



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

Product name: BTX - E Aromatic Hydrocarbon Blend

Issue Date: 02/26/2018

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THE DOW CHEMICAL COMPANY encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: BTX - E Aromatic Hydrocarbon Blend

Recommended use of the chemical and restrictions on use

Identified uses: Chemical intermediate. Raw material for industrial use.

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2030 WILLARD H DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Customer Information Number:

800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: CHEMTREC +1 800-424-9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Flammable liquids - Category 2

Skin irritation - Category 2

Eye irritation - Category 2A

Germ cell mutagenicity - Category 1A

Carcinogenicity - Category 1A

Reproductive toxicity - Category 2

Specific target organ toxicity - single exposure - Category 3

Specific target organ toxicity - repeated exposure - Category 1 - Inhalation

Aspiration hazard - Category 1

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Highly flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.
May cause genetic defects.
May cause cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

IF SWALLOWED: Immediately call a POISON CENTER/doctor.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/doctor if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

Store in a well-ventilated place. Keep container tightly closed.
 Store in a well-ventilated place. Keep cool.
 Store locked up.

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Static-accumulating flammable liquid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: distillates (petroleum), light thermal cracked, debutanized arom.
 This product is a substance.

Component	CASRN	Concentration
Distillates (Petroleum) Light Thermal Cracked	68955-29-3	100.0%
Benzene	71-43-2	40.0 - 60.0 %
Non-Aromatics C4-C8	Not available	15.0 - 25.0 %
Toluene	108-88-3	10.0 - 25.0 %
Ethylbenzene	100-41-4	1.0 - 10.0 %
Xylene	1330-20-7	2.0 - 5.0 %
Styrene	100-42-5	2.0 - 6.0 %
C5 Hydrocarbons, total	Not available	1.0 - 3.0 %
Aromatic hydrocarbons, C9-11	70693-06-0	0.0 - 3.0 %
Dicyclopentadiene	77-73-6	0.0 - 1.0 %
Hexane	110-54-3	0.0 - < 2.0 %
Distillates (Petroleum) Light Thermal Cracked	68955-29-3	100.0%
Benzene	71-43-2	40.0 - < 60.0 %
Non-Aromatics C4-C8	Not available	15.0 - < 25.0 %

Toluene	108-88-3	10.0 - < 25.0 %
Ethylbenzene	100-41-4	1.0 - < 10.0 %
Xylene	1330-20-7	2.0 - < 5.0 %
Styrene	100-42-5	2.0 - < 6.0 %
C5 Hydrocarbons, total	Not available	1.0 - < 3.0 %
Aromatic hydrocarbons, C9-11	70693-06-0	0.0 - < 3.0 %
Dicyclopentadiene	77-73-6	0.0 - < 1.0 %
Hexane	110-54-3	0.0 - < 2.0 %

4. FIRST AID MEASURES

Description of first aid measures

General advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Do not induce vomiting. Call a physician and/or transport to emergency facility immediately.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be

weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. If burn is present, treat as any thermal burn, after decontamination. Exposure may increase "myocardial irritability". Do not administer sympathomimetic drugs such as epinephrine unless absolutely necessary. Alcohol consumed before or after exposure may increase adverse effects. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: Do not use direct water stream. Straight or direct water streams may not be effective to extinguish fire.

Special hazards arising from the substance or mixture

Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide. Aromatic hydrocarbons.

Unusual Fire and Explosion Hazards: Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. When product is stored in closed containers, a flammable atmosphere can develop. Electrically ground and bond all equipment. Flammable mixtures of this product are readily ignited even by static discharge. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Flammable mixtures may exist within the vapor space of containers at room temperature. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9. Dense smoke is produced when product burns.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Water may not be effective in extinguishing fire. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Do not use direct water stream. May spread fire. Eliminate ignition sources. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Avoid accumulation of water. Product may be carried across water surface spreading fire or contacting an ignition source. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Evacuate area. Only trained and properly protected personnel must be involved in clean-up operations. Refer to section 7, Handling, for additional precautionary measures. Keep personnel out of low areas. Keep upwind of spill. Ventilate area of leak or spill. No smoking in area. Vapor explosion hazard. Keep out of sewers. For large spills, warn public of downwind explosion hazard. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Check area with combustible gas detector before reentering area. Ground and bond all containers and handling equipment. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Material may float on water and any runoff may create an explosion or fire hazard if ignited. Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Recover spilled material if possible. If unable to recover, then proceed with appropriate cleanup methods. Sand. Large spills: Dike area to contain spill. Ground and bond all containers and handling equipment. Pump with explosion-proof equipment. If available, use foam to smother or suppress. Collect with vacuum equipment. Collect in suitable and properly labeled containers. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep away from heat, sparks and flame. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor. Do not swallow. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. No smoking, open flames or sources of ignition in handling and storage area. Electrically bond and ground all containers, personnel and equipment before transfer or use of material. Use of non-sparking or explosion-proof equipment may be necessary, depending upon the type of operation. Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Vapors are heavier than air and may travel a long distance and accumulate in low lying areas. Ignition and/or flash back may occur. Never use air pressure for transferring product. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION. This product is a poor conductor of electricity and can become electrostatically charged, even in bonded or grounded equipment. If sufficient charge is accumulated, ignition of flammable mixtures can occur. Handling operations that can promote accumulation of static charges include but are not limited to mixing, filtering, pumping at high flow rates, splash filling, creating mists or sprays, tank and container filling, tank cleaning, sampling, gauging, switch loading, vacuum truck operations.

