Safety Data Sheet

According to Annex II to REACH - Regulation 2015/830

SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name **PitStop Road Racing 75ml**

1.2. Relevant identified uses of the substance or mixture and uses advised against

Intended use **Repair and inflation**

1.3. Details of the supplier of the safety data sheet

Name	**Vittoria S.p.A.**
Full address	**Via Liguria 8**
District and Country	**24041 Brembate (BG)** **Italy**
	Tel. +39 035 4993911
	Fax +39 035 4993912
e-mail address of the competent person	
responsible for the Safety Data Sheet	**p.moretti@vittoria.com**

1.4. Emergency telephone number

For urgent inquiries refer to **IRELAND: National Poisons Information Centre (NPIC): +353 1 8092166**
MALTA: Medicines & poisons info Office 112
UK: National Health Service (NHS) (999 emergency call; 111 non-emergency call)
Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Explanatory note for classification purposes

The product is an aerosol containing propellants. For the purpose of calculating health hazards, propellants are not considered (unless they present the following health hazards: acute toxicity, skin corrosion / irritation, serious eye damage / eye irritation, skin sensitization, respiratory sensitization, STOT SE/RE).

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2015/830.
Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Physical-chemical hazards: this product is an extremely flammable aerosol and a pressurised container: may burst if heated.
Health hazards: this product may cause damage to organs through prolonged or repeated exposure.
Environmental hazards: this product the product is not classified for this hazard class.

Hazard classification and indication:

Aerosol, category 1	H222 H229	Extremely flammable aerosol. Pressurised container: may burst if heated.
Specific target organ toxicity - repeated exposure, category 2	H373	May cause damage to organs through prolonged or repeated exposure.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:

Signal words: Danger

Hazard statements:

H222	Extremely flammable aerosol.
H229	Pressurised container: may burst if heated.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements:

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211	Do not spray on an open flame or other ignition source.
P251	Do not pierce or burn, even after use.
P314	Get medical advice if you feel unwell.
P403	Store in a well-ventilated place.
P410+P412	Protect from sunlight. Do no expose to temperatures exceeding 50°C / 122°F.
P501	Dispose of contents and container according to local laws.

Contains: Ethylene glycol

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

The entire composition of the product listed below is indicated taking into account the contribution by weight of the propellants.

Total concentration of the mixture without the contribution of the propellant: 51.01%. This data was used to determine the classification of the mixture for the following hazard classes as required by the provisions of point 1.1.3.7 of Annex I Part 1 of Reg. (EC) 1272/2008 (CLP) and subsequent amendments: acute toxicity, skin corrosion / irritation, serious eye damage / eye irritation, skin sensitization, respiratory sensitization, STOT SE / RE.

Contains:

Identification	**Concentration %**	**Classification 1272/2008 (CLP)**	**Specific limits 1272/2008 (CLP)**
Hydrocarbons, C3-4 CAS 68476-40-4 EC 270-681-9 INDEX 649-199-00-1	40 - 50*	Flam. Gas 1 H220, Press. Gas H280, Muta. 1B H340**, Carc. 1A H350**, Classification note according to Annex VI to the CLP Regulation: K	*Not applicable*

Reg. no. 01-2119486557-22-XXXX

Ethylene glycol

CAS 107-21-1 EC 203-473-3	5 - 7*	Acute Tox. 4 H302, STOT RE 2 H373	*Not applicable*
INDEX 603-027-00-1			

Amines, C12-14 (even numbered)-alkyldimethyl, N-oxides

CAS 308062-28-4	0,1 - 0,25*	Acute Tox. 4 H302, Eye Dam. 1 H318, Skin Irrit. 2 H315, Aquatic Acute 1 H400 M=1, Aquatic Chronic 2 H411	*Not applicable*
EC 931-292-6			
INDEX -			

* Note: upper range value excluded.
** Note: classification not applied, in accordance with note K.
The full wording of hazard (H) phrases is given in section 16 of the sheet.

SECTION 4. First aid measures

4.1. Description of first aid measures

EYES: Remove contact lenses, if present. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. If problem persists, seek medical advice.

