

Code: MAP/P

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

1.1. Product identifier

Commercial name TURBO MAP
Our Code MAP/P

Chemical Description Propylene (Propene)

INCI nomenclature: Propylene Index No: 601-011-00-9 EC No: 204-062-1 CAS No: 115-07-1

REACH No: 01-2119447103-50 Chemical formula: C₃H₆

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

Relevant identified uses Industrial and professional use. Perform risk assessment prior to use. Use as fuels, as an Intermediate, functional

fluids, Formulation of mixtures with gas in pressure receptacle. Propellant gas. Use in polymer processing.

Advice against The pertinent uses are listed here above. Other uses are not recommended unless it has been conducted an

evaluation, before the use, which demonstrates that the risks associated with its use are controlled.

1.3. Details of the supplier of the safety data sheet

MARIEL SRL



Via Olubi, 5 28013 Gattico-Veruno (NO) Italy Telephone: +39 0322 838319

Fax: +39 0322 838813 E-mail: <u>laboratorio@mariel.it</u>

1.4. Emergency telephone number

MARIEL Srl +39 0322 838319 Mon/Fri: 8.30-12.00 / 13.30-17.30

National Centre for Toxicological Information +39 0382 24444 Hours: 24 h / 24 h

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to in Regulation (EC) No 1272/2008

Physical hazards Flammable Gas Category 1 A H220

Liquefied Gas H280

2.2. Label elements

Dangerous pictogram





GHS02

02 GHS04

Signal word Danger

Hazard statements (H) H220 Extremely flammable gas

H280 Contains gas under pressure; may explode if heated

Precautionary statements (P)

Prevention P210 Keep away from heat, sparks, open flames, hot surfaces – No smoking.

Response P377 Leaking gas fire – do not extinguish unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

Storage P403 Store in a well-ventilated place



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2.3 Other hazards

n.a.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name	%	Index No.	EC No.	CAS No.	REACH No.	Classification Regulation (EC) No 1272/2008 (CLP)
Propylene (Propene)	100%	601-011-00-9	204-062-1	115-07-01	01-2119447103-50	Flam. Gas 1, H220 Press. Gas (Liq.), H280

Contains no other components or impurities which will influence the classification of the product.

For more information, see section 8, 11, 12 and 16.

SECTION 4: First aid measures



General information: If the person is unconscious, place it in the recovery position and get immediately medical attention. Do not give anything to an unconscious person. If breathing is irregular, give oxygen. If breathing stopped, administer artificial respiration. If symptoms persist, call a physician.

4.1. Description of first aid measures

Inhalation Remove patience from exposure to fresh air. Administer oxygen if necessary. Obtain immediate medical attention.

Skin contact In case of contact with skin, wash immediately with plenty of water. Remove contaminated clothing. If irritation or blistering

occurs, call a physician

Eye contact Remove contact lenses, if present. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If

symptoms persist, call a physician.

Ingestion Unlikely route of exposure. As this product is a gas, refer to the section "Inhalation". Do not induce vomiting without medical

advice. Obtain immediate medical attention.

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

Contact with liquefied gas can cause damage (frostbite) due to rapid evaporative cooling. Exposure can aggravate pre-existing respiratory disorders.

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

Do not give adrenaline-ephedrine or similar drugs group. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Carbon dioxide (CO₂), foam, dry chemical power, water spray or fog.

Unsuitable extinguishing media High water jet.

5.2. Special hazards arising from the substance or mixture

Specific hazards An incomplete combustion could generate a complex mixture of solid and liquid airborne particles and gases, including

CO₂ (carbon monoxide).

Exposure to the source of heat and/or to the fire may cause containers to rupture/explode.

5.3 Advice for firefighters

Specific methods Coordinate fire measure to the surrounding fire.

If security conditions permit, stop leak of product.

If necessary, use water spray or fog to cool surfaces exposed to fire. Continue water spray from protected position until container stays cool.

In the event of a large fire or in confined or poorly ventilated spaces, wear full fire resistant protective clothing and self-

contained breathing apparatus operated in positive pressure mode.

An explosive re-ignition may occur.

Protective equipment Firefighters must use standard protective equipment including flame resistant clothing, helmet with face shield, gloves

and protective boots in enclosed spaces, SCBA. Firefighters must use standard protective equipment including.

