SEPARATION SYSTEMS, INC.
Experts in Gas Chromatography
100 Nightingale Lane *US Sales: (850) 932-1433*
Gulf Breeze, Florida 32561 *Fax: (850) 934-8642*
www.separationsystems.com

SAFETY DATA SHEET

Creation Date 08-Mar-2007 **Revision Date** 23-August-2017 **Revision** 2.0

1. Identification

Product Name: **ASTM D7754 QC Standard**

Product Part Number: **ASTM-D7754-3-006, ASTM-D7754-8-006, SS-D7754#2**

Synonyms ASTM D7754 Quality Control (QC) Standard; Quantitative Check Standard for D7754; ASTM D7754 QC Standard (30 ppm); ASTM D7754 QC Standard (800 ppm)

Recommended Use Analytical Chemistry

Uses advised against No Information available

Details of the supplier of the safety data sheet

Company
Separation Systems, Inc.
100 Nightingale Lane
Gulf Breeze, FL 32561
Tel: (850) 932-1433

Emergency Telephone Number
Call CHEMTREC, day or night:
Domestic North America 800-424-9300
International (703) 527-3887 (collect calls accepted)

2. Hazard(s) identification

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

Flammable liquids	Category 1
Skin irritation	Category 2
Eye irritation	Category 2A
Germ cell mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 1
Aspiration Hazard	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

Label Elements

Signal Word
Danger

Hazard Statements
Extremely flammable liquid and vapor
May be fatal if swallowed and enters airways
Causes skin irritation
Causes serious eye irritation
May cause genetic defects
May cause cancer
Suspected of damaging fertility or the unborn child
May cause respiratory irritation

May cause drowsiness or dizziness
Causes damage to organs
Causes damage to organs (blood, blood-forming organs, immune system) through prolonged or repeated exposure
Toxic to aquatic life with long lasting effects

Precautionary Statements
Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not eat, drink or smoke when using this product.
Do not breathe dust/fume/gas/mist/vapors/spray.
Use only outdoors or in a well-ventilated area.
Wash hands/skin thoroughly after handling.
Avoid release to the environment.
Response
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor if you feel unwell.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Call a POISON CENTER or doctor if you feel unwell.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
Take off contaminated clothing and wash before reuse.
IF SKIN irritation occurs: Get medical advice/attention.
IF SWALLOWED: Immediately call a POISON CENTER or doctor.
Do NOT induce vomiting.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
Collect spillage.
Storage
Store locked up.
Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal
Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC)
Static accumulating flammable liquid

3. Composition / information on ingredients

Product Information:		
Substance Name	**CAS #**	**Percent**
ASTM D7754 QC Standard	None	100
Component Information:		
Ingredient Name	**CAS #**	**Percent**
Natural Gasoline (see components below)	68425-31-0	87 – 91
Pentane (mixed isomers)	78-78-4	23 – 66 (of gasoline)

Hexane Isomers (other than n-Hexane)	107-83-5	10 – 15 (of gasoline)
Heptane (mixed isomers)	142-82-5	7 – 13 (of gasoline)
n-Hexane	110-54-3	6 – 10 (of gasoline)
Octane	111-65-9	0.5 – 5 (of gasoline)
Butane (mixed isomers)	106-97-8	0.2 – 4.5 (of gasoline)
Nonane	111-84-2	0 – 2.5 (of gasoline)
Toluene	108-88-3	0 – 2 (of gasoline)
Benzene	71-43-2	0.1 – 2 (of gasoline)
Cyclopentane	287-92-3	1 – 1.5 (of gasoline)
Ethylbenzene	100-41-4	0.15 (of gasoline)
Ethanol	64-17-5	9 – 11
1,2-Dimethoxyethane	110-71-4	0.02 – 0.03
t-Butyl Ethyl Ether	637-92-3	0.003 – 0.09
t-Butyl Methyl Ether	1634-04-4	0.003 – 0.09
Diisopropyl Ether	108-20-3	0.003 – 0.09
t-Amyl Methyl Ether	994-05-8	0.003 – 0.09
Methanol	67-56-1	0.003 – 0.09
2-Propanol	67-63-0	0.003 – 0.09
1-Propanol	71-23-8	0.003 – 0.09
2-Methyl-2-propanol	75-65-0	0.003 – 0.09
2-Methyl-1-propanol	78-83-1	0.003 – 0.09
2-Butanol	78-92-2	0.003 – 0.09
1-Butanol	71-36-3	0.003 – 0.09
2-Methyl-2-butanol	75-85-4	0.003 – 0.09

