



CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades

Material Safety Data Sheet

CITGO Petroleum Corporation
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MSDS No. AG2DF
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IMPORTANT: Read this MSDS before handling or disposing of this product and pass this information on to employees, customers and users of this product.

Hazard Rankings

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

* = Chronic Health Hazard

Emergency Overview

Physical State Liquid.
Color Transparent, clear to yellow or red. **Odor** Characteristic, kerosene-like.

WARNING!

Combustible liquid; vapor may cause flash fire.
Harmful or fatal if swallowed - can enter lungs and cause damage.

Can cause eye, skin or respiratory tract irritation.
May be harmful if inhaled or absorbed through the skin.
Overexposure can cause central nervous system (CNS) depression and/or other target organ effects.
Possible Cancer Hazard (See Section 3)
Harmful to aquatic organisms.

Protective Equipment

Minimum Recommended
See Section 8 for Details



SECTION 1. PRODUCT IDENTIFICATION

Trade Name	CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades	Technical Contact	(918) 495-5940 or (918) 495-5933
Product Number	Various	Medical Emergency	(918) 495-4700
CAS Number	68476-34-6	CHEMTREC Emergency (United States Only)	(800) 424-9300
Product Family	Motor fuels.		
Synonyms	No. 2-D Grade Diesel Fuel Oil (defined by ASTM D-975); Treated or Refined Diesel Fuel No. 2; Diesel No. 2; Diesel Motor Fuel No. 2; Diesel Oil (Medium); Grade 2 Distillate Fuel; Hydrodesulfurized (HDS) Light Catalytically Cracked Distillate; Middle Distillates (Petroleum); HDS Diesel; Hydrodesulfurized Medium Distillate; HDS Middle Distillate; C9-C16 Petroleum Hydrocarbons.		

SECTION 2. COMPOSITION

This product may be composed, in whole or in part, of any of the following refinery streams:

Diesel Fuel No. 2 [CAS No.: 68476-34-6]
Hydrodesulfurized Middle Distillate (petroleum) [CAS No.: 64742-80-9]
Hydrodesulfurized Light Catalytic Cracked Distillate (Petroleum) [CAS No.: 68333-25-5]
Kerosene [CAS No.: 8008-20-6]
Hydrodesulfurized Kerosine (Petroleum) [CAS No.: 64742-81-0]

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This product contains the following chemical components:

Component Name(s)	CAS Registry No.	Concentration (%)
Nonane, all isomers	Mixture	1 - 10
Trimethylbenzenes, all isomers	25551-13-7	0 - 2
Naphthalene	91-20-3	0 - 2
Biphenyl (Diphenyl)	92-52-4	0 - 2
Cumene	98-82-8	0 - 1
Ethylbenzene	100-41-4	0 - 1

SECTION 3. HAZARDS IDENTIFICATION

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

Major Route(s) of Entry Skin contact, Inhalation.

Signs and Symptoms of Acute Exposure

- Inhalation** Breathing high concentrations may be harmful. Mist or vapor can irritate the throat and lungs. Breathing this material may cause central nervous system depression with symptoms including nausea, headache, dizziness, fatigue, drowsiness, or unconsciousness.
- Eye Contact** This material can cause eye irritation with tearing, redness, or a stinging or burning feeling. Further, it can cause swelling of the eyes with blurred vision. Effects may become more serious with repeated or prolonged contact.
- Skin Contact** This material can cause skin irritation. Symptoms include redness, itching, and burning of the skin. This material can be absorbed by the skin and produce central nervous system depression (headache, nausea, fatigue and/or other symptoms including unconsciousness). If the skin is damaged, absorption increases. Prolonged and/or repeated contact may cause severe dermatitis and/or more serious skin disorders. Chronic symptoms may include drying, swelling, scaling, blistering, cracking, and/or severe tissue damage.
- Ingestion** If swallowed, this material may irritate the mouth, throat, and esophagus. It can be absorbed into the blood stream through the stomach and intestinal tract. Symptoms may include a burning sensation of the mouth and esophagus, nausea and vomiting. In addition, it can cause central nervous system effects characterized by dizziness, staggering, drowsiness, delirium and/or loss of consciousness.

