

This Material Safety Data Sheet available for professional users on request

Material Safety Data Sheet of 29/08/2016, revision 2

1 - Identification of the substance/mixture and of the company/undertaking

1.1 - Product identifier:

1.1.1 Type of chemical product: **Mixture**
1.1.2 Trade Name: **Air freshener - IPURO - LIME LIGHT**

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

1.2.1 Relevant identified uses: **A solution of perfume in denatured ethyl alcohol for consumer use**
1.2.2 Main sectors of use: **Air freshener**
1.2.3 Uses advised against: **This product is advised against any industrial, professional or consumer use differing from the above-listed Identified Uses.**

1.3 - Details of the supplier of the safety data sheet:

GEA PROFUMI SRL
 Via Signagatta, 23
 10044-Pianezza (TO) - Italy
Telephone number: +39 011-4340245
Fax number: +39 011-4344391
Email address: info@geaprofumi.eu
Email address of the competent technician: info@stelgasystem.com
Website: www.geatrading.eu





1.4 - Emergency telephone number: +39 011-4340245 (office hours)

Poison Control Center:
 Niguarda Hospital - Milan
 Telephone number: +39 02-66101029
 C.N.I.T. - Pavia
 Telephone number: +39 0382-24444
 (see section 16 for the complete list of the International poison control centers)

2 - Hazards identification



2.1 Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) no. 1272/2008

Classification	Flammable	Skin sensitisation	Label elements for serious eye damage/eye irritation	Long lasting hazardous effects to aquatic life
	Category 2	Category 1	Category 2	Cronic 3
GHS Pictograms	 GHS02	 GHS07		No pictogram is used
Signal Word	Hazard	Warning		No signal word is used
Hazard statement	H225:Highly flammable liquid and vapour	H317:May cause an allergic skin reaction	H319:Causes serious eye irritation	H412: Harmful to aquatic life with long lasting effects.

2.2 Label elements

2.2.1 Labelling according to Regulation (EC) No. 1272/2008

Classification	Flammable	Skin sensitisation	Label elements for serious eye damage/eye irritation	Long lasting hazardous effects to aquatic life
	Category 2	Category 1	Category 2	Cronic 3
GHS Pictograms	 GHS02	 GHS07		
Signal Word	Hazard			
Hazard statement	H225:Highly flammable liquid and vapour	H317:May cause an allergic skin reaction	H319:Causes serious eye irritation	H412: Harmful to aquatic life with long lasting effects.
Precautionary statement - Prevention	P210: Keep away from heat/sparks/open flames/hot surfaces. — No smoking P233: Keep container tightly closed P240: Ground/bond container and receiving equipment P241: Use explosion-proof electrical/ventilating/lighting equipment P242: Use only non-sparking tools P243: Take precautionary measures against static discharge P261: Avoid breathing dust/fume/gas/mist/vapours/spray P264: Wash hands thoroughly after handling P272: Contaminated work clothing should not be allowed out of the workplace P273: Avoid release to the environment P280: Wear protective gloves/protective clothing/eye protection/face protection			
Precautionary statement - Response	P302+P352: IF ON SKIN: Wash with plenty of soap and water. P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P321: Specific treatment (see ... on this label) P333+P313: If skin irritation or rash occurs: Get medical advice/attention P337+P313: If eye irritation persists: Get medical advice/attention. P363: Wash contaminated clothing before reuse P370+P378: In case of fire: Use chemical powder or foam for extinction			
Precautionary statement - Storage	P403+P235: Store in a well-ventilated place. Keep cool			
Precautionary statement - Disposal	P501: Dispose of contents/container pursuant to local/regional/National/International Regulations			

If the product is intended for sale to the public, general precautionary statements **shall be added**:

P102: Keep out of reach of children

P103: Read label before use

NOTE: Highlight precautionary statement more important, the other are optional. Provided for Regolamento (CE) n.1272/2008 Articol 28 paragraph 3, show no more than six precautionary statement.

EUH208 - Contains:

Citral

d-Limonene

alpha-Hexylcinnamaldehyde

Geraniol

Citronellol

Nerol

Linalool

may produce an allergic reaction.

Exemptions from Article 17 [(Article 29, paragraph 2)]. (Regulation 1272/2008)

Labelling of packages where the contents do exceed 125 ml

The hazard statements and the precautionary statements linked to the hazard categories listed below may be omitted from the label elements required by Article 17 where:

- a) the contents of the package do not exceed 125 ml; and
- b) the substance or mixture is classified in one or more of the following hazard categories:
 - 1) Oxidising gases of category 1;
 - 2) Gases under pressure;
 - 3) Flammable liquids of category 2 or 3;

- 4) Flammable solids of category 1 or 2;
 - 5) Self-reactive substance or mixture Types C to F;
 - 6) Self-heating substances or mixture of category 2;
 - 7) Substances and mixtures which, in contact with water, emit flammable gases of categories 1, 2 or 3;
 - 8) Oxidising liquid of category 2 or 3;
 - 9) Oxidising solids of category 2 or 3;
 - 10) Organic peroxides Types C to F;
 - 11) Acute toxicity of category 4, if the substances or mixtures are not supplied to the general public;
 - 12) Skin irritation of category 2;
 - 13) Eye irritation of category 2;
 - 14) Specific target organ toxicity — single exposure of category 2 or 3, if the substance or mixture is not supplied to the general public;
 - 15) Specific target organ toxicity — repeated exposure of category 2, if the substance or mixture is not supplied to the general public;
 - 16) Hazardous to the aquatic environment — Acute of category 1;
 - 17) Hazardous to the aquatic environment — Chronic of category 1 or 2.
- The exemptions for labelling of small packages of aerosol substances flammable laid down in Directive 75/324/EEC shall apply to aerosol dispensers.

The precautionary statements linked to the categories listed below may be omitted from the label elements required by Article 17 where:

- a) the contents of the package do not exceed 125 ml; and
- b) the substance or mixture is classified in one or more of the following hazard categories:
 - 1) Flammable gases of category 2;
 - 2) Reproductive toxicity: effects on or via lactation;
 - 3) Hazardous to the aquatic environment — Chronic of category 3 or 4.

The pictogram, the hazard statement and the precautionary statement linked to the hazard categories listed below may be omitted from the label by Article 17 where:

- a) the contents of the package do not exceed 125 ml; and
- b) the substance or mixture is classified in one or more of the following hazard categories:
 - 1) Corrosive to metals.

Tactile warnings (Regulation 1272/2008)

Packaging to be fitted with a tactile warning

Where substances or mixtures are supplied to the general public and classified for acute toxicity, skin corrosion, germ cell mutagenicity category 2, cancerogenicity category 2, reproductive toxicity category 2, respiratory sensitisation, or STOT, category 1 and 2, aspiration hazard, or flammable gases, liquids and solids category 1 and 2, the packaging of whatever capacity, shall be fitted with a tactile warning of danger.

Provisions relating to tactile warning

This provision does not apply to aerosols which are only classified and labelled as 'extremely flammable aerosols' or 'flammable aerosols'.

The technical specifications for tactile warning devices shall conform to EN ISO standard 11683 as amended 'Packaging — Tactile warning of danger — Requirements».

2.3 - Other hazards

PHYSICAL AND CHEMICAL HAZARDS/EXPLOSION AND FIRE HAZARD: High level of risk, gas leaks or liquids releases may easily create flammable mixtures at a temperature which is equal or higher than the flash point.

The product may accumulate electrostatic charges that, if freed, may be the cause of fires. The product is highly flammable. It reacts slowly with calcium hypochlorite, silver oxide and ammonia, causing a fire/explosion hazard. It reacts violently with strong oxidants such as nitric acid, silver nitrate, mercuric nitrate or magnesium perchlorate, causing fire and explosion hazard. Vapors are heavier than air and will tend to accumulate in low areas. It may form flammable mixtures with air even inside empty containers that have contained the heated product. Closed containers can cause an increase in pressure.

HEALTH RISKS: The product may cause sensitisation by skin contact. This product, if used improperly, may cause irritations to eyes and skin. This product may be absorbed by the organism due to inhalation of its vapours, contact with eyes and indigestion. This product contains allergens and may produce an allergic reaction. Contact with eyes causes irritation and may cause slight temporary corneal injury. Ingestion may cause central nervous system depression, nausea, vomiting, loss of coordination, loss of consciousness. Inhalation at concentration equalling or exceeding 1.000 ppm may cause irritation of the mucous membranes of nose, throat and respiratory tract.

ENVIRONMENTAL HAZARDS: The product is dangerous for aquatic life; avoid release to the environment; in case of an accidental spillage refer to the guidelines indicated in the paragraph 6.

2.3.1 Other

















Results of the PBT and PvB assessment:






The material does not meet the criteria for PBT or vPvB in accordance with Annexe XIII of the REACH regulation.

3 - Composition/information on ingredients
3.1 - Substances

Not applicable. This product is treated as a mixture.