Conditions for safe storage: Flammable mixtures may exist within the vapor space of containers at room temperature. Keep container closed. Minimize sources of ignition, such as static build-up, heat, spark or flame. Store in steel containers preferably located outdoors, above ground, and surrounded by dikes to contain spills or leaks. Keep away from sources of ignition - No smoking. Store away from direct sunlight. Do not use jacket-type drum heaters. Hold bulk storage under nitrogen blanket.

Damaged or punctured drums should be emptied and properly disposed of. Flush empty containers with water to remove residual flammable liquid and vapours.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Distillates (Petroleum) Light Thermal Cracked	OSHA Z-1	TWA	2,000 mg/m3 500 ppm
Benzene	ACGIH	TWA	SKIN
	ACGIH	TWA	0.5 ppm
	ACGIH	STEL	SKIN
	ACGIH	STEL	2.5 ppm
	OSHA CARC	PEL	1 ppm
	OSHA CARC	STEL	5 ppm
	OSHA Z-2	TWA	10 ppm
	OSHA Z-2	CEIL	25 ppm
Toluene	OSHA Z-2	Peak	50 ppm
	ACGIH	TWA	20 ppm
	OSHA Z-2	TWA	200 ppm
	OSHA Z-2	CEIL	300 ppm
	OSHA Z-2	Peak	500 ppm
Ethylbenzene	ACGIH	TWA	20 ppm
	OSHA Z-1	TWA	435 mg/m3 100 ppm
Xylene	OSHA Z-1	TWA	435 mg/m3 100 ppm
	ACGIH	TWA	100 ppm
	ACGIH	STEL	150 ppm
Styrene	OSHA Z-2	TWA	100 ppm
	OSHA Z-2	CEIL	200 ppm
	OSHA Z-2	Peak	600 ppm
	ACGIH	TWA	20 ppm
Dicyclopentadiene	ACGIH	STEL	40 ppm
	ACGIH	TWA	5 ppm
Hexane	ACGIH	TWA	50 ppm
	OSHA Z-1	TWA	1,800 mg/m3 500 ppm
Distillates (Petroleum) Light Thermal Cracked Benzene	ACGIH	TWA	SKIN
	ACGIH	TWA	0.5 ppm
	ACGIH	STEL	SKIN
	ACGIH	STEL	2.5 ppm
	OSHA CARC	PEL	1 ppm
	OSHA CARC	STEL	5 ppm
	OSHA Z-2	TWA	10 ppm
	OSHA Z-2	CEIL	25 ppm

Toluene	OSHA Z-2	Peak		50 ppm
	ACGIH	TWA		20 ppm
Ethylbenzene	OSHA Z-2	TWA		200 ppm
	OSHA Z-2	CEIL		300 ppm
Xylene	OSHA Z-2	Peak		500 ppm
	ACGIH	TWA		20 ppm
Styrene	OSHA Z-1	TWA	435 mg/m3	100 ppm
	OSHA Z-1	TWA	435 mg/m3	100 ppm
Dicyclopentadiene	ACGIH	TWA		100 ppm
	OSHA Z-2	CEIL		200 ppm
Hexane	OSHA Z-2	Peak		600 ppm
	ACGIH	TWA		20 ppm
Hexane	ACGIH	STEL		40 ppm
	ACGIH	TWA		5 ppm
Hexane	OSHA Z-1	TWA	1,800 mg/m3	500 ppm
	ACGIH	TWA		SKIN

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Benzene	71-43-2	S-Phenylmercapturic acid	Urine	End of shift (As soon as possible after exposure ceases)	25 µg/g creatinine	ACGIH BEI
		t,t-Muconic acid	Urine	End of shift (As soon as possible after exposure ceases)	500 µg/g creatinine	ACGIH BEI
Toluene	108-88-3	Toluene	In blood	Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As	0.3 mg/g Creatinine	ACGIH BEI

Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	soon as possible after exposure ceases) End of shift (As soon as possible after exposure ceases)	0.15 g/g creatinine	ACGIH BEI
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	400 mg/g Creatinine	ACGIH BEI
		Styrene	Urine	End of shift (As soon as possible after exposure ceases)	40 µg/l	ACGIH BEI
Hexane	110-54-3	2,5-Hexanedione	Urine	End of shift at end of workweek	0.4 mg/l	ACGIH BEI
Benzene	71-43-2	S-Phenylmercapturic acid	Urine	End of shift (As soon as possible after exposure ceases)	25 µg/g creatinine	ACGIH BEI
		t,t-Muconic acid	Urine	End of shift (As soon as possible after	500 µg/g creatinine	ACGIH BEI

Toluene	108-88-3	Toluene	In blood	exposure ceases) Prior to last shift of workweek	0.02 mg/l	ACGIH BEI
		Toluene	Urine	End of shift (As soon as possible after exposure ceases)	0.03 mg/l	ACGIH BEI
		o-Cresol	Urine	End of shift (As soon as possible after exposure ceases)	0.3 mg/g Creatinine	ACGIH BEI
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	0.15 g/g creatinine	ACGIH BEI
Xylene	1330-20-7	Methylhippuric acids	Urine	End of shift (As soon as possible after exposure ceases)	1.5 g/g creatinine	ACGIH BEI
Styrene	100-42-5	Mandelic acid plus phenylglyoxylic acid	Urine	End of shift (As soon as possible after exposure ceases)	400 mg/g Creatinine	ACGIH BEI
		Styrene	Urine	End of shift (As soon as possible after exposure ceases)	40 µg/l	ACGIH BEI
Hexane	110-54-3	2,5-	Urine	End of	0.4 mg/l	ACGIH

Hexanedion e	shift at end of workweek	BEI
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Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use only in enclosed systems or with local exhaust ventilation. Exhaust systems should be designed to move the air away from the source of vapor/aerosol generation and people working at this point. Lethal concentrations may exist in areas with poor ventilation.

