



## SAFETY DATA SHEET

According to the Hazard Communication Standard, 29 CFR 1910.1200

SDS # : A03935

# TURBO REF

Date of the previous version: 2018-02-08

Revision Date: 2018-02-08

Version 1.01

### 1. IDENTIFICATION

#### Product identifier

Product name TURBO REF

#### Other means of identification

Product Code(s) A03935

Substance/mixture Mixture

#### Recommended use of the chemical and restrictions on use

Identified uses Fuel.

Uses advised against Do not use for any purpose other than the one for which it is intended

#### Details of the supplier of the safety data sheet

Supplier Address TOTAL ADDITIFS ET CARBURANTS SPECIAUX  
Place du Bassin  
69700 Givors  
FRANCE  
Tel: +33 (0) 4 72 49 27 00  
Fax: +33 (0) 4 78 07 92 49

Contact Point Technical/ HSEQ

E-mail Address rm.acs-fds@total.com

#### Emergency telephone number

Emergency telephone +1 866 928 0789 (24h/24, 7d/7)  
+1 215 207 0061 (24h/24, 7d/7)

### 2. HAZARDS IDENTIFICATION

#### Classification

Flammable liquids - Category 2  
Acute toxicity - Inhalation (Dusts/Mists) - Category 4  
Skin corrosion/irritation - Category 2  
Serious eye damage/eye irritation - Category 2A  
Carcinogenicity - Category 1B  
Specific target organ systemic toxicity (single exposure) - Category 3  
Specific target organ systemic toxicity (repeated exposure) - Category 2  
Aspiration toxicity - Category 1

#### Label elements



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### DANGER

#### Hazard Statements

Highly flammable liquid and vapor  
 Harmful if inhaled  
 Causes skin irritation  
 Causes serious eye irritation  
 May cause cancer  
 May cause drowsiness or dizziness  
 May cause damage to organs through prolonged or repeated exposure  
 May be fatal if swallowed and enters airways  
 May be harmful in contact with skin  
 May cause respiratory irritation

#### Precautionary Statements - Prevention

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

#### Precautionary Statements - Response

Specific treatment (see 4 on this label)  
 IF exposed or concerned: Get medical advice/attention  
 Call a POISON CENTER or doctor/physician if you feel unwell

#### Eyes

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

#### Skin

If skin irritation occurs: Get medical advice/attention  
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Take off contaminated clothing and wash before reuse

#### Inhalation



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IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

**Ingestion**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Do NOT induce vomiting

**Fire**In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction**Precautionary Statements - Storage**

Store in a well-ventilated place. Keep container tightly closed

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/ container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None known

**Other information****Environmental properties**

Should not be released into the environment.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Mixture**

Chemical Name	CAS-No	Weight %
Mesitylene	108-67-8	10-25
Cyclopentane	287-92-3	10-25
Reaction mass of ethylbenzene and xylene	^	10-25
Pent-1-ene	109-67-1	10-25
Cyclohexane	110-82-7	10-25
ETHANOL	64-17-5	5-10
2-ethoxy-2-methylpropane	637-92-3	5-10
Hydrocarbons, C7-C9, isoalkanes	^	2.5-5
Isoprene	78-79-5	0.1-1

**Other constituents required for disclosure**

Chemical Name	CAS-No	Weight %
Xylene (mixed isomers o, m, p)	1330-20-7	10-25
Ethylbenzene	100-41-4	2.5-5
Alcohol	64-17-5	0.1-1
Pentane	109-66-0	0.1 - 1
toluene	108-88-3	0.1-1
1,2,4-Trimethylbenzene	95-63-6	0.1-1



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### 4. FIRST AID MEASURES

#### First aid measures for different exposure routes

<b>General advice</b>	IN CASE OF SERIOUS OR PERSISTENT CONDITIONS, CALL A DOCTOR OR EMERGENCY MEDICAL CARE. Show this material safety data sheet to the doctor in attendance.
<b>Eye contact</b>	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Keep eye wide open while rinsing.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse.
<b>Inhalation</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Inhalation of high concentrations of vapor or aerosols may cause irritation of the upper respiratory tract. If not breathing, give artificial respiration. Call a physician immediately.
<b>Ingestion</b>	Call a POISON CENTER or doctor/physician if exposed or you feel unwell. Clean mouth with water. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Smallest quantities reaching the lungs through swallowing or subsequent vomiting may result in lung edema or pneumonia.
<b>Protection of First-aiders</b>	Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

#### Most important symptoms/effects, acute and delayed

<b>Skin contact</b>	Reddening, irritation. May be harmful in contact with skin. Causes skin irritation.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Inhalation</b>	Harmful if inhaled.
<b>Ingestion</b>	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be fatal if swallowed and enters airways.
<b>Symptoms</b>	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

