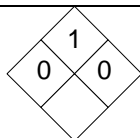




NFPA / WHMIS	Personal Protection	DOT/TDG Road/Rail
		

## Section I. Product Identification and Uses

<b>Common/Trade name</b>	<b>Vacuum Tower Bottoms (Lima)</b>		
<b>Synonyms</b>	Vacuum Resid, Resid, VTB, Residual Fuel Oil, Coker Charge, Coker Feed, No. 6 Fuel Oil, Miranda Bottoms, Pitch, Asphalt Residium	<b>CAS #</b>	64741-56-6
<b>Chemical family</b>	Petroleum Hydrocarbon	<b>DSL</b>	This product is on the Domestic Substances List (DSL). TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
<b>Supplier</b>	Husky Lima Refinery, 1150 South Metcalf Street, Lima OH, 45804 403-298-6111 (General Information)	<b>Manufacturer</b>	Husky Lima Refinery 1150 South Metcalf Street Lima, OH 45804
<b>Material uses</b>	This product is intended for use as a refinery feedstock, fuel, or for use in engineered processes. Use in other applications may result in higher exposures and require additional controls, such as local exhaust ventilation and personal protective equipment.		

## Section 2. First Aid Measures

<b>Eye contact</b>	Flush eyes for at least 15 minutes with clean water. Patch lightly, allowing drainage. Seek medical attention.
<b>Skin contact</b>	Remove non-adhering contaminated clothing. Cool adherent materials and burned areas with ice and/or cold water. Do not remove adherent material or clothing. Do not use solvents to remove asphalt from the skin. Seek medical attention.
<b>Inhalation</b>	Protect rescuer. Move exposed person to fresh air. If breathing has stopped apply artificial respiration. Seek medical attention.
<b>Ingestion</b>	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)	
Vacuum Residue	64741-56-6	n/av	0.5	n/av	n/av	n/av	n/av	95-100
Hydrogen Sulfide	7783-06-4	10	n/av	15	n/av	n/av	n/av	<1
<b>Toxicity values of the hazardous ingredients</b>	Hydrogen Sulfide LC50: 673ppm (Mouse, 1Hr) Hydrogen Sulfide LC50: 444ppm (Rat, 4 Hr)							

**Section 4. Physical Data**

<b>Physical state and appearance</b>	Black - brown thick and oily liquid
<b>Odor</b>	Petroleum Odor Strong
<b>pH (1% soln/water)</b>	Not applicable.
<b>Odor threshold</b>	Not available.
<b>Evaporation rate</b>	Slow.
<b>Freezing point</b>	Not available.
<b>Boiling point</b>	>495°C (>923°F)
<b>Specific gravity</b>	0.88 - 1.02 (Water = 1)
<b>Volatility</b>	Not available.
<b>Vapor density</b>	>5 (Air = 1)
<b>Vapor pressure</b>	<0.01 kPa (<0.1 mm Hg) @ 20°C ( 68°F)
<b>Water/oil dist. coeff.</b>	Not available.
<b>Solubility</b>	Insoluble in water.
<b>Molecular Weight</b>	Not available.
<b>Melting Point</b>	Not available.
<b>Density</b>	Not available.

**Section 5. Fire and Explosion Data**

<b>Auto-ignition temperature</b>	Not available.
<b>Flash points</b>	CLOSED CUP: 231°C (447.8°F)
<b>Flammable limits</b>	Lower: Not available (%/vol) Upper: Not available (%/vol)
<b>Extinguishing Media</b>	Use dry chemical foam, or CO2.
<b>Special fire fighting procedures</b>	Use supplied air or self contained breathing apparatus. Do not spray water onto burning hydrocarbon as this may cause spattering and spreading of the flame.
<b>Flammability</b>	Released vapors may form flammable/explosive concentrations in confined areas. Grounding of containers/pouring equipment is necessary when transferring hot liquid product.  <b>Remark</b> No additional remark.
<b>Risks of explosion</b>	This product is not sensitive to mechanical impact. This material may be sensitive to static discharge.  <b>Remark</b> No additional remark.