4. First-aid measures

General Advice

Consult a physician. Show this Safety Data Sheet to the doctor in attendance. Move out of dangerous area. In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Eye Contact

Flush immediately with copious amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing. Gently remove contacts while flushing. Consult a physician.

Skin Contact

Immediately wash exposed skin with plenty of soap and water while removing contaminated clothing and shoes. Product may be absorbed through the skin in harmful amounts. Take victim immediately to hospital. Consult a physician. Any injection injury from high pressure equipment should be evaluated immediately by a physician as potentially serious.

Inhalation

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

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, or if patient is lying down, turn body and head to side to prevent aspiration and monitor for breathing difficulty. Never give anything by mouth to an unconscious person. Rinse mouth with water. Keep affected person warm and at rest. GET IMMEDIATE MEDICAL ATTENTION.

Most important symptoms/effects

ACUTE: Irritating to the skin and mucous membranes. Symptoms may include redness, itching, and inflammation. May cause nausea, vomiting, diarrhea, and signs of nervous system depression: headache, drowsiness, dizziness, loss of coordination, disorientation

and fatigue. Aspiration hazard. May cause coughing, chest pains, shortness of breath, pulmonary edema and/or chemical pneumonitis.

DELAYED: Prolonged or repeated exposure may cause adverse effects to the blood, blood forming organs, immune system, nervous system, and auditory system. Repeated or prolonged skin contact may cause drying, reddening, itching and cracking.

Indication of immediate medical attention and special treatment needed

INHALATION: This material 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.

SKIN: Leaks or accidents involving high-pressure equipment may inject a stream of material through the skin and initially produce an injury that may not appear serious. Only a small puncture wound may appear on the skin surface but, without proper treatment and depending on the nature, original pressure, volume, and location of the injected material, can compromise blood supply to an affected body part. Prompt surgical debridement of the wound may be necessary to prevent irreversible loss of function and/or the affected body part. High pressure injection injuries may be SERIOUS MEDICAL EMERGENCIES.

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

5. Fire-fighting measures

Suitable Extinguishing Media

For small fires, Class B fire extinguishing media such as CO_2, dry chemical, alcohol-resistant foam or water spray can be used. For large fires, water spray, fog or alcohol-resistant foam can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable Extinguishing Media

Do not use straight water streams to avoid spreading fire.

Explosion Data

Sensitivity to Mechanical Impact No
Sensitivity to Static Discharge Yes

Specific Hazards Arising from the Chemical

Smoke, carbon oxides, and other products of incomplete combustion. This product has been determined to be an extremely flammable liquid per the OSHA Hazard Communication Standard and should be handled accordingly. May accumulate electrostatic charge and ignite or explode. 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.

Protective Equipment and Precautions for Firefighters

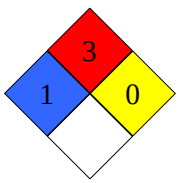
Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Avoid using straight water streams. Water may be ineffective in extinguishing low flash point fires, but can be used to cool exposed surfaces. Avoid 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.

Further Information

Use water spray to cool unopened containers.

NFPA

Health	Flammability	Instability	Physical hazards
1	3	0	N/A



6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep public away and isolate the area. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Avoid release to the environment. Avoid subsoil penetration.

Methods and Materials for Containment and Clean Up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in a container for disposal according to local regulations. Alternatively, use suitable absorbent materials such as vermiculite, sand, or clay to clean up residual liquids. Recover and return free product to proper containers. When recovering free liquids ensure all equipment is grounded and bonded. Use only non-sparking tools.