Because of the low viscosity, this material can enter the lungs directly by aspiration during swallowing or subsequent vomiting. Aspiration of a small amount of liquid can cause severe lung damage and/or death.

Chronic Health Effects Summary

Secondary effects of ingestion and subsequent aspiration into the lungs may cause pneumatocele (lung cavity) formation and chronic lung dysfunction.

This product contains petroleum middle distillates similar to those shown to produce skin tumors on laboratory rodents following repeated application. All tumors appeared during the latter portion of the typical 2-year lifespan of the animals. Certain studies have shown that washing the exposed skin of the test animal with soap and water between treatments greatly reduces the potential tumorigenic effects. These data suggest that good personal hygiene is effective in reducing the risk of this potential adverse health effect.

This material and/or its components have been associated with developmental toxicity, reproductive toxicity, genotoxicity, immunotoxicity, and/or carcinogenicity. Refer to Section 11 of this MSDS for additional health-related information.

Conditions Aggravated by Exposure

Disorders of the following organs or organ systems that may be aggravated by significant exposure to this material or its components include: Skin, Respiratory System, Liver, Kidneys, Central Nervous System (CNS)

Target Organs

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This material may cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

Carcinogenic Potential This material may contain ethylbenzene and naphthalene at concentrations above 0.1%. IARC has identified ethylbenzene and naphthalene as possibly carcinogenic to humans (Group 2B) based on laboratory animal studies. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen.

OSHA Health Hazard Classification				OSHA Physical Hazard Classification			
Irritant	<input checked="" type="checkbox"/>	Sensitizer	<input type="checkbox"/>	Combustible	<input checked="" type="checkbox"/>	Explosive	<input type="checkbox"/>
Toxic	<input type="checkbox"/>	Highly Toxic	<input type="checkbox"/>	Flammable	<input type="checkbox"/>	Oxidizer	<input type="checkbox"/>
Corrosive	<input type="checkbox"/>	Carcinogenic	<input type="checkbox"/>	Compressed Gas	<input type="checkbox"/>	Organic Peroxide	<input type="checkbox"/>
						Pyrophoric	<input type="checkbox"/>
						Water-reactive	<input type="checkbox"/>
						Unstable	<input type="checkbox"/>

SECTION 4. FIRST AID MEASURES

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

Inhalation	Move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If breathing is difficult, 100 percent humidified oxygen should be administered by a qualified individual. Seek medical attention immediately. Keep the affected individual warm and at rest.
Eye Contact	Check for and remove contact lenses. Flush eyes with cool, clean, low-pressure water for at least 15 minutes while occasionally lifting and lowering eyelids. Do not use eye ointment unless directed to by a physician. Seek medical attention if excessive tearing, irritation, or pain persists.
Skin Contact	Remove contaminated shoes and clothing. Flush affected area with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. Do not use ointments. If skin surface is not damaged, clean affected area thoroughly with mild soap and water. Seek medical attention if tissue appears damaged or if pain or irritation persists.
Ingestion	Do not induce vomiting. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. Never give anything by mouth to a person who is not fully conscious. Do not leave victim unattended. Seek medical attention immediately.
Notes to Physician	<p>INHALATION: Inhalation overexposure can produce toxic effects. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for upper respiratory tract inflammation, bronchitis, and pneumonitis. Administer supplemental oxygen with assisted ventilation, as required.</p> <p>INGESTION: If ingested, this material presents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended. Consider activated charcoal and/or gastric lavage. If patient is obtunded, protect the airway by cuffed endotracheal intubation or by placement of the body in a Trendelenburg and left lateral decubitus position.</p>

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades**SECTION 5. FIRE FIGHTING MEASURES**