SKIN: Remove contaminated clothing. Wash immediately with plenty of water. If irritation persists, get medical advice/attention. Wash contaminated clothing before using it again.

INHALATION: Remove to open air. In the event of breathing difficulties, get medical advice/attention immediately.

INGESTION: Get medical advice/attention. Induce vomiting only if indicated by the doctor. Never give anything by mouth to an unconscious person, unless authorised by a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Specific information on symptoms and effects caused by the product are unknown.

Ethylene glycol
Acute dose-dependent effects.
Skin: irritation
Nervous system: if swallowed depression, convulsions, coma
Eyes: irritation
Upper airways: irritation
Lungs: irritation
Digestive system: if ingested nausea, vomiting, abdominal colic
Urogenital system: kidney damage

Chronic effects.
Nervous system: depression, ocular nystagmus
Eyes: irritation
Lungs: irritation..

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. Consult a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT
The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT
Water jets.

5.2. Special hazards arising from the substance or mixture

HAZARDS CAUSED BY EXPOSURE IN THE EVENT OF FIRE
If overheated, aerosol cans can deform, explode and be propelled considerable distances. Put a protective helmet on before approaching the fire. Do not breathe combustion products (COx mostly).

5.3. Advice for firefighters

GENERAL INFORMATION
Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear.

SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS
Normal firefighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

FOR NON-EMERGENCY RESPONDERS
Alert personnel responsible coordinating the response to such emergencies. Move away from the area affected by the accident if you are not in possession of the personal protective equipment listed in Section 8.

FOR EMERGENCY PERSONELL
Remove all staff not adequately equipped to deal with the emergency.
Eliminate any source of ignition (cigarettes, flames, sparks, etc.) or heat from the area where the leak has occurred.
Wear appropriate protective equipment (including personal protective equipment referred to in section 8 of the safety data sheet) to prevent contamination of the skin, eyes and personal clothing. Stop the leak if there is no danger.
Make the area affected by the accident accessible to workers only after adequate remediation has taken place. Ventilate the premises affected by the accident.

6.2. Environmental precautions

The product is in the form of spray cans and, due to the shape in which the product is packed and packaged, its dispersion in the environment is unlikely with the consequent risk of contamination. However, it is recommended to operate according to good industrial practices by preventing and controlling any release of the product into the environment.

6.3. Methods and material for containment and cleaning up

Collect the product with non-sparking mechanical means, paying attention to any deformed, perforated or damaged containers; these must not be recovered or reused, but must be disposed of in accordance with the indications contained in point 13 of this Safety Data Sheet. In the case of accidental dispersion of the aerosol content, consider the possible risk of formation of explosive atmospheres and provide sufficient ventilation of the place affected by the accident.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid bunching of electrostatic charges. Do not spray on flames or incandescent bodies. Vapours may catch fire and an explosion may occur; vapour accumulation is therefore to be avoided by leaving windows and doors open and ensuring good cross ventilation. Do not eat, drink or smoke during use. Do not breathe spray.

7.2. Conditions for safe storage, including any incompatibilities

Store in a place where adequate ventilation is ensured, away from direct sunlight at a temperature below 50°C / 122°F, away from any combustion sources. Consider the possible risk of formation of explosive atmospheres.

7.3. Specific end use(s)

No specific end uses are intended other than the relevant uses set out in Section 1.2 of this safety data sheet.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Regulatory References:

ITA	Italia	DIRETTIVA (UE) 2017/164 DELLA COMMISSIONE del 31 gennaio 2017
EU	OEL EU	Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 91/322/EEC.
	TLV-ACGIH	ACGIH 2019

Hydrocarbons, C3-4

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation				0,066 mg/m3				2,21 mg/m3
Skin								23,4 mg/kg bw/d

For the substances mentioned below, the DNEL / PNEC values are also reported (although the related REACH registration numbers are not available for these substances) in order to transmit as much information as possible to allow identification and application of the appropriate risk management measures.