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Guideline: EN 469 Protective clothing for firefighters. Performance requirements for protective clothing for firefighting. EN 15090 Footwear for firefighters. EN 659 Protective gloves for firefighters. EN 443 Helmets for firefighting in buildings and other structures. EN 137 Respiratory protective devices - Self-contained open circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

SECTION 6: Accidental release measure

6.1. Personal precautions, protective equipment and emergency procedures

The vapours are heavier than air and may move along the ground over long distances.

If the safety conditions allow, arrest or contain the leak at the source.

Avoid direct contact with released material. Stay upwind.

In case of large spillages, alert the emergency teams.

If the safety conditions allow, eliminate all sources of (ex.: electricity, sparks, fires, flares).

Use only non-sparking tools.

If required, notify to the relevant authorities in accordance with the applicable legislation.

Spillage of small quantity

Conventional antistatic working clothes are usually adequate. If contact with liquefied product is possible or predictable, use gloves thermally insulated to prevent frostbite. Pay particular attention to the accumulation in confined spaces. You can use flammable gases or vapours leak detector.

Spillage of large quantity

Full protective, chemically resistant clothing in antistatic material. Antistatic safety shoes boots and slip-resistant. Goggles or protective devices for the face. In case the situation cannot be completely assessed, or if there is a risk of oxygen deficiency, use only SCBA.

6.2. Environmental precautions

Do not release the product into the environment.

Prevent from entering into soil, ditches, sanitary sewers, waterways and/or groundwater.

Avoid any spills and leaks.

6.3. Methods and material for containment and cleaning up

Ventilate/aerate the area/local.

Let the evaporation of the product.

Take into consideration that the vapours are heavier than air.

The spillage of liquid product in the water will be presumably in a rapid and complete evaporation.

Isolate the area and prevent the risk of fire / explosion for vessels and other structures, taking into consideration the direction and speed of the wind, until the complete dispersion of the product.

6.4. Reference to other sections

For more information, see section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Technical measures The product must be handled in accordance with good industrial hygiene and safety procedures.

Only experienced and properly instructed persons should handle gases under pressure. Service technician must check regularly your entire gas system to ensure that it is leak-free.

Do not smoke, eat or drink when handling product.

Keep equipment free from oil and grease.

Use properly specified equipment which is suitable for this product, its supply pressure and temperature.

Do not breathe gas. Contact your supplier if in doubt.

Safe handling The substance must be handled in accordance with good industrial hygiene and safety procedures.

Refer to supplier's handling instructions.

Do not allow back-feed into the container. Protect containers from physical damage; do not drag, roll, slide or drop. When moving containers, even for short distances, use appropriate equipment (trolley, hand truck, fork truck, etc.)

designed to transport cylinders.

Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a

container stand and is ready for use.



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If user experiences any difficulty operating cylinder valve, discontinue use and contact the supplier.

Damaged valves should be reported immediately to the supplier.

Never attempt to repair or modify container valves or safety relief devices.

Keep container valve outlets clean and free from contaminates particularly oil and water.

Close container valve after each use and when empty, even if still connected to equipment.

Never attempt to transfer gases from one container to another.

Never use direct flame or electrical heating devices to raise the pressure of a container.

Do not remove or deface labels provided by the supplier for the identification of the container contents.

Suck back of water into the container must be prevented.

Open valve slowly to avoid pressure shock.

Industrial hygiene Ensure adequate ventilation of the working area.

Do not drink, eat or smoke in the working area.

7.2. Conditions for safe storage, including any incompatibilities

Observe all regulations and local requirements regarding storage of containers.

Containers should not be stored in conditions likely to encourage corrosion.

Containers valve or caps should be in place.

Keep containers tightly closed in a dry, cool and well-ventilated place (below 50 °C), away from any ignition or heat sources.

Keep away from combustible materials.

Store in original container.

7.3. Specific end use(s)

For professional and industrial use only.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Propylene (CAS No. 115-07-1)					
Belgium	Limit value (ppm)	500 ppm			
Denmark	Grænseværdi (langvarig) (mg/m³)	172 mg/m ³			
Denmark	Grænseværdi (langvarig) (ppm)	100 ppm			
Denmark	Grænseværdi (langvarig) (mg/m³)	344 mg/m ³			
Denmark	Grænseværdi (langvarig) (ppm)	200 ppm			
Finland	HTP-arvo (8h) (ppm)	500 ppm			
Ireland	OEL (8 hours ref) (mg/m³)	500 mg/m ³			
Latvia	OEL TWA (mg/m³)	100 mg/m ³			
Poland	NDS (mg/m³)	2000 mg/m ³			
Poland	NDSP (mg/m³)	8600 mg/m ³			
Spain	VLA-ED (ppm)	500 ppm			
Switzerland	MAK (mg/m³)	10000 mg/m ³			
Switzerland	MAK (ppm)	17500 ppm			

Control methods (monitoring): Monitoring procedures should be chosen according to the indications set by national authorities or labour contracts. Refer to relevant legislation and in any case to the good practice of industrial hygiene.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.