3.2 - Mixtures

Substances	Registration No.	CAS No. CE No. ELINCS No. INDEX No.	Classification according to Regulation (EC) no. 1272/2008	%
Ethanol 96% denatured (*)(**) <small>Update 08/06/2015</small>	01-2119457610-43-xxxx	64-17-5 200-578-6 -- 603-002-00-5	 Flam. Liq. 2, H225  Eye irrit. 2, H319	80÷82
Water	--	7732-18-5 231-791-2 -- --	--	10÷12
Citral (**) <small>Update 20/04/2016</small>	01-2119462829-23-xxxx	5392-40-5 226-394-6 -- 605-019-00-3	 Skin Irrit. 2, H315 Skin Sens. 1, H317 Eye irrit. 2, H319	2,14÷2,19
d-Limonene (**) <small>Update 18/03/2016</small>	01-2119529223-47-xxxx	5989-27-5 227-813-5 -- 601-029-00-7	 Flam. Liq. 3, H226  Skin Irrit. 2, H315  Skin Sens. 1, H317  Aquatic Chronic 1, H410 Asp. Tox. 1, H304	1,01÷1,06
Hexyl cinnamal (alpha-Hexylcinnamaldehyde) <small>Update 29/12/2015</small>	01-2119533092-50-xxxx	(101-86-0) (202-983-3) 639-566-4 --	 Skin Sens. 1, H317  Aquatic Acute 1, H400 Aquatic Chronic 2, H411	0,40÷0,45
Geraniol <small>Update 18/03/2016</small>	01-2119552430-49-xxxx	106-24-1 203-377-1 -- --	 Skin Irrit. 2, H315  Skin Sens. 1, H317  Eye Dam. 1, H318	0,31÷0,36
Citronellol <small>Update 09/01/2016</small>	01-2119453995-23-xxxx	106-22-9 203-375-0 -- --	 Skin Irrit. 2, H315 Skin Sens. 1, H317 Eye irrit. 2, H319	0,25÷0,30
Nerol <small>Update 27/12/2015</small>	01-2119983244-33-xxxx	106-25-2 203-378-7 -- --	 Skin Irrit. 2, H315  Skin Sens. 1, H317  Eye Dam. 1, H318	0,11÷0,16

Linalool <small>Update 17/08/2016</small>	01-2119474016-42-xxxx	78-70-6 201-134-4 -- --	 Skin Irrit. 2,H315 Skin Sens. 1,H317 Eye irrit. 2,H319	0,06÷0,11
<i>List of substances, present as impurities, having a Community threshold of exposure in the workplace</i>				
Diethyl phthalate <small>Update 06/01/2016</small>	01-2119486682-27-xxxx	84-66-2 201-550-6 -- --	--	2,10
2-methylpropan-2-ol <small>Update 03/08/2015</small>	01-2119444321-51-xxxx	75-65-0 200-889-7 -- 603-005-00-1	 Flam. Liq. 2,H225 Eye Irrit. 2, H319 Acute Tox. 4,H332 STOT SE 3,H335	0,1
Pin-2(3)-ene <small>Update 30/01/2016</small>	01-2119519223-49-xxxx	80-56-8 201-291-9 -- --	 Flam. Liq. 3,H226 Asp. Tox. 1,H304 Skin Irrit. 2,H315 Skin Sens. 1,H317	0,048
Pin-2(10)-ene <small>Update 03/02/2016</small>	01-2119519230-54-xxxx	127-91-3 204-872-5 -- --	 Flam. Liq. 3,H226 Asp. Tox. 1,H304 Skin Irrit. 2,H315 Skin Sens. 1,H317 Aquatic Chronic 1,H410	0,048
2,6-Di-tert-butyl-p-cresol <small>Update 30/01/2016</small>	01-2119565113-46-xxxx	128-37-0 204-881-4 -- --	 Aquatic acute 1,H400 Aquatic Chronic 1,H410	0,024

INCI name of components:

ETHYL ALCOHOL 96% denatured used in the cosmetics industry

Drinking water

Perfume essence

(*) Ethyl alcohol destined to the manufacturing of perfumery products and cosmetic products shall be mixed with the substances laid down by the M.D. No. 524 of 09.07.1996, letter B, per hectoliter of alcohol, of the following substances: Diethyl phthalate: 500 grams CAS number:84-66-2; Tertiary-Butyl Alcohol (TBA): 78,8 grams CAS number: 75-65-0 INDEX number:603-005-00-1 EC number: 200-889-7 Labelling: GHS02-GHS07.

Other information ()** THE SUBSTANCE HAS OCCUPATIONAL EXPOSURE LIMIT VALUES.

Explanation of abbreviations and hazard warnings in Section 16.

Description of H-phrases (1272/2008)

H225-Highly flammable liquid and vapour

H226-Flammable liquid and vapour

H304-May be fatal if swallowed and enters airways

H315-Causes skin irritation

H317-May cause an allergic skin reaction

H318-Causes serious eye damage.

H319-Causes serious eye irritation
H332-Harmful if inhaled
H335-May cause respiratory irritation
H400-Very toxic to aquatic life
H410-Very toxic to aquatic life with long lasting effects
H411-Toxic to aquatic life with long lasting effects

4 - First aid measures

4.1 - Description of first aid measures

In case of incident, consult a doctor, providing the information contained on the label and in this sheet.

The medication and use of medical equipment shall be carried out under strict control of the medical personnel. The first intervention – in case of accident – shall be carried out by trained and skilful personnel in order to avoid further complications or damage to the casualty. If the casualty is unresponsive and unconscious, do not supply beverages or administer any medicine by mouth. Rescue personnel should wear appropriate personal protective equipment.

4.1.1 Inhalation

In case of inhalation of the product, give first aid to the casualty according to the following steps:

- Move away the victim from the contaminated area; take the victim in a warm and well-ventilated place, remove the clothes (collar, belt, etc...) that hamper breathing;
- If breathing is irregular or stops, give artificial respiration or supply oxygen. Immediately seek medical attention (and/or immediately call an ambulance).

4.1.2 Accidental eye contact

In case of accidental eye contact, wash well-open eyes immediately, abundantly and thoroughly with running water for a few minutes. If an irritation occurs, consult a specialist.

4.1.3 Accidental skin contact

In case of accidental skin contact, flush affected area thoroughly with plenty of water and soap. Remove contaminated clothing and footwear (be careful at fire hazard).

4.1.4 Ingestion

Allow the casualty to vomit naturally. Give plenty of water and seek medical attention. Pay attention to aspiration in case of vomiting.

4.1 - Main symptoms and effects, both acute and delayed

Irritation to eyes, skin, nose, headache, drowsiness, apathy, narcosis, coughing.

4.2 - Indication of any immediate medical attention and special treatment

Immediately seek medical assistance if large quantities of this substance were inhaled, swallowed or came into contact with eyes.

5 - Fire-fighting measures

5.1 - Exstinguishing media

The product is highly flammable; it may cause a fire.

5.1.1 Suitable exstinguishing media

The following extinguishing media may be used without any particular contra-indications: water fog, powder, alcohol-resistant foam, carbon dioxide, sand.

5.1.2 Unsuitable extinguishing media

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

5.2 - Special hazards arising from the substance or mixture

The product, if exposed to heat, releases fumes or vapors highly flammable; CO may be formed as a result of incomplete combustion (TLV-TWA: 29 mg/m³). As a result of the product total combustion, one of the following formations may occur: water, carbon monoxide (TLV-TWA: 57 mg/m³), nitrous oxide (TLV-TWA: 5,6 mg/m³), sulfur dioxide (TLV-TWA: 5,2 mg/m³)) and – in lower quantity – acids resulting from the combustion of plastic packagings and mineral salts.

Vapour phase is heavier than air; vapours may travel across the ground and reach remote ignition sources.

5.3 - Advice for firefighters

If a leak or spill has not ignited, use water spray to disperse the vapours and to protect personnel attempting to stop a leak.

For large unburned spills with alcohol-resistant foam or earth.
Keep people not properly equipped away.
Cool down containers and the surrounding environment with water.
Equip the fire-fighters with the following protective equipment:
- flame resistant coveralls
- helmet with face shield or fire hood with visor
- fire resistant gloves
- fire resistant footwear
- self-contained breathing apparatus
- mask with filter for organic vapours
- suitable turnout gear (bunker gear)

5.3.1 Special protective equipment

Whenever breathing systems with filter are not suitable (for instance, in case of high concentrations of vapours, lack of oxygen or in confined spaces) use suitable positive pressure breathing equipment (self-contained breathing apparatus).

6 - Accidental release measures

6.1 - Personal precautions, protective equipment and emergency procedures

Measures to be taken in case of spill of the product:

- Spillage of small entities: stop the leak if there is a risk. Adsorb spillage with non-combustible materials. Collect in suitable containers and dispose of according to local regulations. Take precautionary measures against electrostatic discharges.
- Spillage of large entities: dike for ahead of liquid spill for later recovery accidental and disposal according to local regulations. Prevent leakage into waterways, sewers, basements of confined areas.

