

MATERIAL SAFETY DATA SHEET

Manufacturer's Name	Address	Telephone Number
Westlake Chemical Corporation	900 Highway 108 Sulphur, LA 70663	(318) 583-2200

Product Name: **Raw Pyrolysis Gasoline**
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SECTION I PRODUCT IDENTIFICATION

Chemical Names/Synonyms: **Py Gas, Pyrolysis Gasoline, C5s/C5+, Aromatic Concentrate**

SECTION II HAZARDOUS INGREDIENTS AND EXPOSURE LIMITS

<u>Component</u>	<u>CAS No.</u>	<u>Wt%</u>	<u>Exposure Limits</u>
Benzene	71-43-2	38-55	TLV (ACGIH): 10ppm; PEL(OSHA):1ppm
Toluene	108-88-3	2-15	TLV (ACGIH): 100ppm; PEL (OSHA): 200 ppm
Styrene	100-42-5	0-8	TLV (ACGIH): 50ppm; PEL (OSHA): 100ppm
Mixture of Xylene and Ethyl Benzene	1330-20-7/ 100-41-4	0-3	TLV (ACGIH):100ppm; PEL (OSHA):100ppm
Misc. C-9 and C-10 Compounds	*	0-25	*
Misc. Compounds including C-11's and heavier	*	1-15	*
Misc. C-5 Compounds	*	5-23	*
Miscellaneous C-4 Compounds	*	0.1-5	*

SECTION III CHEMICAL AND PHYSICAL PROPERTIES**Section III. Chemical and Physical Properties**

Boiling Point	114°F per ASTM D86 Lab Testing
Melting Point	42°F
Specific Gravity	0.8787 (15°/4°) (Water=1)
Solubility	(%): Slightly
% Volatility By Weight	100%
Evaporation Rate	2.8 Ether=1
Vapor Density	(Air=1) 2.7
Molecular Weight	78.11 grams/mole
Appearance	A Non-corrosive, Colorless or Amber color, Flammable Liquid
Odor	Mild Aromatic Pungent Odor

Above data is based on benzene except where noted.

SECTION IV FIRE AND EXPLOSION HAZARD DATA

Flash Point: <22°F
(Per ASTM D56 Lab Testing)

Auto Ignition Temperature: 928°F

Flammable Limits In Air: % by volume. Lower 1.3, upper 7.1.

National Fire Protection Association Hazard Identification Code

Health: 3 **Flammability:** 3 **Reactivity:** 0

Fire Extinguishing Media - Use dry chemical, foam, or carbon dioxide to extinguish benzene fires. Water may be ineffective as an extinguishing agent since it can scatter and spread the fire. Use water spray to cool fire exposed containers, flush spills away from exposures, disperse vapor, and protect personnel attempting to stop an un-ignited leak.

Special Fire Fighting Procedures - Isolate hazard area and deny entry. Since fire may produce toxic fumes, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in the pressure-demand or positive-pressure mode and full protective equipment. Structural fire fighter's protective clothing provides limited protection. Stay out of low areas. Be aware of runoff from fire control methods. Do not release to sewers or waterways. Runoff to sewer can create pollution, fire, and explosion hazard.

Unusual Fire or Explosion Hazards - The vapors are heavier than air and can collect in low lying areas or travel to an ignition source and flash back. Explosive and flammable vapor-air mixtures can easily form at room temperature. Eliminate all ignition sources where this material is used, handled, or stored.

Above data is based on benzene except where noted.

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.

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 skin irritation with discomfort or rash. Evidence suggests that skin permeation can occur in amounts capable of production 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 incoordination, 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 headiness, 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.

Epidemiologic 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 press; 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 disease of the central nervous system may have increased susceptibility to the toxicity of excessive exposures.

Styrene:

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.

Xylene:

Xylene may be absorbed through intact skin. Skin contact can cause irritation and in certain individuals, skin sensitization. It exerts its toxic effects on the central nervous system, peripheral nervous system and the liver. Acute effects are headaches, diffuse gastrointestinal pain, nausea, indigestion, numbness and aching of limbs, and general fatigue. Contact dermatitis sensitization is possible in certain workers. Hepatic necrosis and liver atrophy result from chronic, long-term exposure.

SECTION VI FIRST AID PROCEDURES

Eyes: Immediately flush eyes, including under the eyelids, gently but thoroughly with plenty of running water for at least 15 minutes.

Skin: Remove contaminated clothing. Immediately rinse with flooding amounts of water for at least 15 minutes. For reddened or blistered skin, consult a physician. Wash the affected area with soap and water.

Inhalation: Remove the exposed person to fresh air; restore and/or support his or her breathing as needed. Caution: Would-be rescuers must be concerned about inhalation exposure; wear an SCBA, if necessary.

Ingestion: Never give anything by mouth to an unconscious or convulsing person. If ingested, do not induce vomiting since aspiration may be fatal. Call a physician immediately.

GET MEDICAL HELP (IN PLANT, PARAMEDIC, COMMUNITY) FOR ALL EXPOSURES. Seek prompt medical assistance for further treatment, observation, and support after first aid.