Individual protection measures

Eye/face protection: Use chemical goggles. If exposure causes eye discomfort, use a full-face respirator.

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Viton. Polyethylene. Polyvinyl chloride ("PVC" or "vinyl"). Styrene/butadiene rubber. Polyvinyl alcohol ("PVA"). Ethyl vinyl alcohol laminate ("EVAL"). Examples of acceptable glove barrier materials include: Butyl rubber. Neoprene. Chlorinated polyethylene. Natural rubber ("latex"). Nitrile/butadiene rubber ("nitrile" or "NBR"). **NOTICE:** The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. Selection of air-purifying or positive-pressure supplied-air will depend on the specific operation and the potential airborne concentration of the material. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

The following should be effective types of air-purifying respirators: Organic vapor cartridge.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance**Physical state**

Liquid.

Color

Colorless to yellow

Odor

Aromatic

Odor Threshold

No test data available

pH

Not applicable

Melting point/range-95 - 5 °C (-139 - 41 °F) *Literature*

Freezing point	-95 - 5 °C (-139 - 41 °F) <i>Literature</i>
Boiling point (760 mmHg)	80 - 110 °C (176 - 230 °F) <i>Literature</i>
Flash point	closed cup -11 - 4 °C (12 - 39 °F) <i>Closed Cup</i>
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	1.2 - 1.4 % vol <i>Literature</i>
Upper explosion limit	7.1 % vol <i>Literature</i>
Vapor Pressure	2.9 - 10 kPa at 20 °C (68 °F) <i>Literature</i>
Relative Vapor Density (air = 1)	3.0 <i>Literature</i> Estimated.
Relative Density (water = 1)	0.87 - 0.88 at 20 °C (68 °F) / 4 °C <i>Literature</i>
Water solubility	<= 0.1 % at 20 °C (68 °F) <i>Literature</i>
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	536 - 562 °C (997 - 1,044 °F) <i>Literature</i>
Decomposition temperature	No test data available
Dynamic Viscosity	0.6 - 0.7 mPa.s at 20 °C (68 °F)
Kinematic Viscosity	No data available
Explosive properties	No test data available
Oxidizing properties	No test data available
Liquid Density	0.87 - 0.88 g/cm ³ at 20 °C (68 °F) <i>Unspecified</i>
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No data available

Chemical stability: Thermally stable at recommended temperatures and pressures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Exposure to elevated temperatures can cause product to decompose. Avoid direct sunlight.

Incompatible materials: Avoid contact with: Acids. Oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aromatic compounds.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity

Moderate toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. May cause central nervous system effects. Signs and symptoms of excessive exposure may include: Gastrointestinal irritation. May cause nausea and vomiting. Single dose oral LD50 has not been determined.

Acute dermal toxicity

Prolonged skin contact is unlikely to result in absorption of harmful amounts. The dermal LD50 has not been determined.

Acute inhalation toxicity

Brief exposure (minutes) to easily attainable concentrations may cause adverse effects. Prolonged excessive exposure may cause serious adverse effects, even death. In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats). May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene. The LC50 has not been determined.

Skin corrosion/irritation

Brief contact may cause skin irritation with local redness. May cause more severe response on covered skin (under clothing, gloves). May cause drying and flaking of the skin. Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Serious eye damage/eye irritation

May cause moderate eye irritation. May cause moderate corneal injury. Vapor may cause eye irritation experienced as mild discomfort and redness. Vapor may cause lacrimation (tears).

Sensitization

Based on information for component(s):
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No signs of respiratory sensitization have been reported.

Specific Target Organ Systemic Toxicity (Single Exposure)

Contains component(s) which are classified as specific target organ toxicant, single exposure, category 3.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Contains component(s) which have been reported to cause effects on the following organs in humans:
Blood.

Blood-forming organs (Bone marrow & Spleen).

Peripheral nervous system.

Central nervous system.

Contains component(s) which have been reported to cause effects on the following organs in animals:

Blood.

Spleen.

Liver.

Kidney.

Respiratory tract.

Nasal tissue.

Thymus.

Testes.

Immune system.

Eye.

Toluene has caused hearing loss in laboratory animals upon exposure to high concentrations.

Intentional misuse by deliberately inhaling toluene may cause nervous system damage, hearing loss, liver and kidney effects and death.

Xylene is reported to have caused hearing loss in laboratory animals upon exposure to high concentrations; such effects have not been reported in humans.

Lung effects have been observed in mice following repeated exposure to styrene.

Some studies in humans allege that repeated exposure to styrene may result in minor, subclinical decreases in the ability to discriminate between colors.

Target organs for benzene include blood, bone marrow, central nervous system, lymph nodes, spleen, thymus and testes.

Styrene is reported to have caused hearing loss in laboratory animals. Chronic and intensive styrene exposure is reported to reduce the hearing thresholds in workers.

Carcinogenicity

Benzene has been shown to cause cancer in laboratory animals and humans. Ethylbenzene has been shown to cause cancer in laboratory animals. An increased incidence of lung tumors was observed in mice from an inhalation study on styrene. The relevance of this finding to humans is uncertain since data from mode of action investigations of mouse lung tumors coupled with other long-term animal studies and epidemiology studies of workers exposed to styrene do not provide a basis to conclude that styrene is carcinogenic. Xylene was not found to be carcinogenic in a National Toxicology Program bioassay in rats and mice.

Teratogenicity

For the major component(s): Benzene. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. In laboratory animals, toluene has been toxic to the fetus at doses toxic to the mother; it has caused birth defects in mice when administered orally, but not by inhalation.

