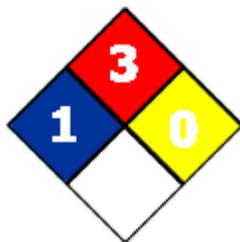


SAFETY DATA SHEET



Revision Date 14-Jun-2017

SDS Number 888100005304

Revision Number 1.01

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product Name TransMix

Synonyms Petroleum distillates, TransMix

Recommended Use Intermediate Stream - Mixture of refined petroleum products generated by distribution
Uses advised against All others

Manufacturer
Tesoro Refining & Marketing Co.
19100 Ridgewood Parkway
San Antonio, TX 78259

Emergency Telephone Chemtrec: 1-800-424-9300
Tesoro Call Center: 1-877-783-7676

E-mail address ProductStewardship@TSOCORP.com

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 2 Category 1
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive toxicity	Category 2
Specific target organ toxicity (repeated exposure)	Category 1
Chronic Aquatic Toxicity	Category 2
Aspiration toxicity	Category 1

Label elements

Danger

Highly flammable liquid and vapor
Flammable liquid and vapor
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
Causes damage to organs through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects
May be fatal if swallowed and enters airways



Appearance Liquid

Physical State @20°C Liquid

Odor Characteristic Hydrocarbon like

Precautionary Statements - Prevention

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

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention
 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
 IF SWALLOWED: Immediately call a POISON CENTER or doctor
 Do NOT induce vomiting
 In case of fire: Use CO₂, dry chemical, or foam to extinguish

Precautionary Statements - Storage

Store in a well-ventilated place. Keep cool

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Other Information

Causes mild skin irritation. Toxic to aquatic life.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Percent
Mixed Refined Petroleum Hydrocarbons	MIXTURE	0-100
Gasoline	86290-81-5	1-99
Diesel Fuel	68476-34-6	1-99
Toluene	108-88-3	0-2
Ethylbenzene	100-41-4	0-2
Xylene	1330-20-7	0-1
Nonane	111-84-2	0-1
Naphthalene	91-20-3	0-1
Cumene	98-82-8	0-1
Benzene	71-43-2	0-1
2,2,4-Trimethylpentane	540-84-1	0-1
N-hexane	110-54-3	0-0.5
Cyclohexane	110-82-7	0-0.5

4. FIRST AID MEASURES

Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance. Remove from exposure, lie down. In case of accident or if you feel unwell, seek medical advice immediately. When symptoms persist or in all cases of doubt, seek medical advice. Never give anything by mouth to an unconscious person. Take off all contaminated clothing immediately and thoroughly wash material from skin. Immediate medical attention is required.
Inhalation	Remove to fresh air. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Get immediate medical advice/attention. Delayed pulmonary edema may occur. Immediate medical attention is required. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get medical attention if irritation develops and persists. Note: When using this product in high pressure equipment - Accidental high velocity dermal injection of this material requires immediate medical attention.
Ingestion	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical advice/attention.
Self-protection of the first aider	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not breathe vapor or mist.

Most important symptoms and effects, both acute and delayed

Symptoms	Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances. A patient adversely affected by exposure to this product should not be given adrenaline (epinephrine) or similar heart stimulant since these would increase the risk of cardiac arrhythmias.
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5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media	Dry chemical. Carbon dioxide (CO ₂). Water spray. Alcohol resistant foam.
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Small Fire	Any extinguisher suitable for Class B fires, dry chemical, CO2, foam (AFFF/ATC), or water spray can be used.			
Large Fire	Water spray, fog or alcohol-resistant foam. CAUTION: Use of water spray when fighting fire may be inefficient. Cool containers with flooding quantities of water until well after fire is out.			
Unsuitable extinguishing media	CAUTION: Use of water spray when fighting fire may be inefficient.			
Specific hazards arising from the chemical	Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.			
Hazardous combustion products	Smoke, CO, and other products of incomplete combustion.			
Explosion data				
Sensitivity to Mechanical Impact	None.			
Sensitivity to Static Discharge	Yes.			
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn.			
Further information	ALWAYS stay away from tanks engulfed in fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. Do not direct water at source of leak or safety devices; icing may occur. Cool containers with flooding quantities of water until well after fire is out. Do not allow run-off from fire-fighting to enter drains or water courses.			
<u>NFPA</u>	Health hazards 1	Flammability 3	Stability 0	Physical and chemical properties -

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Do not breathe vapor or mist.