Ethylene glycol

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations	Critical Effects
		mg/m3	ppm	mg/m3	ppm		
VLEP	ITA	52	20	104	40	SKIN	
OEL	EU	52	20	104	40	SKIN	
TLV-ACGIH		63,47	25	126,93	50	A4; vapor fraction	Upper respiratory tract irritation

Predicted no-effect concentration - PNEC		
Normal value in fresh water	10	mg/l
Normal value in marine water	1	mg/l
Normal value for fresh water sediment	37	mg/kg

Normal value for marine water sediment	3,7	mg/kg/d
Normal value of STP microorganisms	199,5	mg/l
Normal value for the terrestrial compartment	1,53	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation							35 mg/m3	
Skin								106 mg/kg bw/d

Amines, C12-14 (even numbered)-alkyldimethyl, N-oxides

Predicted no-effect concentration - PNEC		
Normal value in fresh water	0,034	mg/l
Normal value in marine water	0,003	mg/l
Normal value for fresh water sediment	5,24	mg/kg/d
Normal value for marine water sediment	0,524	mg/kg/d
Normal value for water, intermittent release	0,034	mg/l
Normal value of STP microorganisms	24	mg/l
Normal value for the food chain (secondary poisoning)	11,1	mg/kg
Normal value for the terrestrial compartment	1,02	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

	Effects on consumers				Effects on workers			
Route of exposure	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Oral				0,44 mg/kg bw/d				
Inhalation				1,53 mg/m3				6,2 mg/m3
Skin				5,5 mg/kg bw/d				11 mg/kg bw/d

Legend:
(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified.

Ethylene glycol
Sampling methods:
http://amcaw.ifa.dguv.de/substance/methoden/011-Ethane-12-diol_2016.pdf.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.
When choosing personal protective equipment, ask your chemical substance supplier for advice.
Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Exposure levels must be kept as low as possible to avoid significant build-up in the organism. Manage personal protective equipment so as to guarantee maximum protection (e.g. reduction in replacement times).

HAND PROTECTION
None required.

SKIN PROTECTION
Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap

and water after removing protective clothing.

EYE PROTECTION
Wear airtight protective goggles (see standard EN 166).

RESPIRATORY PROTECTION
If the threshold value (e.g. TLV-TWA) is exceeded for the substance or one of the substances present in the product, a mask with a type A filter combined with a type P filter should be worn (see standard EN 14387).
Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. The protection provided by masks is in any case limited.

ENVIRONMENTAL EXPOSURE CONTROLS
The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Spray can
Colour	Not available
Odour	Characteristic
Odour threshold	Not available
pH	10
Melting point / freezing point	< 0 °C
Initial boiling point	> 100 °C
Boiling range	Not available
Flash point	< 0 °C
Evaporation rate	Not available
Flammability (solid, gas)	Not available
Lower inflammability limit	Not available
Upper inflammability limit	Not available
Lower explosive limit	Not available
Upper explosive limit	Not available
Vapour pressure	5,5 bar +/- 1
Vapour density	>2
Relative density	Not available
Solubility	Complete (water)
Partition coefficient: n-octanol/water	Not applicable (the product is a mixture)
Auto-ignition temperature	> 200 °C
Decomposition temperature	Not available
Viscosity	kv > 2,05 mm2/s (a 40°C)
Explosive properties	Not applicable (absence of chemical groups associated with explosive properties, pursuant to the provisions of Annex I, Part 2, chapter 2.1.4.3 of Reg. (EC) 1272/2008 (CLP).
Oxidising properties	Not applicable (absence of the requirements related to the presence of atoms and/or chemical bonds associated with oxidising properties in the molecules of the components, pursuant to the provisions of Annex I, Part 2, 2.13.4 of Reg. (EC) 1272/2008 (CLP).

9.2. Other information

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

Ethylene glycol
Reacts violently with chlorosulfonic acid, oleum, perchloric acid, phosphorus pentasulfide.
It does not attack the usual metals however, at high temperatures, in the presence of water, it has a corrosive action and oxidizes producing a reaction (INRS, 2006).