NFPA Flammability Classification	NFPA Class-II combustible liquid.
Flash Point	Closed cup: AP 52°C (AP 125°F). (Pensky-Martens.)
Lower Flammable Limit	AP 0.8 %
Upper Flammable Limit	AP 7.5 %
Autoignition Temperature	>254°C (>489°F)
Hazardous Combustion Products	Carbon dioxide, carbon monoxide, smoke, fumes, unburned hydrocarbons and oxides of sulfur and nitrogen.
Special Properties	Combustible Liquid! This material releases vapors when heated above ambient temperatures. Vapors can cause a flash fire. Vapors can travel to a source of ignition and flashback. A vapor and air mixture can create an explosion hazard in confined spaces such as sewers. Use only with adequate ventilation. If container is not properly cooled, it can rupture in the heat of a fire.
Extinguishing Media	SMALL FIRE: Use dry chemicals, carbon dioxide, foam, water fog, or inert gas (nitrogen). LARGE FIRE: Use foam, water fog, or water spray. Water fog and spray are effective in cooling containers and adjacent structures. However, water can cause frothing and/or may not extinguish the fire. Water can be used to cool the external walls of vessels to prevent excessive pressure, autoignition or explosion. DO NOT use a solid stream of water directly on the fire as the water may spread the fire to a larger area.
Protection of Fire Fighters	Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles. Cover pooling liquid with foam. Containers can build pressure if exposed to radiant heat; cool adjacent containers with flooding quantities of water until well after the fire is out. Withdraw immediately from the area if there is a rising sound from a venting safety device or discoloration of vessels, tanks, or pipelines. Be aware that burning liquid will float on water. Notify appropriate authorities if liquid enter sewers or waterways.

SECTION 6. ACCIDENTAL RELEASE MEASURES

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

Combustible Liquid! Release can result in a fire hazard. Evacuate all non-essential personnel from release area. Establish a regulated zone with site control and security. Eliminate all ignition sources. Stop the leak if it can be done without risk. A vapor-suppressing foam may be used to reduce vapors. Properly bond or ground all equipment used when handling this material. Avoid skin contact. Do not walk through spilled material. Verify that responders are properly trained and wearing appropriate personnel protective equipment. Dike far ahead of a liquid spill. Do not allow released material to enter waterways, sewers, basements, or confined areas. This material will float on water. Absorb or cover with dry earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material. Place spent sorbent materials, free liquids and other clean-up debris into proper waste containers for appropriate disposal. Certain releases must be reported to the National Response Center (800/424-8802) and state or regulatory authorities. Comply with all laws and regulations.

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades**SECTION 7. HANDLING AND STORAGE**

Handling**Combustible Liquid**

A static electrical charge can accumulate when this material is flowing through pipes, nozzles or filters and when it is agitated. A static spark discharge can ignite accumulated vapors particularly during dry weather conditions. Always bond receiving containers to the fill pipe before and during loading. Always keep nozzle in contact with the container throughout the loading process. Do not fill any portable container in or on a vehicle. Special precautions, such as reduced loading rates and increased monitoring, must be observed during "switch loading" operations (i.e., loading this material in tanks or shipping compartments that previously containing gasoline or similar low flash point products).

Fire hazard increases as product temperature approaches its flash point. Keep container closed and drum bungs in place. Remove spillage immediately from walking areas. Do not handle or store near heat, sparks or other potential ignition sources. Do not handle or store with oxidizing agents. Avoid breathing mist or vapor. Never siphon by mouth. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Use gloves constructed of impervious materials and protective clothing if direct contact is anticipated. Provide ventilation to maintain exposure potential below applicable exposure levels. Avoid water contamination. Wash thoroughly after handling. Prevent contact with food or tobacco products.

When performing repairs and maintenance on contaminated equipment, keep unnecessary persons from hazard area. Eliminate heat, flame and other potential ignition sources. Drain and purge equipment, as necessary, to remove material residues. Remove contaminated clothing. Wash exposed skin thoroughly with soap and water after handling.

Do not use this material as fuel for equipment, such as portable heaters, in enclosed areas. Hazardous combustion products can cause death.

Protect the environment from releases of this material. Prevent discharges to surface waters and groundwater. Maintain handling and transfer equipment in proper working order.