Before starting any operation in a confined space, carry out a proper recovery, control the atmosphere and the oxygen content and flammability.

8.2.2. Individual protection measures, such as personal protective equipment

A risk assessment should be conducted and documented in each work area to assess the risks related to use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered: PPE compliant to the recommended EN/ISO standards should be selected.



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a) Eye/face protection

Safety glasses with side-shields (according to directive EN 166).

b) Skin protection

i) Hand protection Thermal-protective gloves resistant to chemical products (EN 374). The penetration time of the gloves must

be greater than the period of expected use. Gloves should be replaced immediately if they show signs of wear

or deterioration.

ii) Other Wear safety shoes while handling containers.

Wear long-sleeved clothes. Remove or clean contaminated clothing.

Apron or protective clothing are not necessary.

c) Respiratory protection Mask filter for gases and vapours (EN141). To obtain an adequate protection, filter class you should choose

according to the type and concentration of contaminants. The breathing apparatus with filters do not operate satisfactorily when the air contains high concentrations of vapours. In case of insufficient ventilation, wear

self-contained breathing apparatus (EN529).



8.2.3. Environmental exposure controls

Handling in accordance with good industrial hygiene and safety practice. Prevent spillage or leakage of the product in watercourse or sewers (explosion danger). Avoid air emissions. No additional risk control measures may be needed (SDU7). For more information, see section 7 and 13.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a) Physical state: Gas

b) Colour: Colourless

c) Odour: Characteristic, olefin
d) Melting point/freezing point: - 185,25 °C @ 1 bar
e) Boiling point or initial boiling point and boiling range: - 47,70 °C @ 1 bar

f) Flammability: Not flammable

g) Lower and upper explosion point: n.a

h) Flash point: Not applicable to gases and gas mixtures

i) Auto-ignition temperature: 455 °Cj) Decomposition temperature: n.a.

k) pH: Not applicable to gases and gas mixtures

I) Kinematic viscosity:

 Not applicable to gases and gas mixtures
 Solubility (in water):

 200 mg/l @ 25 °C
 1,77 log Pow @ 20 °C

o) Vapour pressure: 1,52 Gas (air=1)

0,5139 Liquid (water=1)

p) Density and/or relative density; Not applicable to gases and gas mixtures

q) Relative vapour density: n.a.

r) Particle characteristics: Not applicable to gases and gas mixtures

9.2. Other information

Molecular mass 42,08 g/mol

VOC content ≥ 90% (UE, CH, USA)

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal handling and storage conditions.

10.2. Chemical stability

Stable under normal handling and storage conditions.



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10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions should not be produced.

Contact with strong oxidizers (peroxides, chromates, etc.) may cause a fire hazard.

10.4. Conditions to avoid

Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Protect from sunlight and do not expose to temperatures exceeding 50° C.

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. Do not smoke.

Do not pierce or burn, even after use.

Do not spray on a naked flame or any incandescent material.

10.5. Incompatible materials

Oxidizing agents.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Thermal decomposition can produce: toxic vapours.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

a) acute toxicity Not classified (conclusive but not sufficient data for classification).

> Oral LD50: > 2000 mg/kg (Propylene)

> > Animal species: Rat

No tests required as the substance is a flammable gas (REACH Annex XI, # 2)

Dermal LD50: > 2000 mg/kg (Propylene)

Animal species: Rat

No tests required as the substance is a flammable gas (REACH Annex XI, # 2)

Inhalation LC50: 10000 ppm (Propylene)

(NOAEC) (NTP, 1985)

b) skin corrosion/irritation Not classified (conclusive but not sufficient data for classification).

c) serious eye damage/irritation Not classified (conclusive but not sufficient data for classification).

d) respiratory or skin sensitisation Not classified (conclusive but not sufficient data for classification).

e) germ cell mutagenicity Not classified (Conclusive but not sufficient for classification).

(OECD 476) (McGregor et al, 1991)

(OECD 471 - Ames test) (Inveresk Research, 2003)

f) carcinogenicity Not classified (Conclusive but not sufficient for classification). g) reproductive toxicity Not classified (Conclusive but not sufficient for classification). h) STOT-single exposure

Based on available data, the classification criteria are not met.