Exaggerated doses of xylene given orally to pregnant mice resulted in an increase in cleft palate, a common developmental abnormality in mice. In animal inhalation studies, xylene caused toxicity to the fetus but did not cause birth defects. The data presented are for the following material:

Ethylbenzene. Has caused birth defects in laboratory animals. Has been toxic to the fetus in lab

animals at doses nontoxic to the mother. In laboratory animals, styrene did not produce birth defects but was toxic to the fetus at exposure concentrations having an adverse effect on the mother.

Reproductive toxicity

Contains component(s) which have been shown to interfere with reproduction in animal studies. The component(s) is/are: Benzene. Contains component(s) which did not interfere with reproduction in animal studies. Xylene. Toluene. Styrene.

Mutagenicity

Contains component(s) which were negative in some in vitro genetic toxicity studies and positive in others. Contains component(s) which were negative in some animal genetic toxicity studies and positive in others.

Aspiration Hazard

May be fatal if swallowed and enters airways.

COMPONENTS INFLUENCING TOXICOLOGY:**Distillates (Petroleum) Light Thermal Cracked****Acute oral toxicity**

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats).

Typical for this family of materials. Rat, 4 Hour, vapour, > 5.3 mg/l

Benzene**Acute oral toxicity**

May cause central nervous system effects. LD50, Rat, male, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

Acute dermal toxicity

LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, > 20 mg/l OECD Test Guideline 403

Non-Aromatics C4-C8**Acute oral toxicity**

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

Toluene

Acute oral toxicity

LD50, Rat, 5,580 mg/kg

Acute dermal toxicity

LD50, Rabbit, 12,267 mg/kg

Acute inhalation toxicity

Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene. LC50, Rat, male, 4 Hour, vapour, 25.7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Ethylbenzene

Acute oral toxicity

LD50, Rat, 3,500 mg/kg

Acute dermal toxicity

LD50, Rabbit, 15,500 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 17.2 mg/l

Xylene

Acute oral toxicity

LD50, Rat, 4,300 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 27.5 mg/l

Styrene

Acute oral toxicity

LD50, Rat, 5,000 mg/kg

Acute dermal toxicity

LD50, Rat, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity

Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 11.8 mg/l

C5 Hydrocarbons, total

Acute oral toxicity

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

Aromatic hydrocarbons, C9-11

Acute oral toxicity

Based on information for a similar material: LD50, Rat, > 5,000 mg/kg

Acute dermal toxicity

Based on information for a similar material: LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Based on information for a similar material: LC50, Rat, 8 Hour, vapour, 5 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Dicyclopentadiene

Acute oral toxicity

LD50, Rat, male and female, 590 mg/kg

LD50, Rat, male, 512 mg/kg

LD50, Rat, female, 676 mg/kg

Acute dermal toxicity

LD50, Rat, male and female, > 2,000 mg/kg

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, vapour, 1.972 mg/l

Hexane

Acute oral toxicity

May cause dizziness and drowsiness. May cause central nervous system effects. Signs and symptoms of excessive exposure may include: Gastrointestinal irritation. May cause nausea and vomiting. Lethal Dose, Humans, 2 Ounces Estimated.

LD50, Rat, > 16,000 mg/kg

Acute dermal toxicity

LD50, Rabbit, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

LC50, Rat, male, 4 Hour, vapour, > 17.6 mg/l No deaths occurred at this concentration.

Distillates (Petroleum) Light Thermal Cracked

Acute oral toxicity

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

In confined or poorly ventilated areas, vapor can readily accumulate and can cause unconsciousness and death. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). May cause central nervous system effects. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed. Excessive exposure may increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats).

Typical for this family of materials. Rat, 4 Hour, vapour, > 5.3 mg/l

Benzene

Acute oral toxicity

May cause central nervous system effects. LD50, Rat, male, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

Acute dermal toxicity

LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, > 20 mg/l OECD Test Guideline 403

Non-Aromatics C4-C8

Acute oral toxicity

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

Toluene

Acute oral toxicity

LD50, Rat, 5,580 mg/kg

Acute dermal toxicity

LD50, Rabbit, 12,267 mg/kg

Acute inhalation toxicity

Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Alcohol consumption and exertion may increase the adverse effects of toluene. LC50, Rat, male, 4 Hour, vapour, 25.7 mg/l

LC50, Rat, female, 4 Hour, vapour, 30 mg/l

Ethylbenzene

Acute oral toxicity

LD50, Rat, 3,500 mg/kg

Acute dermal toxicity

LD50, Rabbit, 15,500 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 17.2 mg/l

Xylene

Acute oral toxicity

LD50, Rat, 4,300 mg/kg

Acute dermal toxicity

LD50, Rabbit, > 2,000 mg/kg

Acute inhalation toxicity

LC50, Rat, 4 Hour, vapour, 27.5 mg/l

Styrene

Acute oral toxicity

LD50, Rat, 5,000 mg/kg

Acute dermal toxicity

LD50, Rat, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity

Vapor concentrations are attainable which could be hazardous on single exposure. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

LC50, Rat, 4 Hour, vapour, 11.8 mg/l

C5 Hydrocarbons, total

Acute oral toxicity

Single dose oral LD50 has not been determined.

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

Aromatic hydrocarbons, C9-11

Acute oral toxicity

Based on information for a similar material: LD50, Rat, > 5,000 mg/kg

Acute dermal toxicity

Based on information for a similar material: LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

Prolonged excessive exposure may cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Based on information for a similar material: LC50, Rat, 8 Hour, vapour, 5 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Dicyclopentadiene**Acute oral toxicity**

LD50, Rat, male and female, 590 mg/kg

LD50, Rat, male, 512 mg/kg

LD50, Rat, female, 676 mg/kg

Acute dermal toxicity

LD50, Rat, male and female, > 2,000 mg/kg

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, vapour, 1.972 mg/l

Hexane**Acute oral toxicity**

May cause dizziness and drowsiness. May cause central nervous system effects. Signs and symptoms of excessive exposure may include: Gastrointestinal irritation. May cause nausea and vomiting. Lethal Dose, Humans, 2 Ounces Estimated.