7. Handling and storage

Handling Precautions

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use only with adequate ventilation. Use explosion-proof equipment. Keep away from sources of ignition. No smoking. Take measures to prevent the buildup of electrostatic charge. Handle as a flammable liquid. Use appropriate grounding and bonding practices. Static accumulating flammable liquid. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Vapors may travel along the ground or be moved by ventilation. Flashback may occur along vapor trails. Use only non-sparking tools. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Refer to applicable EPA, OSHA, NFPA and consistent state and local requirements.

Storage Conditions

Keep container tightly closed in a cool, dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Do not store near an open flame, heat or other sources of ignition. Hygroscopic.

Incompatible Materials

Strong oxidizing agents

8. Exposure controls / personal protection

Control Parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameter	Basis
Ethanol	64-17-5	TWA	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		
		TWA	1,000 ppm 1,900 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		
		TWA	1,000.000000 ppm 1,900.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

		The value in mg/m3 is approximate.		
		TWA	1,000.000000 ppm 1,900.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		STEL	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans		

Component (CAS #)	ACGIH TLV	OSHA PELS	OSHA – Vacated PELs	NIOSH IDLH
Natural Gasoline 68425-31-0	-	-	-	-
Pentane (mixed isomers) 78-78-4	1000 ppm TWA	-	-	-
Hexane Isomers (other than n-Hexane) 107-83-5	500 ppm TWA 1000 ppm STEL	-	500 ppm TWA 1800 mg/m^3 TWA 1000 ppm STEL 3600 mg/m^3 STEL	-
Heptane (mixed isomers) 142-82-5	40 ppm TWA 500 ppm STEL	TWA: 500 ppm TWA: 2000 mg/m^3	400 ppm TWA 1600 mg/m^3 TWA 500 ppm STEL 2000 mg/m^3 STEL	750 ppm
n-Hexane 110-54-3	50 ppm TWA Skin – potential significant contribution to overall exposure by the cutaneous route	TWA: 500 ppm TWA: 1800 mg/m^3	50 ppm TWA 180 mg/m^3 TWA	1100 ppm
Octane 111-65-9	300 ppm TWA	TWA: 500 ppm TWA: 2350 mg/m^3	300 ppm TWA 1450 mg/m^3 TWA 375 ppm STEL 1800 mg/m^3 STEL	1000 ppm
Butane (mixed isomers) 106-97-8	1000 ppm STEL	-	800 ppm TWA 1900 mg/m^3 TWA	-
Nonane 111-84-2	200 ppm TWA	-	200 ppm TWA 1050 mg/m^3 TWA	-
Toluene 108-88-3	20 ppm TWA	TWA: 200 ppm Ceiling: 300 ppm	100 ppm TWA 375 mg/m^3 TWA 150 ppm STEL 560 mg/m^3 STEL	500 ppm
Benzene 71-43-2	0.5 ppm TWA 2.5 ppm STEL Skin – potential significant contribution to overall exposure by the cutaneous route	TWA: 10 ppm (applies to industry segments exempt from the benzene standard) TWA: 1 ppm STEL: 5 ppm (see 29 CFR 1910.1028)	25 ppm Ceiling 1 ppm TWA 5 ppm STEL	500 ppm
Cyclopentane 287-92-3	600 ppm TWA	-	600 ppm TWA 1720 mg/m^3 TWA	-
Ethylbenzene 100-41-4	20 ppm TWA	TWA: 100 ppm TWA: 435 mg/m^3	100 ppm TWA 435 mg/m^3 TWA 125 ppm STEL 545 mg/m^3 STEL	800 ppm
The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDS's, even though certain of those exposure limits were vacated in 1992.				

Engineering Measures	Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal Protective Equipment

Eye/face protection	Face shield and safety glasses/goggles are recommended. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).
Skin/body protection	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Use nitrile rubber, butyl-rubber, Viton® or PVA gloves for repeated or prolonged skin exposure. Glove suitability is based on workplace conditions and usage. Contact the glove manufacturer for specific advice on glove selection and breakthrough times. If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario. Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory Protection	Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi- purpose combination or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before eating, drinking or smoking.