Other Information Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.

Methods for cleaning up Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling

Use personal protection equipment. Avoid contact with skin and eyes. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse. Do not breathe vapor or mist. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation.

Hydrocarbon liquids including this product can act as a non-conductive flammable liquid (or static accumulator), and may form ignitable vapor-air mixtures in storage tanks or other containers. Precautions to prevent static initiated fire or explosion during transfer, storage or handling, include but are not limited to these examples: (1) Ground and bond containers during product transfers. Grounding and bonding may not be adequate protection to prevent ignition or explosion of hydrocarbon liquid and vapors that are static accumulators. (2) Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha). (3) Storage tank level floats must be effectively bonded. For more information on precautions to prevent static-initiated fire or explosion, see NFPA 77 Recommended Practice on Static Electricity and API Recommended Practice 2003 Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents.

Conditions for safe storage, including any incompatibilities

Storage Conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store locked up. Keep out of the reach of children. Store away from other materials. Keep away from food, drink and animal feed. Incompatible with oxidizing agents. Incompatible with acids. Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure.

Keep away from flame, sparks, excessive temperatures and open flame. Use approved containers. Keep containers closed and clearly labeled. Empty or partially full product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose containers to sources of ignition. Store in a well-ventilated area. The storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL
Gasoline 86290-81-5	STEL: 500 ppm TWA: 300 ppm	(vacated) TWA: 300 ppm (vacated) TWA: 900 mg/m ³ (vacated) STEL: 500 ppm (vacated) STEL: 1500 mg/m ³
Diesel Fuel 68476-34-6	TWA: 100 mg/m ³ total hydrocarbons inhalable fraction and vapor S*	-

Toluene 108-88-3	TWA: 20 ppm	TWA: 200 ppm (vacated) TWA: 100 ppm (vacated) TWA: 375 mg/m ³ (vacated) STEL: 150 ppm (vacated) STEL: 560 mg/m ³ Ceiling: 300 ppm
Ethylbenzene 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m ³ (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m ³ (vacated) STEL: 125 ppm (vacated) STEL: 545 mg/m ³
Xylene 1330-20-7	STEL: 150 ppm TWA: 100 ppm	TWA: 100 ppm TWA: 435 mg/m ³ (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m ³ (vacated) STEL: 150 ppm (vacated) STEL: 655 mg/m ³
Nonane 111-84-2	TWA: 200 ppm	(vacated) TWA: 200 ppm (vacated) TWA: 1050 mg/m ³
Naphthalene 91-20-3	TWA: 10 ppm S*	TWA: 10 ppm TWA: 50 mg/m ³ (vacated) TWA: 10 ppm (vacated) TWA: 50 mg/m ³ (vacated) STEL: 15 ppm (vacated) STEL: 75 mg/m ³
Cumene 98-82-8	TWA: 50 ppm	TWA: 50 ppm TWA: 245 mg/m ³ (vacated) TWA: 50 ppm (vacated) TWA: 245 mg/m ³ (vacated) S* S*
Benzene 71-43-2	STEL: 2.5 ppm TWA: 0.5 ppm S*	TWA: 10 ppm applies to industry segments exempt from the benzene standard at 29 CFR 1910.1028 TWA: 1 ppm (vacated) TWA: 10 ppm unless specified in 1910.1028 (vacated) STEL: 50 ppm 10 min unless specified in 1910.1028 (vacated) Ceiling: 25 ppm unless specified in 1910.1028 Ceiling: 25 ppm STEL: 5 ppm see 29 CFR 1910.1028
2,2,4-Trimethylpentane 540-84-1	TWA: 300 ppm	-
N-hexane 110-54-3	TWA: 50 ppm S*	TWA: 500 ppm TWA: 1800 mg/m ³ (vacated) TWA: 50 ppm (vacated) TWA: 180 mg/m ³
Cyclohexane 110-82-7	TWA: 100 ppm	TWA: 300 ppm TWA: 1050 mg/m ³ (vacated) TWA: 300 ppm (vacated) TWA: 1050 mg/m ³

S* - Potential exposure by cutaneous route

NOTE: Limits shown for guidance only. For additional information, OSHA's 1989 air contaminants standard exposure limits provided even though the limits were vacated in 1992. State, local or other agencies or advisory groups may have established more stringent limits. Follow applicable regulations.