LD50, Rat, > 16,000 mg/kg

Acute dermal toxicity

LD50, Rabbit, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

LC50, Rat, male, 4 Hour, vapour, > 17.6 mg/l No deaths occurred at this concentration.

Carcinogenicity**Component****Distillates (Petroleum) Light****Thermal Cracked****Benzene****Ethylbenzene****List**

IARC

IARC

US NTP

OSHA CARC

ACGIH

IARC

ACGIH

Classification

Group 2B: Possibly carcinogenic to humans

Group 1: Carcinogenic to humans

Known to be human carcinogen

OSHA specifically regulated carcinogen

A1: Confirmed Human Carcinogen

Group 2B: Possibly carcinogenic to humans

A3: Confirmed animal carcinogen with unknown relevance to humans.

Styrene	IARC	Group 2B: Possibly carcinogenic to humans
	US NTP	Reasonably anticipated to be a human carcinogen
Distillates (Petroleum) Light Thermal Cracked Benzene	IARC	Group 2B: Possibly carcinogenic to humans
	IARC	Group 1: Carcinogenic to humans
Ethylbenzene	US NTP	Known to be human carcinogen
	OSHA CARC	OSHA specifically regulated carcinogen
	ACGIH	A1: Confirmed Human Carcinogen
	IARC	Group 2B: Possibly carcinogenic to humans
Styrene	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.
	IARC	Group 2B: Possibly carcinogenic to humans
	US NTP	Reasonably anticipated to be a human carcinogen

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Toxicity

Distillates (Petroleum) Light Thermal Cracked

Acute toxicity to fish

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Benzene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 5.9 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 24 Hour, 18 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Biomass, 29 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

IC50, *Nitrosomonas* sp., 24 Hour, 13 mg/l

Chronic toxicity to fish

LOEC, Fathead minnow (*Pimephales promelas*), flow-through test, 32 d, lethality, 1.6 mg/l

Chronic toxicity to aquatic invertebrates

NOEC sublethal, Ceriodaphnia dubia (water flea), semi-static test, 7 d, 2.968 mg/l

Non-Aromatics C4-C8

Acute toxicity to fish

No relevant data found.

Toluene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 5.8 mg/l

Acute toxicity to aquatic invertebrates

LC50, water flea Ceriodaphnia dubia, semi-static test, 48 Hour, 3.78 mg/l

Acute toxicity to algae/aquatic plants

Ec50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 12.5 mg/l, OECD Test Guideline 201

Toxicity to bacteria

IC50, Bacteria, 16 Hour, 29 mg/l

Chronic toxicity to fish

NOEC, Fish, flow-through test, 40 d, growth, 1.4 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), 7 d, number of offspring, 0.74 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 150 - 280 mg/kg

Ethylbenzene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 4.2 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), Static, 48 Hour, 1.8 - 2.4 mg/l

Acute toxicity to algae/aquatic plants

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth inhibition (cell density reduction), 3.6 - 4.6 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Bacteria, 16 Hour, > 12 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, 0.96 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 2 d, survival, 0.047 mg/cm²

Xylene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 2.6 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

IC50, Daphnia magna (Water flea), 24 Hour, 1 - 4.7 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (algae), Static, 73 Hour, Growth rate, 4.36 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, Pseudokirchneriella subcapitata (green algae), 73 Hour, Growth rate, 0.44 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, Oncorhynchus mykiss (rainbow trout), flow-through, 56 d, mortality, > 1.3 mg/l

Styrene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 4.1 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 48 Hour, 23 mg/l, OECD Test Guideline 202 or Equivalent

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, 4.7 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 4.9 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

NOEC, Pseudomonas putida, 16 Hour, 72 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, 1.01 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, 120 mg/kg

C5 Hydrocarbons, total

Acute toxicity to fish

No relevant data found.

Aromatic hydrocarbons, C9-11

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC0, Pimephales promelas (fathead minnow), 96 Hour, 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC0, Daphnia magna, 48 Hour, 1,000 mg/l, Method Not Specified.

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1,000 mg/l, Method Not Specified.

Chronic toxicity to aquatic invertebrates

NOELR, Daphnia magna (Water flea), 21 d, 1 mg/l

Dicyclopentadiene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Ictalurus catus (catfish), 96 Hour, 16 mg/l

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 16 - 42.3 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Lepomis macrochirus (Bluegill sunfish), 96 Hour, 23 - 75.2 mg/l

LC50, Pimephales promelas (fathead minnow), 96 Hour, 12 - 100 mg/l

LC50, Oryzias latipes (Orange-red killifish), 48 Hour, 3.7 - 25 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, 4.4 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EbC50, Pseudokirchneriella subcapitata (green algae), Biomass, > 100 mg/l, OECD Test Guideline 201 or Equivalent

EbC50, blue-green alga Anabaena flos-aquae, Biomass, 22 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, Fish, flow-through test, 14 d, mortality, 0.98 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, 3.2 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).

Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
dietary LC50, *Colinus virginianus* (Bobwhite quail), > 10,000 ppm
oral LD50, *Colinus virginianus* (Bobwhite quail), > 10,000 mg/kg
dietary LC50, *Anas platyrhynchos* (Mallard duck), > 18,000 ppm
oral LD50, *Anas platyrhynchos* (Mallard duck), > 40,000 mg/kg

Hexane

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Fish, 96 Hour, 12.51 mg/l, Estimated by Structure-Activity Relationship (SAR).