9. Physical and chemical properties

Physical State	Clear liquid
Appearance	Colorless to yellow
Odor	No available data
Odor Threshold	No available data
pH	No available data
Melting Point/Range	No available data
Boiling Point/Range	No available data
Flash Point	≤ -17.8 °C / ≤ 0 °F
Evaporation Rate	No available data
Flammability (solid, gas)	No available data
Flammability, Limit in Air (%)	
Upper	No available data
Lower	No available data
Vapor Pressure	No available data
Vapor Density	No available data
Relative Density	No available data
Solubility	No available data
Partition coefficient; n-octanol/water	No available data
Auto-ignition Temperature	No available data
Decomposition Temperature	No available data
Viscosity	No available data
VOC Content (%)	No available data
Explosive properties	No available data
Oxidizing properties	No available data

10. Stability and reactivity

Reactivity	No available data.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Vapors may form explosive mixture with air.
Conditions to avoid	Heat, flames, sparks and other ignition sources. Temperature extremes and direct sunlight.
Incompatible materials	Acid chlorides, acid anhydrides, oxidizing agents, peroxides, alkali metals, reducing agents, acids.
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions – carbon oxides.

11. Toxicological information

Acute Toxicity

Component CAS #	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethanol 64-17-5	10470 mg/kg (rat)	15800 mg/kg (rabbit)	30000 mg/L - 10 h (rat)
Natural Gasoline 68425-31-0	>5000 mg/kg (Rat)	>2000 mg/kg (Rabbit)	>1 - <5 mg/L (Rat) 4 h
Pentane (mixed isomers) 78-78-4	-	-	450 mg/L (Mouse) 2 h
Hexane Isomers (other than n-Hexane) 107-83-5	> 5000 mg/kg (Rat)	-	-
Heptane (mixed isomers) 142-82-5	-	3000 mg/kg (Rabbit)	103 g/m^3 (Rat) 4 h
n-Hexane 110-54-3	15000 mg/kg (Rat)	3000 mg/kg (Rabbit)	48000 ppm (Rat) 4 h
Octane 111-65-9	-	-	118 g/m^3 (Rat) 4 h
Butane (mixed isomers) 106-97-8	-	-	658 mg/L (Rat) 4 h
Nonane 111-84-2	-	-	17 mg/L (Male rat) 4 h
Toluene 108-88-3	> 2000 mg/kg (Rat)	8390 mg/kg (Rabbit)	12.5 mg/L (Rat) 4 h
Benzene 71-43-2	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	> 20 mg/L (Rat) 4 h
Cyclopentane 287-92-3	> 2000 mg/kg (Rat)	-	> 20 mg/L (Rat) 4 h
Ethylbenzene 100-41-4	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	17.2 mg/L (Rat) 4 h

Skin corrosion/irritation

Ethanol (64-17-5):
Skin – Rabbit; Result = No skin irritation – 24 h (OECD Test Guideline 404)
Natural Gasoline (68425-31-0):
Causes skin irritation. Effects may become more serious with repeated or prolonged contact. May be absorbed through the skin in harmful amounts.

Serious eye damage/irritation

Ethanol (64-17-5):
Eyes – Rabbit; Result = Moderate eye irritation (OECD Test Guideline 405)
Natural Gasoline (68425-31-0):
Exposure to vapor or contact with liquid may cause mild eye irritation, including tearing, stinging, and redness.

Respiratory or skin sensitization

Ethanol (64-17-5):
No data available
Natural Gasoline (68425-31-0):
Not expected to be a skin or respiratory sensitizer. No data available.

Germ cell mutagenicity

Ethanol (64-17-5):
No data available
Natural Gasoline (68425-31-0):
May cause genetic defects. See additional information.

