



Material Safety Data Sheet

MSDS ID NO.: 0137SPE012
Revision date: 05/25/2011

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Product name: Speedway E85
Synonym: Speedway ED75/ED85; E-75; E75; E-85; E85; Ethanol/Gasoline Fuel Blend; Fuel Ethanol ED75/ED85
Chemical Family: Gasoline/Ethanol
Formula: Mixture

Manufacturer:
Speedway LLC
P.O. Box 1500
Enon, OH 45501

Other information: 419-421-3070
Emergency telephone number: 877-627-5463

2. COMPOSITION/INFORMATION ON INGREDIENTS

E85 is a mixture of ethyl alcohol and gasoline that is approved for use in an automobile spark ignition engine. Can contain small amounts of dye and other additives (>0.02%) which are not considered hazardous at the concentrations used.

Product information:

| Name | CAS Number | Weight % | ACGIH Exposure Limits: | OSHA - Vacated PELs - Time Weighted Ave | Other: |
|--------------|------------|----------|------------------------|---|--------|
| Speedway E85 | Mixture | 100 | | | |

Component Information:

| Name | CAS Number | Weight % | ACGIH Exposure Limits: | OSHA - Vacated PELs - Time Weighted Ave | Other: |
|---------------|------------|----------|------------------------|---|--------|
| Ethyl Alcohol | 64-17-5 | 75-85 | 1000 ppm STEL | =1000 ppm TWA 1900 mg/m ³ TWA | |

| Name | CAS Number | Weight % | ACGIH Exposure Limits: | OSHA - Vacated PELs - Time Weighted Ave | Other: |
|--------------------------|------------|----------|---|--|--|
| Gasoline | Mixture | 15-25 | =300 ppm TWA; =500 ppm STEL | | |
| Saturated Hydrocarbons | Mixture | 8.3-21 | | | |
| Aromatic Hydrocarbons | Mixture | 1.5-10 | | | |
| Toluene | 108-88-3 | .2-3.8 | 20 ppm TWA | = 100 ppm TWA = 375 mg/m ³ TWA = 150 ppm STEL = 560 mg/m ³ STEL | |
| Unsaturated Hydrocarbons | Mixture | 0.2-3.8 | | | |
| Xylene | 1330-20-7 | .3-2.5 | 100 ppm TWA 150 ppm STEL | = 100 ppm TWA = 435 mg/m ³ TWA = 150 ppm STEL = 655 mg/m ³ STEL | |
| 1,2,4-Trimethylbenzene | 95-63-6 | .2-1.3 | = 25 ppm TWA | = 125 mg/m ³ TWA = 25 ppm TWA | |
| Benzene | 71-43-2 | 0.1-0.9 | Skin - potential significant contribution to overall exposure by the cutaneous route 0.5 ppm TWA 2.5 ppm STEL | = 25 ppm Ceiling = 10 ppm TWA = 50 ppm STEL | OSHA Exposure Limit as specified in 1910.1028: =1.0 ppm TWA = 5 ppm STEL = 0.5 ppm Action Level |
| Hexane | 110-54-3 | 0-75 | Skin - potential significant contribution to overall exposure by the cutaneous route 50 ppm TWA | = 180 mg/m ³ TWA = 50 ppm TWA | |
| Ethyl Benzene | 100-41-4 | 0.1-0.5 | 100 ppm TWA 125 ppm STEL | = 100 ppm TWA = 435 mg/m ³ TWA = 125 ppm STEL = 545 mg/m ³ STEL | |
| Naphthalene | 91-20-3 | 0-.13 | Skin - potential significant contribution to overall exposure by the cutaneous route 10 ppm TWA 15 ppm STEL | = 10 ppm TWA = 50 mg/m ³ TWA = 15 ppm STEL = 75 mg/m ³ STEL | |

Notes:

The manufacturer has voluntarily elected to reflect exposure limits contained in OSHA's 1989 air contaminants standard in its MSDS's, even though certain of those exposure limits were vacated in 1992.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER!

FUMES MAY CAUSE EYE AND RESPIRATORY IRRITATION.
MAY BE HARMFUL OR FATAL IF SWALLOWED
MAY CAUSE LUNG DAMAGE
OVEREXPOSURE MAY CAUSE CNS DEPRESSION
BREATHING HIGH CONCENTRATIONS CAN CAUSE IRREGULAR HEARTBEATS WHICH MAY BE FATAL

DANGER - CONTAINS BENZENE - MAY CAUSE CANCER
POTENTIAL REPRODUCTIVE HAZARD
SEE TOXICOLOGICAL INFORMATION SECTION FOR MORE INFORMATION

EXTREMELY FLAMMABLE LIQUID AND VAPOR
VAPOR MAY CAUSE FLASH FIRE OR EXPLOSION
MATERIAL MAY ACCUMULATE STATIC CHARGE

STABLE

Inhalation:

Breathing high concentrations may be harmful.