Appropriate engineering controls

Engineering controls

Showers

Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection	Use goggles or face-shield where there is a possibility of splashing.
Hand Protection	Wear suitable gloves. Polyvinyl alcohol. Nitrile rubber. Neoprene gloves. Ensure that the breakthrough time of the glove material is not exceeded. Refer to glove supplier for information on breakthrough time for specific gloves.
Skin and body protection	If there is a risk of contact:. Wear suitable protective clothing. Wear fire/flame resistant/retardant clothing.
Respiratory protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Use a NIOSH approved respirator when there is a potential for airborne concentrations to exceed occupational exposure limits. Refer to OSHA 29 CFR 1910.134, ANSI Z88.2, NIOSH Respirator Decision Logic, and the respirator manufacturer for additional guidance on respiratory protection selection. A Self-Contained Breathing Apparatus (SCBA) should be used for fire fighting. Use a NIOSH approved positive-pressure supplied air respirator if there is a potential for uncontrolled release, exposure levels are unknown, in oxygen deficient (less than 19.5% oxygen), or any other circumstance where an air-purifying respirator may not provide adequate protection.
General hygiene considerations	Do not eat, drink or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State @20°C	Liquid
Appearance	Liquid
Odor	Characteristic Hydrocarbon like
Color	Clear to dark brown
Odor threshold	0.5-3

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	Not applicable	
Melting point / freezing point	-100 °C / -148 °F	
Boiling range	49 - 49 to 177 °C	
Flash point	< -100 °C / -148 °F	
Evaporation rate	No data available	
Flammability (solid, gas)	Flammable vapor released by liquid	
Flammability Limit in Air %		
Upper flammability limit:	8	
Lower flammability limit:	1.2	
Vapor pressure	No data available	
Vapor density	3 to 4	
Relative density	0.6 to 0.8	
Water solubility	Negligible	
Solubility in other solvents	No data available	
Partition coefficient	2.1 to 6	
Autoignition temperature	250 °C / 482 °F	
Decomposition temperature	No data available	
Kinematic viscosity	0.88 to 11 mm ² /s	
Dynamic viscosity	No data available	
Explosive properties	No data available	
Oxidizing properties	No data available	
Minimum Ignition Energy (mJ)	No data available	
K_{st} (bar.m/s)	No data available	

Softening point	No data available
VOC Content (%)	No data available
Density	No data available
Bulk density	Not applicable
Conductivity	Hydrocarbon liquids without static dissipater additive may have conductivity below 1 picoSiemens per meter (pS/m). The highest electro-static ignition risks are associated with "ultra-low conductivities" below 5 pS/m. See Section 7 for sources of information on defining safe loading and handling procedures for low conductivity products

10. STABILITY AND REACTIVITY

Reactivity	This product is non-reactive under normal conditions.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	Heat, flames and sparks. Excessive heat.
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents.
Hazardous decomposition products	None under normal use conditions.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation	Specific test data for the substance or mixture is not available. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause irritation of respiratory tract.
Eye contact	Specific test data for the substance or mixture is not available. May cause irritation.
Skin contact	Repeated exposure may cause skin dryness or cracking.
Ingestion	Specific test data for the substance or mixture is not available. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways.

Information on toxicological effects

Symptoms	Difficulty in breathing. Coughing and/ or wheezing. Dizziness.
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Numerical measures of toxicity

Acute toxicity

mg/kg mg/l
Component Information

Chemical Name	Oral LD50	LD50/dermal/rat - NO UNITS (Wizards mg/kg)	Inhalation LC50
Gasoline 86290-81-5	= 92 g/kg (Rat)	> 2000 mg/kg (Rabbit)	> 5.2 mg/L (Rat) 4 h
Toluene 108-88-3	= 2600 mg/kg (Rat)	= 12000 mg/kg (Rabbit)	= 12.5 mg/L (Rat) 4 h
Ethylbenzene 100-41-4	= 3500 mg/kg (Rat)	= 15400 mg/kg (Rabbit)	= 17.4 mg/L (Rat) 4 h
Xylene 1330-20-7	= 3500 mg/kg (Rat)	> 1700 mg/kg (Rabbit) > 4350 mg/kg (Rabbit)	= 29.08 mg/L (Rat) 4 h = 5000 ppm (Rat) 4 h
Nonane 111-84-2	-	-	= 3200 ppm (Rat) 4 h