Misuse of empty containers can be dangerous. Empty containers may contain material residues which can ignite with explosive force. Cutting or welding of empty containers can cause fire, explosion, or release of toxic fumes from residues. Do not pressurize or expose empty containers to open flame, sparks, or heat. Keep container closed and drum bungs in place. All label warnings and precautions must be observed. Return empty drums to a qualified reconditioner. Consult appropriate federal, state and local authorities before reusing, reconditioning, reclaiming, recycling, or disposing of empty containers and/or waste residues of this material.

Storage

Store in a cool, dry, well-ventilated place. Keep containers tightly closed. Do not store this product near heat, flame or other potential ignition sources. Do not store with oxidizers. Do not store this product in unlabeled containers. Do not puncture or incinerate containers. Ground all equipment containing this material. All electrical equipment in areas where this material is stored or handled must meet all applicable requirements of the NFPA's National Electrical Code (NEC). Store and transport in accordance with all applicable laws.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor or mists below the applicable workplace exposure limits indicated below. All electrical equipment should comply with the National Electric Code. An emergency eye wash station and safety shower should be located near the work-station.

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Personal Protective Equipment

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



Eye Protection

Safety glasses equipped with side shields are recommended as minimum protection in industrial settings. Chemical goggles should be worn during transfer operations or when there is a likelihood of misting, splashing, or spraying of this material. Suitable eye wash water should be readily available.

Hand Protection

Avoid skin contact. Use gloves (e.g., disposable PVC, neoprene, nitrile, vinyl, or PVC/NBR). Wash hands with plenty of mild soap and water before eating, drinking, smoking, use of toilet facilities or leaving work. DO NOT use gasoline, kerosene, solvents or harsh abrasives as skin cleaners.

Body Protection

Avoid skin contact. Wear long-sleeved fire-retardant garments (e.g., Nomex®) while working with flammable and combustible liquids. Additional chemical-resistant protective gear may be required if splashing or spraying conditions exist. This may include an apron, boots and additional facial protection. If product comes in contact with clothing, immediately remove soaked clothing and shower. Promptly remove and discarded contaminated leather goods.

Respiratory Protection

Airborne concentration will determine the level of respiratory protection required. Respiratory protection is normally not required unless the product is heated or misted. For known or anticipated vapor or mist concentrations above the occupational exposure guidelines (see below), use a NIOSH-approved organic vapor respirator equipped with a dust/mist prefilter if adequate protection is provided. For unknown vapor concentrations or concentrations exceeding respirator protection factors, use a positive-pressure, pressure-demand, self-contained breathing apparatus (SCBA). Due to fire and explosion hazards, do not enter atmospheres containing concentrations greater than 20% of the lower flammable limit under any circumstances. Protection factors vary depending upon the type of respirator used. Respirators should be used in accordance with OSHA requirements (29 CFR 1910.134).

General Comments

Warning! Use of this material in spaces without adequate ventilation may result in generation of hazardous levels of combustion products and/or inadequate oxygen levels for breathing. Odor is an inadequate warning for hazardous conditions.

Occupational Exposure Guidelines

Substance	Applicable Workplace Exposure Levels
Diesel Fuel No. 2	ACGIH TLV (United States). Skin TWA: 100 mg/m ³ 8 hour(s).
Kerosene	NIOSH REL (United States). TWA: 100 mg/m ³ 8 hour(s).
Nonane, all isomers	ACGIH (United States). TWA: 200 ppm 8 hour(s).
Trimethylbenzenes, all isomers	ACGIH (United States). TWA: 25 ppm 8 hour(s).
Naphthalene	ACGIH (United States). Skin TWA: 10 ppm 8 hour(s). STEL: 15 ppm 15 minute(s).
Biphenyl (Diphenyl)	OSHA (United States). TWA: 10 ppm 8 hour(s). ACGIH TLV (United States).

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Ethylbenzene

TWA: 0.2 ppm 8 hour(s).
 OSHA PEL Z2 (United States).
 TWA: 0.2 ppm 8 hour(s).
 ACGIH (United States).
 TWA: 100 ppm 8 hour(s).
 STEL: 125 ppm 15 minute(s).
 OSHA (United States).
 TWA: 100 ppm 8 hour(s).