May cause central nervous system depression or effects. Symptoms may include headache, excitation, euphoria, dizziness, incoordination, drowsiness, light-headedness, blurred vision, fatigue, tremors, convulsions, loss of consciousness, coma, respiratory arrest and death, depending on the concentration and duration of exposure.

Breathing high concentrations of this material, for example, in a confined space or by intentional abuse, can cause irregular heartbeats which can cause death. See Toxicological Effects (Section 11) for more information.

Ingestion:

Swallowing this material may be harmful.

May cause irritation of the mouth, throat and gastrointestinal tract.

May cause central nervous system depression or effects. Symptoms may include salivation, pain, nausea, vomiting and diarrhea. Exposure may also cause central nervous system symptoms similar to those listed under "Inhalation" (see Inhalation section).

Skin contact:

Contact may cause reddening, itching and inflammation.

Skin contact may cause harmful effects in other parts of the body.

Eye contact:

Contact may cause pain and severe reddening and inflammation of the conjunctiva.

Effects may become more serious with repeated or prolonged contact.

Carcinogenic Evaluation:

Product information:

| Name | IARC Carcinogens: | NTP Carcinogens: | ACGIH - Carcinogens: | OSHA - Select Carcinogens: |
|-------------------------|----------------------|---------------------|-------------------------|-------------------------------|
| Speedway E85 Mixture | NE | | | |

Notes:

The International Agency for Research on Cancer (IARC) has determined that there is inadequate evidence for the carcinogenicity of gasoline in humans. IARC determined that limited evidence of carcinogenicity in animals exists. IARC's overall evaluation of gasoline, in spite of limited carcinogenicity evidence, has resulted in the IARC designation of gasoline as possibly carcinogenic to humans (Group 2B) because gasoline contains benzene.

IARC has determined that there is inadequate evidence for the carcinogenicity of gasoline engine exhaust in humans or animals. However, IARC's overall evaluation on gasoline engine exhaust, in spite of the absence of carcinogenicity data, has resulted in the IARC designation of gasoline engine exhaust as possibly carcinogenic to humans (Group 2B) because of the presence of certain engine exhaust components.

Component Information:

| Name | IARC Carcinogens: | NTP Carcinogens: | ACGIH - Carcinogens: | OSHA - Select Carcinogens: |
|---------------------------|---|--|---|----------------------------|
| Ethyl Alcohol 64-17-5 | A2-Possible Human Carcinogen | male mice-inadequate; female mice-inadequate | A4 - Not Classifiable as a Human Carcinogen | Present |
| Toluene 108-88-3 | | male rat-no evidence; female rat-no evidence; male mice-no evidence; female mice-no evidence | A4 - Not Classifiable as a Human Carcinogen | |
| Xylene 1330-20-7 | | male rat-no evidence; female rat-no evidence; male mice-no evidence; female mice-no evidence | A4 - Not Classifiable as a Human Carcinogen | |
| Benzene 71-43-2 | Supplement 7 [1987], Monograph 29 [1982] | Known Human Carcinogen male rat-clear evidence; female rat-clear evidence; male mice-clear evidence; female mice-clear evidence | A1 - Confirmed Human Carcinogen | Present |
| Ethyl Benzene 100-41-4 | Monograph 77 [2000] | male rat-clear evidence; female rat-some evidence; male mice-some evidence; female mice-some evidence | A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans | Present |
| Naphthalene 91-20-3 | Monograph 82 [2002] | Reasonably Anticipated To Be A Human Carcinogen male rat-clear evidence; female rat-clear evidence; male mice-no evidence; female mice-some evidence | A4 - Not Classifiable as a Human Carcinogen | Present |

Notes:

The International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), and OSHA have determined that there is sufficient evidence for the carcinogenicity of benzene in humans (Group 1A).

The International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence for the carcinogenicity of alcoholic beverages (ethanol) in humans (Group 1).

The International Agency for Research on Cancer (IARC) has concluded that ethyl benzene is possibly carcinogenic to humans (Group 2B).

The International Agency for Research on Cancer (IARC) and the Environmental Protection Agency (EPA) have determined that naphthalene is a possible human carcinogen.

4. FIRST AID MEASURES

Eye Contact:

Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. GET IMMEDIATE MEDICAL ATTENTION.

Skin Contact:

Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. Get medical attention if irritation persists. Place contaminated clothing in closed container until cleaned or discarded. If clothing is to be laundered, inform the person performing the operation of contaminant's hazardous properties.

Ingestion:

Do not induce vomiting because of danger of aspirating liquid into lungs, causing serious damage and chemical pneumonitis. If spontaneous vomiting occurs, keep head below hips to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Keep affected person warm and at rest.
GET IMMEDIATE MEDICAL ATTENTION.

Inhalation:

Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear and give oxygen. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). Keep affected person warm and at rest.
GET IMMEDIATE MEDICAL ATTENTION.