Naphthalene 91-20-3	= 1110 mg/kg (Rat) = 490 mg/kg (Rat)	= 1120 mg/kg (Rabbit) > 20 g/kg (Rabbit)	> 340 mg/m ³ (Rat) 1 h
Cumene 98-82-8	= 1400 mg/kg (Rat)	= 12300 µL/kg (Rabbit)	= 39000 mg/m ³ (Rat) 4 h > 3577 ppm (Rat) 6 h
Benzene 71-43-2	= 1800 mg/kg (Rat) = 810 mg/kg (Rat)	> 8200 mg/kg (Rabbit)	= 44.66 mg/L (Rat) 4 h
2,2,4-Trimethylpentane 540-84-1	> 5000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 14.38 mg/L (Rat) 4 h
N-hexane 110-54-3	= 25 g/kg (Rat)	= 3000 mg/kg (Rabbit)	= 48000 ppm (Rat) 4 h
Cyclohexane 110-82-7	= 12705 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	= 13.9 mg/L (Rat) 4 h
1,2,4-Trimethylbenzene 95-63-6	= 3280 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	= 18 g/m ³ (Rat) 4 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chemical Name **Ethylbenzene**

Ethylbenzene may be fatal if it is swallowed and enters the airways. Short term (acute) exposure to ethylbenzene can cause eye, skin, and throat irritation. It may have effects on the central nervous system including dizziness, and at very high exposure, lowering on consciousness. Long-term exposures orally and by inhalation have been shown to cause damage to the inner ear and hearing in animals. Long term or repeated exposure to high enough levels of ethylbenzene may have effects on the kidneys and liver, resulting in impaired functions, and repeated contact with skin may cause dryness and cracking. Animal studies indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland. In a 2-year inhalation study in mice and rats, the animals were exposed to 0, 75, 250, and 750 ppm ethylbenzene 6 hours/day, 5 days/week. Renal effects were observed in male rats (renal tubule hyperplasia) and female rats (renal tubule adenoma and adenoma or carcinoma) exposed to 750 ppm. The incidence of adenoma in the testes of males was significantly greater than in the control group and exceeded the historical control range for inhalation studies. The incidences of alveolar/bronchiolar adenoma was increased in males and the incidence of hepatocellular adenoma was increased in females. IARC has classified ethylbenzene as possibly carcinogenic to humans (Group 2B). Studies do not provide conclusive evidence of reproductive effects. In one study, developmental effects were reported in animals but only at very high doses (≥ 1000 ppm) that are likely to be toxic to the mother. The relevance of these findings to humans is not clear at this time.

Xylene

Mixed xylenes can cause skin, eye, and respiratory irritation. Both short- and long-term repeated exposures to high enough levels in humans have resulted in a variety of adverse nervous system effects that include headache, mental confusion, narcosis, equilibrium, impaired short-term memory, dizziness and tremors. Studies in laboratory animals indicate that xylene can cause changes in the liver and harmful effects on the kidneys, lungs, heart, and nervous system as well as hearing loss. The relevance of these observations to humans is not clear at this time. In general, developmental studies in animals reported adverse fetal effects only at concentrations that caused maternal toxicity. The relevance of these observations to humans is unclear at this time. The available data from in vitro and in vivo studies suggest that xylenes are not mutagenic and do not produce chromosomal abnormalities. Furthermore, rats exposed up to 500 mg/kg bw and mice exposed up to 1000 mg/kg bw mixed xylenes for 103 weeks showed no treatment-related increases in any tumor type. IARC has determined that the carcinogenicity of xylenes is not classifiable (Group 3).

Nonane

Nonane may be fatal if it is swallowed and enters the airway. Nonane affects the eyes, skin, respiratory system, and central nervous system. If inhaled, short-term overexposure can cause drowsiness, dizziness, and possibly death. Exposure to high enough levels of nonane can cause irritation to eyes, nose, and skin (including dermatitis). Sensitization is not reported.