Carcinogenicity

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

Component CAS #	ACGIH (Class)*	IARC (Class)**	NTP	OSHA***
Ethanol**** 64-17-5	A3	Group 1	Not Listed	X
Natural Gasoline 68425-31-0	Not Listed	2B	Not Listed	Not Listed
Pentane (mixed isomers) 78-78-4	Not Listed	Not Listed	Not Listed	Not Listed
Hexane Isomers (other than n-Hexane) 107-83-5	Not Listed	Not Listed	Not Listed	Not Listed
Heptane (mixed isomers) 142-82-5	Not Listed	Not Listed	Not Listed	Not Listed
n-Hexane 110-54-3	Not Listed	Not Listed	Not Listed	Not Listed
Octane 111-65-9	Not Listed	Not Listed	Not Listed	Not Listed
Butane (mixed isomers) 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Nonane 111-84-2	Not Listed	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	A4	3	Not Listed	Not Listed
Benzene 71-43-2	A1	1	Known human carcinogen	X
Cyclopentane 287-92-3	Not Listed	Not Listed	Not Listed	Not Listed
Ethylbenzene 100-41-4	A3	2B	Not Listed	Not Listed

** ACGIH (American Conference of Governmental Industrial Hygienists)*
A1 – Known Human Carcinogen
A2 – Suspected Human Carcinogen
A3 – Animal Carcinogen
A4 – Not Classifiable

*** IARC (International Agency for Research on Cancer)*
Group 1 – Carcinogenic to Humans
Group 2A – Probably Carcinogenic to Humans
Group 2B – Possibly Carcinogenic to Humans
Group 3 – Not Classifiable

**** OSHA (Occupational Safety & Health Administration)*
X – Present or Known Carcinogen

***** Ethanol is classified as equivocal tumorigenic agent by RTECS criteria*
Carcinogenicity – Mouse (oral)
Results = liver tumors and blood lymphomas including Hodgkin's disease

Reproductive toxicity

Ethanol (64-17-5):
Oral – Human (female); Effects on Newborn = Apgar score (human only); drug dependence; other neonatal measures or effects.

Natural Gasoline (68425-31-0):
Suspected of damaging fertility or the unborn child. See additional information.

STOT – single exposure

Ethanol (64-17-5):
No data available

Natural Gasoline (68425-31-0):
Causes damage to respiratory system and central nervous system.

STOT – repeated exposure

Ethanol (64-17-5):
No data available

Natural Gasoline (68425-31-0):
Causes damage to blood, blood-forming organs, immune system, nervous system, and auditory system.

Aspiration hazard

Ethanol (64-17-5):
No data available

Natural Gasoline (68425-31-0):
May be fatal if swallowed and/or vomited and enters airways.

Additional information:

Ethanol (64-17-5) RTECS: KQ6300000

Effects due to ingestion and/or inhalation may include central nervous system depression, narcosis, damage to the heart, headache, dizziness, drowsiness, metabolic acidosis, coma, seizures, nausea, vomiting, diarrhea, and stomach irregularities (based on human evidence). Irritating to the skin and mucous membranes; symptoms may include redness, itching, inflammation, and cracking especially with prolonged or repeated exposure. Aspiration may cause coughing, chest pains, shortness of breath, pulmonary edema, and/or chemical pneumonitis.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Immediate, delayed, and chronic effects from short- and long-term exposure:

GASOLINE: Lifetime inhalation studies with full vaporized gasoline (67, 292, and 2,056 ppm) produced kidney damage and kidney tumors in male rats but not in female rats or male and female mice. Female mice developed a slightly higher incidence of liver tumors compared to controls at the highest exposure level. Results from separate studies with compounds producing similar effects, i.e., 1,4-dichlorobenzene and perchloroethylene, have shown that the kidney damage and kidney tumors develop via the formation of alpha-2u-globulin, a mechanism unique to the male rat. Humans do not form alpha-2u-globulin, therefore, tumors resulting from this mechanism are not relevant in humans. The biologic significance of the mouse liver tumor response with regard to human health risk is not clear at this time. Altered mental state, drowsiness, peripheral motor neuropathy, irreversible brain damage (so-called Petrol Sniffer's Encephalopathy), delirium, seizures, and sudden death have been reported from repeated overexposure to some hydrocarbon solvents, naphthas, and gasoline.