6.1.1 For non-emergency personnel

In case of accidental spill and release of the product, use the following personal protective equipment:

- notify the authorities in charge of managing the emergency
- wear suitable personal protective equipment
- avoid contact with skin and eyes; do not breathe vapours and fumes
- provide an adequate ventilation
- prevent form entering drains and gutters (explosion hazard)
- extinguish any open flames, remove heat sources. Do not smoke
- formation of sparks must be prevented
- evacuate the area
- take precautionary measures against static discharge
- cut off current, shut off internal combustion engines
- stop leak at source, if it can be done without risk
- ventilate the area thoroughly after dealing with a spillage

6.1.2 For emergency responders

Emergency responders must wear:

- antigas mask with organic vapour filter
- suitable protective gloves, face shield, gloves, boots and apron

6.2 - Environmental precautions

In case of accidental spill/release:

- intervene to detect or remove spillage and apply the procedures of containment and recovery according to the instructions reported in subsection 6.3.
- notify the competent authorities
- avoid or minimize the spill of the material in the soil and environment
- collect contaminated water or soil in proper containers to undergo a proper decontamination treatment
- keep away from all ignition sources (flames, sparks, etc...)
- do not flush into surface waters, sanitary sewers or storm drains
- prevent the spillage from entering the subsoil
- do not allow material to contaminate ground water system.

6.3 - Methods and material for containment and cleaning up

Comply with the following procedures of containment and recovery:

- use the protective equipment indicated in subsection 6.1
- collect spilled material inside sealed recipients

- keep away from all ignition sources
- collect by mechanical means after binding with absorbing material (sand, earth, etc.) and dispose appropriately according to the local or National regulations in force
- label containers and dispose of as laid down by the law
- provide an adequate ventilation

6.4 - Reference to other sections

Refer to section 13 for disposal according to the local or National directives.

6.5 - Technical handling hints

Decontaminate empty containers before any intervention with open flames.

6.6 - Do not mix with

Strong oxidants and inorganic peroxides.

7 - Handling and Storage

7.1 - Precautions for safe handling

7.1.1 Recommendations for handling

- provide suitable ventilation or aspiration in the premises where the substance is handled to avoid vapor accumulation that may form explosive mixture with air
- make sure pipes are properly connected to tanks
- avoid contact with eyes, skin, clothing

Equipment against fire and explosions:

- store away from flames and sparks. Do not smoke. Take precautionary measures against static discharges
- install flame guards on motor vehicles

7.1.2 Advice on general occupational hygiene

When handling, wear personal protective equipment indicated in section 8 of this sheet and apply the procedures described below:

- do not eat, drink or smoke while working. Normal precautions (use of gloves,.....).

7.2 - Conditions for safe storage, including any incompatibilities

Observe the following precautions when storing the product:

- bear in mind chemical and physical characteristics of the product to avoid any potential interaction with other products (see section 10)
- keep containers tightly closed. Store in a well-ventilated area
- keep in a cool place
- storage places must be grounded and bonded to prevent static charge accumulation
- keep away from strong oxidants
- avoid ignition sources
- temperature, humidity and ventilation of the premises must comply with the regulations in force
- keep away from oxidants, peroxides, acids, acid chlorides, acid anhydrides, alkaline metals, ammonia.

Shipping containers usually used: bottles, containers of different sizes.

All containers – included the emptied ones – must be stored in well-ventilated places, at temperatures ranging from +1 to 20°C.

Do not use for purposes different from those indicated.

OTHER WARNINGS: When empty, the container may still be hazardous. Keep observing all precautions.

Storage class: 3A (VCI Konzept)

7.3 - Specific end use(s)

For information regarding the PPE and the operating conditions, consult the list of the identified uses in Section 1 for available specific information provided in exposure scenario/s (if available).

Consumer:

ES12: Exposure scenario for Consumer use of Ethanol in products (<50g per event)

8 - Exposure controls/personal protection

Information below regards industrial handling of the product.

Information contained in this section provides general instructions and guidelines. Refer to the identified Uses listed in Section 1 for specific available information provided in the exposure scenario/s.

Use the product according to this specifications sheet, particularly with regards to subsection 7.1.

Use protective equipment listed in subsection 8.2.

A forced air extraction system is recommended when the product is in confined spaces as well as when it is heated at a temperature higher than the ambient temperature.

Safety Data Sheet (SDS) contains information regarding the chemical nature of a substance or a product, and the possible adverse effects it may cause.

PPE stands for Personal Protective Equipment that must be compulsorily employed when facing a “Residual Risk”.

The “Residual Risk” pertains to working conditions, and it is closely related to the conditions to be found in the workplace and to the organisation of the work itself.

The references to PPE to be employed, contained in the Safety Data Sheet, are just information, therefore they cannot go beyond limitations arising from attribution of responsibility.

The EMPLOYER is fully in charge of picking out the most suitable PPE according to the risk factors in the workplace.

8.1 - Control parameters

Data regarding final product are not available.

Exposure limits of components found in the product:

Substance CAS No.	Ethanol			
	64-17-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Australia	1000	1880		
Austria	1000	1900	2000	3800
Belgium	1000	1907		
Canada - Ontario			1000	
Canada - Québec	1000	1880		
Denmark	1000	1900	2000	3800
Finland	1000	1900	1300 (1)	2500 (1)
France	1000	1900	5000	9500
Germany (AGS)	500	960	1000 (1)	1920 (1)
Germany (DFG)	500	960	1000 (1)	1920 (1)
Hungary		1900		7600
Ireland			1000 (1)	
Latvia		1000		
New Zealand	1000	1880		
Poland		1900		
Singapore	1000	1880		
South Korea	1000	1900		
Spain			1000	1910
Sweden	500	1000	1000 (1)	1900 (1)
Switzerland	500	960	1000	1920
The Netherlands		260		1900
USA - NIOSH	1000	1900		
USA - OSHA	1000	1900		
United Kingdom	1000	1920		

	Remarks
Finland	(1) 15 minutes average value
Germany (AGS)	(1) 15 minutes average value
Germany (DFG)	(1) 15 minutes average value
Ireland	(1) 15 minutes reference period
Sweden	(1) Short-term value, 15 minutes average value

Substance	3,7-Dimethylocta-2,6-dienal			
CAS No.	5392-40-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Poland		27		54
Spain	5			

Substance	D-Limonene			
CAS No.	5989-27-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Finland	25	140	50 (1)	280 (1)
Germany (AGS)	5	28	20 (1)	110 (1)
Germany (DFG)	5	28	20 (1)	112 (1)
Switzerland	20	110	40	220
	Remarks			
Finland	(1) 15 minutes average value			
Germany (AGS)	(1) 15 minutes reference period			
Germany (DFG)	(1) 15 minutes average value			

Substance	Diethyl phthalate			
CAS No.	84-66-2			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Australia		5		
Austria		3		5
Belgium		5		
Canada - Ontario		5		
Canada - Québec		5		
Denmark		3		6
Finland		5		10 (1)

France	5	
Ireland	5	10 (1)
Latvia	0,5	
New Zealand	5	
Poland	5	15
Singapore	5	
South Korea	5	
Spain	5	
Sweden	3	5 (1)
Switzerland	5 inhalable aerosol	
USA - NIOSH	5	
United Kingdom	5	10
Remarks		
Finland	(1) 15 minutes average value	
Ireland	(1) 15 minutes reference period	
Sweden	(1) Short-term value, 15 minutes average value	

Substance	2-Methylpropan-2-ol (tert-butyl alcohol)			
	CAS No. 75-65-0			
CAS No.	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Australia	75	65		
Austria	20	62	80	248
Belgium	100	307		
Canada - Ontario	100		150	
Canada - Québec	100	303		
Denmark	50	150	50	150
Finland	50	150	75 (1)	230 (1)
France	100	300		
Germany (AGS)	20	62	80 (1)	248 (1)
Germany (DFG)	20	62	80	248
Ireland	100	300	150 (1)	450 (1)
Latvia		10		
New Zealand	100	303	150	455
Poland		300		450
Singapore	100	303		
South Korea	100	300	150	450
Spain	100	308		
Sweden	50	150	75 (1)	250 (1)

Switzerland	20	60	80	240
USA - NIOSH	100	305	150 (1)	455 (1)
USA - OSHA	100	300		
United Kingdom	100	308	150	462
Remarks				
Finland	(1) 15 minutes average value			
Germany (AGS)	(1) 15 minutes average value			
Germany (DFG)	STV 15 minutes average value			
Ireland	(1) 15 minutes reference period			
Sweden	(1) Short-term value, 15 minutes average value			
USA - NIOSH	(1) 15 minutes average value			

Substance	alpha-Pinene (cf. Terpenes)			
	CAS No. 80-56-8			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Belgium	20			
Canada - Ontario	20			
Sweden	25	150	50 (1)	300 (1)
Remarks				
Sweden	(1) Short-term value, 15 minutes average value			

Substance	beta-Pinene (cf. Terpenes)			
	CAS No. 127-91-3			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Belgium	20			
Canada - Ontario	20			
Denmark	25	140	50	280
Sweden	25	150	50 (1)	300 (1)
Remarks				
Sweden	(1) Short-term value, 15 minutes average value			

