardous decomp. products Carbon monoxide, carbon dioxide and irritant fumes and gases including sulfur oxides, nitrogen oxides and aldehydes.

Reactivity Incompatible material: Strong acids, strong oxidizers, chlorine. Hazardous polymerization: Will not occur.

Remark

No additional remark.

Section 7. Toxicological Properties

Routes of entry Ingestion. Inhalation. Eye contact. Skin contact.

OSHA PEL Octane OSHA PEL 500 ppm (8 Hour TWA)
Hexane OSHA PEL 500 ppm (8 Hour TWA)
Heptane OSHA PEL 500 ppm (8 Hour TWA)
Pentane OSHA PEL 1000 ppm (8 Hour TWA)
Toluene OSHA PEL 200 ppm (8 Hour TWA) 300 ppm (Acceptable Ceiling Concentration) 500 ppm (Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift)

Toxicity to animals Octane LC50 Rat inhalation 118 g/cu m/4 hr
Hexane LD50 Rat oral 28,710 mg/kg
Hexane LC50 Rat inhalation 48000 ppm/< 4 hr
Heptane LD50 Mouse iv 222 mg/kg
Heptane LC50 Rat inhalation 103 g/cu m/4 hr
Butane LC50: 278,000 ppm (Rat 4 hr)
Pentane - iso LC50 Mouse inhalation 1000 mg/L/1 hr (estimated)
Pentane LC50 Rat inhalation 364 g/cu m/4H
Toluene LD50: 5000 mg/kg (Rat, oral)
Toluene LC50: 8000 ppm (Rat, inhalation)
Toluene LD50: 14000 mg/kg (Rabbit, dermal)
Nonane LD50 Mouse iv 218 mg/kg
Nonane LC50 Rat inhalation 3200 ppm/4 hr

Remark

No additional remark.

Chronic effects Octane is known to cause skin irritation, drowsiness, dermatitis, chemical pneumonitis (aspiration liquid) and narcosis.
Hexane is known to cause nausea, headache, peripheral neuropathy, numb extremities, muscle weakness, dermatitis, dizziness and chemical pneumonitis (aspiration liquid). Hexane is readily absorbed through the skin.
Heptane is known to cause skin irritation, dizziness, stupor, incoordination, loss of appetite, nausea, dermatitis and chemical pneumonitis (aspiration liquid).
Butane is known to cause cardiac sensitization, CNS depression, drowsiness, narcosis and liquid frostbite .
Pentanes are known to cause dermatitis, chemical pneumonitis (aspiration liquid), drowsiness and narcosis.
Nonane is known to cause skin irritation, headache, drowsiness, dizziness, confusion, nausea, tremor, incoordination, chemical pneumonitis (aspiration liquid).

Remark

No additional remark.

Continued on Next Page

Acute effects	Irritancy: Skin, eye and upper respiratory tract irritant.
Ingestion	Pulmonary aspiration hazard if swallowed and vomiting occurs.
Skin	Prolonged skin contact can cause defatting of the skin resulting in dry cracked skin and dermatitis.
Eyes	Eye contact with product or product vapors may result in eye irritation.
Inhalation	May cause headache, dizziness, loss of appetite and loss of consciousness. Product vapors are irritating to the respiratory tract.



Remark

Synergistic materials Not available.

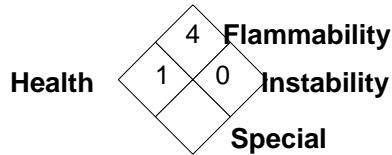
Section 8. Preventive Measures

Waste disposal	Dispose of in accordance with all federal, state/provincial and local regulations.
Storage	Keep away from all ignition sources. Maintain temperature below the flash point. Avoid all possible sources of ignition (spark or flame).
Ventilation	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Use explosion-proof ventilation equipment.
Spill and leak	Evacuate unnecessary personnel. Eliminate all ignition sources. Be alert to the potential for the presence of hydrogen sulphide gas and don appropriate protective equipment. Stop leak if safe to do so. Contain spill and absorb with inert absorbent. Large spills should be removed with explosion proof vacuum equipment. Large pools may be covered with foam to prevent vapor evolution. Comply with federal, state/provincial, and local requirements for spill notification.

Section 9. Classification/Regulatory Information

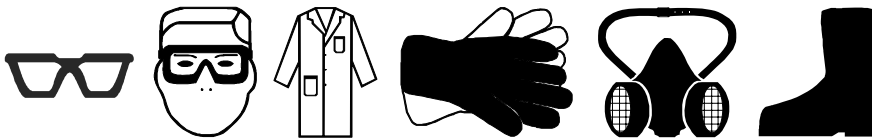
DOT/TDG Road/Rail	<p>TDG CLASS 3: Flammable liquid with a flash point less than or equal to 60.5 C (140.9 F). Closed cup test method.</p>  <p>GASOLINE, 3, UN1203, PGII</p> <p>Remark No additional remark.</p>
WHMIS	<p>WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC). WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC).</p>  <p>Remark No additional remark.</p>
Other	<p>This product is on the Domestic Substances List (DSL). TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory. Refer to federal, state/provincial, and local legislation for further requirements.</p>

National Fire
Protection
Association
(U.S.A.)



Section 10. Protective Clothing

Eye	Non-vented chemical goggles to prevent eye irritation from the solvent vapors.
Skin	Impervious gloves and clothing should be worn as appropriate to protect against skin contact. Neoprene or nitrile material is suggested.
Respiratory	Respiratory protection may be required in poorly ventilated areas. Properly fitted air purifying masks equipped with organic vapor filters will provide protection at low concentrations. Wear NIOSH approved respiratory protection adequate for the expected concentration of the substance in the air.
Other	As required by the situation according to your companies policies and procedures. Contact your supervisor for direction.



Section 11. Preparation Information

References	-Provisional Domestic Substances List, Canadian Environmental Protection Act, Volume 1-Registry Number Index, April 1990; Environment Canada. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. CCOHS (Chem advi) CCOHS(Cheminfo) Documentation of the Threshold Limit Values and Biological Exposure Indices (ACIGH) Pocket Guide to Chemical Hazards (NIOSH) Transportation of Dangerous Goods Schedule II List II
------------	--

MSDS Status

Acronyms: TLV = Threshold Limit Value N/AP = Not applicable N/AV = Not Available COC = Cleveland Open Cup PMCC = Pensky Martens Closed Cup

Validated by Health & Safety Department on 5/23/2008.

Verified by Health & Safety
Department.

Supersedes: 11/28/2005

Printed 5/23/2008.

Emergency Phone # Canada: 403-262-2111

Emergency Phone # USA: Chemtrec 1-800-424-9300

While the company believes the data set forth herein are accurate as of the date hereof, the company makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such data are offered solely for your consideration, investigation and verification.