

Aromatic Extract Process Oils

Material Safety Data Sheet

Company

Houston Refining
One Houston Center, Suite 700
1221 McKinney St.
P.O. Box 2583
Houston, Texas 77252-2583

MSDS No. AP0490
Revision Date 11/01/06

IMPORTANT: Read this MSDS before handling or disposing of this product and pass this information on to employees, customers and users of this product.

Hazard Rankings		
	HMIS	NFPA
Health Hazard	* 2	2
Fire Hazard	1	1
Reactivity	0	0

* = Chronic Health Hazard

Emergency Overview

Physical State Liquid.
Color Dark amber to black **Odor** Petroleum.

WARNING:

Contains 4- to 6- Membered Condensed-ring Polynuclear Aromatic Hydrocarbon Compounds (PNAs) - Suspect Cancer Agent.

Potential skin cancer hazard following prolonged and repeated contact.

Certain PNA hydrocarbon compounds have been associated with liver and kidney damage, skin cancer or other adverse health effects.

Mists or heated vapor can irritate the respiratory tract.

Hot product can cause burns to skin.

Avoid repeated or prolonged skin contact.

Avoid breathing vapors or mists.

Spills may create a slipping hazard.

Protective Equipment

Minimum Recommended
See Section 8 for Details

This recommendation reflects minimum PPE when product is at elevated temperatures.



SECTION 1. PRODUCT IDENTIFICATION

Trade Name Aromatic Extract Process Oils
Product Number AP0490
CAS Number 64742-04-7

Product Family Solvent-Refined Extract Oils

Synonyms Solvent Extract Oil;
Extracts, petroleum, heavy paraffinic distillate;
Predominantly aromatic hydrocarbons with carbon numbers primarily in the range of C20 through C50;
Former Names: Tufflo® Process Oil 410, Tufflo® Process Oil 425, Tufflo® Process Oil 491

Business Contact

Product Safety 800-700-0946
24 Hour Emergency Contact
CHEMTREC 800-424-9300
CANUTEC-Canada 613-996-6666
LYONDELL 800-245-4532

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SECTION 2. COMPOSITION

Component Name(s)	CAS Registry No.	Concentration (%)
Extracts, petroleum, heavy paraffinic distillate	64742-04-7	100
Polynuclear Aromatic Hydrocarbons (4- to 6- member condensed rings)	68487-58-6	>5

SECTION 3. HAZARDS IDENTIFICATION

Also see Emergency Overview and Hazard Ratings on the top of Page 1 of this MSDS.

Major Route(s) of Entry Skin contact.

Signs and Symptoms of Acute Exposure

Inhalation	No significant adverse health effects are expected to occur upon short-term exposure at ambient temperatures. At elevated temperatures, product vapor may cause respiratory tract irritation. Repeated or prolonged overexposure to product mists can result in respiratory tract inflammation and an increased risk of infection.
Eye Contact	This product can cause eye irritation with short-term contact with liquid, mists or vapor. Symptoms include stinging, watering, redness, and swelling.
Skin Contact	This material can cause skin irritation with short-term exposure. The degree of irritation will depend on the amount of material that is applied to the skin and the speed and thoroughness that it is removed. Signs and symptoms can include pain, sensation of heat, discoloration, swelling or blistering. Repeated and prolonged skin contact can produce irritation and inflammation.
Ingestion	If swallowed, large volumes of material can cause generalized depression, headache, drowsiness, nausea, vomiting and diarrhea. Smaller doses can cause a laxative effect. If aspirated into the lungs, liquid can cause lung damage.
Chronic Health Effects Summary	Increased incidents of tumors of the skin, bladder, lungs and gastrointestinal tract have been described in workers exposed to certain 4- to 6- condensed ring polynuclear aromatic hydrocarbon compounds (PNAs). Also, chronic exposure to PNA hydrocarbon compounds has been associated with irritation of the eyes and photosensitivity, respiratory irritation and bronchitis, and skin, mucous membrane, liver, and kidney disorders.
Conditions Aggravated by Exposure	Medical conditions aggravated by exposure to this material may include pre-existing skin, liver or kidney disorders.
Target Organs	This material may cause damage to the following organs: kidneys, lungs, liver, mucous membranes, bladder, upper respiratory tract, skin.
Carcinogenic Potential	This material may contain certain components at concentrations at or above 0.1% that are considered to be potentially carcinogenic by the Occupational Safety and Health Administration, based upon evaluations by IARC, NTP and/or OSHA. These components are: Polynuclear Aromatic Hydrocarbons (4- to 6- member condensed rings).