Substance	2,6-Di-tert-butyl-p-cresol			
	CAS No. 128-37-0			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m ³	ppm	mg/m ³
Australia	10			

Austria	10	
Belgium	2	
Canada - Ontario	2 (1)	
Canada - Québec	10	
Denmark	10	20
Finland	10	20 (1)
France	10	
Germany (AGS)	10 (1)	40 (1)(2)
Germany (DFG)	10 (1)(2)	40 (1)(2)
Ireland	10	
New Zealand	10	
Singapore	10	
South Korea	2	
Switzerland	10 inhalable aerosol	
USA - NIOSH	10	
United Kingdom	10	
Remarks		
Canada - Ontario	(1) Inhalable aerosol and vapour	
Finland	(1) 15 minutes average value	
Germany (AGS)	(1) Inhalable aerosol and vapour (2) 15 minutes reference period	
Germany (DFG)	(1) Inhalable fraction and vapour (2) 15 minutes reference period	

The following data refer to ETHANOL

 Peak Limitation Category: II(2); Carcinogenicity Class: 5; Pregnancy Risk Group: C; Germ Cell Mutagenicity: 5; (DFG 2004).
 TLV – STEL (15 min): 1000 ppm ACGIH (2009)

DNEL for workers		
DNEL inhalation, acute effects, irritation of respiratory system	1900 mg/m ³	Report on chemical safety
DNEL skin contact, long-term systemic effects, repeated dose toxicity	343 mg/kg/day	Report on chemical safety
DNEL inhalation, long-term systemic effects, carcinogenicity	950 mg/m ³	Report on chemical safety
DNEL for non-professional users		
DNEL inhalation, acute effects, irritation of respiratory system	950 mg/m ³	Report on chemical safety
DNEL skin contact, long-term systemic effects, repeated dose toxicity	206 mg/kg/day	Report on chemical safety
DNEL inhalation, long-term systemic effects, carcinogenicity	114 mg/m ³	Report on chemical safety
DNEL oral, long-term systemic effects, repeated dose toxicity	87 mg/kg/day	Report on chemical safety
PNEC		
PNEC – fresh water	0,96 mg/l	Report on chemical safety
PNEC – marine water	0,79 mg/l	Report on chemical safety
PNEC – intermittent release	2,75 mg/l	Report on chemical safety
PNEC - sediments (fresh water)	3,6 mg/kg	Report on chemical safety
PNEC - sediments (marine water)	2,9 mg/kg	Report on chemical safety

• The following data refer to Citral:

N° CAS: 5392-40-5

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 9 mg/m³

DN(M)EL: NOAEC 12

Dermal: DNEL: 1.7 mg/kg bw/day

DN(M)EL: LOAEL 63

Long-term exposure - local effects

Dermal: DNEL: 140 µg/m³

DN(M)EL: NOAEL 10

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 2.7 mg/m³

DN(M)EL: NOAEC 20

Dermal: DNEL: 1 mg/kg bw/day

DN(M)EL: NOAEL 10

Oral: DNEL: 0.6 mg/kg bw/day

DN(M)EL: NOAEL 105

Long-term exposure - local effects

Dermal: DNEL: 140 µg/m³

DN(M)EL: NOAEL 10

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil
0.007 mg/l	0.001 mg/l	0.068 mg/l	1.6 mg/l	0.125 mg/kg sediment dw	0.013 mg/kg sediment dw	0.021 mg/kg soil dw

• The following data refer to **d-Limonene**:

N° CAS: 5989-27-5

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 66.7 mg/m³

DN(M)EL: LOAEC 75

5 000 mg/m³

Dermal: DNEL: 9.5 mg/kg bw/day

DN(M)EL: LOAEL 105

1 000 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Long-term exposure - local effects

Inhalation: No hazard identified

Dermal: Medium hazard (no threshold derived)

Short-term exposure - local effects

Inhalation: No hazard identified

Dermal: Medium hazard (no threshold derived)

Hazard for the eyes - local effects

No hazard identified

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 16.6 mg/m³

DN(M)EL: LOAEC 150
2 488 mg/m³

Dermal: DNEL: 4.8 mg/kg bw/day
DN(M)EL: LOAEL 210
1 000 mg/kg bw/day

Oral: DNEL: 4.8 mg/kg bw/day
DN(M)EL: LOAEL 210
1 000 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Long-term exposure - local effects

Inhalation: No hazard identified

Dermal: No hazard identified

Short-term exposure - local effects

Inhalation: No hazard identified

Dermal: No hazard identified

Hazard for the eyes - local effects

No hazard identified

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
14 µg/l	1.4 µg/l	1.8 mg/l	3.85 mg/kg sediment dw	0.385 mg/kg sediment dw	0.763 mg/kg soil dw	133 mg/kg food

• The following data refer to alpha-Hexyl Cinnamic Aldehyde:

N° CAS: 165184-98-5

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 0.078 mg/m³

Dermal: DNEL: 18.2 mg/kg bw/day

DN(M)EL: NOAEL 300

Long-term exposure - local effects

Dermal: DNEL: 525 µg/cm²

DN(M)EL: NOAEL 45

Short-term exposure - local effects

Inhalation: DNEL: 6.28 mg/m³

DN(M)EL: LOAEC 225

Dermal: DNEL: 525 µg/cm²

DN(M)EL: NOAEL 45

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 0.019 mg/m³

Dermal: DNEL: 9.11 mg/kg bw/day

DN(M)EL: NOAEL 600

Oral: DNEL: 0.056 mg/kg bw/day

DN(M)EL: NOAEL 1800

Short-term exposure - local effects

Inhalation: DNEL: 4.71 mg/m³

DN(M)EL: LOAEC 450

Dermal: DNEL: 78.7 µg/cm²

DN(M)EL: NOAEL 300

Long-term exposure - local effects

Dermal: DNEL: 78.7 µg/cm²

DN(M)EL: NOAEL 300

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
0.001 mg/l	0 mg/l	0.002 mg/l	10 mg/l	3.2 mg/kg sediment dw	0.064 mg/kg sediment dw	0.398 mg/kg soil dw	6.6 mg/kg food

 • The following data refer to **Geraniol**:

N° CAS: 106-24-1

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)
Workers:
Long-term exposure - systemic effects
Inhalation: DNEL: 161.6 mg/m³
DN(M)EL: NOAEC 6

Dermal: DNEL: 12.5 mg/kg bw/day

DN(M)EL: NOAEL 24

Long-term exposure - local effects
Dermal: DNEL: 11800 µg/cm²
DN(M)EL: NOAEL 1

Consumer:
Long-term exposure - systemic effects
Inhalation: DNEL: 47.8 mg/m³
Dermal: DNEL: 7.5 mg/kg bw/day

DN(M)EL: NOAEL 120

Oral: DNEL: 13.75 mg/kg bw/day

DN(M)EL: NOAEL 40

Long-term exposure - local effects
Dermal: DNEL: 11800 µg/cm²
DN(M)EL: NOAEL 1

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
0.011 mg/l	0.001 mg/l	0.108 mg/l	0.7 mg/l	0.115 mg/kg sediment dw	0.011 mg/kg sediment dw	0.017 mg/kg soil dw	No potential to cause toxic effects if accumulated (in higher organisms) via the food chain

 • The following data refer to **Citronellol**:

N° CAS: 106-22-9

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)
Workers:
Long-term exposure - systemic effects
Inhalation: DNEL: 161.6 mg/m³
DN(M)EL: NOAEC 6

 969.7 mg/m³
Dermal: DNEL: 327.4 mg/kg bw/day

DN(M)EL: NOAEL 24

7857.1 mg/kg bw/day

Long-term exposure - local effects

Inhalation: DNEL: 10 mg/m³

Short-term exposure - local effects

Inhalation: DNEL: 10 mg/m³

Dermal: DNEL: 2950 µg/cm²

Hazard for the eyes - local effects

Medium hazard (no threshold derived)

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 47.8 mg/m³

DN(M)EL: NOAEC 10

478.3 mg/m³

Dermal: DNEL: 196.4 mg/kg bw/day

DN(M)EL: NOAEL 40

7857.1 mg/kg bw/day

Oral: DNEL: 13.8 mg/kg bw/day

DN(M)EL: NOAEL 40

550 mg/kg bw/day

Long-term exposure - local effects

Inhalation: DNEL: 10 mg/m³

Short-term exposure - local effects

Inhalation: DNEL: 10 mg/m³

Dermal: DNEL: 2950 µg/cm²

Hazard for the eyes - local effects

Medium hazard (no threshold derived)

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil
0.002 mg/l	0 mg/l	0.024 mg/l	580 mg/l	0.026 mg/kg sediment dw	0.003 mg/kg sediment dw	0.004 mg/kg soil dw

• The following data refer to nerol:

N° CAS: 106-25-2

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 5.4 mg/m³

DN(M)EL: LOAEC 75

401 mg/m³

Dermal: DNEL: 0.76 mg/kg bw/day

DN(M)EL: LOAEL 300

227.6 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Long-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: DNEL: 133 µg/cm²

