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Manufacturer's Name
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Product Name: Pyrolysis Oil
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Section I. Product Identification

Chemical Names / Synonyms **Spent Wash Oil**

CAS No. 69013-21-4

Section II. Components

Component	CAS No.	wt%	Exposure Limits
C-11's and Heavier	---	10-35	---
C10's	---	15-40	---
*Benzene	71-43-2	10-45	TLV (ACGIH): 10ppm (see notice of intended change); PEL(OSHA): 1ppm (8 hr) STEL 5ppm Action level 0.5ppm
*Toluene	142-29-0	4-15	TLV (ACGIH): 100ppm; PEL (OSHA): 100ppm (8 hr) STEL 150ppm
*Styrene Monomer	100-42-5	5-17	(ACGIH): 100ppm, 15 min STEL 125 ppm ; PEL (OSHA) 100ppm; 15 min STEL 125 ppm
*Ethyl Benzene	0100-41-4	1-4	(ACGIH) 10ppm; 15 min STEL 15ppm
*Sec. Butylcyclohexane	---	4-7	---
*Naphthalene	91-20-3	5-10	(ACGIH) 10ppm; 15 min STEL 15ppm

* Regulated as a toxic chemical under section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Section III. Chemical and Physical Properties

Vapor Pressure	1.8 PSIA @ 100°F
Flash (Tag Closed Cup)	38°F
Specific Gravity @ 60°F	.9121
Sulphur	0.5 wt%
Pour Point	-33°C
Viscosity	29.15 sus @ 100°F Kinematic

Section IV Fire and Explosion Hazard Data

Flash Point	38°F
Flammable Limits in Air	LEL: Not available UEL: Not available
Auto-Ignition Temperature	Not Available

National Fire Protection Association Hazard Identification Code

Health 2 Flammability: 2 Reactivity: 0 Other:

Fire Extinguishing Media: Use water, foam, dry chemicals or CO₂.

Special Fire Fighting Procedures: Use water spray to cool fire exposed surfaces and to protect personnel. Isolate fuel supply from fire. Avoid spraying water directly into storage containers due to danger of boil over.

Unusual Fire or Explosion Hazards: The products of combustion are carbon monoxide and carbon dioxide. Empty containers retain product residue and can be dangerous. Do not pressurize, 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. Empty drums should be completely drained, properly binged and promptly returned to a drum reconditioner or properly disposed of.

Section V Health Hazards

THIS MIXTURE HAS NOT BEEN TESTED FOR TOXICITY. TOXIC EFFECTS DESCRIBED BELOW BASED ON INFORMATION FOUND FOR THE COMPONENTS MAY RESULT FROM OVER EXPOSURE TO THIS MIXTURE.

ETHYLENE

Inhalation 5-10 minutes ALC: 950,000 ppm in mammals. Toxic effects described in animals from single high exposures by inhalation include aesthetic effects, convulsions and liver changes. Repeated exposures produced bone marrow and blood effects. Long-term exposures produced weight loss. Tests in animals demonstrate no carcinogenic activity.

Human Health Effects

Inhalation may include temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness; temporary elevation of blood pressure; lung effects; or nausea, headache, or weakness. Prolonged exposures may lead to liver enlargement; abnormal liver function with nausea or vomiting, reduced appetite, or abdominal pain; or damage to the fluid function of the eyes, causing peripheral sight limitation. Epidemiologic studies do not demonstrate a significant risk of human cancer from exposure to this compound. Individuals with preexisting diseases of the liver or central nervous system may have increased susceptibility to the toxicity of excessive exposures. A Soviet document cites a higher rate of miscarriages and gynecological problems among pregnant operators of a polyethylene plant. These problems were attributed to the higher concentration of ethylene in the working zone along with the noise.

BENZENE

Animal Data: Inhalation 4 hour LC50: 13,700 ppm in rats
Oral LD50: 930 mg/kg in rats

Human Health Effects

Skin contact may include frostbite from contact with discomfort or rash. Evidence suggests that skin permeation can occur in amounts capable of producing the effects of systemic toxicity. Eye contact may include eye irritation with discomfort, tearing or blurring of vision. Inhalation may include irritation of the upper respiratory passages, with coughing and discomfort. Ingestion or inhalation may include temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion in coordination and loss of consciousness; or nonspecific discomfort, such as nausea, headache or weakness. Higher exposures may lead to reduced white blood cell production; aplastic anemia or leukemia with symptoms of light headedness, loss of appetite, abdominal discomfort, blurring of vision, shortness of breath, pale skin, easy bruising, nose bleeds, bleeding from gums and excessive menstrual flow; temporary lung irritation effects with cough, discomfort, difficulty breathing, shortness of breath; temporary alteration of the heart's electrical circulation; or fatality from gross over exposure.

Epidemiological studies suggest that this compound may pose a risk of aplastic anemia and certain types of leukemia to humans. Individuals with pre-existing diseases of the bone marrow may have increased susceptibility to the toxicity of excessive exposures.