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

Ethylene glycol
Hygroscopic liquid (INRS, 2006).
It is a stable compound which decomposes to acetic aldehyde at 500-600 ° C (INRS, 2006).

10.3. Possibility of hazardous reactions

High storage temperatures or the proximity of heat sources can cause increases in product pressure with consequent deformation of the containers and possible risk of explosion.
Chemical agents with corrosion properties in relation to the metal from which the aerosol generators are made, can cause a weakening of the containers with consequent risk of product spills.

Ethylene glycol
Violent reaction with oxidants and oxidizing acids, sulfuric acid. Forms an explosive mixture with sodium perchlorate (Pohanish, 2009)**.**

10.4. Conditions to avoid

Avoid overheating.

Ethylene glycol
No ventilation.
Heating and open flames.
Avoid accumulation of static electricity.

10.5. Incompatible materials

Strong reducing or oxidising agents, strong acids or alkalis, hot material.

Ethylene glycol
Strong oxidants.
Strong bases.
Incompatible with strong acids, caustics, aliphatic amines, isocyanates, chlorosulfonic acid, oleum, potassium bichromate, phosphorus pentasulfide, sodium chlorite (Pohanish, 2009).

10.6. Hazardous decomposition products

COx mostly.

Ethylene glycol
On combustion, forms toxic gases.
Heated to decomposition, it emits acrid fumes.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

Total concentration of the mixture without the contribution of the propellant: 50.01%. This data was used to determine the classification of the mixture for the following hazard classes as required by the provisions of point 1.1.3.7 of Annex I Part 1 of Reg. (EC) 1272/2008 (CLP) and subsequent amendments: acute toxicity, skin corrosion / irritation, serious eye damage / eye irritation, skin sensitization, respiratory sensitization, STOT SE / RE.

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Information not available

Interactive effects

Information not available

ACUTE TOXICITY
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

LC50 (Inhalation) of the mixture: Not classified (no significant component)
LD50 (Oral) of the mixture: >2000 mg/kg
LD50 (Dermal) of the mixture: Not classified (no significant component)

Ethylene glycol
LD50 (Dermal) > 3500 mg/kg mouse

Amines, C12-14 (even numbered)-alkyldimethyl, N-oxides
LD50 (Oral) 1064 mg/kg rat

Hydrocarbons, C3-4
LC50 (Inhalation) > 13023 ppm/4h rat

SKIN CORROSION / IRRITATION
On the basis of the available data and taking into account the classification criteria set out in Table 3.2.3 of Annex I, of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

SERIOUS EYE DAMAGE / IRRITATION
On the basis of the available data and taking into account the classification criteria provided in Table 3.3.3 of Annex I of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

RESPIRATORY OR SKIN SENSITISATION
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

GERM CELL MUTAGENICITY
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

CARCINOGENICITY
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

REPRODUCTIVE TOXICITY
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

STOT - SINGLE EXPOSURE
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

STOT - REPEATED EXPOSURE
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is classified as ***STOT RE 2, H373.***

ASPIRATION HAZARD
Based on the available data and taking into account the classification criteria of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments, the product is not classified in this hazard class.

Below is the toxicological information for the substances contained in the mixture

Ethylene glycol

Metabolism, toxicokinetics, mechanism of action and other information
The substance is rapidly absorbed orally and inhaled, distributed in the body and metabolized. In rats and dogs about 20-30% of the absorbed dose is excreted by the kidneys. The metabolism occurs in the kidneys and liver 2-4 hours after exposure and the metabolites appear in the urine within 24-48 hours. In humans it is initially metabolized by alcohol dehydrogenase to glicoaldehyde and then to glycolic acid which subsequently undergoes conversion to oxalic acid, by means of glycolic acid oxidase.
The toxic action of the substance, especially in the kidneys, is attributed to its metabolites, in particular glycolic acid and oxalate (ACGIH, 2001).
The neurotoxicity of the substance is probably caused by the formation of calcium oxalate crystals, which can lead to a disturbance of intracellular calcium homeostasis with membrane anomalies, which are associated with cell damage and also cell death.