OSHA Hazard Classification is indicated by an "X" in the box adjacent to the hazard title. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication Standard (29 CFR 1910.1200).

OSHA Health Hazard Classification		OSHA Physical Hazard Classification			
Irritant <input checked="" type="checkbox"/>	Sensitizer <input type="checkbox"/>	Combustible <input type="checkbox"/>	Explosive <input type="checkbox"/>	Pyrophoric <input type="checkbox"/>	

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Toxic	<input type="checkbox"/>	Highly Toxic	<input type="checkbox"/>	Flammable	<input type="checkbox"/>	Oxidizer	<input type="checkbox"/>	Water-reactive	<input type="checkbox"/>
Corrosive	<input type="checkbox"/>	Carcinogenic	<input checked="" type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Organic Peroxide	<input type="checkbox"/>	Unstable	<input type="checkbox"/>

SECTION 4. FIRST AID MEASURES

Take proper precautions to ensure your own health and safety before attempting rescue or providing first aid. For more specific information, refer to Exposure Controls and Personal Protection in Section 8 of this MSDS.

Inhalation	Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.
Eye Contact	If hot product enters the eyes, irrigate with large amounts of room-temperature water. Seek medical attention immediately. If product at ambient temperatures enters eyes, check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water while occasionally lifting and lowering eyelids. Seek medical attention if excessive tearing, redness or pain persists.
Skin Contact	If burned by hot material, cool skin by quenching with large amounts of cool water. Do not remove material from the skin. Seek medical attention immediately. For contact with product at ambient temperatures, remove contaminated shoes and clothing. Wipe off excess material. Wash exposed skin with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists. Thoroughly clean contaminated clothing before reuse. Discard contaminated leather goods.
Ingestion	Do not induce vomiting unless directed to by a physician. Do not give anything to drink unless directed to by a physician. Never give anything by mouth to a person who is not fully conscious. If significant amounts are swallowed or irritation or discomfort occurs, seek medical attention immediately.
Notes to Physician	SKIN: Hot material may cause skin burns. Immerse skin covered with hot material in cool water to limit tissue damage and prevent spread of liquid product. EYES: Hot material may cause burns to the eyes. Early ophthalmologic evaluation is recommended. Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

NFPA Flammability Classification	NFPA Class-III B combustible material.		
Flash Point	Open cup: >204°C (>400°F) (Cleveland. (Minimum)).		
Lower Flammable Limit	No data.	Upper Flammable Limit	No data.
Autoignition Temperature	Not available.		
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and trace oxides of sulfur and/or nitrogen.		
Special Properties	This material will release vapors when heated above the flash point temperature that can ignite when exposed to a source of ignition. In enclosed spaces, vapors can ignite with explosive force. Mists or sprays may burn at temperatures below the flash point.		
Extinguishing Media	Use dry chemical, foam, Carbon Dioxide or water fog.		

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Protection of Fire Fighters

Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Take proper precautions to ensure your own health and safety before attempting spill control or clean-up. For more specific information, refer to the Emergency Overview on Page 1, Exposure Controls and Personal Protection in Section 8 and Disposal Considerations in Section 13 of this MSDS.

Do not touch damaged containers or spilled material unless wearing appropriate protective equipment. Slipping hazard; do not walk through spilled material. Stop leak if you can do so without risk. For small spills, absorb or cover with dry earth, sand, or other inert non-combustible absorbent material and place into waste containers for later disposal. Contain large spills to maximize product recovery or disposal. Prevent entry into waterways or sewers. In urban area, cleanup spill as soon as possible. In natural environments, seek cleanup advice from specialists to minimize physical habitat damage.

SECTION 7. HANDLING AND STORAGE

Handling

Avoid contact with oxidizing agents. Avoid repeated or prolonged skin contact or inhalation. Use only with adequate ventilation and personal protection. Wash thoroughly after handling. Prevent contact with food or tobacco products. Do not take internally. Empty containers may contain product residues that can ignite with explosive force. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to flames, sparks, heat or other potential ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers and/or waste residues of this product.