Naphthalene

Acute (short term) exposure to large amounts of naphthalene may damage or destroy red blood cells, a condition termed hemolytic anemia. Symptoms of hemolytic anemia include fatigue, lack of appetite, restlessness, and pale skin. Acute inhalation or oral exposure to

large amounts of naphthalene may also cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin. Ingestion may result in death. Chronic (long term) exposure in rats and mice can lead to irritation and inflammation of their nose and lungs; nasal hyperplasia and metaplasia in respiratory and olfactory epithelium has been reported in studies in mice. Exposure to high enough levels may have effects on the blood, resulting in chronic hemolytic anemia, and effects on the eyes, resulting in the development of cataracts. Cancer from naphthalene exposure has been observed in animals, but not humans. IARC has classified naphthalene as possibly carcinogenic to humans (Group 2B), and the ECHA C&L Inventory reports that naphthalene is suspected of causing cancer (Carc. 2).

Cumene

Cumene may be fatal if it is swallowed and enters the airways. Cumene targets the eyes, skin, respiratory system, and central nervous system. Short term (acute) exposure may result in irritation of the eyes, skin and mucous membranes, headache, narcosis, and coma. At high enough levels, repeated or prolonged contact with skin may cause dermatitis. Acute exposures to cumene in animal studies has been shown to result in neurotoxicological effects at concentrations > 500 ppm. A cumene concentration of 2,058 ppm has been shown to result in a 50% reduction in the respiratory rate of mice. In animals, an increase in organ weights, primarily the kidneys, are the most prominent effects observed in rodents repeatedly exposed to cumene by either the oral or inhalation route. No adverse effects were observed in rat or rabbit fetuses whose mothers had been exposed to cumene during fetal development. Cumene is classified as possibly carcinogenic to humans by IARC (Group 2B).

Benzene

Benzene exposure may occur through inhalation, ingestion, skin absorption or eye contact. Benzene exposure can cause skin, eye and respiratory irritation. The most characteristic systemic effect resulting from high enough intermediate and chronic benzene exposure is arrested development of blood cells. Studies have linked overexposure to benzene to many hematological effects including aplastic anemia, pancytopenia, leukopenia, and myelodysplastic syndrome. In vivo and in vitro data from both humans and animals show that benzene and/or its metabolites are genotoxic. Studies in animals provide supporting evidence for the carcinogenicity of inhaled benzene. Epidemiological studies have reported a causal relationship between occupational benzene exposures and acute myelogenous leukemia. Some studies suggest associations between benzene exposure and non-Hodgkin's lymphoma, multiple myeloma, and other cancers. Benzene has been classified as carcinogenic to humans (Group 1) by IARC, and the ECHA C&L Inventory states it may cause cancer (Carc. 1B). IARC concluded that benzene causes acute myeloid leukemia and a positive association has been observed for acute lymphatic leukemia, chronic lymphatic leukemia, non-hodgkin lymphoma, and multiple myeloma. Human studies suggest that female fertility and menstrual cycles were effected by benzene exposure; however, due to uncertainties in exposure and limited data the studies were considered inconclusive. Developmental effects have been observed in animals including persistent hematopoietic anomalies. It has been suggested that the reported benzene fetotoxicity of decreased weight and skeletal variants is a function of maternal toxicity.

N-hexane

N-Hexane may be fatal if it is swallowed and enters the airways. Acute (short-term) dermal overexposure can cause skin and eye irritation in humans. Acute inhalation and oral exposures have caused systemic effects such as decreased body weight and respiratory effects, as well as reproductive and developmental effects in animals. Respiratory effects may include nose, throat, and lung irritation, coughing, wheezing, and shortness of breath. Acute overexposures may also cause headache, nausea, vomiting, dizziness, lightheadedness, loss of consciousness, coma, and death in human. Intermediate duration inhalation and oral exposures to relatively high concentrations (400-3,000 ppm) of n-hexane have led to nerve damage, paralysis, and/or deaths in rats. N-hexane may damage male reproductive glands. Intermediate-duration inhalation and oral exposure to high levels (1,000-10,000 ppm; 4,000 mg/kg/day) of n-hexane damages sperm-forming cells and testicles in rats. Chronic (long-term) inhalation of large amounts of n-hexane causes nerve damage and paralysis of the arms and legs in humans. Dermal effects, such as a skin rash, dryness, or redness can also occur following chronic overexposure. Chronic duration inhalation exposures in animals are not available.

Cyclohexane

Cyclohexane may be fatal if it is swallowed and enters the airways. Cyclohexane has low acute oral, dermal, and inhalation toxicity. Acute (short-term) overexposure can irritate and burn the eyes, irritate the nose and throat, and cause coughing, wheezing, headache,

dizziness, nausea, vomiting, lightheadedness, drowsiness, and unconsciousness at high concentrations. Chronic inhalation exposure caused maternal toxicity and developmental effects in rats. At high enough levels, repeated or prolonged contact with skin may cause dermatitis.