ACUTE TOXICITY
Rat LD50 (oral): 4700 mg / kg (HSDB, 2016)
Rabbit LD50 (cutaneous): 9530 mg / kg (INRS, 2006; Patty, 2001)
Rat LC50-1 hour (inhalation): 10.9 mg / l (Patty, 2001)

SKIN CORROSION / IRRITATION
It has mild irritating power on the skin (IPCS, 2002).
Experimental animal studies report that ethylene glycol causes mild skin irritation in rabbits and guinea pigs (IPCS, 2002) or no irritation (INRS, 2006).

CORROSION FOR THE RESPIRATORY TRACT
Information not available

SERIOUS EYE DAMAGE / IRRITATION
It has an irritating effect on the eyes (IPCS, 1999).
In volunteers, exposure to vapors and aerosols of substance equal to 137 mg / m3 caused irritation of the ocular mucous membranes. Above 200 mg / m3 the intensity of irritation has made it impossible to continue the exposure (INRS, 2006).
In rabbits, the instillation of a 0.4% isotonic solution has no effect. 4% solutions are moderately irritating. Higher concentrations cause caustic lesions (INRS, 2006).

RESPIRATORY SENSITISATION
Information not available

SKIN SENSITISATION
There are two contact sensitization reports in the literature (Dawson, TAJ, 1976; Ethylene glycol sensitivity; Contact Dermatitis 2, 233 and Hindson, C. and Ratcliffe, G., 1975; Ethylene glycol in glass lens cutting; Contact Dermatitis 1, 386-387) which however were not considered sufficient to classify ethylene glycol as a sensitizing agent (EC, 1995).
In guinea pigs, ethylene glycol did not show any skin sensitization in the Magnusson & Kligman test (non-GLP test; Klimisch score 2 = reliable with restrictions) (OECD, 2004).

GERM CELL MUTAGENICITY
The substance is not "in vitro" genotoxic. The results obtained from several mutagenesis studies were uniformly negative in bacterial tests (in Salmonella typhimurium both in the presence and in the absence of activation), in L5178Y mouse lymphoma cells (in the presence and in the absence of activation); in aberrations
chromosomal and exchange between sister chromatids in Chinese hamster ovary cells (both in the presence and in the absence of activation); in the unscheduled synthesis of DNA in rat liver cells both in the presence and in the absence of activation; in the SOS cromotest in E Coli in the presence of activation) and in "in vivo" assays (in the mutation assay of the dominant lethals in F344 rats; in the assay of chromosomal aberrations in bone marrow cells of Swiss mice (IPCS, 2002; NTP, 1993; OECD, 2004).

CARCINOGENICITY
The available studies have not shown carcinogenic power.
In a two-year carcinogenicity study of NTP, in which ethylene glycol was administered in feeding, "no evidence of carcinogenic activity" was observed in

male and female B6C3F1 mice (NTP, 1993).

REPRODUCTIVE TOXICITY
- Adverse effects on sexual function and fertility: Studies on reproductive toxicity in humans are not available (ATSDR, 2010).
Reproductive toxicity has been studied extensively in adequate studies in mice and rats. No impact on reproductive organs has been shown in repeated dose toxicity studies; in specialized studies, including a trigenerational study in rats and continuous-breeding protocols in mice, the evidence for reproductive effects was limited to mice (but not to rats or rabbits) exposed to considerably doses greater than those associated with developmental effects in this species or with effects on the kidneys in rats (IPCS, 2002).
- Adverse developmental effects: Human developmental toxicity studies are not available (ATSDR, 2010).
Based on information from an extensive database, ethylene glycol induces developmental effects in rats and mice for all routes of exposure, albeit at higher doses than those associated with kidney effects in rats m .. In fact, ethylene glycol is teratogenic, since it mainly induces skeletal alterations and external malformations, sometimes at lower doses than those toxic to mothers, with mice being more sensitive than rats (IPCS, 2002).
- Effects on breastfeeding or through breastfeeding: Data not available.