Storage

Keep container closed. Do not store with strong oxidizing agents. Materials represented by this MSDS are classified as NFPA Class III B combustible liquid. Store distant from fire and ignition sources. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling or disposing of empty containers or waste residues of this product.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Engineering controls are normally required when handling hot material. Use process enclosures, local exhaust ventilation, or other controls to maintain airborne levels below recommended exposure limits (see below). Engineering controls should meet applicable requirements of the National Electrical Code (NEC) Standards. Ensure that an emergency eye wash station and safety shower are located near the work-station.

Personal Protective Equipment

Personal protective equipment should be selected based upon the conditions under which this material is used. A hazard assessment of the work area for PPE requirements should be conducted by a qualified professional pursuant to OSHA regulations. The following pictograms represent the minimum requirements for personal protective equipment. For certain operations, additional PPE may be required.

This recommendation reflects minimum PPE when product is at elevated temperatures.



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Eye Protection	Use a full-face shield and chemical safety goggles if handling heated material. With product at ambient temperatures, safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Keep a suitable eye wash station immediately available to the work area.
Hand Protection	Use gloves constructed of chemical resistant materials such as heavy nitrile rubber. Use heat-protective gloves when handling product at elevated temperatures.
Body Protection	Use clean and impervious full-body protective clothing (e.g., neoprene or Tyvek®). If significant contact occurs, remove oil-contaminated clothing immediately and promptly shower. Wash skin thoroughly with soap and water to remove hydrocarbon residues. Launder contaminated before reuse or discard. Discard contaminated leather goods and boots. Wear heat protective boots and protective clothing when handling material at elevated temperatures.
Respiratory Protection	If elevated airborne concentrations above applicable workplace exposure levels are anticipated, a NIOSH-approved organic vapor respirator equipped with a dust/mist pre-filter should be used. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134). Respiratory protection should be selected on the basis of the maximum anticipated contaminant concentration.
General Comments	Use good personal hygiene practices. Wash hands and other exposed skin areas with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities, or leaving work. In 29 CFR 1910.1002, OSHA defines "coal tar pitch volatiles" to include fused polycyclic hydrocarbons (PNAs) which volatilize from the distillation residues of coal, petroleum (excluding asphalt), wood and other organic matter. Accordingly, the coal tar pitch volatile standard may apply to this product.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Oil Mist, Mineral	ACGIH TLV (United States). TWA: 5 mg/m ³ OSHA PEL Z2 (United States). TWA: 5 mg/m ³
Coal tar pitch volatiles, as benzene solubles	ACGIH TLV (United States). TWA: 0.2 mg/m ³ OSHA (United States). TWA: 0.2 mg/m ³

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	Color	Dark amber to black	Odor	Petroleum.
Specific Gravity	0.95 - 1.1 (Water = 1)	pH	Not applicable.	Vapor Density	>1 (Air = 1)
Boiling Range	Not available.			Melting/Freezing Point	Not available.
Vapor Pressure	<0.001 kPa (<0.01 mmHg) (at 20°C)			Volatility	Negligible volatility
Solubility in Water	Insoluble in cold water, hot water.			Viscosity (cSt @ 40°C)	24 - 100
Additional Properties	Viscosity (ASTM D2161) = 120 - 500 SUS @ 100° F				

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SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable.	Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Keep away from extreme heat, sparks, open flame, and strongly oxidizing conditions.		
Materials Incompatibility	Strong oxidizers.		
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.		

SECTION 11. TOXICOLOGICAL INFORMATION

For other health-related information, refer to the Emergency Overview on Page 1 and the Hazards Identification in Section 3 of this MSDS.