PENTANES: Studies of pentane isomers in laboratory animals indicate exposure to extremely high levels (roughly 10 vol.%) may induce cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

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.

BUTANES: Studies in laboratory animals indicate exposure to extremely high levels of butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

TOLUENE: 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 nervous system depression, cardiac arrhythmias, and death. Studies of workers indicate long-term exposure may be related to impaired color vision and hearing. Some studies of workers suggest long-term 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 long-term 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.

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 not 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.

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 with evidence of maternal toxicity. 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.

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, and exposure level at which significant maternal toxicity was observed. Reduced pup weight gain was also observed at 500 ppm.

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.

12. Ecological information

Toxicity

This product should be considered toxic to aquatic organisms, with the potential to cause long lasting adverse effects in the aquatic environment. Refer to the table below for specific component-based toxicity information.

Component	Algae / Aquatic Plants	Fish	Crustacea
Ethanol 64-17-5	72-hr EC50 = 275 mg/L Chlorella vulgaris (fresh water algae) (OECD Test Guideline 201)	96-hr LC50 = 14200 mg/L Pimephales promelas (fathead minnow)	48-hr LC50 = 5012 mg/L Ceriodaphnia dubia (water flea) 9-d NOEC = 9.6 mg/L Daphnia magna (water flea)
Natural Gasoline 68425-31-0	-	96-hr LC50 >1 - <10 mg/L Fish	48-hr EC50 >1 - <10 mg/L Daphnia
Pentane (mixed isomers) 78-78-4	-	96-hr LC50 = 3.1 mg/L Rainbow trout	48-hr EC50 = >1 - <10 mg/L Daphnia magna
Hexane Isomers (other than n-Hexane) 107-83-5	-	-	-
Heptane (mixed isomers) 142-82-5	-	96-hr LC50 = 375 mg/L Tilapia	-
n-Hexane 110-54-3	-	96-hr LC50 = 2.5 mg/L Fathead minnow	-
Octane 111-65-9	-	-	48-hr LC50 = 0.38 mg/L Daphnia magna
Butane (mixed isomers) 106-97-8	-	-	-
Nonane 111-84-2	-	-	48-hr LC50 = 0.64 mg/L Daphnia magna
Toluene 108-88-3	72-hr EC50 = 12.5 mg/L Algae	72-hr EC50 = 12.5 mg/L Algae	48-hr EC50 = 5.46-9.83 mg/L Daphnia magna 48-hr EC50 = 11.5 mg/L Daphnia magna (Static)
Benzene 71-43-2	72-hr EC50 = 29 mg/L Algae	72-hr EC50 = 29 mg/L Algae	48-hr EC50 = 8.76-15.6 mg/L Daphnia magna (Static)
Cyclopentane 287-92-3	-	-	48-hr EC50 = 10.5 mg/L Daphnia magna
Ethylbenzene 100-41-4	72-hr EC50 = 1.7-7.6 mg/L Algae	72-hr EC50 = 1.7-7.6 mg/L Algae	48-hr EC50 = 1-4 mg/L Daphnia magna

Persistence and degradability

Ethanol (64-17-5):
Aerobic Biodegradability; Result = 95 % - readily biodegradable
Natural Gasoline (68425-31-0):
Expected to be inherently biodegradable; no specific data available.

Bioaccumulative potential

Ethanol (64-17-5):
Accumulation in organisms is not expected due to the distribution coefficient n-octanol/water.
Natural Gasoline (68425-31-0):
Has the potential to bioaccumulate; no specific data available.

Mobility in soil

Ethanol (64-17-5):
No data available
Natural Gasoline (68425-31-0):
May partition into air, soil, and water; no specific data available.

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Avoid release to the environment.