TOLUENE

Skin contact may include defatting of the skin resulting in skin irritation with discomfort or rash. Eye contact may include eye irritation with discomfort, tearing or blurring of vision. Inhalation may include irritation of the upper respiratory passages; temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness; and temporary alteration of the heart's electrical activity with irregular pulse, palpitations or inadequate circulation. Higher exposures may lead to nausea, headache or weakness; abnormal liver or kidney function as detected by laboratory tests; decreased pulse rate and blood pressure; temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness; or fatality from gross over exposure. Significant skin permeation after contact appears unlikely. Individuals with pre-existing diseases of the central nervous system may have increased susceptibility to the toxicity of excess exposures.

ETHYLBENZENE

Ethyl Benzene vapors is severely irritation to the eyes and to the mucous membranes of the respiratory system. Sustained inhalation of excessive levels can cause depression of the central nervous system (CNS) characterized by dizziness, headache, narcosis and coma. Skin contact with liquid ethyl benzene is low; however, ingestion of it presents a serious aspiration hazard. Aspirating even a small amount into the lungs can result in extensive edema (lung filled with fluid) and hemorrhaging of the lung tissue. No systemic effects are expected at the levels that produce pronounced, un-ignorable, disagreeable skin and eye irritation. No chronic effects of long term exposure have been reported.

Acute Effects: Irritation of the skin, eyes and respiratory system. Also, cardiac-rhythm disturbance due to sensitization; acute bronchitis, bronchospasm, pulmonary and laryngeal edema; euphoria; headache; giddiness; dizziness and in coordination, as well as possible depress; confusion and coma.

Chronic Effects: None reported.

Primary Entry: Inhalation, Skin Contact

Carcinogenicity Status: Ethyl Benzene is not listed as a carcinogen by the NTP, IARC or OSHA.

STYRENE MONOMER

Workers exposed to styrene vapor at 200 to 700 ppm experienced drowsiness, nausea, headache, fatigue, dizziness and possibly a metallic taste in their mouths. Exposures above 800 ppm are immediately irritating to the eyes, nose and the respiratory system. Repeated or prolonged skin contact with liquid styrene can cause narcotic effects and even death. A death has been reported from a 30 minute exposure to 10,000 ppm. Styrene sickness has been described with symptoms of nausea, vomiting and an intoxicated sensation.

Acute Effects: Skin and eye irritation; depression of the central nervous system symptomized by drowsiness, unsteady gait, weakness and loss of coordination.

Chronic Effects: Three studies reported by the IARC have suggested an association between leukemia and lymphomas and exposure to styrene. However, because of concomitant exposure to the chemicals, it is not possible to single out styrene as the causative agent.

Carcinogenicity: The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

Material:	IARC	NTP	OSHA	ACGIH
Benzene	X	X	X	X

Section VI First Aid Procedures

Eye Contact

In case of contact, immediately flush eyes with large amounts of water until irritation subsides. If irritation persists, seek medical attention.

Skin Contact

Flush skin with large amounts of water; use soap if available. Remove contaminated clothing, including shoes and laundry before re-use. If irritation persists, seek medical attention.

Inhalation

Using proper respiratory protection, immediately remove the affected victim from exposure. Administer artificial respiration if breathing is stopped. Keep at rest. Call prompt medical attention.

Ingestion

If swallowed, do not induce vomiting. Keep at rest; get prompt medical attention.

Section VII Personal Protection

For open systems where contact is likely, wear safety glasses with eye shields, long sleeves and chemical resistant gloves. Where contact in air may exceed the limits given in this section and engineering work practice or other means of exposure reduction are not adequate, NIOSH/MSHA approved respirators may be necessary to prevent over exposure by inhalation.

Respirator: Air purifying with organic vapor cartridge

Section VIII Reactivity Data

Instability: Stable
 Instability Will not occur.
 Hazardous Decomposition: Will not occur.
 Polymerization: Will not occur.

Section IX Spill, Leak and Disposal Procedures

Land Spill: Eliminate sources of ignition. Prevent additional discharge of material. If possible to do so without hazard. For small spills, implement clean up procedure. For large spills, implement cleanup procedures and if in public area, keep public away and advise authorities. Also, notify the National Response Center (CERCLA) if the spill quantity is 4,000 pounds...this product contains Naphthalene and Benzene.

Water Spill: Remove from surface by skimming or with suitable adsorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersing may be used in non-confined disposal regulations.

Section X Additional Precautions

Warning: This material may contain small quantities of benzene (17-43-2) known to the state of California to cause cancer.

Section XI Transportation Data

DOT Classification	Flammable Liquid, N.O.S.//2//UN 1993//PG II
Electrostatic Accum	Unknown, use proper groundbags
Loading / Unloading Temp:	Ambient
Storage Temp:	Ambient

Section XII Users Responsibility

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of the user's operation should be examined to determine, if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to employees and/or customers. Westlake Petrochemicals Corporation must rely on the user to use this information to develop appropriate work practice guideline and employee instructional programs specific to the user's operation.

Section XIII Disclaimer or Responsibility

As the conditions and methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material, Information contained herein is believed to be true and accurate but all statements or suggestions are made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state and local laws and regulations regarding the use, storage, sale, transport or disposal of this material is the responsibility of the user.