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

<b>Notes to physician</b>	Harmful: If swallowed accidentally, the product may enter the lungs due to its low viscosity and lead to the rapid development of very serious inhalation pulmonary lesions (medical survey during 48 hours). Treat symptomatically.
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### 5. FIRE-FIGHTING MEASURES

<b><u>Suitable Extinguishing Media</u></b>	Dry chemical. Carbon dioxide (CO <sub>2</sub> ). ABC powder. Foam. Cool containers / tanks with water spray. Water spray, fog or regular foam. Water spray.
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### Uniform Fire Code

Flammable Liquid: I-A  
 Other Health Hazard: Target Organ Toxin--Liquid  
 Blasting Agents  
 Flammable Liquid: I-B  
 Irritant: Liquid  
 Other Health Hazard: Carcinogen--Liquid (Note 5)  
 Highly Toxic: Liquid

### Unsuitable Extinguishing Media

Do not use a solid water stream as it may scatter and spread fire.

### Special Hazard

Vapors may form explosive mixtures with air. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Flash back possible over considerable distance. Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. These may be highly dangerous if inhaled in confined spaces or at high concentration.

### Explosion Data

#### Sensitivity to Mechanical Impact Sensitivity to Static Discharge

None.  
None.

#### Protective Equipment and Precautions for Firefighters

In case of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

#### General Information

Except in case of small spillages. The feasibility of any actions should always be assessed and advised, if possible, by a trained, competent person in charge of managing the emergency.

If required, notify relevant authorities according to all applicable regulations.

Evacuate non-essential personnel. For personal protection see section 8.

Stop or contain leak at the source, if safe to do so. Cut off the electric power supply if this operation causes no sparks in the area containing vapors from the product. Stay upwind. In case of large spillages, alert occupants in downwind areas. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). In case of important spillages: risk of fire or explosion. Cover discharges with foam in order to reduce the risks of ignition. Vapours are heavier than air and may spread near ground level to sources of ignition.

#### Advice for non-emergency personnel

Do not touch or walk through spilled material. For personal protection see section 8. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).

#### Advice for emergency responders

Take all appropriate steps to avoid fire, explosion and inhalation hazards to the rescuers including the use of breathing apparatus. In case of.

Small spillages: normal antistatic working clothes are usually adequate.

Large spillages: full body suit of chemically resistant and antistatic material. Work gloves (preferably gauntlets) providing adequate chemical resistance. Remarks: Gloves made of PVA are not water-resistant, and are not suitable for emergency use. Work helmet.



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Antistatic non-skid safety shoes or boots. Goggles and/or face shield, if splashes or contact with eyes is possible or anticipated.

Respiratory protection. A half or full-face respirator with filter(s) for organic vapours (and when applicable: for H<sub>2</sub>S). A Self-Contained Breathing Apparatus (SCBA) can be used according to the extent of spill and predictable amount of exposure. If the situation cannot be completely assessed, or if an oxygen deficiency is possible, only SCBA's should be used.

### Other information

Recommended measures are based on the most likely spillage scenarios for this material. However, local conditions (wind, air temperature, wave/current direction and speed) may significantly influence the choice of appropriate actions.

For this reason, local experts should be consulted when necessary.

Local regulations may also prescribe or limit actions to be taken.

### Environmental precautions

#### General Information

Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained. The product should not be allowed to enter drains, water courses or the soil.

Prevention of fire and explosion. A vapor suppressing foam may be used to reduce vapors. Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks). Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. In case of spill in river, suspend the use of the water downstream to the spillpoint. See Section 12 for additional Ecological Information.

### Methods and material for containment and cleaning up

#### Methods for cleaning up

Dam up. Ground and bond containers when transferring material. Keep in suitable, closed containers for disposal.

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Use clean non-sparking tools to collect absorbed material.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### Advice on safe handling

NEVER ATTEMPT TO PRIME THE CONTAINER SIPHON BY SUCKING WITH THE MOUTH.

Avoid contact with skin, eyes and clothing. Prevent the formation of vapors, mists and aerosols. Take precautionary measures against static electricity. Ensure that all relevant regulations regarding explosive atmospheres, handling and storage facilities of flammable products, are followed. The inspection, cleaning and maintenance of storage containers require the application of strict procedures and must be entrusted to qualified personnel (internal or external).

Ensure adequate ventilation. Vapors may form explosive mixtures with air. Do not smoke. Avoid breathing vapors or mists.

Do not use compressed air for filling, discharging, or handling operations. Never pierce, drill, grind, cut, saw or weld any empty container.

For personal protection see section 8.