DN(M)EL: NOAEL 45

Short-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: No DNEL required: short term exposure controlled by conditions for long-term

Hazard for the eyes - local effects

Low hazard (no threshold derived)

Consumer:
Long-term exposure - systemic effects

Inhalation: DNEL: 1.3 mg/m³
 DN(M)EL: LOAEC 150
 198 mg/m³
Dermal: DNEL: 0.38 mg/kg bw/day
 DN(M)EL: LOAEL 600
 227.6 mg/kg bw/day
Oral: DNEL: 0.38 mg/kg bw/day
 DN(M)EL: NOAEL 600
 227.6 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Oral: No hazard identified

Long-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: No hazard identified

Short-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: No hazard identified

Hazard for the eyes - local effects

Low hazard (no threshold derived)

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
7.45 µg/l	0.745 µg/l	74.5 µg/l	12.9 mg/l	133 µg/kg sediment dw	13.3 µg/kg sediment dw	22.3 µg/kg soil dw	No potential for bioaccumulation

• The following data refer to Linalool:

N° CAS: 78-70-6

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)
Workers:
Long-term exposure - systemic effects

Inhalation: DNEL: 2.8 mg/m³
 DN(M)EL: NOAEC 75

Dermal: DNEL: 2.5 mg/kg bw/day
 DN(M)EL: NOAEL 100

Short-term exposure - systemic effects

Inhalation: DNEL: 16.5 mg/m³
 DN(M)EL: NOAEC 12.5

Dermal: DNEL: 5 mg/kg bw/day
 DN(M)EL: NOAEL 50

Long-term exposure - local effects

Dermal: DNEL: 3 mg/cm²
 DN(M)EL: NOAEL 5

Short-term exposure - local effects

Dermal: DNEL: 3 mg/cm²

Hazard for the eyes - local effects

Low hazard (no threshold derived)

Consumer:
Long-term exposure - systemic effects

Inhalation: DNEL: 0.7 mg/m³
 DN(M)EL: NOAEC 150

Dermal: DNEL: 1.25 mg/kg bw/day

DN(M)EL: NOAEL 200

Oral: DNEL: 0.2 mg/kg bw/day

DN(M)EL: NOAEL 600

Short-term exposure - systemic effects

Inhalation: DNEL: 4.1 mg/m³

DN(M)EL: NOAEC 25

Dermal: DNEL: 2.5 mg/kg bw/day

DN(M)EL: NOAEL 100

Oral: DNEL: 1.2 mg/kg bw/day

DN(M)EL: NOAEL 100

Long-term exposure - local effects

Dermal: DNEL: 1.5 mg/cm²

DN(M)EL: NOAEL 10

Short-term exposure - local effects

Dermal: DNEL: 1.5 mg/cm²

Hazard for the eyes - local effects

Low hazard (no threshold derived)

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
0.2 mg/l	0.02 mg/l	2 mg/l	10 mg/l	2.22 mg/kg sediment dw	0.222 mg/kg sediment dw	0.327 mg/kg soil dw	7.8 mg/kg food

• The following data refer to **Diethyl phthalate:**

N° CAS: 84-66-2

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 10.56 mg/m³

DN(M)EL: NOAEC 25

264 mg/m³

Dermal: DNEL: 15 mg/kg bw/day

DN(M)EL: NOAEL 100

1500 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Long-term exposure - local effects

Inhalation: No hazard identified

Dermal: No hazard identified

Short-term exposure - local effects

Inhalation: No hazard identified

Dermal: No hazard identified

Hazard for the eyes - local effects

No hazard identified

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 2.6 mg/m³

DN(M)EL: NOAEC 50

130 mg/m³

Dermal: DNEL: 7.5 mg/kg bw/day

DN(M)EL: NOAEL 200

1500 mg/kg bw/day

Oral: DNEL: 0.75 mg/kg bw/day

DN(M)EL: NOAEL 200

150 mg/kg bw/day

Short-term exposure - systemic effects
Inhalation: No hazard identified

Dermal: No hazard identified

Oral: No hazard identified

Long-term exposure - local effects
Inhalation: No hazard identified

Dermal: No hazard identified

Short-term exposure - local effects
Inhalation: No hazard identified

Dermal: No hazard identified

Hazard for the eyes - local effects

No hazard identified

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
12 µg/l	1.2 µg/l	120 µg/l	2000 µg/l	137 µg/kg sediment dw	13.7 µg/kg sediment dw	137 µg/kg soil dw	33 mg/kg food

• The following data refer to 2-methylpropan-2-ol:

N° CAS: 75-65-0

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)
Workers:
Long-term exposure - systemic effects
Inhalation: DNEL: 2.7 mg/m³

 DN(M)EL: LOAEC 75
 204 mg/m³
Dermal: DNEL: 5.5 mg/kg bw/day

 DN(M)EL: LOAEL 150
 818 mg/kg bw/day

Short-term exposure - systemic effects
Inhalation: DNEL: 214 mg/m³

 DN(M)EL: NOAEC 12.5
 2677 mg/m³
Dermal: No hazard identified

Long-term exposure - local effects
Inhalation: No hazard identified

Dermal: Low hazard (no threshold derived)

Short-term exposure - local effects
Inhalation: Low hazard (no threshold derived)

Dermal: No hazard identified

Hazard for the eyes - local effects

Medium hazard (no threshold derived)

Consumer:
Long-term exposure - systemic effects
Inhalation: DNEL: 0.5 mg/m³

 DN(M)EL: LOAEC 150
 72.5 mg/m³
Dermal: DNEL: 2.7 mg/kg bw/day

 DN(M)EL: LOAEL 300
 818 mg/kg bw/day

Oral: DNEL: 0.3 mg/kg bw/day

DN(M)EL: NOAEL 300

Short-term exposure - systemic effects
Inhalation: DNEL: 159.8 mg/m³

DN(M)EL: NOAEC 25

3995 mg/m³

Dermal: No hazard identified

Oral: No hazard identified

Long-term exposure - local effects

Inhalation: No hazard identified

Dermal: Low hazard (no threshold derived)

Short-term exposure - local effects

Inhalation: Low hazard (no threshold derived)

Dermal: No hazard identified

Hazard for the eyes - local effects

Medium hazard (no threshold derived)

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
6.64 mg/l	0.664 mg/l	9.33 mg/l	690 mg/l	5.8 mg/kg sediment dw	0.58 mg/kg sediment dw	1 mg/kg soil dw	88700 g/kg food

• The following data refer to **Alpha-Pinene**:

N° CAS: 80-56-8

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 5.98 mg/m³

DN(M)EL: NOAEC 23.8

Short-term exposure - systemic effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Long-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Short-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: 161 µg/cm²

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 1.06 mg/m³

DN(M)EL: NOAEC 47.6

Oral: DNEL: 0.31 mg/m³ bw/day

DN(M)EL: NOAEL 47.6

Short-term exposure - systemic effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Oral: No-threshold effect and/or no dose-response information available

Long-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Short-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: DNEL: 161 µg/cm²

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
4 µg/l	0.4 µg/l	3.26 mg/l	1.033 mg/kg sediment dw	0.103 mg/kg sediment dw	0.539 mg/kg soil dw	1.35 mg/kg food

• The following data refer to **beta-Pinene**:

N° CAS: 127-91-3

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 5.69 mg/m³

DN(M)EL: NOAEC 25
142 mg/m³

Dermal: DNEL: 0.8 mg/kg bw/day

DN(M)EL: NOAEL 175
142 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Long-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: DNEL: 54 µg/cm²

DN(M)EL: NOAEL 135

Short-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: No DNEL required: short term exposure controlled by conditions for long-term

Hazard for the eyes - local effects

No hazard identified

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 1 mg/m³

DN(M)EL: NOAEC 50
50.6 mg/m³

Dermal: DNEL: 0.3 mg/kg bw/day

DN(M)EL: NOAEL 350
102 mg/kg bw/day

Oral: DNEL: 0.3 mg/m³ bw/day

DN(M)EL: NOAEL 350
102 mg/kg bw/day

Short-term exposure - systemic effects

Inhalation: No hazard identified

Dermal: No hazard identified

Oral: No hazard identified

Long-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: DNEL: 27 µg/cm²

DN(M)EL: NOAEL 270

Short-term exposure - local effects

Inhalation: Hazard unknown (no further information necessary)

Dermal: No DNEL required: short term exposure controlled by conditions for long-term

Hazard for the eyes - local effects

No hazard identified

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
1.004 µg/l	0.1 µg/l	5.02	3.26 mg/l	0.337 mg/kg sediment dw	0.034 mg/kg sediment dw	0.067 mg/kg soil dw	13.1 mg/kg food

• The following data refer to **2,6-di-tert-butyl-p-cresol**:

N° CAS: 128-37-0

DERIVED NO-EFFECT LEVEL (DNEL)/ DERIVATIVES MINIMAL EFFECT LEVELS (DMEL)

Workers:

Long-term exposure - systemic effects

Inhalation: DNEL: 3.5 mg/m³

DN(M)EL: NOAEC 12.5

Dermal: DNEL: 0.5 mg/kg bw/day

DN(M)EL: NOAEL 50

Short-term exposure - systemic effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Long-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Short-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Consumer:

Long-term exposure - systemic effects

Inhalation: DNEL: 0.86 mg/m³

DN(M)EL: NOAEC 25

Dermal: DNEL: 0.25 mg/kg bw/day

DN(M)EL: NOAEL 100

Oral: DNEL: 0.25 mg/kg bw/day

DN(M)EL: NOAEL 100

Short-term exposure - systemic effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Long-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

Short-term exposure - local effects

Inhalation: No-threshold effect and/or no dose-response information available

Dermal: No-threshold effect and/or no dose-response information available

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
0.199 µg/l	0.02 µg/l	1.99 µg/l	0.17 mg/l	99.6 µg/kg sediment dw	9.96 µg/kg sediment dw	47.69 µg/kg soil dw	8.33 mg/kg food

8.2 - Exposure controls

8.2.1 *Appropriate engineering controls*

In open-circuit systems, where contact with product is likely, wear safety glasses, long-sleeved clothes and impervious gloves. In the event that airborne concentrations should exceed limits set forth in this section and if the plants, operational procedures and other means to reduce the exposure of workers should prove to be inadequate, respiratory protective equipment is required. Equip the workplace with washing facilities (emergency showers and eye-wash stations).