NOTES TO PHYSICIAN:

INHALATION: This material (or a component) sensitizes the myocardium to the effects of sympathomimetic amines. Epinephrine and other sympathomimetic drugs may initiate cardiac arrhythmias in individuals exposed to this material. Administration of sympathomimetic drugs should be avoided.

INGESTION: If ingested this material represents a significant aspiration and chemical pneumonitis hazard. Induction of emesis is not recommended.

Medical Conditions Aggravated By Exposure:

respiratory system, auditory system, blood (anemia), bone marrow, skin, liver, kidney,

5. FIRE FIGHTING MEASURES

Suitable extinguishing media:

For small fires, Class B fire extinguishing media such as CO₂, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Fire fighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Specific hazards:

This product has been determined to be a flammable liquid per the OSHA Hazard Communication Standard, and should be handled accordingly. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. For additional fire related information, see NFPA 30 or the North American Emergency Response Guide 127.

5. FIRE FIGHTING MEASURES

| | |
|---|---|
| Special protective equipment for firefighters: | Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid excessive water spray application. Water spray and foam (AFFF/ATC) must be applied carefully to avoid frothing and from as far a distance as possible. Keep run-off water out of sewers and water sources. |
| Flash point: | -50 to 55 F |
| Autoignition temperature: | C.A. 495 F |
| Flammable limits in air - lower (%): | 1.4 (Gasoline) |
| Flammable limits in air - upper (%): | 19.0 (Ethanol) |

NFPA rating:

Health: 1
Flammability: 3
Instability: 0
Other: -

6. ACCIDENTAL RELEASE MEASURES

| | |
|------------------------------|---|
| Personal precautions: | Keep public away. Isolate and evacuate area. Shut off source if safe to do so. Eliminate all ignition sources. Advise authorities and National Response Center (800-424-8802) if the product has entered a water course or sewer. Notify local health and pollution control agencies, if appropriate. Contain liquid with sand or soil. Recover and return free product to proper containers. Use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. |
|------------------------------|---|

7. HANDLING AND STORAGE

Handling:

Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements. Use appropriate grounding and bonding practices. Store in properly closed containers that are appropriately labeled and in a cool well-ventilated area. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues. Avoid skin contact. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water.

For use as a motor fuel only. Product should never be used as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal.

Portable containers of 12 gallons (45 liters) or less should never be filled while they are in or on a motor vehicle or marine craft. Static electric discharge can ignite fuel vapors when filling non-grounded containers or vehicles on trailers. Containers should be placed on the ground. The nozzle spout must be kept in contact with the container before and during the entire filling operation. Use only approved containers. A buildup of static electricity can occur upon re-entry into a vehicle during fueling especially in cold or dry climate conditions. The charge is generated by the action of dissimilar fabrics (i.e., clothing and upholstery) rubbing across each other as a person enters/exits the vehicle. A flash fire can result from this discharge if sufficient flammable vapors are present. Therefore, do not get back in your vehicle while refueling. Cellular phones and other electronic devices may have the potential to emit electrical charges (sparks). Sparks in potentially explosive atmospheres (including fueling areas such as gas stations) could cause an explosion if sufficient flammable vapors are present. Therefore, turn off cellular phones and other electronic devices when working in potentially explosive atmospheres or keep devices inside your vehicle during refueling.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

| | |
|----------------------------------|---|
| Engineering measures: | Local or general exhaust required in an enclosed area or when there is inadequate ventilation. |
| Respiratory protection: | Approved organic vapor chemical cartridge or supplied air respirators should be worn for exposures to any components exceeding the TWA or STEL. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 1910.134. Self-contained breathing apparatus should be used for fire fighting. |
| Skin and body protection: | Use nitrile rubber, viton or PVA gloves for repeated or prolonged skin exposure. |
| Eye protection: | No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields. |
| Hygiene measures: | No special protective clothing is normally required. Select protective clothing depending on industrial operations. Use mechanical ventilation equipment that is explosion-proof. |

9. PHYSICAL AND CHEMICAL PROPERTIES:

| | |
|---|--------------------|
| Appearance: | Clear Liquid |
| Physical state (Solid/Liquid/Gas): | Liquid |
| Substance type (Pure/Mixture): | Mixture |
| Color: | Clear or Colored |
| Odor: | Hydrocarbon |
| Molecular weight: | Not determined. |
| pH: | Neutral |
| Boiling point/range (5-95%): | 90-437 F |
| Melting point/range: | Not determined. |
| Decomposition temperature: | Not applicable. |
| Specific gravity: | 0.70-0.77 |
| Density: | 5.9-6.3 lbs/gal |
| Bulk density: | No data available. |
| Vapor density: | No data available. |
| Vapor pressure: | Not determined. |
| Evaporation rate: | No data available. |
| Solubility: | Not determined |
| Solubility in other solvents: | No data available. |
| Partition coefficient (n-octanol/water): | No data available. |
| VOC content(%): | 100% |
| Viscosity: | No data available. |