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES (TYPICAL)

Physical State	Liquid.	Color	Transparent, clear to yellow or red.	Odor	Characteristic, kerosene-like.
Specific Gravity	0.84 (Water = 1)	pH	Not Applicable.	Vapor Density	5.1 (Air = 1)
Boiling Range	154° C (309° F) to 371° C (700° F)			Melting/Freezing Point	Not available.
Vapor Pressure	0.3 kPa (2.1 mmHg) (at 20°C)			Volatility	840 g/l VOC (W/V)
Solubility in Water	Very slightly soluble in cold water.			Viscosity (cSt @ 40°C)	AP 3
Additional Properties	Density = 7.2 lbs/gal.				

SECTION 10. STABILITY AND REACTIVITY

Chemical Stability	Stable.	Hazardous Polymerization	Not expected to occur.
Conditions to Avoid	Keep away from all ignition sources and strong oxidizing conditions.		
Materials Incompatibility	Strong acids, alkalis, and oxidizers such as liquid chlorine, other halogens, hydrogen peroxide and oxygen.		
Hazardous Decomposition Products	No additional hazardous decomposition products were identified other than the combustion products identified in Section 5 of this MSDS.		

SECTION 11. TOXICOLOGICAL INFORMATION

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

Toxicity Data	<p>Diesel Fuel No. 2: ORAL LD50, Acute: 12,000 to 17,500 mg/kg or 9.0 ml/kg [Rat] DERMAL LD50, Acute: >5.0 ml/kg [Rabbit screen level]. DRAIZE EYE, Acute: Mild irritant [Rabbit] DRAIZE DERMAL, Acute: Severe skin irritant [Rabbit]. BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig] 14-Day DERMAL, Sub-chronic: 0% and 67% mortality at 4.0 and 8.0 ml/kg [Rabbit] 62-Week DERMAL, Chronic: 0.05 ml/kg 3x/week [Mouse] - Extreme skin irritation. 97-Week DERMAL, Chronic: 243 g/kg applied 3x/week [Mouse] - Extreme skin irritation. Moderate increase in contact-point skin tumors. MUTAGENICITY: Modified Ames Assay: Negative. [Salmonella typhimurium]</p>
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In-vitro SCE Ovary Assay: Negative. [Chinese Hamster]
 In-vitro Lymphoma Assay: Negative. [Mouse]
 In-vivo Dominant Lethal Assay: Negative. [Mouse]
 In-vivo Bone Marrow Assay: Clastogenic at 2.0 ml/kg and 6.0 ml/kg [Rat]

Diesel exhaust particulate:

Lung tumor and lymphomas were identified in rats and mice exposed to unfiltered diesel fuel exhaust in chronic inhalation studies. Further, epidemiological studies have identified increase incidences of lung cancer in US railroad workers and bladder cancer in bus and truck drivers possibly associated with exposure to diesel engine exhaust. NTP has determined that exposure to diesel exhaust particulates, a complex mixture of combustion products of diesel fuel, is reasonably anticipated to be a human carcinogen. In addition, NIOSH has identified complete diesel exhaust as a potential carcinogen.

Middle distillates, petroleum:

Long-term repeated (lifetime) skin exposure to similar materials has been reported to result in an increase in skin tumors in laboratory rodents. The relevance of these findings to humans is not clear at this time.

Hydrodesulfurized Middle Distillate (petroleum):

INHALATION LC50, Acute: 4.6 to 7.64 mg/L for four hours [Rat] - Dyspnea, nasal discharge, alopecia and excessive salivation.
 ORAL LD50, Acute >500 g/kg [Rat Screening Level] Diarrhea, hyperactivity, ptosis and somnolence.
 DERMAL LD50, Acute: >2,000 mg/kg [Rabbit Screening Level]
 BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
 14-Day DERMAL, Subchronic: 0.05 ml/kg applied 3 times per week [Mouse, Human skin grafted to Athymic nude Mice] - Irritation and epidermal hyperplasia.
 62-Week DERMAL, Chronic: 0.05 ml/kg applied 3 times per week [Mouse] - Extreme skin irritation; moderate increase in contact-point skin tumors.