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### Technical measures

Ensure adequate ventilation.  
 WHILE MOVING THE PRODUCT: To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded.  
 Take all necessary precautions to prevent water from entering the containers, tanks, transfer lines etc...

### Prevention of fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Design installations (machinery and equipment) to prevent burning product from spreading (tanks, retention systems, interceptors (traps) in drainage systems). OPERATE ONLY ON COLD AND DEGASSED TANKS IN VENTILATED PREMISES (TO AVOID RISK OF EXPLOSION). Do not use compressed air for filling, discharging or handling. Empty containers may contain flammable or explosive vapors. Do not allow splash loading and ensure that the product is poured slowly, particularly at the beginning of the operation.

### Hygiene measures

When using, do not eat, drink or smoke.  
 Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product.  
 Use personal protective equipment as required. Avoid breathing vapors, mist or gas. IF ON SKIN: Wash skin with soap and water.  
 Remove contaminated clothing and shoes. Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.

### Conditions for safe storage, including any incompatibilities

#### Technical measures/Storage conditions

Keep tightly closed in a dry and cool place. Keep in properly labeled containers. Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat and sources of ignition. Keep away from heat. Protect from light. Keep away from food, drink and animal feedingstuffs. Keep in a banded area. Keep preferably in the original container. Otherwise reproduce all indication of the regulation label on the new container. Do not remove the hazard labels of the containers (even if they are empty). Use only containers, seals, pipes, etc... made in a material suitable for use with aromatic hydrocarbons. Store in original container. Loading and unloading must be carried out at ambient temperature. Ensure all equipment is electrically grounded before beginning transfer operations. Do not allow splash loading and ensure that the product is poured slowly, particularly at the beginning of the operation. All metal parts of the mixing and processing equipment must be earthed. Keep container tightly closed in a dry and well-ventilated place. Use spark-proof tools and explosion-proof equipment.

#### Packaging material

Use only containers, seals, pipes, etc... made in a material suitable for use with aromatic hydrocarbons,

#### Materials to Avoid

Strong oxidizing agents. Strong bases.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

### Exposure limits



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Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Mesitylene 108-67-8	-	-	TWA: 25 ppm TWA: 125 mg/m <sup>3</sup>
Cyclopentane 287-92-3	TWA 600 ppm	(vacated) TWA: 600 ppm (vacated) TWA: 1720 mg/m <sup>3</sup>	TWA: 600 ppm TWA: 1720 mg/m <sup>3</sup>
Cyclohexane 110-82-7	TWA 100 ppm	TWA: 300 ppm() TWA: 1050 mg/m <sup>3</sup> () (vacated) TWA: 300 ppm (vacated) TWA: 1050 mg/m <sup>3</sup>	IDLH: 1300 ppm TWA: 300 ppm TWA: 1050 mg/m <sup>3</sup>
ETHANOL 64-17-5	STEL 1000 ppm	TWA: 1000 ppm() TWA: 1900 mg/m <sup>3</sup> () (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m <sup>3</sup>	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup>
2-ethoxy-2-methylpropane 637-92-3	TWA 25 ppm	-	

**Other constituents required for disclosure .**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Xylene (mixed isomers o, m, p) 1330-20-7	STEL 150 ppm TWA 100 ppm	TWA: 100 ppm() TWA: 435 mg/m <sup>3</sup> () (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m <sup>3</sup> (vacated) STEL: 150 ppm (vacated) STEL: 655 mg/m <sup>3</sup>	
Ethylbenzene 100-41-4	TWA 20 ppm	TWA: 100 ppm() TWA: 435 mg/m <sup>3</sup> () (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m <sup>3</sup> (vacated) STEL: 125 ppm (vacated) STEL: 545 mg/m <sup>3</sup>	IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m <sup>3</sup> STEL: 125 ppm STEL: 545 mg/m <sup>3</sup>
Alcohol 64-17-5	STEL 1000 ppm	TWA: 1000 ppm() TWA: 1900 mg/m <sup>3</sup> () (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m <sup>3</sup>	IDLH: 3300 ppm TWA: 1000 ppm TWA: 1900 mg/m <sup>3</sup>
Pentane 109-66-0	TWA 1000 ppm	TWA: 1000 ppm() TWA: 2950 mg/m <sup>3</sup> () (vacated) TWA: 600 ppm (vacated) TWA: 1800 mg/m <sup>3</sup> (vacated) STEL: 750 ppm (vacated) STEL: 2250 mg/m <sup>3</sup>	IDLH: 1500 ppm TWA: 120 ppm TWA: 350 mg/m <sup>3</sup> Ceiling: 610 ppm Ceiling: 1800 mg/m <sup>3</sup>
toluene 108-88-3	TWA 20 ppm	TWA: 200 ppm() (vacated) TWA: 100 ppm (vacated) TWA: 375 mg/m <sup>3</sup> (vacated) STEL: 150 ppm (vacated) STEL: 560 mg/m <sup>3</sup> Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m <sup>3</sup> STEL: 150 ppm STEL: 560 mg/m <sup>3</sup>
1,2,4-Trimethylbenzene 95-63-6	-	-	TWA: 25 ppm TWA: 125 mg/m <sup>3</sup>