10. STABILITY AND REACTIVITY

| | |
|--|--|
| Stability: | The material is stable at 70 F, 760 mm pressure. |
| Polymerization: | Will not occur. |
| Hazardous decomposition products: | Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons. |
| Materials to avoid: | Strong oxidizers such as nitrates, chlorates, peroxides. |
| Conditions to avoid: | Excessive heat, sources of ignition, open flame. |

11. TOXICOLOGICAL INFORMATION

Acute toxicity:

Product information:

| Name | CAS Number | Inhalation: | Dermal: | Oral: |
|--------------|------------|-------------------|-------------------|-------------------|
| Speedway E85 | Mixture | No data available | No data available | No data available |

Toxicology Information:

BENZENE: Studies of Workers Overexposed to Benzene: Studies of workers exposed to benzene show clear evidence that overexposure can cause cancer and other diseases of the blood forming organs including Acute Myelogenous Leukemia (AML), and Aplastic Anemia (AA), an often fatal disease. Some studies suggest overexposure to benzene may also be associated with Myelodysplastic Syndrome (MDS). Findings from a Case-Control study of workers exposed to benzene was reported during the 2009 Benzene Symposium in Munich included an increase in Acute Myeloid Leukemias and Non-Hodgkins Lymphoid Neoplasms (NHLN) of the subtype follicular lymphoma (FL) in some occupational categories. Some studies of workers exposed to benzene have shown an association with increased rates of chromosome aberrations in circulating lymphocytes. One study of women workers exposed to benzene suggested a weak association with irregular menstruation. However, other studies of workers exposed to benzene have not demonstrated clear evidence of an effect on fertility or reproductive outcome in humans. Benzene can cross the placenta and affect the developing fetus. Cases of AA have been reported in the offspring of persons severely overexposed to benzene. Studies in laboratory animals indicate that prolonged, repeated exposure to high levels of benzene vapor can cause bone marrow suppression and cancer in multiple organ systems. Studies in laboratory animals show evidence of adverse effects on male reproductive organs following high levels of exposure but no significant effects on reproduction have been observed. Embryotoxicity has been reported in studies of laboratory animals but effects were limited to reduced fetal weight and minor skeletal variations. Benzene has been classified as a proven human carcinogen by OSHA and a Group 1 (Carcinogenic to Humans) material by IARC.

The current proposed IARC classification for benzene is summarized as follows: Sufficient evidence for Acute Myeloid Leukemia; limited evidence for Acute Lymphatic Leukemia, Chronic Lymphatic Leukemia, Non-Hodgkin Lymphoma, and Multiple Myeloma.

NAPHTHAS: In a large epidemiological study on over 15,000 employees at several petroleum refineries and amongst residents located near these refineries, no increased risk of kidney cancer was observed in association with gasoline exposures (a similar material). In a similar study, no increased risk of kidney cancer was observed among petroleum refinery workers, but there was a slight trend in the incidence of kidney cancers among service station employees, especially after a 30-year latency period.

ISOPARAFFINS: Studies in laboratory animals have shown that long-term exposure to similar materials (isoparaffins) can cause kidney damage and kidney cancer in male laboratory rats. However, in-depth research indicates that these findings are unique to the male rat, and that these effects are not relevant to humans.

TOLUENE: Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Abuse of toluene at high concentrations (e.g., glue sniffing and solvent abuse) has been associated with adverse effects on the liver, kidney and nervous system, and can cause CNS depression, cardiac arrhythmias, and death. Studies of workers indicate longterm exposure may be related to impaired color vision and hearing. Some studies of workers suggest longterm exposure may be related to neurobehavioral and cognitive changes. Some of these effects have been observed in laboratory animals following repeated exposure to high levels of toluene. Several studies of workers suggest longterm exposure may be related to small increases in spontaneous abortions and changes in some gonadotropic hormones. However, the weight of evidence does not indicate toluene is a reproductive hazard to humans. Studies in laboratory animals indicate some changes in reproductive organs following high levels of exposure, but no significant effects on mating performance or reproduction were observed. Case studies of persons abusing toluene suggest isolated incidences of adverse effects on the fetus including birth defects. Findings in laboratory animals have been largely negative. Positive findings include small increases in minor skeletal and visceral malformations and developmental delays following very high

levels of maternal exposure. Studies of workers indicate long-term exposure may be related to effects on the liver, kidney and blood, but these appear to be limited to changes in serum enzymes and decreased leukocyte counts. Adverse effects on the liver, kidney, thymus and nervous system were observed in animal studies following very high levels of exposure. The relevance of these findings to humans is not clear at this time.