1,2,4-Trimethylbenzene

1,2,4-Trimethylbenzene may be fatal if it is swallowed and enters airways. Overexposure through inhalation and ingestion can cause confusion, dizziness, drowsiness, headache, and vomiting, cough, and sore throat. Short-term exposure to high enough levels through inhalation may cause respiratory irritation, and long-term overexposure may cause asthmatic bronchitis. Contact with skin can cause irritation, redness and dry skin. Contact with eyes can cause serious eye irritation, redness, and pain.

Health hazard and classification information

Skin Corrosion/Irritation Category No information available.

Serious eye damage/eye irritation No information available.

No information available.

Germ cell mutagenicity

Classification based on data available for ingredients. Contains a known or suspected mutagen. The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as mutagenic.

Carcinogenicity

Classification based on data available for ingredients. Contains a known or suspected carcinogen.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Gasoline 86290-81-5	A3	Group 2B	-	X
Diesel Fuel 68476-34-6	A3	Group 3	-	-
Toluene 108-88-3	-	Group 3	-	-
Ethylbenzene 100-41-4	A3	Group 2B	-	X
Xylene 1330-20-7	-	Group 3	-	-
Naphthalene 91-20-3	A3	Group 2B	Reasonably Anticipated	X
Cumene 98-82-8	-	Group 2B	Reasonably Anticipated	X
Benzene 71-43-2	A1	Group 1	Known	X

Reproductive toxicity

Classification based on data available for ingredients. Contains a known or suspected reproductive toxin. The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Target Organ Systemic Toxicant - Single Exposure

No information available.

Target Organ Systemic Toxicant - Repeated Exposure

Causes damage to organs through prolonged or repeated exposure.

Target organ effects

liver, kidney, Respiratory system, Eyes, Skin, Central nervous system, blood, bone marrow.

Aspiration hazard

May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Additional Ecological Information Release of this product should be prevented from contaminating soil and water and from entering drainage and sewer systems. U.S.A. regulations require reporting spills of this material that could reach any surface waters. The toll free number to the U.S. Coast Guard National Response Center is (800) 424-8802

Ecotoxicity Toxic to aquatic life with long lasting effects.

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Gasoline 86290-81-5	56: 72 h Pseudokirchneriella subcapitata mg/L EC50	82: 96 h Cyprinodon variegatus mg/L LC50 static 119: 96 h Alburnus alburnus mg/L LC50 static	-	170: 24 h Daphnia magna mg/L EC50
Diesel Fuel 68476-34-6	-	35: 96 h Pimephales promelas mg/L LC50 flow-through	-	-
Toluene 108-88-3	12.5: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 433: 96 h Pseudokirchneriella subcapitata mg/L EC50	12.6: 96 h Pimephales promelas mg/L LC50 static 5.89 - 7.81: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 15.22 - 19.05: 96 h Pimephales promelas mg/L LC50 flow-through 5.8: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 11.0 - 15.0: 96 h Lepomis macrochirus mg/L LC50 static 50.87 - 70.34: 96 h Poecilia reticulata mg/L LC50 static 14.1 - 17.16: 96 h Oncorhynchus mykiss mg/L LC50 static 28.2: 96 h Poecilia reticulata mg/L LC50 semi-static 54: 96 h Oryzias latipes mg/L LC50 static	-	11.5: 48 h Daphnia magna mg/L EC50 5.46 - 9.83: 48 h Daphnia magna mg/L EC50 Static
Ethylbenzene 100-41-4	438: 96 h Pseudokirchneriella subcapitata mg/L EC50 4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 9.6: 96 h Poecilia reticulata mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static 11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 32: 96 h Lepomis macrochirus mg/L LC50 static	-	1.8 - 2.4: 48 h Daphnia magna mg/L EC50
Xylene 1330-20-7	-	13.4: 96 h Pimephales promelas mg/L LC50 flow-through 780: 96 h Cyprinus carpio mg/L LC50 semi-static 780: 96 h Cyprinus carpio mg/L LC50 13.5 - 17.3: 96 h Oncorhynchus mykiss	-	0.6: 48 h Gammarus lacustris mg/L LC50 3.82: 48 h water flea mg/L EC50