**Biological standards**

Chemical Name	ACGIH
Xylene (mixed isomers o, m, p) 1330-20-7	Methylhippuric acids in urine 1.5 g/g creatinine -end of shift
Ethylbenzene	Sum of mandelic acid and phenylglyoxylic acid in urine 0.15 g/g





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100-41-4	creatinine -end of shift
toluene 108-88-3	Toluene in blood 0.02 mg/L -prior to last shift of workweek Toluene in urine 0.03 mg/L -end of shift o-Cresol with hydrolysis in urine 0.3 mg/g creatinine -end of shift

### Exposure controls

#### Engineering Measures

Apply technical measures to comply with the occupational exposure limits. When working in confined spaces (tanks, containers, etc.), ensure that there is a supply of air suitable for breathing and wear the recommended equipment.

### Individual protection measures, such as personal protective equipment

#### General Information

Protective engineering solutions should be implemented and in use before personal protective equipment is considered.

#### Eye/face protection

If splashes are likely to occur, wear: Safety glasses with side-shields.

#### Skin and body protection

Impermeable gloves. Impervious clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots. Wear suitable protective clothing. Protective shoes or boots.

#### Hand Protection

Hydrocarbon-proof gloves for aromatic hydrocarbons. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

#### Respiratory protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

#### Hygiene measures

When using, do not eat, drink or smoke.  
Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Keep away from food, drink and animal feeding stuffs. Regular cleaning of equipment, work area and clothing is recommended. Ensure the application of strict rules of hygiene by the personnel exposed to the risk of contact with the product.  
Use personal protective equipment as required. Avoid breathing vapors, mist or gas. IF ON SKIN: Wash skin with soap and water.  
Remove contaminated clothing and shoes. Gloves must be periodically inspected and changed in case of wear, perforations or contaminations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Physical and chemical properties

Color

colorless

Physical State @20°C

liquid

Odor

Petroleum distillates



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<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
Odor Threshold		No information available	
pH		Not applicable	
Melting point/range		No information available	
Boiling point/boiling range	40 - 167 °C 104 - 333 °F		EN ISO 3405 EN ISO 3405
Flash point	<= -30 °C <= -22 °F		ASTM D 93 ASTM D 93.
Evaporation rate		No information available	
Flammability Limits in Air		No information available	
Vapor Pressure	564 hPa	@ 37.8 °C	ISO 13016-1
Vapor density	> 1	(Air = 1)	
Relative density	0.78		
Density	777 kg/m <sup>3</sup>	@ 15 °C	ISO 12185
Water solubility		Insoluble	
Solubility in other solvents		No information available	
logPow		No information available	
Autoignition temperature	> 230 °C > 446 °F		
Decomposition temperature		Not applicable	
Viscosity, kinematic	< 1 mm <sup>2</sup> /s	@ 40 °C	ISO 3104
Explosive properties	Not considered explosive based on chemical structure and oxygen balance considerations		
Oxidizing Properties	This product is not considered oxidising based on chemical structure considerations		
Possibility of hazardous reactions	None under normal processing		
<u>Other information</u>			
Freezing Point		No information available	
Conductivity	> 1 pS/m		ASTM D2624

**10. STABILITY AND REACTIVITY**

<u>Reactivity</u>	No information available.
<u>Chemical stability</u>	Stable under recommended storage conditions.
<u>Possibility of hazardous reactions</u>	None under normal processing.
<u>Conditions to avoid</u>	Heat, flames and sparks. Take precautionary measures against static discharges. Heating in air. Conditions to avoid.
<u>Incompatible materials</u>	Strong oxidizing agents. Strong bases.
<u>Hazardous Decomposition Products</u>	None under normal use. Incomplete combustion and thermolysis may produce gases of varying toxicity such as carbon monoxide, carbon dioxide, various hydrocarbons, aldehydes and soot. Carbon oxides.