May produce: CNS depression.

i) STOT-repeated exposure Based on available data, the classification criteria are not met.

On basis of test data: rat, inhalation. May produce: Loss of weight.

Based on available data, the classification criteria are not met. j) aspiration hazard

11.2. Information on other hazards

Exposure to high concentrations may cause asphyxiation as a consequence of oxygen deficiency. Contact with liquid may cause cold burns/frostbite.

Likely routes of exposure: inhalation.



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SECTION 12: Ecological information

12.1. Toxicity

Ecology – general Not harmful to aquatic organisms.

Ecology – water: The product is a gas and is extremely unlikely to reside in the aquatic compartment.

Parameter	Result	Comments
Fish	LC50 (96 h): 51,7 mg/l	Key study - Propylene
STEL	LC30 (96 II). 31,7 IIIg/I	QSAR, Nabholz et al., 2009
Fish	ChV (30 d): 51,7 mg/l	Key study - Propylene
STEL	City (30 d): 51,7 mg/i	QSAR, Nabholz et al., 2009
Aquatic invertebrates (Daphnia magna)	LCEO (40 h), 20 2 mg/l	Key study - Propylene
STEL	LC50 (48 h): 28,2 mg/l	QSAR, Nabholz et al., 2009
Aquatic invertebrates (Daphnia magna)	Ch\//16 d\. 2.1 mg/l	Key study - Propylene
LTEL	ChV (16 d): 3,1 mg/l	QSAR, Nabholz et al., 2009
Algae	FCF0 (06 h): 13.1 mg/l	Key study - Propylene
STEL	EC50 (96 h): 12,1 mg/l	QSAR, Nabholz et al., 2009

12.2. Persistence and degradability

Readily biodegradable (50%, 2.36 d, QSAR).

12.3. Bioaccumulative potential

log Pow 1.77

Possibility of bio-accumulation Low bioaccumulation potential.

12.4. Mobility in soil

Product is easily volatile. No indication of bioaccumulation potential.

12.5. Results of PBT and vPvB assessment

According to the criteria in Annex XIII of the REACH Regulation, the substance is not classified PBT or vPvB.

12.6. Endocrine disrupting properties

n.a

12.7. Other adverse effects

No additional information available.

SECTION 13: Disposal consideration

13.1. Waste treatment methods

Product Take all necessary measures to prevent the production of residuals, value the possible methods of regeneration or recycling.

In case of disposal, the substance as such, pursuant to Directive 2008/98/EC, must be classified as hazardous waste: *HP3 -

Flammable (Hazard Property Codes). Do not discharge into drains or environment.

Packaging Reuse and recycle the packaging after its reclaim. Flammable vapours may accumulate in the container. Dispose of empty,

not cleaned containers safely, according to local, state, and federal regulations.

Disposal method Refer to the EIGA Practice Code (Doc. 30 "Gas Disposal", downloadable from http://www.eiga.org) for better guidance on the

disposal methods available. Contact the supplier for the correct disposal of the container. Discharging, treatment or disposal

may by subject to national, state or local regulations.

*HP3 – Flammable: - Flammable liquid waste: liquid waste having a flash point below 60°C or waste gas oil, diesel and light heating oils having a flash point > 55°C and ≤ 75°C; - Flammable pyrophoric liquid and solid waste: solid or liquid waste which, even in small quantities, is liable to ignite within five minutes after coming into contact with air; - Flammable solid waste: solid waste which is readily combustible or may cause or contribute to fire through friction; - Flammable gaseous waste: gaseous waste which is flammable in air at 20°C and a standard pressure of 101.3 kPa; - Water reactive waste: waste which, in contact with water, emits flammable gases in dangerous quantities; - Other flammable waste: flammable aerosols, flammable self-heating waste, flammable organic peroxides and flammable self-reactive waste

European Waste Code (EWC)

Product 16 05 04* Gases in pressure containers (including halons) containing dangerous substances.

Packaging 15 01 11* Metallic packaging containing a hazardous solid porous matrix (for example asbestos), including empty pressure containers.



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SECTION 14: Transport information

14.1. UN number or ID number

ADR-RID-ADN-IMDG-ICAO UN 1077

14.2. UN proper shipping name

ADR-RID-ADN-IMDG-ICAO PROPYLENE

14.3. Transport hazard class(es)

ADR-RID-ADN: 2
IMDG-ICAO: 2.1



Additional information

Tunnel restriction code (ADR) B/D

EmS (IMDG) F-D, S-U

14.4. Packing group

ADR-RID-ADN-IMDG-ICAO n.a.