SECTION VII PERSONAL PROTECTION

Respirator: Wear a NIOSH-approved respirator for the maximum-use concentrations and/or the exposure limits cited in Section II. Follow OSHA respirator regulations (29 CFR 1910.134). For emergency or non-routine use (leaks or cleaning reactor vessel and storage tanks), wear an SCBA. Air-purifying respirators will not protect workers in oxygen-deficient atmospheres.

Consult OSHA standard 1910.1051 for engineering control requirements.

Skin: Wear impervious gloves, boots, aprons, gauntlets, etc., as required by the specific work environment to prevent skin contact.

Eyes: Always wear protective eyeglasses or chemical safety goggles, per OSHA eye and face protection regulations (29 CFR 1910.133).

Ventilation: Install and operate both general and local exhaust systems with maximum explosions-proof ventilation powerful enough to maintain airborne levels of benzene below the OSHA PEL standard. Local exhaust ventilation is preferred since it prevents contaminant dispersion into the work area by controlling it at its source.

Safety Stations: Make eyewash stations, safety/quick-drench showers, and washing facilities available in work areas.

Other: Contact lenses pose a special hazard; soft lenses may absorb irritants and all lenses concentrate them. Do not wear contact lenses in any work area. Comments: Practice good personal hygiene; always wash thoroughly after using this material. Keep it off your clothing and equipment. Avoid transferring it from your hands to your mouth while eating, drinking, or smoking. Do not eat, drink, or smoke in any work area.

SECTION VIII REACTIVITY DATA

Hazardous Thermal Decomposition Products: Thermal oxidative decomposition of benzene can produce toxic gases and vapors such as carbon monoxide.

Stability: Benzene is stable at room temperature in closed containers under normal storage and handling conditions.

Incompatible Materials: Benzene explodes on contact with diborane, permanganic acid, bromine pentafluoride, peroxodisulfuric acid, and peroxomonosulfuric acid. It ignites on contact with dioxygen difluoride, dioxygenyl tetrafluoroborate, iodine heptafluoride, and sodium peroxide + water. Benzene forms sensitive explosive mixture with iodine pentafluoride, ozone, liquid oxygen, silver perchlorate + potassium methoxide (explodes above 30°C). A vigorous or incandescent reaction occurs with bromine trifluoride, uranium hexafluoride, and hydrogen + Raney nickel [above 410°F (210°C)]. Benzene is incompatible with oxidizing materials.

Incompatible Conditions: Avoid heat and ignition sources.

Hazardous Polymerization: Hazardous Polymerization is not expected to occur.

Above information is based on benzene.

SECTION IX SPILL, LEAK AND DISPOSAL PROCEDURES

Spill and Leak: Design and practice a benzene spill prevention control and countermeasure plan (SPCC). Notify safety personnel, evacuate all unnecessary personnel, eliminate all heat and ignition sources, and provide adequate ventilation. Cleanup personnel should protect against vapor inhalation, eye contact, and skin absorption. Absorb as much benzene as possible with an inert, noncombustible material. For large spills, dike far ahead of spill and contain liquid. Use non-sparking tools to place waste liquid or absorbent into closable containers for disposal. Keep waste out of confined spaces such as sewers, watersheds, and waterways because of explosion danger. Follow applicable OSHA regulations (29 CFR 1910.120).

Due to processing, reformulation etc., it is the responsibility of the user to determine the status of waste material. Dispose of according to federal, state and local regulations.

Above information is based on benzene.

SECTION X ADDITIONAL PRECAUTIONS

Storage: Store in tightly closed containers in a cool, dry, well ventilated area away from all heat and ignition sources and incompatible materials. To prevent static sparks, electrically ground and bond all containers and equipment used in shipping, receiving, or transferring operations in production and storage areas. When opening or closing containers use non-sparking tools. Keep fire extinguishers readily available.

Engineering Controls: Because OSHA specifically regulates benzene (29 CFR 1910.1028), educate workers about its potential hazards. Use this material with extreme caution and only if absolutely essential. Avoid vapor inhalation and skin and eye contact. Use only with adequate ventilation and appropriate personal protective gear. Institute a respiratory protection program that includes regular training, maintenance, inspection, and evaluation. Designate regulated areas of benzene use (see legend in the box below) and label benzene containers with "DANGER, CONTAINS BENZENE, CANCER HAZARD."

Other: Provide replacement and periodic medical examinations with emphasis on a history of blood disease or previous exposure.

SECTION XI TRANSPORTATION DATA

Department of Transportation: (49 CFR 172.101-2)

Proper Shipping Name: Flammable Liquid, n.o.s. (Contains Benzene and Toluene)

Placards Hazard Class: 3

Labels: Flammable Liquid

UN/NA ID. No.: UN1993

DOT Packing Group: II

RQ Benzene: 10 Lbs

RQ Toluene: 1000 Lbs

SECTION XII USERS RESPONSIBILITY

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of the user's 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 relay 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 OF 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 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.

ISSUED: BY WESTLAKE CHEMICAL CORPORATION ON June 2, 1999.