Straight-run Middle Distillate (Petroleum):

INHALATION, LC50, Acute: 1.72 mg/L for four hours [Male Rat].
 INHALATION, LC50, Acute: 4.82 mg/L for 4 hours [Female Rat].
 ORAL, LD50, Acute: >5,000 mg/kg [Rat screening level] - Diarrhea, hypoactivity and somnolence.
 DERMAL, LD50, Acute: >2,000 mg/kg [Rabbit screen].
 BUEHLER DERMAL, Acute: Non-sensitizing [Guinea Pig].
 28-Day DERMAL, Subchronic: Moderate irritation at 200 to 2,000 mg/kg with no other treatment-related clinical effects observed.

Kerosene:

ORAL (LD50): Acute: 2835 mg/kg [Rabbit], >5000 mg/kg [Rat].
 DERMAL (LD50): Acute: 2000 mg/kg [Rabbit].
 INHALATION (LC50):
 (PARTICULATE): Acute: >5000 mg/m³ 4 hour(s) [Rat].

Trimethylbenzenes, all isomers:

The TClO for humans is 10 ppm, with somnolence and respiratory tract irritation noted. In inhalation studies with rats, four of ten animals died after exposures of 2400 ppm for 24 hours. An oral dose of 5 mL/kg resulted in death in one of ten rats. Minimum lethal intraperitoneal doses were 1.5 to 2.0 mL/kg in rats and 1.13 to 12 mL/kg in guinea pigs. Levels of total hydrocarbon vapors present in the breathing atmosphere of these workers ranged from 10 to 60 ppm. Mesitylene (1, 3, 5 Trimethylbenzene) inhalation at concentrations of 1.5, 3.0, and 6.0 mg/L for six hours was associated with dose-related changes in white blood cell counts in rats. No significant effects on the complete blood count were noted with six hours per day exposure for five weeks, but elevations of alkaline phosphatase and SGOT were observed. Central nervous system depression and ataxia were noted in rats exposed to 5,100 to 9,180 ppm for two hours.

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Naphthalene:

ORAL (LD50): Acute: 1800 mg/kg [Rat]. 533 mg/kg [Mouse].

DERMAL (LD50): Acute: 969 mg/kg [Mouse].

INHALATION (LC50): Acute: >340 mg/m³ 1 hour(s) [Rat].

Naphthalene is a potential irritant to eyes, skin and respiratory system. Ingestion of naphthalene has been associated with severe red blood cell and liver damage. With prolonged or repeated exposures, naphthalene was associated with cataracts, optical neuritis, hemolytic and aplastic anemia, jaundice and possibly neurotoxicity. In animal studies, naphthalene associated with fetal effects and decreased spleen weights in pregnant female mice. In an NTP sponsored study, naphthalene produced a dose related increase in tumors at the 30 and 60 ppm exposure level in both male and female rats. Higher incidences of respiratory epithelial adenomas, olfactory epithelial neuroblastomas and non-neoplastic lesions of the nose were observed as compared to controls. Cytogenic studies with Chinese hamster ovary cells have demonstrated sister chromatid exchanges and chromosomal aberrations. The relevance of these studies to human health is unclear. Based upon this data, IARC has designated naphthalene as possibly carcinogenic to humans (Group 2B).

Biphenyl (Diphenyl):

INHALATION, TCLo, Acute: 4,400 ug/m³ for 4 hours [Human] - Flaccid paralysis of peripheral nerves without anesthesia and nausea or vomiting.

ORAL, LD50, Acute: >2,600 mg/kg [Cat screening level].

ORAL, LD50, Acute: 2,400 mg/kg [Rat and Rabbit].

ORAL, LD50, Acute: 1,900 mg/kg [Mouse] - Somnolence, hypermotility and diarrhea.

DERMAL, LD50, Acute: >5,010 mg/kg [Rabbit screening level].

Ethylbenzene:

ORAL (LD50): Acute: 3,500 mg/kg [Rat].