STOT - SINGLE EXPOSURE
The vapors and the aerosol of the substance are highly irritating to the respiratory system.
Available studies indicate the kidney as the target organ in acute human poisoning (IPCS, 2002).
The ingestion of ethylene glycol in humans is followed, after a few hours of latency, by digestive disorders (nausea, vomiting, abdominal pain) and CNS depression. Solvent metabolites are responsible for metabolic acidosis, seizures, acute anuric tubulopathy, hemodynamic disorders and acute pulmonary edema, partly due to myocardial attack. Usually there is hyperglycaemia and hyperleukocytosis while hypocalcaemia is inconstant. Oxalate crystals have been found in the urine (INRS, 2006).
Ingestion, cutaneous application or parenteral injection of strong dosages cause CNS depression and convulsions. The anatomopathological examination of the animals revealed renal tubular necrosis, cerebral edema,
pulmonary edema, presence of oxalate crystals in the renal tubules and sometimes in the brain. The sum. parenteral ethylene glycol is also responsible for hemolysis. The inhalation of vapors or aerosols does not usually cause severe intoxication: systemic effects appear conc. > hundreds or thousands of mg / m3 (INRS, 2006).

STOT - REPEATED EXPOSURE
The available data are not sufficient to comment on the possibility of neurological or immunological effects due to long-term exposure (IPCS, 2002).
In volunteers, exposure to vapors and aerosols of substance did not cause any disturbance to a conc. Of 68.5 mg / m3; at 137 mg / m3 caused upper airway irritation. Above 200 mg / m3 the intensity of irritation has made it impossible to continue the exposure (INRS, 2006).
CNS depression, several cases of nystagmus and hyperlinphocytosis have been reported in workers exposed to ethylene glycol vapors (INRS, 2006; IPCS, 1999).
Available data indicate the kidney as a target organ in repeated dose toxicity studies in animals (BIBRA, 1993; IPCS, 2002).

ASPIRATION HAZARD
Information not available

Information on likely routes of exposure
The main routes of exposure in the occupational field are inhalation and skin contact.
The general population can be exposed by inhalation from the ambient air or by skin contact with products containing the substance.

Delayed and immediate effects as well as chronic effects from short and long-term exposure
The digestive substance is more toxic to humans than to animals (ACGIH, 2015).
The clinical symptomatology develops in 4 phases:
- in the 1st phase (30 minutes-12 hours from ingestion) there is nausea, vomiting, agitation, amazement, inhibition of reflexes, epileptic seizures and convulsions. The cause of death at this stage can be central respiratory paralysis, coma and cardiovascular arrest; other symptoms are: acute gastritis, meningoencephalitis, metabolic acidosis, leukocytosis, proteinuria. At the ocular level, the following are highlighted: nystagmus, ophthalmoplegia, papilledema and optic atrophy;
- in the 2nd phase (12-24 hours) the main symptoms are borne by the cardio-respiratory system: tachycardia, tachypnea, bronchopneumonia, pulmonary edema and respiratory arrest within 72 hours;
- in the 3rd phase (24-72 hours) kidney damage mainly occurs: initially polyuria followed by oliguria and anuria; kidney changes usually subside in 50 days. In one case, chronic renal failure was observed;
- in the 4th phase (6-14 days) there are symptoms of CNS degeneration: facial paralysis, dysphagia, hyperreflexia, ataxia, cerebral edema and calcium oxalate deposits in the brain tissue. Hepatic necrosis is also reported (DFG, 1992).
The available data are not sufficient to comment on the possibility of neurological or immunological effects due to long-term exposure (IPCS, 2002).
Repeated or prolonged exposure may cause CNS effects and cause abnormal eye movement (nystagmus) (IPCS, 1999).
Exposure could cause attenuation of supervision (IPCS, 1999).
In animals, repeated exposure to ethylene glycol by inhalation causes drowsiness and moderate effects on the kidneys. Repeated contact with vapors induces conjunctival irritation (INRS, 2006).
Available data indicate the kidney as target organ in repeated dose toxicity studies in animals (BIBRA, 1993; IPCS, 2002).