**Section 6. Reactivity Data**

<b>Stability</b>	Stable under normal conditions.
<b>Hazardous decomp. products</b>	Carbon monoxide, carbon dioxide and irritant fumes and gases including sulfur oxides, nitrogen oxides and aldehydes.
<b>Reactivity</b>	Incompatible materials: Strong acids, peroxides, chlorine. Hazardous polymerization: Will not occur.  <b>Remark</b> No additional remark.

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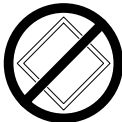
**Section 7. Toxicological Properties**

<b>Routes of entry</b>	Inhalation. Skin contact. Eye contact.
<b>OSHA PEL</b>	Hydrogen Sulfide OSHA PEL 20 ppm (Acceptable Ceiling Concentration) 50 ppm (Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift)
<b>Toxicity to animals</b>	Hydrogen Sulfide LC50: 673ppm (Mouse, 1Hr) Hydrogen Sulfide LC50: 444ppm (Rat, 4 Hr)
	<b>Remark</b> No additional remark.
<b>Chronic effects</b>	Hydrogen sulfide is known to cause apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation; dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance and irritation eyes, respiratory system.
	<b>Remark</b> No additional remark.
<b>Acute effects</b>	Skin, eye and upper respiratory tract irritant. Sensitizing Capabiltiy: No effects known.
<b>Ingestion</b>	Not Applicable.
<b>Skin</b>	Prolonged skin contact can cause defatting of the skin resulting in dry cracked skin and dermatitis. Hot liquid product may cause serious thermal burns on direct contact.
<b>Eyes</b>	Vapors are irritating to the eyes. Hot liquid hydrocarbon may cause serious thermal burns on direct contact.
<b>Inhalation</b>	Inhalation of vapors or mists may cause headache, dizziness, loss of appetite and irritation to the respiratory tract.
	<b>Remark</b> This product may contain trace quantities of hydrogen sulfide (H2S) gas which may collect in confined spaces. Acute effects vary with concentration of H2S released from mild eye, nose and throat irritation at approximately 100 ppm to sudden unconsciousness or death at 500 ppm.
<b>Synergistic materials</b>	None known.

**Section 8. Preventive Measures**

<b>Waste disposal</b>	Uncontaminated product may be recycled. Contaminated product should be removed to an appropriate landfill site in accordance with all federal, state/provincial and local regulations.
<b>Storage</b>	Store product below the flash point and keep away from all ignition sources. Head spaces in storage tanks may contain toxic hydrocarbon vapors and hydrogen sulfide gas.
<b>Ventilation</b>	In poorly ventilated areas, provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit values.
<b>Spill and leak</b>	Evacuate all unnecessary personnel. Eliminate all sources of ignition. Contain hot liquid by diking and allow to cool and solidify. Comply with federal, state/provincial and local requirements for spill notification.

**Section 9. Classification/Regulatory Information**

<b>DOT/TDG</b>	Primary class: Not applicable.
<b>Road/Rail</b>	Subsidiary class: Not applicable.
	
	Not applicable (PIN and PG).

**Remark**  
Not regulated under TDG (Canada)

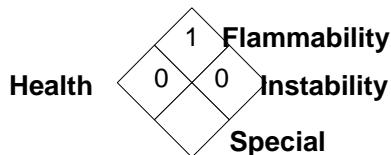
**WHMIS** WHMIS CLASS D-2A: Material causing other toxic effects (TOXIC).



**Remark**  
No additional remark.

**Other** TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory. Domestic Substances List (DSL): This product is listed on the DSL.  
**Refer to federal, state/provincial, and local legislation for further requirements.**

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



**Section 10. Protective Clothing**

**Eye** Non-vented chemical goggles to protect against splashing of product into the eyes and to prevent eye irritation from the solvent vapors.

**Skin** When handling hot product, insulated gloves should be worn. Clothing with full length sleeves and pants should be worn.

**Respiratory** Under normal conditions respiratory protection is not required. Respiratory protection may be required in poorly ventilated areas under heated conditions. 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** -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. CCOHS (Chem advi)  
CCOHS(Cheminfo) TOMES PLUS by Micromedex Inc. Provisional Domestic Substances List (CEPA)  
-CPPI WHMIS Classification Guideline Product/Stream Toxicology Testing Priority List.

**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: 03/19/2003**

**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.***