

SAFETY DATA SHEET

SUNOCO EXO2



Section 1. Identification

GHS product identifier : SUNOCO EXO2
Other means of identification : Oxygenated leaded racing gasoline

Product use : Leaded racing gasoline with ethanol.

California Air Resources Board (CARB): This product cannot be sold, offered for sale, supplied or offered for supply for motor vehicles in California except in competition racing vehicles. Not Legal For Use in Any Other Motor Vehicle.

Supplier's details : Sunoco LP
 3801 West Chester Pike
 Newtown Square, Pennsylvania 19073
 Sunoco Race Fuels email: performanceproducts@sunoco.com
 http://www.sunocoracefuels.com

e-mail address of person responsible for this SDS : sunocomsds@sunoco.com

Emergency telephone number (with hours of operation) : Sunoco LP: (800) 964-8861
 Chemtrec: 1-800-424-9300 (Available 24 hours/7 days per week)

Product Safety Information: 1-888-567-3066

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE LIQUIDS - Category 2
 ACUTE TOXICITY (oral) - Category 4
 SKIN IRRITATION - Category 2
 TOXIC TO REPRODUCTION (Fertility) - Category 1A
 TOXIC TO REPRODUCTION (Unborn child) - Category 1A
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (optic nerve) - Category 1
 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (cardiovascular system, central nervous system (CNS), kidneys, liver and respiratory system) - Category 2
 ASPIRATION HAZARD - Category 1

GHS label elements

Hazard pictograms



Signal word : Danger

Section 2. Hazards identification

Hazard statements	: Highly flammable liquid and vapor. Harmful if swallowed. Causes skin irritation. May damage fertility or the unborn child. May be fatal if swallowed and enters airways. Causes damage to organs. (optic nerve) May cause drowsiness or dizziness. May cause damage to organs through prolonged or repeated exposure. (cardiovascular system, central nervous system (CNS), kidneys, liver, respiratory system)
<u>Precautionary statements</u>	
Prevention	: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Response	: Get medical attention if you feel unwell. IF exposed: Call a POISON CENTER or physician. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. In case of fire: Use CO2, dry chemical, or foam for extinction
Storage	: Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	: Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: Static-accumulating flammable liquid Vapors may form explosive mixture with air Product contains methanol: Poison, may be fatal or cause blindness if swallowed. Cannot be made non-poisonous.

Section 3. Composition/information on ingredients

Substance/mixture	: Mixture
Other means of identification	: Oxygenated leaded racing gasoline
<u>CAS number/other identifiers</u>	
CAS number	: Not applicable.
Product code	: 136700

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
isooctane	25 - 50	26635-64-3
naphtha (petroleum), light alkylate	15 - 30	64741-66-8
ethyl alcohol	10 - 25	64-17-5
toluene	10 - 20	108-88-3
methyl alcohol	7 - 15	67-56-1
isopentane	3 - 10	78-78-4
tetraethyl lead	0.1 - 0.2	78-00-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with soap and water for 20 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Injection injuries may not appear serious at first but within a few hours, without proper treatment, the area will become swollen, discolored and extremely painful. Following injection, prompt debridement of the wound is necessary to minimize necrosis and tissue loss.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Loss of coordination. Headache. Fatigue.
- Skin contact** : Causes skin irritation.

Section 4. First aid measures

Ingestion : Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Skin contact : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Ingestion : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Catecholamines and similar adrenergic drugs are generally contraindicated because of potential for increased sensitivity of the heart from hydrocarbon overexposure and subsequent ventricular fibrillation. EKG monitoring may be indicated and bronchodilators should be selected with care.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂ or foam. Use an extinguishing agent suitable for the surrounding fire. Use water spray to keep fire-exposed containers cool.

Unsuitable extinguishing media : CAUTION: Water may be ineffective for extinguishment.