		mg/L LC50 19: 96 h Lepomis macrochirus mg/L LC50 13.1 - 16.5: 96 h Lepomis macrochirus mg/L LC50 flow-through 23.53 - 29.97: 96 h Pimephales promelas mg/L LC50 static 30.26 - 40.75: 96 h Poecilia reticulata mg/L LC50 static 2.661 - 4.093: 96 h Oncorhynchus mykiss mg/L LC50 static 7.711 - 9.591: 96 h Lepomis macrochirus mg/L LC50 static		
Naphthalene 91-20-3	0.4: 72 h Skeletonema costatum mg/L EC50	5.74 - 6.44: 96 h Pimephales promelas mg/L LC50 flow-through 31.0265: 96 h Lepomis macrochirus mg/L LC50 static 0.91 - 2.82: 96 h Oncorhynchus mykiss mg/L LC50 static 1.6: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 1.99: 96 h Pimephales promelas mg/L LC50 static	-	1.96: 48 h Daphnia magna mg/L EC50 Flow through 1.09 - 3.4: 48 h Daphnia magna mg/L EC50 Static 2.16: 48 h Daphnia magna mg/L LC50
Cumene 98-82-8	2.6: 72 h Pseudokirchneriella subcapitata mg/L EC50	6.04 - 6.61: 96 h Pimephales promelas mg/L LC50 flow-through 4.8: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 5.1: 96 h Poecilia reticulata mg/L LC50 semi-static 2.7: 96 h Oncorhynchus mykiss mg/L LC50 semi-static	-	0.6: 48 h Daphnia magna mg/L EC50 7.9 - 14.1: 48 h Daphnia magna mg/L EC50 Static
Benzene 71-43-2	29: 72 h Pseudokirchneriella subcapitata mg/L EC50	10.7 - 14.7: 96 h Pimephales promelas mg/L LC50 flow-through 5.3: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 22.49: 96 h Lepomis macrochirus mg/L LC50 static 28.6: 96 h Poecilia reticulata mg/L LC50 static 22330 - 41160: 96 h Pimephales promelas µg/L LC50 static 70000 - 142000: 96 h Lepomis macrochirus µg/L LC50 static	-	10: 48 h Daphnia magna mg/L EC50 8.76 - 15.6: 48 h Daphnia magna mg/L EC50 Static
N-hexane 110-54-3	-	2.1 - 2.98: 96 h Pimephales promelas mg/L LC50 flow-through	-	1000: 24 h Daphnia magna mg/L EC50
Cyclohexane 110-82-7	500: 72 h Desmodemus subspicatus mg/L EC50	3.96 - 5.18: 96 h Pimephales promelas mg/L LC50 flow-through 23.03 - 42.07: 96 h Pimephales promelas	-	400: 24 h Daphnia magna mg/L EC50

		mg/L LC50 static 24.99 - 44.69: 96 h Lepomis macrochirus mg/L LC50 static 48.87 - 68.76: 96 h Poecilia reticulata mg/L LC50 static		
1,2,4-Trimethylbenzene 95-63-6	-	7.19 - 8.28: 96 h Pimephales promelas mg/L LC50 flow-through	-	6.14: 48 h Daphnia magna mg/L EC50

Persistence and degradability No information available.

Bioaccumulation There is no data for this product.

Component Information

Chemical Name	Partition coefficient
Toluene 108-88-3	2.7
Ethylbenzene 100-41-4	3.2
Xylene 1330-20-7	2.77 - 3.15
Naphthalene 91-20-3	3.6
Cumene 98-82-8	3.7
Benzene 71-43-2	2.1
Cyclohexane 110-82-7	3.44
1,2,4-Trimethylbenzene 95-63-6	3.63

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

US EPA Waste Number D001, U019 U055 U056 U165 U220 U239

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Toluene 108-88-3	U220	Included in waste streams: F005, F024, F025, F039, K015, K036, K037, K149, K151	-	U220
Ethylbenzene 100-41-4	-	Included in waste stream: F039	-	-
Xylene 1330-20-7	-	Included in waste stream: F039	-	U239
Naphthalene 91-20-3	U165	Included in waste streams: F024, F025, F034, F039, K001, K035, K060, K087, K145	-	U165