Acute toxicity to aquatic invertebrates

EL50, *Daphnia magna* (Water flea), 48 Hour, 21.85 mg/l, Estimated by Structure-Activity Relationship (SAR).

Acute toxicity to algae/aquatic plants

EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate, 9.285 mg/l, Estimated by Structure-Activity Relationship (SAR).

NOEC, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate, 2.077 mg/l, Estimated by Structure-Activity Relationship (SAR).

Chronic toxicity to fish

NOEC, *Oncorhynchus mykiss* (rainbow trout), 28 d, growth, 2.8 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna*, 21 d, number of offspring, 4.88 mg/l

Distillates (Petroleum) Light Thermal Cracked

Acute toxicity to fish

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Benzene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 5.9 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), static test, 24 Hour, 18 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Biomass, 29 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

IC50, *Nitrosomonas* sp., 24 Hour, 13 mg/l

Chronic toxicity to fish

LOEC, Fathead minnow (*Pimephales promelas*), flow-through test, 32 d, lethality, 1.6 mg/l

Chronic toxicity to aquatic invertebrates

NOEC sublethal, *Ceriodaphnia dubia* (water flea), semi-static test, 7 d, 2.968 mg/l

Non-Aromatics C4-C8

Acute toxicity to fish

No relevant data found.

Toluene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 5.8 mg/l

Acute toxicity to aquatic invertebrates

LC50, water flea *Ceriodaphnia dubia*, semi-static test, 48 Hour, 3.78 mg/l

Acute toxicity to algae/aquatic plants

Ec50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Biomass, 12.5 mg/l, OECD Test Guideline 201

Toxicity to bacteria

IC50, Bacteria, 16 Hour, 29 mg/l

Chronic toxicity to fish

NOEC, Fish, flow-through test, 40 d, growth, 1.4 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Ceriodaphnia dubia* (water flea), 7 d, number of offspring, 0.74 mg/l

Toxicity to soil-dwelling organisms

LC50, *Eisenia fetida* (earthworms), 150 - 280 mg/kg

Ethylbenzene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, *Oncorhynchus mykiss* (rainbow trout), semi-static test, 96 Hour, 4.2 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), Static, 48 Hour, 1.8 - 2.4 mg/l

Acute toxicity to algae/aquatic plants

EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth inhibition (cell density reduction), 3.6 - 4.6 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Bacteria, 16 Hour, > 12 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Ceriodaphnia dubia (water flea), semi-static test, 7 d, 0.96 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 2 d, survival, 0.047 mg/cm²

Xylene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 2.6 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

IC50, Daphnia magna (Water flea), 24 Hour, 1 - 4.7 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (algae), Static, 73 Hour, Growth rate, 4.36 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, Pseudokirchneriella subcapitata (green algae), 73 Hour, Growth rate, 0.44 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, Oncorhynchus mykiss (rainbow trout), flow-through, 56 d, mortality, > 1.3 mg/l

Styrene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, 4.1 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 48 Hour, 23 mg/l, OECD Test Guideline 202 or Equivalent

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, 4.7 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 4.9 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

NOEC, Pseudomonas putida, 16 Hour, 72 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, 1.01 mg/l

Toxicity to soil-dwelling organisms

LC50, Eisenia fetida (earthworms), 14 d, 120 mg/kg

C5 Hydrocarbons, total

Acute toxicity to fish

No relevant data found.

Aromatic hydrocarbons, C9-11

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on information for a similar material:

LC0, Pimephales promelas (fathead minnow), 96 Hour, 1,000 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

Based on information for a similar material:

EC0, Daphnia magna, 48 Hour, 1,000 mg/l, Method Not Specified.

Acute toxicity to algae/aquatic plants

Based on information for a similar material:

NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1,000 mg/l, Method Not Specified.

Chronic toxicity to aquatic invertebrates

NOELR, Daphnia magna (Water flea), 21 d, 1 mg/l

Dicyclopentadiene

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).

LC50, Ictalurus catus (catfish), 96 Hour, 16 mg/l

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 16 - 42.3 mg/l, OECD Test Guideline 203 or Equivalent

LC50, Lepomis macrochirus (Bluegill sunfish), 96 Hour, 23 - 75.2 mg/l

LC50, Pimephales promelas (fathead minnow), 96 Hour, 12 - 100 mg/l

LC50, Oryzias latipes (Orange-red killifish), 48 Hour, 3.7 - 25 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), semi-static test, 48 Hour, 4.4 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

EbC50, Pseudokirchneriella subcapitata (green algae), Biomass, > 100 mg/l, OECD Test Guideline 201 or Equivalent

EbC50, blue-green alga Anabaena flos-aquae, Biomass, 22 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to fish

NOEC, Fish, flow-through test, 14 d, mortality, 0.98 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), 21 d, 3.2 mg/l

Toxicity to Above Ground Organisms

Material is slightly toxic to birds on an acute basis (LD50 between 501 and 2000 mg/kg).
 Material is practically non-toxic to birds on a dietary basis (LC50 > 5000 ppm).
 dietary LC50, *Colinus virginianus* (Bobwhite quail), > 10,000 ppm
 oral LD50, *Colinus virginianus* (Bobwhite quail), > 10,000 mg/kg
 dietary LC50, *Anas platyrhynchos* (Mallard duck), > 18,000 ppm
 oral LD50, *Anas platyrhynchos* (Mallard duck), > 40,000 mg/kg

Hexane

Acute toxicity to fish

Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
 LC50, Fish, 96 Hour, 12.51 mg/l, Estimated by Structure-Activity Relationship (SAR).

Acute toxicity to aquatic invertebrates

EL50, *Daphnia magna* (Water flea), 48 Hour, 21.85 mg/l, Estimated by Structure-Activity Relationship (SAR).