Specific hazards arising from the chemical : HIGHLY FLAMMABLE LIQUID AND VAPOR. VAPOR MAY CAUSE FLASH FIRE. Vapors may form explosive mixtures with air. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Section 5. Fire-fighting measures

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
asphyxiants
- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. Stay upwind/keep distance from source.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials.
See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not swallow. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 7. Handling and storage

Bonding and grounding alone may be inadequate to eliminate fire and explosion hazards associated with electrostatic charges. In addition to bonding and grounding, efforts to mitigate the hazards of an electrostatic discharge may include, but are not limited to, ventilation, inerting and/or reduction of transfer velocities. Always keep the nozzle in contact with the container throughout the loading process. Do not fill any portable containers 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 contained middle distillates or similar products). Non-equilibrium conditions may increase the risks associated with static electricity such as tank and container filling, tank cleaning, sampling, gauging, loading, filtering, mixing, agitation, etc. Dissipation of electrostatic charges may be improved with the use of conductivity additives when used with other mitigating efforts, including bonding and grounding.

Advice on general occupational hygiene

: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

: Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.
NFPA Class 1B storage.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

isooctane

ACGIH TLV (United States, 3/2016).

TWA: 300 ppm 8 hours.

naphtha (petroleum), light alkylate

None.

ethyl alcohol

ACGIH TLV (United States, 3/2016).

STEL: 1000 ppm 15 minutes.

NIOSH REL (United States, 10/2013).

TWA: 1000 ppm 10 hours.

TWA: 1900 mg/m³ 10 hours.

OSHA PEL (United States, 6/2016).

TWA: 1000 ppm 8 hours.

TWA: 1900 mg/m³ 8 hours.

toluene

OSHA PEL Z2 (United States, 2/2013).

TWA: 200 ppm 8 hours.

CEIL: 300 ppm

AMP: 500 ppm 10 minutes.

NIOSH REL (United States, 10/2013).

TWA: 100 ppm 10 hours.

TWA: 375 mg/m³ 10 hours.

STEL: 150 ppm 15 minutes.

STEL: 560 mg/m³ 15 minutes.

ACGIH TLV (United States, 3/2016).

TWA: 20 ppm 8 hours.

methyl alcohol

ACGIH TLV (United States, 3/2016).

Absorbed through skin.

TWA: 200 ppm 8 hours.

Section 8. Exposure controls/personal protection

TWA: 262 mg/m³ 8 hours.
 STEL: 250 ppm 15 minutes.
 STEL: 328 mg/m³ 15 minutes.
NIOSH REL (United States, 10/2013).
Absorbed through skin.
 TWA: 200 ppm 10 hours.
 TWA: 260 mg/m³ 10 hours.
 STEL: 250 ppm 15 minutes.
 STEL: 325 mg/m³ 15 minutes.
OSHA PEL (United States, 6/2016).
 TWA: 200 ppm 8 hours.
 TWA: 260 mg/m³ 8 hours.

isopentane

ACGIH TLV (United States, 3/2016).
 TWA: 1000 ppm 8 hours.

tetraethyl lead

ACGIH TLV (United States, 3/2016).
Absorbed through skin.
 TWA: 0.1 mg/m³, (as Pb) 8 hours.
NIOSH REL (United States, 10/2013).
Absorbed through skin.
 TWA: 0.075 mg/m³, (as Pb) 10 hours.
OSHA PEL (United States, 6/2016).
Absorbed through skin.
 TWA: 0.075 mg/m³, (as Pb) 8 hours.

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields or chemical splash goggles and/or face shield.

Skin protection

Hand protection

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Recommended: > 8 hours (breakthrough time): nitrile rubber, Viton®, Teflon

Section 8. Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Recommended: nitrile rubber, Viton®, Teflon

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Ensure an MSHA/NIOSH-approved respirator or equivalent is used.