ETHYLBENZENE: Findings from a 2-year inhalation study in rodents conducted by NTP were as follows: Effects were observed only at the highest exposure level (750 ppm). At this level the incidence of renal tumors was elevated in male rats (tubular carcinomas) and female rats (tubular adenomas). The incidence of tumors was also elevated in male mice (alveolar and bronchiolar carcinomas) and female mice (hepatocellular carcinomas). IARC has classified ethyl benzene as "possibly carcinogenic to humans" (Group 2B). Studies in laboratory animals indicate some evidence of post-implantation deaths following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals indicate limited evidence of renal malformations, resorptions, and developmental delays following high levels of maternal exposure. The relevance of these findings to humans is not clear at this time. Studies in laboratory animals have demonstrated evidence of ototoxicity (hearing loss) following exposure levels as low as 300 ppm for 5 days. Studies in laboratory animals indicate some evidence of adverse effects on the liver, kidney, thyroid, and pituitary gland.

XYLENES, ALL ISOMERS: Overexposure to xylene may cause upper respiratory tract irritation, headache, cyanosis, blood serum changes, CNS damage and narcosis. Effects may be increased by the use of alcoholic beverages. Evidence of liver and kidney impairment were reported in workers recovering from a gross overexposure. Effects from Prolonged or Repeated Exposure: Impaired neurological function was reported in workers exposed to solvents including xylene. Studies in laboratory animals have shown evidence of impaired hearing following high levels of exposure. Studies in laboratory animals suggest some changes in reproductive organs following high levels of exposure but no significant effects on reproduction were observed. Studies in laboratory animals indicate skeletal and visceral malformations, developmental delays, and increased fetal resorptions following extremely high levels of maternal exposure. The relevance of these observations to humans is not clear at this time. Adverse effects on the liver, kidney, bone marrow (changes in blood cell parameters) were observed in laboratory animals following high levels of exposure. The relevance of these observations to humans is not clear at this time.

C9 AROMATIC HYDROCARBONS: A developmental inhalation study was conducted in laboratory mice. Increased implantation losses, reduced fetal weights, delayed ossification and an increased incidence of cleft palate were observed at the highest exposure level (1,500 ppm). This exposure level was extremely toxic to pregnant female mice (44% mortality). Reduced fetal body weights were also observed at 500 ppm. A multi-generation reproduction inhalation study was conducted in laboratory rats. Reductions in pup weights, pup weight gain, litter size, and pup survival were observed at 1,500 ppm, an exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

NAPHTHALENE: Severe jaundice, neurotoxicity (kernicterus) and fatalities have been reported in young children and infants as a result of hemolytic anemia from overexposure to naphthalene. Persons with Glucose 6-phosphate dehydrogenase (G6PD) deficiency are more prone to the hemolytic effects of naphthalene. Adverse effects on the kidney have been reported in persons overexposed to naphthalene but these effects are believed to be a consequence of hemolytic anemia, and not a direct effect. Hemolytic anemia has been observed in laboratory animals exposed to naphthalene. Laboratory rodents exposed to naphthalene vapor for 2 years (lifetime studies) developed non-neoplastic and neoplastic tumors and inflammatory lesions of

the nasal and respiratory tract. Cataracts and other adverse effects on the eye have been observed in laboratory animals exposed to high levels of naphthalene. Findings from a large number of bacterial and mammalian cell mutation assays have been negative. A few studies have shown chromosomal effects (elevated levels of Sister Chromatid Exchange or chromosomal aberrations) in vitro. Naphthalene has been classified as Possibly Carcinogenic to Humans (2B) by IARC, based on findings from studies in laboratory animals.

N-HEXANE: Long-term or repeated exposure to n-hexane can cause peripheral nerve damage. Initial symptoms are numbness of the fingers and toes. Also, motor weakness can occur in the digits, but may also involve muscles of the arms, thighs and forearms. The onset of these symptoms may be delayed for several months to a year after the beginning of exposure. Testicular atrophy and partial to full loss of the germ cell line were observed in sub-chronic high-dose inhalation studies of laboratory rodents. These effects appeared irreversible. Rodent reproduction studies have shown evidence of reduced fetal weight but no frank malformations.

ETHANOL: Repeated ingestion of ethanol can result in alcohol abuse, causing behavioral changes, memory loss, impaired judgement, decreased appetite, irregular heartbeats, and decreased fertility. Prolonged and repeated ingestion of ethanol has also been associated with cancers of the mouth, pharynx, esophagus and liver. Ethanol ingestion by pregnant women can cause miscarriage, low birth weight, premature birth and fetal alcohol syndrome. In males, acute and chronic alcohol ingestion may affect gonadal hormone levels. It may also affect the liver, kidney, brain, blood and cardiovascular system.