Acute toxicity to algae/aquatic plants

EC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate, 9.285 mg/l, Estimated by Structure-Activity Relationship (SAR).
 NOEC, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate, 2.077 mg/l, Estimated by Structure-Activity Relationship (SAR).

Chronic toxicity to fish

NOEC, *Oncorhynchus mykiss* (rainbow trout), 28 d, growth, 2.8 mg/l

Chronic toxicity to aquatic invertebrates

NOEC, *Daphnia magna*, 21 d, number of offspring, 4.88 mg/l

Persistence and degradability

Distillates (Petroleum) Light Thermal Cracked

Biodegradability: For similar material(s): Material is not readily biodegradable according to OECD/EEC guidelines.

Benzene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 100 %

Exposure time: 14 d

Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.08 mg/mg Estimated.

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	46 %
10 d	49 %
20 d	80 %

Photodegradation**Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 5.5 d**Method:** Estimated.**Non-Aromatics C4-C8****Biodegradability:** No relevant data found.**Toluene****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Not applicable

Biodegradation: 100 %**Exposure time:** 14 d**Method:** OECD Test Guideline 301C or Equivalent**Theoretical Oxygen Demand:** 3.13 mg/mg Calculated.**Photodegradation****Test Type:** Half-life (indirect photolysis)**Sensitization:** OH radicals**Atmospheric half-life:** 2 d**Method:** Estimated.**Ethylbenzene****Biodegradability:** Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 100 %**Exposure time:** 6 d**Method:** OECD Test Guideline 301E or Equivalent**Theoretical Oxygen Demand:** 3.17 mg/mg Estimated.**Chemical Oxygen Demand:** 2.62 mg/mg Dichromate**Biological oxygen demand (BOD)**

Incubation Time	BOD
5 d	31.5 %
10 d	38.5 %
20 d	45.4 %

Photodegradation**Sensitization:** OH radicals**Atmospheric half-life:** 55 Hour**Method:** Estimated.

Xylene

Biodegradability: Material is expected to be readily biodegradable.

10-day Window: Pass

Biodegradation: > 60 %

Exposure time: 10 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 19.7 Hour

Method: Estimated.

Styrene

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Material is expected to be readily biodegradable. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 87 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.08 mg/mg

Chemical Oxygen Demand: 2.89 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	34 %
10 d	47 %
20 d	54 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 3.5 Hour

Method: Estimated.

C5 Hydrocarbons, total

Biodegradability: No relevant data found.

Aromatic hydrocarbons, C9-11

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Based on information for a similar material:

Biodegradation: 31.3 %

Exposure time: 28 d

Method: Method Not Specified.

Dicyclopentadiene

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

For similar material(s): 10-day Window: Fail

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

Theoretical Oxygen Demand: 3.15 mg/mg

Chemical Oxygen Demand: 2.62 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 103 min

Method: Estimated.

Hexane

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Biodegradation rate may increase in soil and/or water with acclimation.

Based on information for a similar material: 10-day Window: Pass

Biodegradation: 98 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.54 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	22 %
10 d	52 %
20 d	81 %

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 1.960 d
Method: Estimated.

Distillates (Petroleum) Light Thermal Cracked

Biodegradability: For similar material(s): Material is not readily biodegradable according to OECD/EEC guidelines.

Benzene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 100 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.08 mg/mg Estimated.

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	46 %
10 d	49 %
20 d	80 %

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 5.5 d
Method: Estimated.

Non-Aromatics C4-C8

Biodegradability: No relevant data found.

Toluene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 100 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 3.13 mg/mg Calculated.

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 2 d
Method: Estimated.

Ethylbenzene

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 100 %

Exposure time: 6 d

Method: OECD Test Guideline 301E or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg Estimated.

Chemical Oxygen Demand: 2.62 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	31.5 %
10 d	38.5 %
20 d	45.4 %

Photodegradation

Sensitization: OH radicals

Atmospheric half-life: 55 Hour

Method: Estimated.

Xylene

Biodegradability: Material is expected to be readily biodegradable.

10-day Window: Pass

Biodegradation: > 60 %

Exposure time: 10 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.17 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	37.000 %
10 d	58.000 %
20 d	72.000 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 19.7 Hour

Method: Estimated.

Styrene

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Material is expected to be readily biodegradable. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).

10-day Window: Pass

Biodegradation: 87 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.08 mg/mg

Chemical Oxygen Demand: 2.89 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	34 %
10 d	47 %
20 d	54 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 3.5 Hour

Method: Estimated.

C5 Hydrocarbons, total

Biodegradability: No relevant data found.

Aromatic hydrocarbons, C9-11

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Based on information for a similar material:

Biodegradation: 31.3 %

Exposure time: 28 d

Method: Method Not Specified.

Dicyclopentadiene

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.

For similar material(s): 10-day Window: Fail

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 301F

Theoretical Oxygen Demand: 3.15 mg/mg

Chemical Oxygen Demand: 2.62 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 103 min
Method: Estimated.

Hexane

Biodegradability: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD > 40%). Biodegradation rate may increase in soil and/or water with acclimation.

Based on information for a similar material: 10-day Window: Pass

Biodegradation: 98 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

Theoretical Oxygen Demand: 3.54 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	22 %
10 d	52 %
20 d	81 %

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 1.960 d
Method: Estimated.

Bioaccumulative potential

Distillates (Petroleum) Light Thermal Cracked

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 2.13 - 3.90 Measured

Benzene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2.13 Measured

Bioconcentration factor (BCF): 4.3 Fish Measured

Non-Aromatics C4-C8

Bioaccumulation: No relevant data found.