13. Disposal considerations

Waste handling precautions	This material is a highly flammable liquid waste. Handle in accordance with all applicable federal, state, and local regulations. Use personal protection measures as required.
Product disposal methods	Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
Contaminated packaging disposal methods	Dispose of as unused product. Do not cut, drill, grind, or weld on empty containers since explosive residues may be present.

14. Transport information

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

DOT

UN Number	UN1993
Proper Shipping Name	Flammable Liquid, N.O.S (Gasoline, Ethanol)
Hazard Class	3
Subsidiary Hazard Class	n/a
Packing Group	II

IATA

UN Number	UN1993
Proper Shipping Name	Flammable Liquid, N.O.S (Gasoline, Ethanol)
Hazard Class	3
Subsidiary Hazard Class	n/a
Packing Group	II

IMDG

UN Number	UN1993
Proper Shipping Name	Flammable Liquid, N.O.S (Gasoline, Ethanol)
Hazard Class	3
Subsidiary Hazard Class	n/a
Packing Group	II

TDG (Canada)

UN Number	UN1993
Proper Shipping Name	Flammable Liquid, N.O.S (Gasoline, Ethanol)
Hazard Class	3
Subsidiary Hazard Class	n/a
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.
SARA Section 302:	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA Section 304 and CERCLA:	This product may contain 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:

Component CAS #	CERCLA / SARA Reportable Quantities (RQ) of Hazardous Substances
n-Hexane 110-54-3	5000 lb final RQ 2270 kg final RQ
Toluene 108-88-3	1000 lb final RQ 454 kg final RQ
Benzene 71-43-2	10 lb final RQ 4.54 kg final RQ
Ethylbenzene 100-41-4	1000 lb final RQ 454 kg final RQ

SARA 311/312 Hazards: The following EPA hazard categories apply to this product:

Acute Health Hazard
Chronic Health Hazard
Fire Hazard

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

	CAS No.	
n-Hexane	110-54-3	(1.0 % de minimis concentration)
Toluene	108-88-3	(1.0 % de minimis concentration)
Benzene	71-43-2	(0.1 % de minimis concentration)
Ethylbenzene	100-41-4	(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.

Ethanol (64-17-5)

Massachusetts Right-to-Know	Present (2007-03-01 Rev.)
Pennsylvania Right-to-Know	Present (2007-03-01 Rev.)
New Jersey Right-to-Know	Present (2007-03-01 Rev.)

Natural Gasoline (68425-31-0)

Pennsylvania Right-To-Know	Present (as well as casing head)

Pentane – mixed isomers (78-78-4)

New Jersey Right-To-Know	Present (SN 1064)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
New Jersey – Special Hazardous Substances	Present (flammable – 4th degree)
New Jersey – Environmental Hazardous Substances List	Present (SN 1064 TPQ = 500 lb)

Hexane Isomers – other than n-hexane (107-83-5)

New Jersey Right-To-Know	Present (SN 1285)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree)

Heptane – mixed isomers (142-82-5)

New Jersey Right-To-Know	Present (SN 1339)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic; flammable)
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree)

n-Hexane (110-54-3)

New Jersey Right-To-Know	Present (SN 1340)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic; flammable)
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree)

New Jersey – Environmental Hazardous Substances List	Present (SN 1340 TPQ = 500 lb)
Illinois – Toxic Air Contaminants	Present
New York – Reporting of Releases Part 597 – List of Hazardous Substances	Present (1 lb RQ – air ; 1 lb RQ – land/water)

Octane (111-65-9)

New Jersey Right-To-Know	Present (SN 1434)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic; flammable)
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree)

Butane – mixed isomers (106-97-8)

New Jersey Right-To-Know	Present (SN 0273)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic; flammable)
New Jersey – Special Hazardous Substances	Present (flammable – 4th degree)
New Jersey – Environmental Hazardous Substances List	Present (SN 0273 TPQ = 500 lb)

Nonane (111-84-2)

New Jersey Right-To-Know	Present (SN 1414)
Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic)
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree)

Toluene (108-88-3)