8.2.2 *Individual protection measures, such as personal protective equipment*

The choice of the personal protective equipment shall be consistent with good occupational hygiene practices and varies according to the conditions of potential exposure such as applications, handling procedures, concentration and ventilation. Information provided below on the choice of the proper equipment is based upon the regular employment set out herein.

SPECIFIC HYGIENE MEASURES:

Always observe good personal hygiene measures, such as washing the hands after handling the material and before eating, drinking and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Remove contaminated clothing and shoes that cannot be washed. Practice good personal cleanliness.

PERSONAL HYGIENE:

provide suitable washing facilities in the workplace. Change coveralls, clothes worn under the coveralls, and shoes, whenever they become soaked with the product. Protective equipment, usefully employed to minimize contact with the product, may be source of contamination if worn after being soaked with the product.

WORK METHOD:

both the use and choice of personal protective equipment are based upon the risks posed by the product, working conditions and the processing methods. As minimal protection, it is generally recommended to use safety glasses or goggles with side shield, coveralls to protect arms, legs and body. Any visitor to the area where this product is handled must also wear wraparound protective goggles.

EXPOSURE CONTROL:

keep the workplace clean; adopt good working practices. When product is handled by operators with dry skin or in cold places, follow the instructions set out below.

If the used protective gloves (PVC, polyethylene, neoprene, non-hevea rubber) show signs of wear or internal contamination, or they develop cracks/tears, they should be promptly replaced.

Where airborne concentrations exceed the limits set out in this section, it is recommended to wear half-face filter mask to protect against overexposure through inhalation. Filter typology varies according to the type and quantity of chemicals handled in the workplace.

SKIN PROTECTION:

personal hygiene is the key element of protection. Do not use abrasives or solvents. It is recommended to use reconditioning skin cream after work to restore skin's lipid layer - especially for those operators suffering from dehydrated skin during the winter months. Humidity and low temperatures may cause skin excoriations, thus rendering personnel more vulnerable to chemical exposures.

Eye/face protection

When handling protect eyes with:

- wraparound safety glasses.

Skin protection

Hand protection:

The choice of the appropriate gloves does not only depend on its material, but also on other quality features and is different from one producer to the other. 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. Be aware that in daily use the durability of a chemical resistant protective glove can be notably shorter than the break through time measured according to EN 374, due to the numerous outside influences (e.g. temperature).

Resistant protective gloves are recommended.

- Gloves suitable for permanent contact:

- material: butyl rubber
breakthrough time: ≥ 480 min
material thickness: 0,5 mm
- material: fluorinated rubber FKM
breakthrough time: ≥ 480 min
material thickness: 0,4 mm

Protective gloves made of Polychloroprene – CR (0,5 mm) shall not be worn for more than two straight hours (breakthrough time $> = 2$ hours).

- Non-suitable gloves:

Gloves made of fabric or leather are entirely unsuitable.

The following materials are unsuitable for protective gloves due to degradation or short breakthrough time:

- Natural rubber/natural latex - NR
- Nitrile rubber / nitrile latex - NBR
- Polyvinyl chloride - PVC

Skin and body protection:

- category I professional long-sleeved overalls and safety footwear.

Respiratory protection

In case of poor ventilation, excessive smell or in presence of aerosol, mist or fume, it is necessary to use a protective mask for the respiratory tract with type A filter, that is a combined filter (presence of aerosol, mist, fume, for instance, A-P2 or ABEK-P2) according to standard EN 141, or a type-approved respirator according to EN 405:2001 for organic vapors with boiling point $> 65^{\circ}\text{C}$.

Thermal hazards

Product must not be used at high temperatures. Personal protective equipment is not expected for thermal hazards.

8.2.3 Environmental exposure controls

General information:

In case of pollution of rivers, lakes or drains, notify the competent authority in compliance with local regulations.

Soil:

Prevent from entering the subsoil.

Water:

do not flush into surface waters, sanitary sewers or storm drains.

9 - Physical and chemical properties

9.1 - Information on basic physical and chemical properties

9.1.1 Appearance

Physical state (at 20 °C and at 101,3 kPa): liquid

Colour: from colourless to light yellow

9.1.2 **Odour:** characteristic

9.1.3 **Odour threshold:** 80 ppm referred to ethanol

9.1.4 **pH:** 5÷7

9.1.5 **Melting point/Freezing point:** <-15°C

9.1.6 **Initial boiling point and boiling range:** 78°C

9.1.7 **Flash point:** 18,5°C

9.1.8 **Evaporation rate (n-butyl acetate =1):** 3,2 (quick)

9.1.9 **Flammability (solid, gas):** not applicable (the product is liquid)

9.1.10 **Upper/lower flammable or explosive limits:** Flammable limits % vol. in air: 3,3-18

9.1.11 **Vapour pressure:** 5,726 kPa at 20°C

9.1.12 **Vapour density:** 1,03

9.1.13 **Relative density:** 0,86 kg/l

9.1.14 **Solubility/solubilities:** Water soluble

9.1.15 **Partition coefficient: n-octanol/water:** log Kow= -0,31

9.1.16 **Auto-ignition temperature:** 363°C at 101,3 kPa

9.1.17 **Decomposition temperature:** data not available

9.1.18 **Viscosity:** at 20°C 1,2 cPs

9.1.19 **Explosive properties:** N.A. on the basis of its structure

9.1.20 **Oxidising properties:** N.A. on the basis of its structure

N.B.: Data in this specifications sheet are average values, not specifications limits.

Other information (data referred to ethanol):

It can be mixed with	Solvents
Conductivity (pS/m)	130.000
Combustion heat: (kJ/kg)	29.685

10 - Stability and reactivity

10.1 - Reactivity

It may react with natural rubber, methyl-methacrylate plastics, polyamides, zinc and brass.

10.2 - Chemical stability

Product must be regarded as:

- stable under normal conditions of handling and use, but it may become unstable under special conditions (see subsections 10.3 and 10.4).

10.3 - Possibility of hazardous reactions

It reacts slowly with calcium hypochlorite, silver oxide and ammonia causing fire and explosion hazard. It reacts violently with alkaline metals and strong oxidants such as nitric acid, silver nitrate, mercuric nitrate or magnesium perchlorate, causing fire and explosion hazard.

10.4 - Conditions to avoid

- product exposure to heat, sparks or flames
- avoid high temperatures that generate evaporation, highly flammable vapours
- handling in tubes or conducting containers and/or not grounded

10.5 - Incompatible materials

Avoid contact with: strong oxidants, sulphuric acid, nitric acid, alkaline and alkaline earth metals, alkaline oxides, acetyl chloride, peroxides, ammonia, sodium hypochlorite, calcium hypochlorite, perchlorate.

10.6 - Hazardous decomposition products

The product does not decompose if used under normal conditions of handling and use. CO, CO₂ and irritating and toxic fumes may result from product combustion.

11 - Toxicological information

Toxicity data related to final product are not available. The following data refer to component ETHANOL, listed in section 3:

SHORT-TERM EXPOSURE EFFECTS:

The substance is irritating to eyes. Inhalation of high vapour concentrations may cause eyes and respiratory irritation. The substance may cause effects on the central nervous system.

REPEATED OR LONG-TERM EXPOSURE EFFECTS:

The liquid acts as skin degreasing agent. The substance may have effects on the upper respiratory tract and on the central nervous system, causing irritation, headache, fatigue and lack of concentration.

CHRONIC TOXICITY:

The product shall be considered as carrier of moderate chronic toxicity.

Central nervous system: headache, depression state, weakness, torpor, dizziness, sleepiness and narcosis.

Possible alteration of the hepatic function.

Penetration routes: Ingestion, inhalation.