Half-mask air purifying respirator with organic vapor cartridges is acceptable for exposures to ten (10) times the exposure limit. Full-face air purifying respirator with organic vapor cartridges is acceptable for exposures to fifty (50) times the exposure limit. Exposure should not exceed the cartridge limit of 1000 ppm. Protection by air purifying respirators is limited. Use a positive pressure-demand full-face supplied air respirator or SCBA for exposures greater than fifty (50) times the exposure limit.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid.
Color	: Clear.
Odor	: Gasoline
Odor threshold	: <1 ppm [Reference value]
pH	: Not available.
Melting point	: Not available.
Boiling point	: 38 to 127°C (100.4 to 260.6°F) [ASTM D 86]
Flash point	: Closed cup: -40°C (-40°F) [Reference value]
Evaporation rate	: Not available.
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Lower: 1.5% [Reference value] Upper: 7.6% [Reference value]
Vapor pressure	: 5 to 16 psia [Reference value]
Vapor density	: Not available.
Relative density	: 0.749 [ASTM D 287]
Solubility	: Not available.
Solubility in water	: NIL - 15% (wt%) [Reference value]
Partition coefficient: n-octanol/water	: 2 to 7 [Reference value]
Auto-ignition temperature	: 280°C (536°F) [Estimated reference value]
Decomposition temperature	: Not available.
Viscosity	: Not available.

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Vapors may form explosive mixtures with air.
- Incompatible materials** : Reactive or incompatible with the following materials:
 oxidizing materials
 strong acids
 strong alkalis
 halogenated compounds
 hydrogen peroxide
 chlorine
 concentrated oxygen
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
naphtha (petroleum), light alkylate	LD50 Dermal	Rabbit - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat - Male, Female	>5000 mg/kg	-
ethyl alcohol	LC50 Inhalation Vapor	Rat	124700 mg/m ³	4 hours
	LD50 Oral	Rat	7 g/kg	-
toluene	LC50 Inhalation Vapor	Rat	49 g/m ³	4 hours
methyl alcohol	LC50 Inhalation Gas.	Rat	145000 ppm	1 hours
	LC50 Inhalation Gas.	Rat	64000 ppm	4 hours
	LD50 Dermal	Rabbit	15800 mg/kg	-
	LD50 Oral	Rat	5600 mg/kg	-
isopentane	LC50 Inhalation Vapor	Rat	280000 mg/m ³	4 hours
tetraethyl lead	LC50 Inhalation Vapor	Rat	850 mg/m ³	1 hours
	LD50 Oral	Rat	12300 µg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
ethyl alcohol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	0.066666667 minutes 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	100 microliters	-
	Eyes - Severe irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	400 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
toluene	Eyes - Mild irritant	Rabbit	-	0.5 minutes 100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	870 Micrograms	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
	Skin - Mild irritant	Pig	-	24 hours 250 microliters	-
	Skin - Mild irritant	Rabbit	-	435 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
	Skin - Moderate irritant	Rabbit	-	500 milligrams	-
methyl alcohol	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	40 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-

Conclusion/Summary

Skin

: Samples of gasoline and a number of low boiling point naphtha streams have been tested in rabbit skin irritation studies. The majority of the data were derived using a 24 hour occluded exposure protocol. The degree of dermal irritation observed was variable, ranging from slight to moderate/severe, normally persisting for up to 14 days. There was no evidence of skin corrosion. Heavier, aromatic materials caused more irritation than lighter, paraffinic streams (API, 1995).

Eyes

: The effects of gasoline and low boiling point naphtha streams on the eye have been investigated in rabbits using a number of samples. None of the samples tested showed more than minimal redness and swelling, which resolved quickly (ARCO, 1986-A).

Sensitization

Not available.

Conclusion/Summary

Section 11. Toxicological information

Skin : Tests in guinea pigs with gasoline and a number of low boiling point naphtha streams showed no evidence of skin sensitization (ARCO, 1986-B).