Toluene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): 2.73 Measured

Bioconcentration factor (BCF): 13.2 - 90 Fish Measured

Ethylbenzene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.15 Measured
Bioconcentration factor (BCF): 15 Fish Measured

Xylene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.12 Measured
Bioconcentration factor (BCF): 25.9 Rainbow trout (Salmo gairdneri) Measured

Styrene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.95 Measured
Bioconcentration factor (BCF): 13.5 Fish Measured

C5 Hydrocarbons, total

Bioaccumulation: No relevant data found.

Aromatic hydrocarbons, C9-11

Bioaccumulation: No relevant data found.

Dicyclopentadiene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.894 Estimated.
Bioconcentration factor (BCF): 53 Fish Measured

Hexane

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 3.868 Estimated.
Bioconcentration factor (BCF): 501 Pimephales promelas (fathead minnow) Calculated.

Distillates (Petroleum) Light Thermal Cracked

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 2.13 - 3.90 Measured

Benzene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.13 Measured
Bioconcentration factor (BCF): 4.3 Fish Measured

Non-Aromatics C4-C8

Bioaccumulation: No relevant data found.

Toluene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.73 Measured
Bioconcentration factor (BCF): 13.2 - 90 Fish Measured

Ethylbenzene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.15 Measured
Bioconcentration factor (BCF): 15 Fish Measured

Xylene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.12 Measured
Bioconcentration factor (BCF): 25.9 Rainbow trout (Salmo gairdneri) Measured

Styrene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.95 Measured
Bioconcentration factor (BCF): 13.5 Fish Measured

C5 Hydrocarbons, total

Bioaccumulation: No relevant data found.

Aromatic hydrocarbons, C9-11

Bioaccumulation: No relevant data found.

Dicyclopentadiene

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 2.894 Estimated.
Bioconcentration factor (BCF): 53 Fish Measured

Hexane

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 3.868 Estimated.
Bioconcentration factor (BCF): 501 Pimephales promelas (fathead minnow) Calculated.

Mobility in soil

Distillates (Petroleum) Light Thermal Cracked

No relevant data found.

Benzene

Potential for mobility in soil is high (Koc between 50 and 150).
Partition coefficient (Koc): 83 Estimated.

Non-Aromatics C4-C8

No relevant data found.

Toluene

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 37 - 178 Estimated.

Ethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient (Koc): 518 Estimated.

Xylene

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 443 Estimated.

Styrene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 520 - 920 Estimated.

C5 Hydrocarbons, total

No relevant data found.

Aromatic hydrocarbons, C9-11

No relevant data found.

Dicyclopentadiene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 630 - 3200 Estimated.

Hexane

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 3.67 Estimated.

Distillates (Petroleum) Light Thermal Cracked

No relevant data found.

Benzene

Potential for mobility in soil is high (Koc between 50 and 150).

Partition coefficient (Koc): 83 Estimated.

Non-Aromatics C4-C8

No relevant data found.

Toluene

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 37 - 178 Estimated.

Ethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 518 Estimated.

Xylene

Potential for mobility in soil is medium (Koc between 150 and 500).

Partition coefficient (Koc): 443 Estimated.

Styrene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 520 - 920 Estimated.

C5 Hydrocarbons, total

No relevant data found.

Aromatic hydrocarbons, C9-11

No relevant data found.

Dicyclopentadiene

Potential for mobility in soil is low (Koc between 500 and 2000).

Partition coefficient (Koc): 630 - 3200 Estimated.

Hexane

Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient (Koc): 3.67 Estimated.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Hydrocarbons, liquid, n.o.s.
UN number	UN 3295
Class	3
Packing group	II
Reportable Quantity	Benzene, Xylene

Classification for SEA transport (IMO-IMDG):

Proper shipping name	HYDROCARBONS, LIQUID, N.O.S.
UN number	UN 3295
Class	3
Packing group	II
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Hydrocarbons, liquid, n.o.s.
UN number	UN 3295
Class	3
Packing group	II

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids)
 Hazard not otherwise classified (physical hazards)
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Germ cell mutagenicity
 Carcinogenicity
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)
 Aspiration hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Components	CASRN
Benzene	71-43-2
Toluene	108-88-3
Ethylbenzene	100-41-4
Styrene	100-42-5
Xylene	1330-20-7
Hexane	110-54-3

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103

Components	CASRN	RQ (RCRA Code)
Benzene	71-43-2	10 lbs RQ (D018)
Benzene	71-43-2	10 lbs RQ
Benzene	71-43-2	10 lbs RQ (D018)
Benzene	71-43-2	10 lbs RQ
Toluene	108-88-3	1000 lbs RQ
Toluene	108-88-3	100 lbs RQ (F005)
Ethylbenzene	100-41-4	1000 lbs RQ
Ethylbenzene	100-41-4	100 lbs RQ (F003)
Xylene	1330-20-7	100 lbs RQ
Xylene	1330-20-7	100 lbs RQ (F003)

Pennsylvania Worker and Community Right-To-Know Act:

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Distillates (Petroleum) Light Thermal Cracked	68955-29-3
Benzene	71-43-2
Hexane	110-54-3

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause cancer.

Components	CASRN
Benzene	71-43-2
Ethylbenzene	100-41-4
Styrene	100-42-5

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

WARNING: This product contains a chemical(s) known to the State of California to cause birth defects or other reproductive harm.

Components	CASRN
Benzene	71-43-2
Toluene	108-88-3

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Revision

Identification Number: 15740 / A001 / Issue Date: 02/26/2018 / Version: 6.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
CEIL	Acceptable ceiling concentration
OSHA CARC	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-2	USA. Occupational Exposure Limits (OSHA) - Table Z-2
Peak	Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift
PEL	Permissible exposure limit (PEL)
SKIN	Absorbed via skin
STEL	Short-term exposure limit

TWA	8-hour, time-weighted average
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Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other

than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

US