**11. TOXICOLOGICAL INFORMATION**



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**Information on likely routes of exposure**

<b>Principle Routes of Exposure</b>	Inhalation, Ingestion, Eye contact, Skin contact.
<b>Symptoms</b>	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
<b>Skin contact</b>	Reddening, irritation. May be harmful in contact with skin. Causes skin irritation.
<b>Eye contact</b>	Causes serious eye irritation.
<b>Inhalation</b>	Harmful if inhaled.
<b>Ingestion</b>	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May be fatal if swallowed and enters airways.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Acute toxicity - Product Information**

<b>Product Information</b>	Product does not present an acute toxicity hazard based on known or supplied information.
<b>Oral</b> ATEmix (oral)	Not classified. 19252 mg/kg
<b>Dermal</b> ATEmix (dermal)	Not classified 6719 mg/kg
<b>Inhalation</b> ATEmix (inhalation-dust/mist) ATEmix (inhalation-vapor)	Not classified ppm 3.9 mg/l 47 mg/l

**Acute toxicity - Component Information**

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cyclopentane 287-92-3	LD50 > 5000 mg/kg bw (rat - OECD 423)		LD50 (4h) > 25.3 mg/l (vapour) (rat - OECD 403)
Reaction mass of ethylbenzene and xylene ^	LD50 3523 - 4000 mg/kg bw (rat) LD50 5251 - 5627 mg/kg bw (mouse)		LC50(4h) 6350 - 6700 ppm (rat)
Pent-1-ene 109-67-1	LD50 > 2000 mg/kg (Rat)	LD50 > 2000 mg/kg (Rabbit)	= 175000 mg/m <sup>3</sup> ( Rat ) 4 h
Cyclohexane 110-82-7	LD50 >5000 mg/kg (OCDE 401-rat)	LD50 >2000 mg/kg bw (OCDE 402-rabbit)	
ETHANOL 64-17-5	LD50 10470 mg/kg ( Rat )	LD50 15800 mg/kg (Rabbit)	LC50 30000 mg/m <sup>3</sup>
2-ethoxy-2-methylpropane 637-92-3	> 2003 mg/kg bw (rat - OECD 401)	> 2000 mg/kg bw (rabbit - OECD 402)	> 5880 mg/m <sup>3</sup> ( Rat ) 4 h
Hydrocarbons, C7-C9, isoalkanes ^	LD50 > 5000 mg/kg bw (rat - OECD 401)	LD50 > 2000 mg/kg (Rabbit - OECD402)	LC50(4h) > 21 mg/l (Rat - Vapors - OECD403)
Isoprene 78-79-5	LD50 2043 - 2210 mg/kg (Rat)	LD50 >679 mg/kg (rat)	LC50 (4h) 180000 mg/m <sup>3</sup> (Rat) LC50 (2h) 157000 mg/m <sup>3</sup> (Mice)



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**Skin corrosion/irritation** Irritating to skin.  
**Serious eye damage/eye irritation** Irritating to eyes.  
**Sensitization** The current toxicological knowledge allows to not classify the product as a sensitizer.  
**Carcinogenicity** May cause cancer.

Chemical Name	ACGIH	IARC	NTP	OSHA
ETHANOL 64-17-5	A3	1		X
Isoprene 78-79-5		2B	Reasonably Anticipated	X

**Other constituents required for disclosure .**

Chemical Name	ACGIH	IARC	NTP	OSHA
Ethylbenzene 100-41-4	A3	2B		X
Alcohol 64-17-5	A3	1		X

**ACGIH: (American Conference of Governmental Industrial Hygienists)** A3 - Animal Carcinogen**IARC: (International Agency for Research on Cancer)** Group 1 - Carcinogenic to Humans  
Group 2B - Possibly Carcinogenic to Humans**NTP: (National Toxicity Program)** Known - Known Carcinogen  
Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen**OSHA: (Occupational Safety & Health Administration)** X - Present

**Mutagenicity** Not classified based on available data.  
**Germ Cell Mutagenicity** Not classified based on available data.  
**Reproductive toxicity** Not classified based on available data.  
**Target Organ Effects (STOT)** May cause drowsiness and dizziness.  
**STOT - single exposure** May cause drowsiness or dizziness.  
**STOT - repeated exposure** May cause damage to organs through prolonged or repeated exposure.  
**Aspiration hazard** May be fatal if swallowed and enters airways.

**12. ECOLOGICAL INFORMATION****Ecotoxicity** Toxic to aquatic life with long lasting effects**Acute aquatic toxicity - Product Information**

No experimental data available

**Acute aquatic toxicity - Component Information**

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to daphnia and other aquatic invertebrates	Toxicity to microorganisms
Mesitylene 108-67-8		LC50(96h) 3.48 mg/l	LC50(48h) 6 mg/l	
Cyclopentane 287-92-3	ErL50 (72h) = 21,6 mg/l (Pseudokirchneriella subcapitata - QSAR Petrotox)	LL50 (96h) = 29,3 mg/l (Oncorhynchus mykiss - QSAR Petrotox)	EL50 (48h) = 51,1 mg/l (Daphnia magna - QSAR Petrotox)	
Reaction mass of ethylbenzene and xylene	EC50(73h) 2.2 mg/l (Selenastrum)	LC50(96h) 2.6 mg/l (Oncorhynchus)	LC50(24h) 1 mg/l (Daphnia magna-OECD Guideline)	