Respiratory : There are no reports available to indicate that gasoline or low boiling point naphthas have the potential to cause respiratory sensitization (ARCO, 1986-B).

Mutagenicity

Not available.

Conclusion/Summary : The mutagenic potential of gasoline and low boiling point naphthas has been extensively studied in a range of in vivo and in vitro assays. The majority of the studies showed no evidence of mutagenic activity (API, 1977; API, 2005).

The classification as a carcinogen or mutagen need not apply if it can be shown that the substance contains less than 0.1 % w/w benzene (EINECS No 200-753-7).

Carcinogenicity

Not available.

Conclusion/Summary : The carcinogenic potential of gasoline has been investigated in rats and mice following inhalation exposure for 2 years. In rats, there was an increased incidence of kidney tumors in males and in mice there was an increased incidence of liver tumors in females; further work has shown that these tumors are sex and species specific and are not considered relevant to humans (Short BG et al., 1989). Results of 2 year skin painting studies with gasoline or low boiling point naphthas have shown either no, or weak potential (low incidence and long latent period) for the development of skin tumors. Additional work has shown that where tumors arise they are most likely a result of a non-genotoxic response due to dermal irritation (API, 1983).

Classification

Product/ingredient name	OSHA	IARC	NTP
toluene	-	3	-
tetraethyl lead	-	3	Reasonably anticipated to be a human carcinogen.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Developmental toxin	Species	Dose	Exposure
toluene	-	Positive	-	Rat - Male, Female	Inhalation: 7500 mg/ m ³	6 hours per day
	-	-	Positive	Rat - Male, Female	Inhalation: 1875 mg/ m ³	6 hours per day

Conclusion/Summary : Results of guideline developmental toxicity studies on gasolines and OECD developmental toxicity screening studies with low boiling point naphtha streams showed no evidence of developmental toxicity in rats (Roberts L et al, 2001). Similarly, studies in rats with gasoline did not show any effect on reproductive performance (McKee RH et al, 2000). Gasoline and low boiling point naphthas can contain amounts of toluene and/or n-hexane, constituents that are classified as reprotoxicants.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
isooctane	Category 3	Not applicable.	Narcotic effects
toluene	Category 3	Not applicable.	Narcotic effects
methyl alcohol	Category 1	Oral	optic nerve
<p>Summary: Acute exposure studies show no evidence of systemic toxicity, other than a potential to cause narcosis/ CNS depression at higher exposure concentrations (Drinker P et al, 1943; Davis A et al 1960).</p>			

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
toluene	Category 2	Not determined	cardiovascular system, central nervous system (CNS), kidneys, liver and respiratory system
<p>Summary: The repeat dose toxicity of gasoline and low boiling point naphthas has been studied in rats following dermal and inhalation exposure for periods between 10 days and up to 2 years. The effects of repeated inhalation exposure of primates to gasoline have also been studied. In dermal studies, no systemic toxicity has been seen; the only effect observed was moderate to severe dermal irritation. Repeated inhalation exposure causes light hydrocarbon nephropathy in male rats, an effect which is considered to be both sex and species specific (Halder CA et al, 1985; API, 2005; ARCO, 1986-C).</p>			

Aspiration hazard

Name	Result
SUNOCO EXO2	ASPIRATION HAZARD - Category 1
<p>Summary: Gasoline and low boiling point naphthas are low viscosity, mobile hydrocarbon liquids with a viscosity at 40°C of <7 mm²/s.</p>	

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. Loss of coordination. Headache. Fatigue.
- Skin contact** : Causes skin irritation.
- Ingestion** : Harmful if swallowed. Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 11. Toxicological information

- Inhalation** : Adverse symptoms may include the following:
 nausea or vomiting
 headache
 drowsiness/fatigue
 dizziness/vertigo
 unconsciousness
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
 irritation
 redness
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
 nausea or vomiting
 reduced fetal weight
 increase in fetal deaths
 skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- General** : May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : May damage the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : May damage fertility.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	1001.3 mg/kg
Dermal	3004 mg/kg
Inhalation (vapors)	30.04 mg/l