11.1 - Information on toxicological effects

Specific toxicological information through this penetration route is not available on the supplied product. The following data refer to the toxicological characteristics of components:

Ethanol:

Ethanol is highly soluble both in water and in lipids; this allows its absorption through the surface of the gastrointestinal tract, lungs and skin. It can also be inhaled.

Exposure routes: ingestion, inhalation, contact with skin, eyes.

The product shall be deemed to have a low degree of systemic toxicity due to acute overexposure.

Moderate chronic toxicity.

Target organs: digestive system, liver, eyes, skin, respiratory system, central nervous system, blood and reproductive system.

Moderately irritating.

No evidence of sensitization, carcinogenicity, mutagenicity and reproductive toxicity.

11.1.1 Acute Toxicity

Inhalation:

Toxicity data related to final product are not available. The following data refer to the toxicological information of components:

Ethanol:

Acute toxicity in human beings for concentrations > 5000 ppm, vapors may cause narcotic effects, irritation to nose and eyes, sensation of heat, headache, visual impairment, nausea, vomiting, dizziness.

LC50 rat (inhalation)	51 mg/l/6H	Equivalent or similar to OECD Guideline 403 (Acute Inhalation Toxicity)
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Ingestion:

Toxicity data related to final product are not available. The following data refer to the toxicological characteristics of components:

Ethanol:

digestive tract irritation, heartburn, nausea, vomiting, gastrointestinal hypermotility, diarrhea (symptoms resulting from acute overexposure).

Acute toxicity in human beings due to swallowing of high quantities. It may cause narcotic effects, sensation of heat, headache, visual impairment, dizziness, cardiorespiratory arrest.

LD50 rat (ingestion)	10470 mg/kg	OECD Guideline 401 (Acute Ingestion Toxicity)
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Skin contact:

LD50 rabbit (skin)	>15800 mg/kg	Source not indicated
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11.1.2 Irritation

Contact with skin and eyes

Available data show no specific risks through this absorption route. The following information refers to the toxicological characteristics of components.

Ethanol: local irritating action without any particular systemic effects.

Irritating power:

On the basis of the observations made during the regular occupational use, the product shall be considered as primary irritant to both the skin and the eyes.

11.1.3 Corrosivity

Data not available.

11.1.4 Sensitisation

Inhalation

A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. The following information refers to the toxicological characteristics of components.

Ethanol: respiratory tract irritation, cough, dyspnea, potential severe edemas depending on the concentration and duration of exposure. No indications of respiratory sensitization.

Possible abnormal liver function.

Central nervous system: headache, general depression, weakness, stupor, potential memory loss and difficulty breathing respiration (symptoms due to acute overexposure).

Skin contact

The product contains substances that may produce an allergic reaction.

11.1.5 STOT-repeated exposure

Short-term toxicity

Toxicity data related to final product are not available. The following data refer to the toxicological characteristics of components:

Ethanol:

Acute toxicity in man for concentrations > 5000 ppm.

LD₅₀ through skin rabbit: > 2000 mg/kg; OECD TG 402 (literature value)

Long-term toxicity

Toxicity data related to final product are not available. The following data refer to the toxicological characteristics of components:

Ethanol:

The liquid acts as skin degreasing agent. The substance may be toxic to upper respiratory tract and central nervous system, causing irritation, headache, fatigue and lack of concentration.

Prolonged exposure to vapors: nervousness, tremors, fatigue, lack of concentration and decreased vigilance. It may cause optic nerve damage.

11.1.6 CMR effects

Genotoxicity in vitro (data referred to ethanol)

Ames method: not mutagenic. OECD TG 471 (literature value)

Carcinogenic effects (data referred to ethanol)

IARC ASSESSMENT: animal inadequate evidence. ACGIH 2000 ASSESSMENT: Not classifiable as a carcinogen (Group A4)

Mutagenic/teratogenic effects (data referred to ethanol)

MUTAGENICITY: Some tests are positive. No full assessments by competent Authorities. Mutations in Salmonella typhimurium, 11 pph, 8500 ppm; Mutations in Escherichia coli, 140 gm/L. Cytogenetic analysis in human lymphocytes: 1160 gm/L; Cytogenetic analysis in human fibroblasts: 12000 ppm; Sister chromatid exchange in human lymphocytes: 500 ppm/72H-C.

Reproductive toxicity (data referred to ethanol)

STUDIES ON THE REPRODUCTIVE EFFECTS, TERATOGENESIS INCLUDED: Some tests are positive (ethanol has been shown to produce fetotoxicity in the embryo or fetus of laboratory animals). Prenatal exposure to ethanol is associated with a distinct pattern of congenital malformations that have collectively been termed the "fetal alcohol syndrome". No assessments by competent Authorities. Effects on newborn: orl-wmn TDLo: 41 gm/kg (41W preg). Effects on embryo/fetus: orl-wmn TDLo: 250 mg/kg (37W preg). Effects on fertility: iut-wmn TDLo: 200 mg/kg (5D pre) Paternal effects: orl-rat TDLo: 322 gm/kg (35D male).

11.1.7 Specific effects of the components

Available data do not show any specific risk of components.

11.1.8 Experimental toxicology referred to the ethanol

Acute toxicity:

LD50 oral/rat: 7060 mg/kg

LC50 inal/rat: 37 mg/l/10h

LDLo skin/rabbit: 2000 mg/kg

11.1.9 Other information

The product does not contain other substances with a particular toxicological significance.

12 - Ecological information

The content in COV (Volatile Organic Compound) in accordance with the Directive 2004/42/EC is approximately of 80% w/w. The real emissions depend on the application technology used, on temperature and processing times.

Use according to good working practice, and avoid releasing the product into the environment.

List of contained substances deemed dangerous for the environment and relevant classification:

%	Substance	CAS	EINECS
0,45	Hexyl cinnamal	101-86-0	202-983-3

H400-Very toxic to aquatic life.

%	Substance	CAS	EINECS
1,06	d-Limonene	5989-27-5	227-813-5

H400-Very toxic to aquatic life.

H410-Very toxic to aquatic life with long lasting effects.

%	Substance	CAS	EINECS
0,45	Hexyl cinnamal	101-86-0	202-983-3

H411-Toxic to aquatic life with long lasting effects.

12.1 - Toxicity

Data related to ethyl alcohol

Ethanol is shown to degrade in water, soil and sediments.

Fish, acute	LC ₅₀ Oncorhynchus mykiss	11200 mg/l/24H	US EPA method E3-05
Fish, chronic	N.A.		
Invertebrates	EC ₅₀ Ceriodaphnia dubia	5012 mg/l/48H	ASTM E729-80
Algae	EC ₅₀ Chlorella vulgaris	275 mg/l/72H	OECD Test Guideline 201 or Equivalent (Alga, Growth Inhibition test)
Soil-dwelling organisms	LC ₅₀ Eisenia fetida (annelida)	>0,1 - <1 mg/cm ² /48H	Ref: Roberts, B.L., H.W. Dorough.(1984)
Microrganisms	EC ₅₀ Paramecium caudatum	5,8 g/l/4H	Ref: Rajini,

			P.S.,Krishnakumari, M.K.,Majumder, S.K. (1989)
Other organisms	On the basis of usage typology of ethanol and its rapid biodegradation, the direct and indirect exposure of birds is unlikely.		

12.2 - Persistence and degradability

Data regarding product persistence are not available.

Data related to ethanol: Readily biodegradable

In air- Ethanol vapour is expected to undergo indirect photolysis through hydroxyl radical reaction at a slow to moderate rate, with an estimated half-life of 38 hours.

In water- Biodegradability test (sewage, domestic, non-adapted):

Readily biodegradable % degradation of substance
 appr.ly 63 after 5 days
 appr.ly 74 after 10 days
 appr.ly 84 after 15 days
 appr.ly 95 after 20 days
 (O₂ consumption)

In soil- Ethanol is expected to biodegrade fairly rapidly in soil. The half-life of this compound is expected to last a few days. Subject to biodegradation. BOD5 125%; ThOD 5 days: 44,2%

12.3 - Bioaccumulative potential

Data related to the bioaccumulative potential of product are not available.

The following data refer to ethyl alcohol:

Despite the absence of literature information on the BCF, on the basis of a log Kow of -0,31, ethanol bioaccumulative potential in fish is assumed to be absent or scarce.

12.4 - Mobility in soil

Data related to the environmental mobility of product are not available.

Data related to ethyl alcohol:

Low absorption into soil (given the low value of log Kow). Completely soluble in water; moreover, ethanol readily volatilizes.

12.5 - Results of PBT and vPvB assessment

Not classified as vPvB and PBT according to the assessment carried out in accordance with the criteria laid down in the Annexe XIII of REACH Regulation.

12.6 - Other adverse effects

No significant risks for human beings or predators through atmospheric exposure are expected.

Water Hazard Class (WGK): 2 – hazard to waters (self classification)

WGK = German water hazard classification

Prevent product from reaching waterways, sewage systems or from entering the ground

13 - Disposal considerations

13.1 - Waste treatment methods

Dispose of the waste in accordance with the regulations in force.

Avoid ignition sources and implement appropriate engineering controls (see section 8).