CARBON MONOXIDE: is a chemical asphyxiant with no warning properties (such as odor). At 400-500 ppm for 1 hour headache and dyspnea may occur. If activity is increased, symptoms of overexposure may include nausea, irritability, increased respiration, tinnitus, sweating, chest pain, confusion, impaired judgement, dizziness, weakness, drowsiness, ataxia, irregular heart beat, cyanosis and pallor. Levels in excess of 1000 ppm can result in collapse, loss of consciousness, respiratory failure and death. Extremely high concentrations (12,800 ppm) can cause immediate unconsciousness and death in 1-3 minutes. Repeated anoxia can lead to central nervous system damage and peripheral neuropathy, with loss of sensation in the fingers, amnesia, and mental deterioration and possible congestive heart failure. Damage may also occur to the fetus, lung, liver, kidney, spleen, cardiovascular system and other organs.

COMBUSTION ENGINE EXHAUST: Chronic inhalation studies of gasoline engine exhaust in mice, rats and hamsters did not produce any carcinogenic effects. Condensates/extracts of gasoline engine exhaust produced an increase in tumors compared to controls when testing by skin painting, subcutaneous injection, intratracheal instillation or implantation into the lungs.

Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffers Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

TARGET ORGANS:

central nervous system, brain, peripheral nervous system, respiratory system, mucous membranes, auditory system, cardiovascular system, lungs, skin, eyes, heart, blood, bone marrow, reproductive organs, thymus,

12. ECOTOXICOLOGICAL INFORMATION

Mobility:

May partition into air, soil and water.

Ecotoxicity:

Toxic to aquatic organisms.

Bioaccumulation:

Not expected to bioaccumulate in aquatic organisms.

Persistence/Biodegradation:

Readily biodegradable in the environment. The presence of ethanol in this product may impede the biodegradation of benzene, toluene, ethylbenzene and xylene in groundwater, resulting in elongated plumes of these constituents.

13. DISPOSAL CONSIDERATIONS

Cleanup Considerations:

This product as produced is not specifically listed as an EPA RCRA hazardous waste according to federal regulations (40 CFR 261). However, when discarded or disposed of, it may meet the criteria of an "characteristic" hazardous waste. This product could also contain benzene at >0.5 ppm and could exhibit the characteristics of "toxicity" as determined by the toxicity characteristic leaching procedure (TCLP). This material could become a hazardous waste if mixed or contaminated with a hazardous waste or other substance(s). It is the responsibility of the user to determine if disposal material is hazardous according to federal, state and local regulations.

14. TRANSPORT INFORMATION

49 CFR 172.101:

DOT:

Transport Information: This material when transported via US commerce would be regulated by DOT Regulations.

| | |
|---------------------------------------|------------------------------|
| Proper shipping name: | Ethanol and Gasoline Mixture |
| UN/Identification No: | UN 3475 |
| Hazard Class: | 3 |
| Packing group: | II |
| DOT reportable quantity (lbs): | Not applicable. |

| | |
|------------------------------|------------------------------|
| Proper shipping name: | Ethanol and Gasoline Mixture |
| UN/Identification No: | UN 3475 |
| Hazard Class: | 3 |
| Packing group: | II |

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b):

This product and/or its components are listed on the TSCA Chemical Inventory.

OSHA Hazard Communication Standard:

This product has been evaluated and determined to be hazardous as defined in OSHA's Hazard Communication Standard.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302:

This product contains the following component(s) that have been listed on EPA's Extremely Hazardous Substance (EHS) List:

| Name | CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs |
|--------------------------|---|
| Ethyl Alcohol | NA |
| Gasoline | NA |
| Saturated Hydrocarbons | NA |
| Aromatic Hydrocarbons | NA |
| Toluene | NA |
| Unsaturated Hydrocarbons | NA |
| Xylene | NA |
| 1,2,4-Trimethylbenzene | NA |
| Benzene | NA |
| Hexane | NA |
| Ethyl Benzene | NA |
| Naphthalene | NA |

SARA Section 304:

This product contains the following component(s) identified either as an EHS or a CERCLA Hazardous substance which in case of a spill or release may be subject to SARA reporting requirements:

| Name | CERCLA/SARA - Hazardous Substances and their Reportable Quantities |
|--------------------------|--|
| Ethyl Alcohol | NA |
| Gasoline | NA |
| Saturated Hydrocarbons | NA |
| Aromatic Hydrocarbons | NA |
| Toluene | = 454 kg final RQ |
| Unsaturated Hydrocarbons | NA |
| Xylene | = 100 lb final RQ = 45.4 kg final RQ |
| 1,2,4-Trimethylbenzene | NA |
| Benzene | = 10 lb final RQ = 4.54 kg final RQ |
| Hexane | = 2270 kg final RQ = 5000 lb final RQ |
| Ethyl Benzene | = 1000 lb final RQ = 454 kg final RQ |
| Naphthalene | = 100 lb final RQ = 45.4 kg final RQ |

SARA Section 311/312

The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

SARA Section 313:

This product contains the following component(s) that may be subject to reporting on the Toxic Release Inventory (TRI) From R:

| Name | CERCLA/SARA 313 Emission reporting: |
|------|-------------------------------------|
|------|-------------------------------------|

| Name | CERCLA/SARA 313 Emission reporting: |
|--------------------------|-------------------------------------|
| Ethyl Alcohol | None |
| Gasoline | None |
| Saturated Hydrocarbons | None |
| Aromatic Hydrocarbons | None |
| Toluene | = 1.0 % de minimis concentration |
| Unsaturated Hydrocarbons | None |
| Xylene | = 1.0 % de minimis concentration |
| 1,2,4-Trimethylbenzene | = 1.0 % de minimis concentration |
| Benzene | = 0.1 % de minimis concentration |
| Hexane | = 1.0 % de minimis concentration |
| Ethyl Benzene | = 0.1 % de minimis concentration |
| Naphthalene | = 0.1 % de minimis concentration |

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

Ethyl Alcohol

| | |
|---|--|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | developmental toxicity, initial date 10/1/87 (when in alcoholic beverages) |
| New Jersey Right-To-Know: | sn 0844 |
| Pennsylvania Right-To-Know: | Present |
| Massachusetts Right-To Know: | Teratogen |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Toxic; Flammable |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | carcinogen; flammable - third degree; mutagen; teratogen |
| New Jersey - Environmental Hazardous Substances List: | Not Listed |
| Illinois - Toxic Air Contaminants | Not Listed |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | Not Listed |

Gasoline

| | |
|---|-------------|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | Not Listed. |
| Pennsylvania Right-To-Know: | Not Listed. |
| Massachusetts Right-To Know: | Not Listed. |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Not Listed |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | Not Listed |
| New Jersey - Environmental Hazardous Substances List: | Not Listed |
| Illinois - Toxic Air Contaminants | Not Listed |

| | |
|---|---|
| Ethyl Alcohol | |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | Not Listed |
| Saturated Hydrocarbons | |
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | Not Listed. |
| Pennsylvania Right-To-Know: | Not Listed. |
| Massachusetts Right-To Know: | Not Listed. |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Not Listed |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | Not Listed |
| New Jersey - Environmental Hazardous Substances List: | Not Listed |
| Illinois - Toxic Air Contaminants | Not Listed |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | Not Listed |
| Aromatic Hydrocarbons | |
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | Not Listed. |
| Pennsylvania Right-To-Know: | Not Listed. |
| Massachusetts Right-To Know: | Not Listed. |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Not Listed |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | Not Listed |
| New Jersey - Environmental Hazardous Substances List: | Not Listed |
| Illinois - Toxic Air Contaminants | Not Listed |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | Not Listed |
| Toluene | |
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | developmental toxicity, initial date 1/1/91 |
| New Jersey Right-To-Know: | sn 1866 |
| Pennsylvania Right-To-Know: | Environmental hazard |
| Massachusetts Right-To Know: | Present |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Toxic (skin); Flammable (skin) |
| Michigan critical materials register list: | = 100 lb Annual usage threshold |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |

Ethyl Alcohol

| | |
|---|--|
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | flammable - third degree; teratogen |
| New Jersey - Environmental Hazardous Substances List: | SN 1866 TPQ 500 lb |
| Illinois - Toxic Air Contaminants | Present |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | = 1 lb RQ land/water = 1000 lb RQ air |

Unsaturated Hydrocarbons

| | |
|---|-------------|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | Not Listed. |
| Pennsylvania Right-To-Know: | Not Listed. |
| Massachusetts Right-To Know: | Not Listed. |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Not Listed |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | Not Listed |
| New Jersey - Environmental Hazardous Substances List: | Not Listed |
| Illinois - Toxic Air Contaminants | Not Listed |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | Not Listed |

Xylene

| | |
|---|---|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | sn 2014 |
| Pennsylvania Right-To-Know: | Environmental hazard |
| Massachusetts Right-To Know: | Present |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Toxic (skin); Flammable (skin) |
| Michigan critical materials register list: | = 100 lb Annual usage threshold all isomers |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | flammable - third degree |
| New Jersey - Environmental Hazardous Substances List: | SN 2014 TPQ 500 lb |
| Illinois - Toxic Air Contaminants | Present |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | = 1 lb RQ land/water = 1000 lb RQ air |

1,2,4-Trimethylbenzene

| | |
|------------------------------|----------------------|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | sn 2716 |
| Pennsylvania Right-To-Know: | Environmental hazard |
| Massachusetts Right-To Know: | Present |

Ethyl Alcohol

| | |
|---|--------------------|
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Toxic |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | Not Listed |
| New Jersey - Environmental Hazardous Substances List: | SN 2716 TPQ 500 lb |
| Illinois - Toxic Air Contaminants | Present |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | Not Listed |