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
ethyl alcohol	Acute EC50 17.921 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute EC50 2000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 25500 µg/l Marine water	Crustaceans - Artemia franciscana - Larvae	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Oncorhynchus mykiss	4 days
	Chronic NOEC 4.995 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Chronic NOEC 100 µl/L Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC 0.375 µl/L Fresh water	Fish - Gambusia holbrooki - Larvae	12 weeks
toluene	Acute EC50 12500 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 11600 µg/l Fresh water	Crustaceans - Gammarus pseudolimnaeus - Adult	48 hours
	Acute EC50 6000 µg/l Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours
	Acute LC50 5500 µg/l Fresh water	Fish - Oncorhynchus kisutch - Fry	96 hours
	Chronic NOEC 1000 µg/l Fresh water	Daphnia - Daphnia magna	21 days
methyl alcohol	Acute EC50 16.912 mg/l Marine water	Algae - Ulva pertusa	96 hours
	Acute LC50 2500000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 3289 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 290 mg/l Fresh water	Fish - Danio rerio - Egg	96 hours
	Chronic NOEC 9.96 mg/l Marine water	Algae - Ulva pertusa	96 hours
	tetraethyl lead	Acute LC50 85 µg/l Marine water	Crustaceans - Artemia salina
Acute LC50 0.23 mg/l Marine water		Fish - Pleuronectes platessa	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
SUNOCO EXO2	2 to 7	-	high
naphtha (petroleum), light alkylate	-	10 to 2500	high
ethyl alcohol	-0.35	-	low
toluene	2.73	90	low

Section 12. Ecological information

methyl alcohol	-0.77	<10	low
tetraethyl lead	4.15	460	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

United States - RCRA Toxic hazardous waste "U" List

Ingredient	CAS #	Status	Reference number
Toluene; Benzene, methyl-Methanol (I); Methyl alcohol (I)	108-88-3 67-56-1	Listed Listed	U220 U154

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	UN3475	Not determined.	Not determined.	UN3475	UN3475	UN3475
UN proper shipping name	Ethanol and gasoline mixture	-	-	ETHANOL AND GASOLINE MIXTURE	ETHANOL AND GASOLINE MIXTURE	Ethanol and petrol mixture
Transport hazard class(es)	3	-	-	3	3	3
Label						
Packing group	II	-	-	II	II	II
Environmental hazards	Yes.	-	-	Yes.	Marine Pollutant: Yes	No.

Section 14. Transport information

<p>Additional information</p>	<p>Reportable quantity 3703.7 lbs / 1681.5 kg [584.47 gal / 2212.5 L] Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.</p> <p>Toluene RQ: 1000 lbs (454 kg); Tetraethyl lead RQ: 10 lbs (4.54 kg); Methyl alcohol RQ: 5000 lbs (2270 kg)</p> <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 5 L</p> <p>Cargo aircraft Quantity limitation: 60 L</p> <p>Special provisions 144, 177, IB2, T4, TP1</p>	-	-	-	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p>Emergency schedules (EmS) F-E, S-E</p> <p>Special provisions 333, 363</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p>Passenger and Cargo Aircraft Quantity limitation: 5 L Packaging instructions: 353</p> <p>Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 364</p> <p>Limited Quantities - Passenger Aircraft Quantity limitation: 1 L Packaging instructions: Y341</p> <p>Special provisions A156</p> <p>ERG Code: 3L</p>
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Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : TSCA 4(a) proposed test rules: tetraethyl lead
 TSCA 8(a) CDR Exempt/Partial exemption: Not determined
 United States inventory (TSCA 8b): All components are listed or exempted.
 Clean Water Act (CWA) 307: toluene; tetraethyl lead
 Clean Water Act (CWA) 311: toluene; tetraethyl lead
 Clean Air Act (CAA) 112 regulated flammable substances: isopentane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
tetraethyl lead	≤0.3	Yes.	100	7.1	10	0.71