Interactive effects
Information not available

SECTION 12. Ecological information

12.1. Toxicity

Based on the evaluation of the classification of components and the classification provisions set out in Annex I, Part 4 of Reg. (EC) 1272/2008 and subsequent amendments, the mixture is not classified as hazardous for the environment;

Ethylene glycol

LC50 - for Fish	> 72860 mg/l/96h Pimephales promelas
EC50 - for Crustacea	> 100 mg/l/48h Daphnia magna

Amines, C12-14 (even numbered)-alkyldimethyl, N-oxides

LC50 - for Fish	3,46 mg/l/96h
EC50 - for Crustacea	10,4 mg/l/48h Daphnia magna

Hydrocarbons, C3-4

LC50 - for Fish	49,47 mg/l/96h pesci

12.2. Persistence and degradability

Information not available

12.3. Bioaccumulative potential

Information not available

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage greater than 0,1%.

12.6. Other adverse effects

Information not available

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.
Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.
Waste transportation may be subject to ADR restrictions.

CONTAMINATED PACKAGING
Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

SECTION 14. Transport information

14.1. UN number

ADR / RID, IMDG, IATA: 1950

14.2. UN proper shipping name

ADR / RID: AEROSOLS
IMDG: AEROSOLS
IATA: AEROSOLS, FLAMMABLE

14.3. Transport hazard class(es)

ADR / RID:	Class: 2	Label: 2.1
IMDG:	Class: 2	Label: 2.1
IATA:	Class: 2	Label: 2.1

14.4. Packing group

ADR / RID, IMDG, IATA: -

14.5. Environmental hazards

ADR / RID: NO
IMDG: NO
IATA: NO

14.6. Special precautions for user

ADR / RID:	HIN - Kemler: -- Special Provisions: 190, 327, 344, 625	Limited Quantities: 1 L	Tunnel restriction code: (D)
IMDG:	EMS: F-D, S-U	Limited Quantities: 1 L	
IATA:	Cargo: Pass.:	Maximum quantity: 150 Kg Maximum quantity: 75 Kg	Packaging instructions: 203 Packaging instructions: 203
	Special Instructions:	A145, A167, A802	

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Transport in bulk must comply with Annex II of MARPOL 73/78 and the IBC Code where applicable.

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso Category - Directive 2012/18/EC: P3a

Biocidal Regulation (Reg. (EU) 528/2012): not applicable

Detergent regulations (Reg. (EC) 648/2004): not applicable

Dir. 2004/42/EC - VOC: not applicable

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

Product
Point 40

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage greater than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to (EC) Reg. 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

15.2. Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances

Hydrocarbons, C3-4

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Gas 1A	Flammable gas, category 1A
Aerosol 1	Aerosol, category 1
Aerosol 3	Aerosol, category 3
Press. Gas	Pressurised gas
Muta. 1B	Mutagenicity, Category 1B
Carc. 1A	Carcinogenicity, Category 1A
Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Eye Dam. 1	Serious eye damage, category 1

Skin Irrit. 2	Skin irritation, category 2
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H229	Pressurised container: may burst if heated.
H280	Contains gas under pressure; may burst if heated.
H340	May cause genetic defects.
H350	May cause cancer.
H302	Harmful if swallowed.
H373	May cause damage to organs through prolonged or repeated exposure.
H318	Causes serious eye damage.
H315	Causes skin irritation.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

LEGEND:
- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- CAS NUMBER: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE NUMBER: Identifier in ESIS (European archive of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX NUMBER: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: EC Regulation 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA STEL: Short-term exposure limit
- TWA: Time-weighted average exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).
- A1 = carcinogenic recognized for humans.
- A2 = suspected carcinogen for humans.
- A3 = carcinogenic recognized for the animal with unknown relevance in humans.
- A4 = not classified as carcinogenic to humans.
- A5 = not suspected of being carcinogenic to humans.
- IBE = Substance with Biological Exposure Indicator.