California Proposition 65	Present (developmental toxicity, 1/1/91)
New Jersey Right-To-Know	Present (female reproductive toxicity, 8/7/09)
Pennsylvania Right-To-Know	Present (SN 1866)
Massachusetts Right-To-Know	Present (environmental hazard)
Florida Substance List	Present
Michigan Critical Materials Register List	Present (toxic and flammable – skin)
Massachusetts Extraordinarily Hazardous Substances	Present (100 lb annual usage threshold)
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree; teratogen)
New Jersey – Environmental Hazardous Substances List	Present (SN 1866 TPQ = 500 lb)
Illinois – Toxic Air Contaminants	Present
New York – Reporting of Releases Part 597 – List of Hazardous Substances	Present (1000 lb RQ – air ; 1 lb RQ – land/water)

Benzene (71-43-2)

California Proposition 65	Present (carcinogen, 2/27/87; developmental toxicity, 12/26/97; male reproductive toxicity, 12/26/97)
New Jersey Right-To-Know	Present (SN 0197)
Pennsylvania Right-To-Know	Present (environmental hazard; special hazardous substance)
Massachusetts Right-To-Know	Present (carcinogen; extraordinarily hazardous)
Michigan Critical Materials Register List	Present (100 lb annual usage threshold)
Rhode Island Right-To-Know	Present (toxic – skin; flammable – skin; carcinogen – skin)
Massachusetts Extraordinarily Hazardous Substances	Present (carcinogen; extraordinarily hazardous)
Pennsylvania RTK – Special Hazardous Substances List	Present
New Jersey – Special Hazardous Substances	Present (carcinogen; flammable – 3rd degree; mutagen)
New Jersey – Environmental Hazardous Substances List	Present (SN 0197 TPQ = 500 lb)
Illinois – Toxic Air Contaminants	Present
New York – Reporting of Releases Part 597 – List of Hazardous Substances	Present (10 lb RQ – air; 1 lb RQ – land/water)

Cyclopentane (287-92-3)

New Jersey Right-To-Know	Present (SN 0583)

Pennsylvania Right-To-Know	Present
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic and flammable)
New Jersey – Special Hazardous Substances	Present (flammable – 3rd degree)

Ethylbenzene (100-41-4)

California Proposition 65	Present (carcinogen, 6/11/04)
New Jersey Right-To-Know	Present (SN 0851)
Pennsylvania Right-To-Know	Present (environmental hazard)
Massachusetts Right-To-Know	Present
Rhode Island Right-To-Know	Present (toxic and flammable)
New Jersey – Special Hazardous Substances	Present (carcinogen; flammable – 3rd degree)
New Jersey – Environmental Hazardous Substances List	Present (SN 0851 TPQ = 500 lb)
Illinois – Toxic Air Contaminants	Present
New York – Reporting of Releases Part 597 – List of Hazardous Substances	Present (1000 lb RQ – air; 1 lb RQ – land/water)

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

Canadian Regulatory Information This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Component CAS #	Canada – WHMIS: Classification of Substances	Canada – WHMIS: Ingredient Disclosure
Ethanol 64-17-5	B2, D2B	0.1%
Natural Gasoline 68425-31-0	B2, D2A, D2B	0.1%
Pentane (mixed isomers) 78-78-4	B2	1%
Hexane Isomers (other than n-Hexane) 107-83-5	B2	1%
Heptane (mixed isomers) 142-82-5	B2, D2B	1%
n-Hexane 110-54-3	B2, D2A, D2B	1%
Octane 111-65-9	B2, D2B	1%
Butane (mixed isomers) 106-97-8	A, B1	1%
Nonane 111-84-2	B2, D2B	1%
Toluene 108-88-3	B2, D2A, D2B	0.1%
Benzene 71-43-2	B2, D2A, D2B	0.1%
Cyclopentane 287-92-3	B2	1%
Ethylbenzene 100-41-4	B2, D2A, D2B	0.1%

16. Other information

References: Not Available

Creation Date 08-Mar-2007

Revision Date 23-August-2017

Version: 2.0

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