SARA 304 RQ : 5000 lbs / 2270 kg [800.6 gal / 3030.7 L]

SARA 311/312

Classification : Fire hazard
 Immediate (acute) health hazard
 Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
isooctane	25 - 50	No.	No.	No.	Yes.	No.
naphtha (petroleum), light alkylate	40 - 55	Yes.	No.	No.	No.	Yes.
ethyl alcohol	10 - 25	Yes.	No.	No.	Yes.	Yes.
toluene	10 - 20	Yes.	No.	No.	Yes.	Yes.
methyl alcohol	7 - 15	Yes.	No.	No.	Yes.	No.
butane	2 - 5	Yes.	Yes.	No.	No.	No.
tetraethyl lead	0.1 - 0.2	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	toluene	108-88-3	≥10 - ≤25
	methyl alcohol	67-56-1	≥10 - ≤22
	tetraethyl lead	78-00-2	≤0.3
Supplier notification	toluene	108-88-3	≥10 - ≤25
	methyl alcohol	67-56-1	≥10 - ≤22
	tetraethyl lead	78-00-2	≤0.3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Section 15. Regulatory information

- Massachusetts** : The following components are listed: ETHYL ALCOHOL; DENATURED ALCOHOL; TOLUENE; METHYLBENZENE; METHANOL; METHYL ALCOHOL; ISOPENTANE
- New York** : The following components are listed: Toluene; Methanol; Tetraethyl lead
- New Jersey** : The following components are listed: ETHYL ALCOHOL; ALCOHOL; TOLUENE; BENZENE, METHYL-; METHYL ALCOHOL; METHANOL; ISOPENTANE; BUTANE, 2-METHYL-; TETRAETHYL LEAD; LEAD, TETRAETHYL-
- Pennsylvania** : The following components are listed: ISOCTANE; DENATURED ALCOHOL; ETHANOL; BENZENE, METHYL-; METHANOL; BUTANE, 2-METHYL-; PLUMBANE, TETRAETHYL-

California Prop. 65

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

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
toluene	No.	Yes.	No.	7000 µg/day (ingestion)
methyl alcohol	No.	Yes.	No.	23000 µg/day (ingestion)
tetraethyl lead	Yes.	No.	No.	47000 µg/day (inhalation) No.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Ingredient name	Status
Tetraethyl lead; Plumbane, tetraethyl; TEL	Industrial

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

- Australia** : Not determined.
- Canada** : At least one component is not listed in DSL but all such components are listed in NDSL.
- China** : All components are listed or exempted.
- Europe** : All components are listed or exempted.
- Japan** : **Japan inventory (ENCS):** Not determined.
Japan inventory (ISHL): Not determined.
- Malaysia** : Not determined.
- New Zealand** : All components are listed or exempted.
- Philippines** : All components are listed or exempted.
- Republic of Korea** : All components are listed or exempted.
- Taiwan** : All components are listed or exempted.
- Turkey** : Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	2
Flammability	3
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE LIQUIDS - Category 2	On basis of test data
ACUTE TOXICITY (oral) - Category 4	Calculation method
SKIN IRRITATION - Category 2	Calculation method
TOXIC TO REPRODUCTION (Fertility) - Category 1A	Calculation method
TOXIC TO REPRODUCTION (Unborn child) - Category 1A	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (optic nerve) - Category 1	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3	Calculation method
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (cardiovascular system, central nervous system (CNS), kidneys, liver and respiratory system) - Category 2	Calculation method
ASPIRATION HAZARD - Category 1	Expert judgment

History

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Version	: 1

Section 16. Other information

Key to abbreviations

- : ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- UN = United Nations

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 Indicates information that has changed from previously issued version.

[Notice to reader](#)

Section 16. Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.