Toxicity Data	<p>Polynuclear Aromatic Hydrocarbons (4- to 6- member condensed rings): Cancer is the most significant toxicity endpoint for PNAs. Certain PNA compounds are weak carcinogens which only become potent carcinogens after undergoing metabolism. Chronic or repeated exposure increases the likelihood of tumor initiation as well as the potential for metabolism of a PNA procarcinogen into a carcinogen. Increased incidence of tumors of the skin, bladder, lung and gastrointestinal tract have been described in individuals exposed to elevated concentrations of certain PNAs.</p> <p>PNA compounds have been associated with photosensitivity and eye irritation. Inhalation exposures to PNA compounds have been associated with respiratory tract irritation, cough and bronchitis. Dermal exposures may cause precancerous lesions, erythema, dermal burns, photosensitivity, acneiform lesions and irritation. Oral exposure to some PNAs have been associated with precancerous growths of the mouth (leukoplakia). Also, mild nephrotoxicity, indicated by increased kidney size, congestion and renal cortical hemorrhages, plus elevated liver function tests and histopathologic abnormalities have occurred in rats following chronic ingestion.</p>
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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity	Analysis for ecological effects has not been conducted on this product. However, if spilled, this product and any contaminated soil or water may be harmful to human, animal, and aquatic life. Also, the coating action associated with petroleum and petroleum products can be harmful or fatal to aquatic life and waterfowl.
Environmental Fate	This product is estimated to have a slow rate of biodegradation. Polynuclear aromatic hydrocarbons similar to certain components of this product can bioaccumulate in tissues of various aquatic organisms.

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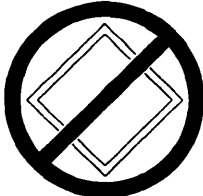
SECTION 13. DISPOSAL CONSIDERATIONS

Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly, it is the responsibility of the user to determine the proper storage, transportation, treatment and/or disposal methodologies for spent materials and residues at the time of disposition.

Maximize material recovery for reuse or recycling. If spill is introduced into a wastewater treatment system, chemical and biological oxygen demand will likely increase slowly. Spill material is biodegradable if gradually exposed to microorganisms, preferably in an aerobic environment with plenty of agitation. Potential treatment and disposal methods include land farming and incineration. Conditions of use may cause this material to become a "hazardous waste", as defined by federal or state regulations. It is the responsibility of the user to determine if the material is a "hazardous waste" at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR 260 through 40 CFR 271). State and/or local regulations may be more restrictive. Contact the RCRA/Superfund Hotline at (800) 424-9346 or your regional US EPA office for guidance concerning case specific disposal issues.

SECTION 14. TRANSPORT INFORMATION

The shipping description below may not represent requirements for all modes of transportation, shipping methods or locations outside of the United States.

US DOT Status	A U.S. Department of Transportation (DOT) regulated material.		
Proper Shipping Name	Not regulated.		
Hazard Class	Not regulated.	Packing Group(s)	Not applicable.
		UN/NA Number	Not regulated.
Reportable Quantity	A Reportable Quantity (RQ) has not been established for this material.		
Placard(s)		Emergency Response Guide No.	Not applicable.
		HAZMAT STCC No.	Not assigned.
		MARPOL III Status	Not a DOT "Marine Pollutant" per 49 CFR 171.8.

SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard

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SARA 313 Toxic Chemical Notification and Release Reporting This product contains the following components in concentrations above de minimis levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA:

Polynuclear Aromatic Hydrocarbons (4- to 6- member condensed rings) [CAS No.: 68487-58-6] Concentration: >5%

CERCLA The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. This product or refinery stream is not known to contain chemical substances subject to this statute. However, it is recommended that you contact state and local authorities to determine if there are any other reporting requirements in the event of a spill.

Clean Water Act (CWA) This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.

California Proposition 65 This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Polynuclear Aromatic Hydrocarbons (4- to 6-member condensed-ring type): >5%

New Jersey Right-to-Know Label For New Jersey R-T-K labeling requirements, refer to components listed in Section 2.

Additional Regulatory Remarks No additional regulatory remarks.

SECTION 16. OTHER INFORMATION

Refer to the top of Page 1 for the HMIS and NFPA Hazard Ratings for this product.

REVISION INFORMATION Logo and Manufacturer name change.

Version Number 1.1

Revision Date 11/01/06

ABBREVIATIONS

AP: Approximately	EQ: Equal	>: Greater Than	<: Less Than	NA: Not Applicable	ND: No Data	NE: Not Established
ACGIH: American Conference of Governmental Industrial Hygienists				AIHA: American Industrial Hygiene Association		
IARC: International Agency for Research on Cancer				NTP: National Toxicology Program		
NIOSH: National Institute of Occupational Safety and Health				OSHA: Occupational Safety and Health Administration		
NPCA: National Paint and Coating Manufacturers Association				HMIS: Hazardous Materials Information System		
NFPA: National Fire Protection Association				EPA: US Environmental Protection Agency		

DISCLAIMER OF LIABILITY

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***** END OF MSDS *****