DERMAL (LD50): Acute: 17,800 uL/kg [Rabbit].

INTRAPERITONEAL (LD50): Acute: 2,624 mg/kg [Rat].

NTP completed a 2-year inhalation bioassay of ethylbenzene in rodents. The study was conducted in rats and mice at exposure concentrations of 0, 75, 200 and 750 ppm. No significant effects were observed at the 75 and 200 ppm levels. However, compared to chamber controls, the severity of nephropathy was increased in rats at the 750 ppm level; and male rats had higher incidences of renal tubule carcinomas. Step section analyses of the kidneys found a significant increase hyperplasia and renal tubule adenomas in both male and female rats. Also at this 750 ppm level, male mice had a higher incidence of alveolar/bronchiolar adenomas and carcinomas and female mice had increased hepatocellular adenomas and carcinomas when compared to chamber controls. Also, hyperplasia was observed in the thyroid gland of both sexes of mice and in the pituitary gland of female mice. The relevance of these findings to human health is unclear. Based upon this data, IARC has designated ethylbenzene as possibly carcinogenic to humans (Group 2B).

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Freshwater Toxicity:

Concentration: 2400 ppm Exposure: 48 hrs. Species: Juven. Am. Shad (*Aquasilius caphalus*) Assay: TLM

Concentration: >127 ppm Exposure: 98 hrs. Species: Bluegill (*Lepomis macrochirus*) Assay: LC50

Saltwater Toxicity

Concentration: 10 ppm Exposure: 96 hrs. Species: Menhaden (*Brevoortia patronus*) Assay: LC50

Concentration: 10 ppm Exposure: 96 hrs. Species: Grass Shrimp Assay: LC50

Environmental Fate

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If spilled, this material will normally evaporate. Hydrocarbon components may contribute to atmospheric smog. If released to the subsolls, petroleum middle distillate fuels will strongly adsorb to soils. Groundwater should be considered as an exposure pathway. Liquid and vapor can migrate through the subsurface and preferential pathways (such as utility line backfill) to downgradient receptors.

Middle distillates are potentially toxic to freshwater and saltwater ecosystems. Distillate fuels will normally float on water. In stagnant or slow-flowing waterways, a hydrocarbon layer can cover a large surface area. As a result, this oil layer can limit or eliminate natural atmospheric oxygen transport into the water. With time, if not removed, oxygen depletion in the waterway can cause a fish kill or create an anaerobic environment. Also, this coating action can also kill plankton, algae, and water birds.

SECTION 13. DISPOSAL CONSIDERATIONS

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

Maximize material recovery for reuse or recycling. Recovered non-usable material may be regulated by US EPA as a hazardous waste due to its ignitibility (D001) and/or its toxic (D018) characteristics. In addition, conditions of use may cause this material to become a hazardous waste, as defined by Federal or State regulations. It is the responsibility of the user to determine if the material is a hazardous waste at the time of disposal. Transportation, treatment, storage, and disposal of waste material must be conducted in accordance with RCRA regulations (see 40 CFR Parts 260 through 271). State and/or local regulations might be even more restrictive. Contact the RCRA/Superfund Hotline at (800) 424-9346 or your regional US EPA office for guidance concerning case specific disposal issues.

SECTION 14. TRANSPORT INFORMATION

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

US DOT Status	A U.S. Department of Transportation (DOT) regulated material. The following U. S. DOT hazardous materials shipping description applies to bulk packaged material that is transported by highway or rail. Alternate shipping descriptions may be required for product transported by marine vessel, air or other method and for non-bulk packaged material.		
Proper Shipping Name	Diesel Fuel, Combustible liquid, NA1993, PG III		
Hazard Class	DOT Class: Combustible liquid with a flash point greater than 37.8°C (100°F).	Packing Group(s)	III
		UN/NA Number	NA 1993 or UN 1202
Reportable Quantity	A Reportable Quantity (RQ) has not been established for this material.		
Placard(s)		Emergency Response Guide No.	128
		HAZMAT STCC No.	49 122 12
		MARPOL III Status	Not a DOT "Marine Pollutant" per 49 CFR 171.8.