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^	capricornutum)	mykiss-OECD Guideline 203)	202)	
Pent-1-ene 109-67-1	EC50 (96h) > 100 mg/l (Selenastrum capricornutum - OECD 201)	LC50 (96h) > 1 -10 mg/l (Oncorhynchus mykiss)	EC50 (48h) > 100 mg/l (Daphnia magna - OECD 202)	
Cyclohexane 110-82-7	EbC50(72h) 3.4 mg/L (Pseudokirchneriella subcapitata-OECD 201) ErC50(72h) 9.317 mg/L (Pseudokirchneriella subcapitata-OECD 201)	LC50(96h) 4.53 mg/L (Pimephales promelas-OECD 203)	EC50(48h) 0.9 mg/L (Daphnia magna-OECD 202)	EC50 (24h) = 29 mg/l
ETHANOL 64-17-5	EC50 (72h) 275 mg/l Chlorella vulgaris (OECD 201)	LC50 (96h) 14200 mg/l Pimephales Promelas ( EPA )	EC50 (48h) 5012 mg/l Ceriodaphnia dubia ( ASTM E729-80 )	EC50 = 34634 mg/L 30 min EC50 = 35470 mg/L 5 min
Hydrocarbons, C7-C9, isoalkanes ^	EbL50 (72h) = 10-30 mg/l (Pseudokirchneriella subcapitata - OECD 201) ErL50 (72h) = 10-30 mg/l (Pseudokirchneriella subcapitata - OECD 201)	LL50 (96h) = 18,4 mg/l (Oncorhynchus mykiss - OECD 203)	EL50 (48h) = 2,4 mg/l (Daphnia magna - TNO)	-
Isoprene 78-79-5	IC50 (72h) 15.3 mg/l (Selenastrum capricornutum)	LC50 (96h) 7.43 mg/l (Oncorhynchus mykiss)	EC50 (48h) 5.77 mg/l (Daphnia magna)	

**Chronic aquatic toxicity - Product Information**

No experimental data available

**Chronic aquatic toxicity - Component Information**

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Toxicity to microorganisms
Cyclopentane 287-92-3	NOEL (72h) = 4.8 mg/l (Pseudokirchneriella subcapitata - growth rate - QSAR Petrotox)	NOELR (21d) = 11.4 mg/l (Daphnia magna - QSAR Petrotox)	NOELR (28d) = 6.56 mg/l (Oncorhynchus mykiss - QSAR Petrotox)	
Cyclohexane 110-82-7	NOEC(72h) 0.94 mg/L (Pseudokirchneriella subcapitata-biomass-OECD 201) NOEC(72h) 0.9 mg/L (Pseudokirchneriella subcapitata-growth rate-OECD 201)			EC50(24h) 29 mg/L
ETHANOL 64-17-5		NOEC (10d) 9.6 mg/l Ceriodaphnia dubia	NOEC (30d) 245 mg/l (ECOSAR)	
Hydrocarbons, C7-C9, isoalkanes ^	NOELR (72 h) = 6,3 mg/L (Pseudokirchneriella subcapitata - growth rate - OECD 201) NOELR (72 h) = 6,3 mg/l (Pseudokirchneriella subcapitata - biomass - OECD 201)	NOELR (21d) = 0.17 mg/l (Daphnia magna)	NOELR (28d) = 0,78 mg/l (Oncorhynchus mykiss -QSAR Petrotox)	



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**Effects on terrestrial organisms** No information available.**Persistence and degradability****General Information** No information available.**Bioaccumulative potential****Product Information** No information available.**logPow** No information available**Component Information**

Chemical Name	log Pow
Cyclopentane 287-92-3	3
Pent-1-ene 109-67-1	2.66
Cyclohexane 110-82-7	3.44
ETHANOL 64-17-5	-0.35
Isoprene 78-79-5	2.58

**Mobility****Soil** Given its physical and chemical characteristics, the product is generally mobile in the ground It may contaminate ground water.**Air** The product evaporates in the air and dissipates more or less depending on local conditions. However, it may stagnate in pools in low-lying areas, in an undisturbed or confined atmosphere.**Water** The product spreads on the surface of the water. A small amount may solubilise in water.**Other adverse effects****General Information** No information available**13. DISPOSAL CONSIDERATIONS****Waste treatment****Waste Disposal Methods** Dispose of in accordance with local regulations. Should not be released into the environment. This material, as supplied, is a hazardous waste according to federal regulations (40 CFR 261).**Contaminated packaging** Empty containers may contain flammable or explosive vapors. Do not burn, or use a cutting torch on, the empty drum. Empty containers should be taken to an approved waste handling site for recycling or disposal.**US EPA Waste Number** D001