Cumene 98-82-8	-	-	-	U055
Benzene 71-43-2	U019	Included in waste streams: F005, F024, F025, F037, F038, F039, K085, K104, K105, K141, K142, K143, K144, K145, K147, K151, K159, K169, K171, K172	0.5 mg/L regulatory level	U019
Cyclohexane 110-82-7	-	-	-	U056

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Toluene 108-88-3	-	-	Toxic waste waste number F025 Waste description: Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	-
Naphthalene 91-20-3	-	-	Toxic waste waste number F025 Waste description: Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	-

California Hazardous Waste Status This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste Status
Gasoline 86290-81-5	Ignitable
Toluene 108-88-3	Toxic Ignitable

Ethylbenzene 100-41-4	Toxic Ignitable
Xylene 1330-20-7	Toxic Ignitable
Naphthalene 91-20-3	Toxic
Cumene 98-82-8	Toxic Ignitable
Benzene 71-43-2	Toxic Ignitable
2,2,4-Trimethylpentane 540-84-1	Toxic Ignitable
N-hexane 110-54-3	Toxic Ignitable
Cyclohexane 110-82-7	Toxic Ignitable

14. TRANSPORT INFORMATION

DOT

UN/ID no UN1268
Proper Shipping Name Petroleum distillates, n.o.s.
Hazard Class 3
Packing group III
Special Provisions 144, B1, IB3, T4, TP1, TP29
Description UN1268, Petroleum distillates, n.o.s., 3, III
Emergency Response Guide Number 128

TDG

UN/ID no UN1268
Proper Shipping Name Petroleum distillates, n.o.s.
Hazard Class 3
Packing group III
Description UN1268, Petroleum distillates, n.o.s., 3, III

MEX

UN/ID no UN1268
Proper Shipping Name Petroleum distillates, n.o.s.
Hazard Class 3
Special Provisions 223
Packing group III
Description UN1268, Petroleum distillates, n.o.s., 3, III

IATA

UN/ID no UN1268
Proper Shipping Name Petroleum distillates, n.o.s.
Hazard Class 3
Packing group III
ERG Code 3L
Description UN1268, Petroleum distillates, n.o.s., 3, III

IMDG

UN/ID no UN1268
Proper Shipping Name Petroleum distillates, n.o.s.
Hazard Class 3
Packing group III
EmS No. F-E, S-E
Special Provisions 223, 363, 955
Description UN1268, Petroleum distillates, n.o.s., 3, III, (-100°C C.C.), Marine pollutant

15. REGULATORY INFORMATION

International Inventories

TSCA	Not Listed
DSL/NDSL	Not Listed
ENCS	Not Listed
IECSC	Not Listed
KECL	Not Listed
PICCS	Not Listed
AICS	Not Listed

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Acute health hazard	Yes
Chronic Health Hazard	Yes
Fire hazard	Yes
Sudden release of pressure hazard	No
Reactive Hazard	No

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Toluene 108-88-3	1000 lb	X	X	X
Ethylbenzene 100-41-4	1000 lb	X	X	X
Xylene 1330-20-7	100 lb	-	-	X
Naphthalene 91-20-3	100 lb	X	X	X
Benzene 71-43-2	10 lb	X	X	X
Cyclohexane 110-82-7	1000 lb	-	-	X

CERCLA

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, fractions of crude oil, and products (both finished and intermediate) from the crude oil refining process and any indigenous components of such from the CERCLA Section 103 reporting requirements. However, other federal reporting requirements, including SARA Section 304, as well as the Clean Water Act may still apply.

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Ethylbenzene - 100-41-4	Carcinogen
Toluene - 108-88-3	Developmental
Benzene - 71-43-2	Carcinogen Developmental Male Reproductive
Naphthalene - 91-20-3	Carcinogen
Cumene - 98-82-8	Carcinogen

U.S. State Right-to-Know Regulations

US State Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Gasoline 86290-81-5	X	X	X
Ethylbenzene 100-41-4	X	X	X
Toluene 108-88-3	X	X	X
Benzene 71-43-2	X	X	X
Nonane 111-84-2	X	X	X
Xylene 1330-20-7	-	-	X
2,2,4-Trimethylpentane 540-84-1	X	X	X
Naphthalene 91-20-3	X	X	X
Cumene 98-82-8	X	X	X
N-hexane 110-54-3	X	X	X
Cyclohexane 110-82-7	X	X	X

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Revision Date 14-Jun-2017

Revision Note No information available.

Disclaimer

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End of Safety Data Sheet