Benzene

| | |
|---|--|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | carcinogen, initial date 2/27/87 developmental toxicity, initial date 12/26/97 male reproductive toxicity, initial date 12/26/97 |
| New Jersey Right-To-Know: | sn 0197 |
| Pennsylvania Right-To-Know: | Environmental hazard; Special hazardous substance |
| Massachusetts Right-To-Know: | Carcinogen; Extraordinarily hazardous |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Toxic (skin); Flammable (skin); Carcinogen (skin) |
| Michigan critical materials register list: | = 100 lb Annual usage threshold |
| Massachusetts Extraordinarily Hazardous Substances: | carcinogen; extraordinarily hazardous |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Present |
| New Jersey - Special Hazardous Substances: | carcinogen; flammable - third degree; mutagen; teratogen |
| New Jersey - Environmental Hazardous Substances List: | SN 0197 TPQ 500 lb |
| Illinois - Toxic Air Contaminants | Present |
| New York - Reporting of Releases Part 597 - List of Hazardous Substances: | = 1 lb RQ land/water = 10 lb RQ air |

Hexane

| | |
|---|--------------------------|
| Louisiana Right-To-Know: | Not Listed |
| California Proposition 65: | Not Listed |
| New Jersey Right-To-Know: | sn 1340 |
| Pennsylvania Right-To-Know: | Present |
| Massachusetts Right-To-Know: | Present |
| Florida substance List: | Not Listed. |
| Rhode Island Right-To-Know: | Toxic; Flammable |
| Michigan critical materials register list: | Not Listed. |
| Massachusetts Extraordinarily Hazardous Substances: | Not Listed |
| California - Regulated Carcinogens: | Not Listed |
| Pennsylvania RTK - Special Hazardous Substances: | Not Listed |
| New Jersey - Special Hazardous Substances: | flammable - third degree |
| New Jersey - Environmental Hazardous Substances List: | SN 1340 TPQ 500 lb |
| Illinois - Toxic Air Contaminants | Present |

Ethyl Alcohol

New York - Reporting of Releases Part 597 - List of Hazardous Substances: = 1 lb RQ air
 = 1 lb RQ land/water

Ethyl Benzene

Louisiana Right-To-Know: Not Listed
 California Proposition 65: carcinogen, initial date 6/11/04
 New Jersey Right-To-Know: sn 0851
 Pennsylvania Right-To-Know: Environmental hazard
 Massachusetts Right-To Know: Present
 Florida substance List: Not Listed.
 Rhode Island Right-To-Know: Toxic; Flammable
 Michigan critical materials register list: Not Listed.
 Massachusetts Extraordinarily Hazardous Substances: Not Listed
 California - Regulated Carcinogens: Not Listed
 Pennsylvania RTK - Special Hazardous Substances: Not Listed
 New Jersey - Special Hazardous Substances: carcinogen; flammable - third degree
 New Jersey - Environmental Hazardous Substances List: SN 0851 TPQ 500 lb
 Illinois - Toxic Air Contaminants: Present
 New York - Reporting of Releases Part 597 - List of Hazardous Substances: = 1 lb RQ land/water
 = 1000 lb RQ air

Naphthalene

Louisiana Right-To-Know: Not Listed
 California Proposition 65: carcinogen, initial date 4/19/02

 New Jersey Right-To-Know: sn 1322
 Pennsylvania Right-To-Know: Environmental hazard
 Massachusetts Right-To Know: Present

 Florida substance List: Not Listed.
 Rhode Island Right-To-Know: Toxic; Flammable
 Michigan critical materials register list: Not Listed.
 Massachusetts Extraordinarily Hazardous Substances: Not Listed
 California - Regulated Carcinogens: Not Listed
 Pennsylvania RTK - Special Hazardous Substances: Not Listed
 New Jersey - Special Hazardous Substances: carcinogen

 New Jersey - Environmental Hazardous Substances List: SN 1322 TPQ 500 lb
 Illinois - Toxic Air Contaminants: Present
 New York - Reporting of Releases Part 597 - List of Hazardous Substances: = 1 lb RQ land/water
 = 100 lb RQ air

Canadian Regulatory Information:

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

| Name | Canada - WHMIS: Classifications of Substances: | Canada - WHMIS: Ingredient Disclosure: |
|------------------------|--|--|
| Ethyl Alcohol | | 0.1 % |
| Toluene | B2, D2A, D2B | 1 % |
| Xylene | B2, D2A, D2B | |
| 1,2,4-Trimethylbenzene | B3 | 0.1 % |
| Benzene | B2, D2A, D2B | 0.1 % |

| | | |
|---------------|--------------|-------|
| Hexane | B2, D2A | 1 % |
| Ethyl Benzene | B2, D2A, D2B | 0.1 % |
| Naphthalene | B4, D2A | 1 % |

NOTE: Not Applicable.

16. OTHER INFORMATION

Additional Information: No data available.

Prepared by: Mark S. Swanson, Manager, Toxicology and Product Safety

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End of Safety Data Sheet