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Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Xylene (mixed isomers o, m, p) 1330-20-7		Included in waste stream: F039		ignitable waste
Ethylbenzene 100-41-4		Included in waste stream: F039		
toluene 108-88-3	U220	Included in waste streams: F005, F024, F025, F039, K015, K036, K037, K149, K151		

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

Chemical Name	California Hazardous Waste Status
Cyclopentane 287-92-3	Toxic Ignitable
Cyclohexane 110-82-7	Toxic Ignitable
ETHANOL 64-17-5	Toxic Ignitable
Isoprene 78-79-5	Toxic Ignitable Reactive

Chemical Name	California Hazardous Waste Status
Xylene (mixed isomers o, m, p) 1330-20-7	Toxic Ignitable
Ethylbenzene 100-41-4	Toxic Ignitable
Alcohol 64-17-5	Toxic Ignitable
Pentane 109-66-0	Toxic Ignitable
toluene 108-88-3	Toxic Ignitable

**14. TRANSPORT INFORMATION****DOT**

<b>UN/ID No</b>	UN1203
<b>Proper shipping name</b>	GASOLINE
<b>Hazard class</b>	3
<b>Packing Group</b>	II
<b>Reportable Quantity (RQ)</b>	(Isoprene: RQ (kg)= 45.40, Cyclohexane: RQ (kg)= 454.00)
<b>Special Provisions</b>	144, 177, B1, B33, IB2, T8, T4
<b>Marine pollutant</b>	P - This product contains a chemical which is listed as a marine pollutant according to DOT.
<b>Description</b>	UN1203, GASOLINE, 3, II, Marine pollutant (Mesitylene)
<b>Emergency Response Guide</b>	128



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**Number****TDG**

UN/ID No	UN1203
Proper shipping name	GASOLINE
Hazard class	3
Packing Group	II
Special Provisions	17, 88, 98, 155
Description	UN1203, GASOLINE, 3, II

**MEX**

UN/ID No	UN1203
Proper shipping name	GASOLINE
Hazard class	3
Special Provisions	243
Packing Group	II
Description	UN1203, GASOLINE, 3, II

**ICAO/IATA**

UN/ID No	UN1203
Proper shipping name	Gasoline
Hazard class	3
Packing Group	II
ERG Code	3H
Special Provisions	A100
Description	UN1203, Gasoline, 3, II
Excepted Quantity	E2
Limited quantity	1 L

**IMDG/IMO**

UN/ID No	UN1203
Proper shipping name	GASOLINE
Hazard class	3
Packing Group	II
EmS No.	F-E, S-E
Special Provisions	243
Description	UN1203, GASOLINE, 3, II, (-30°C C.C.), MARINE POLLUTANT
Excepted Quantity	E2
Limited quantity	1 L

**ADR/RID**

UN/ID No	UN1203
Proper shipping name	GASOLINE
Hazard class	3
Packing Group	II
Classification Code	F1
Tunnel Restriction Code	(D/E)
Special Provisions	243, 534, 664
Description	UN1203, GASOLINE, 3, II, (D/E), Environmentally hazardous
Limited quantity	1 L
ADR/RID-Labels	3
Environmental hazard	Yes





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**ADN**

UN/ID No	UN1203
Proper shipping name	GASOLINE
Hazard class	3
Packing Group	II
Classification Code	F1
Special Provisions	243, 363, 534
Description	UN1203, GASOLINE, 3, II
Hazard Labels	3
Limited quantity	1 L
Ventilation	VE01
Equipment Requirements	PP, EX, A

**15. REGULATORY INFORMATION**

**International Inventories** All the substances contained in this product are listed or exempted from listing in the following inventories:  
Europe (EINECS/ELINCS/NLP)  
U.S.A. (TSCA)

**U.S. Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Cyclohexane	110-82-7	10-25	1.0
Isoprene	78-79-5	0.1-1	0.1

**Other constituents required for disclosure .**

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
Xylene (mixed isomers o, m, p)	1330-20-7	10-25	1.0
Ethylbenzene	100-41-4	2.5-5	0.1
toluene	108-88-3	0.1-1	1.0
1,2,4-Trimethylbenzene	95-63-6	0.1-1	1.0

**SARA 311/312 Hazard Categories**

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

**Clean Water Act**

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

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Cyclohexane 110-82-7	1000 lb			X



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Isoprene 78-79-5	100 lb			X
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**Other constituents required for disclosure .**