14.5. Environmental hazards

Dangerous for the environment NO

Marine pollutant NO

14.6. Special precautions for user

The transport, including loading and unloading, must be carried out by persons who have received appropriate training concerning required by the modal regulations.

Road transport must be carried out by vehicles authorized for the transport of dangerous goods in accordance with the requirements of the current edition of the ADR Agreement and the applicable national provisions. Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.

Ensure that containers are firmly secured.

Ensure there is adequate ventilation.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH): Substance registered

Regulation (EC) No 1907/2006 (REACH), Annex XIV (Substances in the Candidate List for authorization): Not included

Regulation (EC) No 1907/2006 (REACH), Annex XVII (Restrictions on the manufacturing, marketing and use of certain dangerous substances and preparations): Not included

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer, Annex I and II: Not included

Regulation (EC) No 649/2012 concerning the export and import of hazardous chemicals (PIC): Not included

Regulation (EU) No 517/2014 on fluorinated greenhouse gases (F-GAS): Propylene (GWP 2)

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

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances - Seveso III: Included (P2)

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work: Not included Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work: Not included Directive 92/85/EC on the introduction of measures to encourage improvements in the safety and health at work of pregnant workers and workers who have recently given birth or are breastfeeding.

Directive 2003/105/EC on the control of major-accident hazards involving dangerous substances.

National standards

Adoption of National legislation on working with chemical agents.

National adoption of EU Directives concerning control of major-accident hazards involving dangerous substances (Directive 2012/18/CE). National adoption of EU Directives concerning health and safety on the workplace.

Relevant national laws (National adoption of Directive 92/85/EEC).

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15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out.

SECTION 16: Other information

This Material Safety Data Sheet has been made according European Directive in force.

Text of hazard (H) and precautionary (P) statements in the section 2 and 3

H220 Extremely flammable gas

H280 Contains gas under pressure; may explode if heated.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P377 Leaking gas fire – do not extinguish unless leak can be stopped safely.

P381 Eliminate all ignition sources if safe to do so.

P403 Store in a well-ventilated place.

Text of "Hazard Class and Category Code" in section 2 and 3, according to Regulation (EC) No 1272/2008

Flam. Gas 1 Flammable gas Category 1
Press. Gas (Liq.) Pressurized gas : Liquefied gas

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b) Abbreviations and acronyms

ADN Agreement Dangerous goods by inland waterways

ADR Accord Dangerous Route

AMES (Test) Ames Bruce (Test for determining if the chemical is mutagens)

CAS Chemical Abstracts Service number

CE / EC European Community
ChV Chronic Values

CLP Classification, Labelling, Packaging

CNS Central Nervous System

EC50 Half maximal Effective Concentration EIGA European Industrial Gases Association

EmS Emergency Schedule
EWC European Waste Code
GHS Globally Harmonised System
LC50 Half maximal Lethal Concentration

LD50 Half maximal Lethal Dose LEL Lower Explosive Limit

Log Pow (Kow) Logarithm Partition coefficient n-Octanol/water ICAO International Civil Aviation Organization

IMDG International Maritime Dangerous Goods code

IMO International Maritime Organization
 n.a. not applicable / not available
 NOAEC No Observed Adverse Effect Level
 NTP National Toxicology Program

OECD Organisation for Economic Co-operation and Development

OEL Occupational Exposure Limit
PBT Persistent Bio-accumulative Toxic
PPE Personal Protective Equipment

QSAR Quantitative Structure–Activity Relationship
RID Rail International Dangerous goods transport

REACH Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL Short Term Exposure Limit

STOT-RE Specific Target Effect Concentration - repeated exposure STOT-SE Specific Target Effect Concentration - single exposure

TWA Time Weighted Average

UE / EU European Union



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UEL Upper Exposure Limit (Limite superiore di esplosione)

VOC Volatile Organic Compounds

vPvB very Persistent very Bioaccumulative

Notice of liability

This information should not constitute a guarantee for any specific product properties. This information are only a guidance for safe handling, use, processing, storage, transportation, disposal and release and are not to be considered a warranty or a quality specification.

The information contained in this safety data sheet are based on our current knowledge and EU and national laws; they describe the product only with regard to safety requirements. The conditions of the user are beyond our knowledge and control. The product should not be used for purpose other than those specified. It is always the responsibility of the user to take all the necessary measures to comply with the requirements of current legislation. The information contained in this form should not considered as a guarantee of its properties.