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SECTION 15. REGULATORY INFORMATION

TSCA Inventory	This product and/or its components are listed on the Toxic Substances Control Act (TSCA) Inventory.
SARA 302/304 Emergency Planning and Notification	The Superfund Amendments and Reauthorization Act of 1988 (SARA) Title III requires facilities subject to Subparts 302 and 304 to submit emergency planning and notification information based on Threshold Planning Quantities (TPQs) and Reportable Quantities (RQs) for "Extremely Hazardous Substances" listed in 40 CFR 302.4 and 40 CFR 355. No components were identified.
SARA 311/312 Hazard Identification	The Superfund Amendments and Reauthorization Act of 1988 (SARA) Title III requires facilities subject to this subpart to submit aggregate information on chemicals by "Hazard Category" as defined in 40 CFR 370.2. This material would be classified under the following hazard categories: Fire, Acute (Immediate) Health Hazard, Chronic (Delayed) Health Hazard
SARA 313 Toxic Chemical Notification and Release Reporting	This product contains the following components in concentrations above de minimis levels that are listed as toxic chemicals in 40 CFR Part 372 pursuant to the requirements of Section 313 of SARA: Naphthalene [CAS No.: 91-20-3] Concentration: 0 - 2% 1, 2, 4 Trimethylbenzene [CAS No.: 95-63-6] Concentration: 0 - 1%
CERCLA	The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center concerning release of quantities of "hazardous substances" equal to or greater than the reportable quantities (RQ's) listed in 40 CFR 302.4. As defined by CERCLA, the term "hazardous substance" does not include petroleum, including crude oil or any fraction thereof which is not otherwise specifically designated in 40 CFR 302.4. Chemical substances present in this product or refinery stream that may be subject to this statute are: Naphthalene [CAS No.: 91-20-3] RQ = 100 lbs. (45.36 kg) Concentration: 0 - 2% Cumene [CAS No.: 98-82-8] RQ = 5000 lbs. (2268 kg) Concentration: 0 - 1%
Clean Water Act (CWA)	This material is classified as an oil under Section 311 of the Clean Water Act (CWA) and the Oil Pollution Act of 1990 (OPA). Discharges or spills which produce a visible sheen on waters of the United States, their adjoining shorelines, or into conduits leading to surface waters must be reported to the EPA's National Response Center at (800) 424-8802.
California Proposition 65	This material may contain the following components which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): Diesel exhaust particulate (following combustion) Naphthalene: 0 - 2% Toluene: <0.05% Benzene: <0.05%
New Jersey Right-to-Know Label	Diesel Fuel
Additional Regulatory Remarks	As minimum requirements, CITGO recommends that the following advisory information be displayed on equipment used to dispense diesel fuel. Additional warnings specified by various regulatory authorities may be required: "Diesel Fuel DANGER: Combustible Liquid. Use as a Motor Fuel Only. DO NOT FILL CONTAINERS THAT HAVE PREVIOUSLY CONTAINED GASOLINE OR OTHER FLAMMABLE LIQUIDS. Sparks From static electricity can ignite flammable vapor residues. PLACE CONTAINER ON GROUND. DO NOT FILL ANY PORTABLE CONTAINER IN OR ON A VEHICLE. Containers must be metal or other material approved for storing diesel fuel. Keep nozzle spout in contact with the container during the entire filling operation. NO SMOKING! Do not leave nozzle unattended during filling. HARMFUL OR FATAL IF SWALLOWED. If swallowed, do not induce vomiting. Call Physician immediately. Keep Out of Reach of Children. Avoid prolonged breathing of vapors.

CITGO No. 2 Diesel Fuel, Low Sulfur, All Grades

Never siphon by mouth. Do not store in vehicle or living space. Store and use in a well ventilated area. Do not use near heat, spark or flame. Keep container closed."

SECTION 16. OTHER INFORMATION

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

REVISION INFORMATION

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ABBREVIATIONS

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

DISCLAIMER OF LIABILITY

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