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Xylene (mixed isomers o, m, p) 1330-20-7	100 lb			X
Ethylbenzene 100-41-4	1000 lb	X	X	X
toluene 108-88-3	1000 lb	X	X	X

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

This product contains the following substances which are listed hazardous air pollutants (HAPS) under Section 112 of the Clean Air Act:

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Cyclohexane	110-82-7	10-25		Group I		

**Other constituents required for disclosure .**

Chemical Name	CAS-No	Weight %	HAPS data	VOC Chemicals	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Xylene (mixed isomers o, m, p)	1330-20-7	10-25		Group I		
Ethylbenzene	100-41-4	2.5-5		Group I		
toluene	108-88-3	0.1-1		Group I		

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302):

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Cyclohexane	1000 lb	
Isoprene	100 lb	

**Other constituents required for disclosure .**

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs
Xylene (mixed isomers o, m, p)	100 lb	
Ethylbenzene	1000 lb	
toluene	1000 lb	

**U.S. State Regulations****California Proposition 65**

This product contains the following Proposition 65 chemicals:

Chemical Name	Weight %	California Prop. 65
ETHANOL - 64-17-5	7.148543	Carcinogen Developmental



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Isoprene - 78-79-5	0.63	Carcinogen
Naphthalene - 91-20-3	0.00277	Carcinogen
Cumene - 98-82-8	0.00169	Carcinogen
Toluene - 108-88-3	0.00012	Developmental

**Other constituents required for disclosure .**

Chemical Name	Weight %	California Prop. 65
Ethylbenzene - 100-41-4	2.5-5	Carcinogen
Alcohol - 64-17-5	0.1-1	Carcinogen Developmental
toluene - 108-88-3	0.1-1	Developmental

**U.S. State Right-to-Know Regulations**

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois
Mesitylene 108-67-8	X			
Cyclopentane 287-92-3	X	X	X	
Xylene (mixed isomers o, m, p) 1330-20-7	X	X	X	X
Pent-1-ene 109-67-1	X	X	X	
Cyclohexane 110-82-7	X	X	X	
ETHANOL 64-17-5	X	X	X	
2-ethoxy-2-methylpropane 637-92-3		X		
Ethylbenzene 100-41-4	X	X	X	X
Isoprene 78-79-5	X	X	X	X
Alcohol 64-17-5	X	X	X	
toluene 108-88-3	X	X	X	X
Pentane 109-66-0	X	X	X	
2-methylpentane 107-83-5	X	X	X	

**Other constituents required for disclosure .**

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois
Xylene (mixed isomers o, m, p) 1330-20-7	X	X	X	X
Ethylbenzene 100-41-4	X	X	X	X
Alcohol 64-17-5	X	X	X	
Pentane	X	X	X	



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109-66-0				
toluene 108-88-3	X	X	X	X
1,2,4-Trimethylbenzene 95-63-6	X	X	X	X

**16. OTHER INFORMATION**

**NFPA** Health Hazard 2 Flammability 3 Instability 0 Special hazards \*  
**HMIS** Health Hazard 2 Flammability 3 Physical Hazard 0 Personal protection X

NFPA (National Fire Protection Association)

HMIS (Hazardous Material Information System)

Hazards are split into categories each with a 0 to 4 rating, 0 meaning no hazard and 4 meaning high hazard

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**Abbreviations, acronyms**

ACGIH = American Conference of Governmental Industrial Hygienists

bw = body weight

bw/day = body weight/day

EC x = Effect Concentration associated with x% response

GLP = Good Laboratory Practice

IARC = International Agency for Research of Cancer

LC50 = 50% Lethal concentration - Concentration of a chemical in air or a chemical in water which causes the death of 50% (one half) of a group of test animals

LD50 = 50% Lethal Dose - Chemical amount, given at once, which causes the death of 50% (one half) of a group of test animals

LL = Lethal Loading

NIOSH = National Institute of Occupational Safety and Health

NOAEL = No Observed Adverse Effect Level

NOEC = No Observed Effect Concentration

NOEL = No Observed Effect Level

OECD = Organization for Economic Co-operation and Development

OSHA = Occupational Safety and Health Administration

UVCB = Substance of unknown or Variable composition, Complex reaction products or Biological material

**Legend**

Section 8

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH - National Institute for Occupational Safety and Health

TLV - Threshold Limit Values

PEL - Permissible Exposure Limits

IDLH - Immediately Dangerous to Life or Health concentrations

TWA - Time Weight Average

STEL - Short Term Exposure Limits

S\* - Skin notation

TSCA - Toxic Substance Control Act

**This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the**



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**user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfil his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.**

**End of the Safety Data Sheet**