Note K
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 1,3-butadiene (Einecs No 203-450-8). If the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P210-P403 should apply. This note applies only to certain complex oil-derived substances in Part 3.

AEROSOL CALCULATION METHODS

Total concentration of the mixture without the contribution of the propellant: 51.01%. This data was used to determine the classification of the mixture for the following hazard classes as required by the provisions of point 1.1.3.7 of Annex I Part 1 of Reg. (EC) 1272/2008 (CLP) and subsequent amendments: acute toxicity, skin corrosion / irritation, serious eye damage / eye irritation, skin sensitization, respiratory sensitization, STOT SE / RE.

CALCULATION METHODS

Physical-chemical hazards: the degree of hazard was determined using the classification criteria set out in the CLP Regulation, Annex I Part 2 and subsequent amendments

The health hazards were assessed using the calculation method set out in the Reg. (EC) 1272/2008 (CLP), and subsequent amendments, on the classification of mixtures when data are available on all or some of the components of the mixture:
Acute Tox: application of criteria in Table 3.1.1. Annex I Part 3 of the CLP Regulation and subsequent amendments
Skin Corr. 1A / 1B / 1C H314: application of additive formula criteria in Table 3.2.3 Annex I Part 3 of the CLP Regulation
Skin Irrit 2 H315: application of additive formula criteria in Table 3.2.3 Annex I Part 3 of the CLP Regulation
Eye Dam 1 H318: application of additive formula criteria in Table 3.3.3 Annex I Part 3 of the CLP Regulation
Eye Irrit. 2 H319: application of the additivity formula criteria in Table 3.3.3 Annex I Part 3 of the CLP Regulation
Eye Irrit. 2 H319: table 3.3.3 of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments.
Skin Sens 1A/1B/1 H317 Table 3.4.5 of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments.
Skin Sens 1A/1B/1 H334 Table 3.4.5 of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments.
Muta. 1A/1B,2 H340 - H341: table 3.5.2 Annex I Part 3 of the CLP Regulation and subsequent amendments
Carc. 1A/1B, 2 H350 - H351: table 3.6.2 Annex I Part 3 of the CLP Regulation and subsequent amendments
Repr. 1A/1B, 2 H360 - H361: table 3.7.2 Annex I Part 3 of the CLP Regulation and subsequent amendments
STOT SE 1, 2 H370 - 371: application of calculation methods - table 3.8.3 of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments.
STOT SE 3 H336: chap. 3.8.3.4.5 of Annex I, Part 3 of Reg. (EC) 1272/2008 and subsequent amendments.
STOT RE 1, 2 H372 - H373: table 3.9.4 Annex I Part 3 of the CLP Regulation and subsequent amendments
Asp Tox 1 H304: application of the criteria in 3.10 Annex I Part 3 of the CLP Regulation and subsequent amendments

The environmental hazards were assessed using the calculation method set out in Reg. (EC) 1272/2008 (CLP), and subsequent amendments, on the classification of mixtures when data are available on all or some of the components of the mixture:
Acute toxicity in the aquatic environment: Table 4.1.1 of Annex I, Part 4 of Reg. (EC) 1272/2008 and subsequent amendments.
toxicity in the aquatic environment, chronic effects: table 4.1.2 of Annex I, Part 4 of Reg. (EC) 1272/2008 and subsequent amendments.

GENERAL BIBLIOGRAPHY
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2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 790/2009 (I Atp. CLP) of the European Parliament
4. Regulation (EU) 2015/830 of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
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14. Regulation (EU) 2018/669 (XI Atp. CLP)
15. Regulation (EU) 2018/1480 (XIII Atp. CLP)
16. Regulation (EU) 2019/521 (XII Atp. CLP)
- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:
The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.
This document must not be regarded as a guarantee on any specific product property.
The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.
Provide appointed staff with adequate training on how to use chemical products.

Product`s classification is based on the calculation methods set out in Annex I of the CLP Regulation, unless otherwise indicated in sections 11 and 12.
The data for evaluation of chemical-physical properties are reported in section 9.

First emission of the document.