Prevent product from entering drains or waterways. Recover if possible. The waste originating from or contaminated by the preparation shall have to be classified, stored and sent to a suitable disposal plant complying with the national and regional regulations in force. This product does not produce ashes and can be incinerated in suitable thermal disposal plants in accordance with the regulations in force.

Follow the procedures and precautions listed in the paragraphs 6, 7 and 8 of this MSDS to handle and store waste originated from the substance or contaminated by the product.

13.1.1 Containers disposal

Containers, although completely emptied out, shall not be released into the environment. Product containers shall be duly decontaminated before starting their disposal. Containers containing the product residues must be classified, stored and sent to a suitable disposal plant complying with the national and regional regulations in force. The used containers may retain highly flammable vapours. Do not cut, weld, drill, incinerate or expose such containers to flame until they have been decontaminated and declared safe. Do not incinerate closed containers.

13.1.2 European Waste Catalogue Code

According to its use, the product may be catalogued according to different codes. General indications cannot be given.
 The product as supplied does not contain halogenated compounds.
 The user shall be informed that the conditions of use may change the waste code after the use. Refer to Directive 2001/118/EC for waste definition.

14 - Transport information

Precautions: The product presents hazards and is subject to restrictions during transportation.



Label transport: 3

14.1 - UN number

ADR-RID (Overland transport)	UN number: 1266
IMDG (Transport by sea)	UN number: 1266
ICAO-IATA (Air transport)	UN number: 1266

14.2 - UN proper shipping name

ADR-RID (Overland transport)	UN proper shipping name: Perfumery products with flammable solvents
IMDG (Transport by sea)	UN proper shipping name: Perfumery products with flammable solvents
ICAO-IATA (Air transport)	UN proper shipping name: Perfumery products with flammable solvents

14.3 - Transport hazard class(es)

ADR-RID (Overland transport)	Hazard class: 3
ADR-RID (Overland transport)	Hazard identification no.: 33
IMDG (Transport by sea)	Hazard class: 3
ICAO-IATA (Air transport)	Hazard class: 3
ADR-RID (Overland transport)	Classification code: F1

14.4 - Packing group

ADR-RID (Overland transport)	Packing group:II
IMDG (Transport by sea)	Packing group:II
ICAO-IATA (Air transport)	Packing group:II
ADR-RID (Overland transport)	Special provisions: 640D
ADR-RID (Overland transport)	Limited quantities: LQ6
ADR-RID (Overland transport)	Excepted quantities: E2
ADR-RID (Overland transport)	Packing instructions: P001-IBC02-R001
ADR-RID (Overland transport)	Packing disposition (common): MP19
ADR-RID (Overland transport)	Tank code: LGBF

14.5 - Environmental hazards

IMDG (Transport by sea)	Marine pollutant: No
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14.6 - Special precautions for user

IMDG (Transport by sea)	Emergency procedure (Ems): F-E, S-D
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These goods must be transported by vehicles authorized to the carriage of dangerous goods according to the provisions set out in the current edition of the Code of International Carriage of Dangerous Goods by Road (ADR) and in all the applicable national regulations. These goods must be packed in their original packing or in packing made of materials resistant to their content and not reacting dangerously with it. People loading and unloading dangerous goods must be trained on all the risks deriving from these substances and on all actions that must be taken in case of emergency situations.

14.7 - Transport in bulk according to Annex II of Marpol 73/78 and the IBC Code

Irrelevant since the goods are not carried in bulk, but in packages.

15 - Regulatory information

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

National Legislation : Whereas applicable, refer to the following regulations:

Presidential Decree (D.P.R.) 175/88 as amended
 Presidential Decree 303/56 of 19/05/1956
 Ministerial Circulars 45 and 61
 Legislative Decree 81/2008 as amended

National Legislation : Other regulations in force:

- threshold limit values (TLV) and exposure biological indicators (EBI) ACGIH 1998 as amended.
- Protection of workers against risks relating to exposure to the chemical, physical and biological agents at work (LAW DECREE 212 of 30/07/1990) (published in: **Official Journal of the Italian Republic no. 181 of 04/08/1990**).
- General regulations for the working hygiene (Presidential Decree 303/56 of 19/03/1956) (published in: **Ordinary Supplement of the Official Journal no. 105 of 30/04/1956**) as amended.
- Rules and tables on the occupational diseases in the industry (Presidential Decree 336 of 13/04/1994) (Published in: **Official Journal of the Italian Republic no. 131 of 07/06/1994**) as amended.
- Working safety (Law Decree 626 of 19/09/94) (Implementation of Directives [89/391/EEC](#), [89/654/EEC](#), [89/655/EEC](#), [89/656/EEC](#), [90/269/EEC](#), [90/270/EEC](#), [90/394/EEC](#) and [90/679/EEC](#), [93/88/EEC](#), [97/42/EC](#) and [1999/38/EC](#) concerning the improvement of safety and health of workers *at work*) (Published in: **Ordinary Supplement of the Official Journal no. 265 of 12/11/1994**).
- Major-accident hazards (Seveso bis) (Law Decree 334 of 17/08/1999) (Implementation of Directive [96/82/EC](#) concerning the prevention of major-accident hazards involving dangerous substances) (Published in: **Ordinary Supplement of the Official Journal no. 228 of 28/09/1999**) as amended.
- Regulations on the emissions (M.D. of 12/7/90) (Guidelines for the limitation of the emissions from the industrial facilities and the setting of the minimal values of emission) (Published in: **Ordinary Supplement of the Official Journal no. 176 of 30/07/1990**).
- Regulations on the atmospheric pollution (M.D. of 12/7/90- Guidelines for the limitation of the emissions from the industrial facilities and the setting of the minimal values of emission and of Presidential Decree of 25/07/1991 - Published in: **Official Journal of the Italian Republic no. 175 of 27/07/1991**) as amended.
- Regulations on the water protection (L.D. 152 of 11/5/99) (Rules on the water protection from the pollution and implementation of Directive [91/271/EEC](#) concerning the treatment of urban waste water and of Directive 91/676/EEC concerning the protection of waters against pollution caused by the nitrates from agricultural sources) (Published in: **Ordinary Supplement of the Official Journal no. 124 of 29/05/1999**) as amended.
- Regulations on the disposal and transport of hazardous waste (Law Decree 22/97- Implementation of Directives [91/156/EEC](#) on waste, [91/689/EEC](#) on hazardous waste and [94/62/EC](#) on packaging and packaging waste – published in: **Ordinary Supplement of the Official Journal no. 38 of 15/02/1997** and Law Decree 389/97 - Amendments and integrations to the Law Decree [5 February 1997, no. 22](#), regarding waste, hazardous waste, packaging and packaging waste - Published in: **Official Journal of the Italian Republic no. 261 of 08/11/1997**) as amended.
- Land transport regulations ADR/RID – M.D. of 4/9/1996- Implementation of Directive [94/55/EC](#) of the Council concerning the approximation of the laws of the Member States with regard to the transport of dangerous goods by road (Published in: **Ordinary Supplement of the Official Journal no. 282 of 02/12/1996**) as amended.
- Ministerial circulars 45 and 61 as amended.
- Consolidation act on classification, packaging and labelling of hazardous substances (with implementation of Directive EC until 22nd Adaptation): M.D. of 28/4/1997 - Implementation of [Article 37](#), paragraphs 1 and 2, of the Law Decree 3 February 1997, no. 52, concerning the classification, packaging and labelling of the hazardous substances (Published in: **Ordinary Supplement of the Official Journal no. 192 of 19/08/1997**) as amended.
- Regulations on classification, packaging and labelling of dangerous products (L.D. 285 of 16/07/1998 - Implementation of Community Directives regarding the classification, packaging and labelling of dangerous products, complying with Article 38 of the Law 24 April 1998, no. 128) (Published in: **Official Journal of the Italian Republic no. 191 of 18/08/1998**) as amended.
- Implementation of 24th Adaptation EC (M.D. 175 of 07/07/1999- Rules relating to classification, packaging and labelling of dangerous substances as implementation of Directive 98/73/EC) (Published in: **Ordinary Supplement of the Official Journal no. 226 of 25/09/1999**) as amended.
- Regulations for the compilation of the Safety Sheets with implementation until Directive EC 93/112) (M.D. of 4/4/97 - Implementation of [Article 25](#), paragraphs 1 and 2 of the Law Decree 3 February 1997, no. 52, regarding the classification, packaging and labelling of dangerous substances, with regard to the safety sheet on safety) (Published in: **Official Journal of the Italian Republic no. 169 of 22/07/1997**) as amended.
- Implementation of 24th and 25th Adaptation EC (M.D. 10/04/2000- Implementation of Directives [98/73/EC](#) and [98/98/EC](#), respectively adapting to Directive 67/548/EEC for the 24th and 25th time) (Published in: **Ordinary Supplement of the Official Journal no. 205 of 02/09/2000**) as amended.
- **Directive EEC/EAEC/EC no. 45 of 31/05/1999**

- 1999/45/EC: Directive of the European Parliament and Council, of 31 May 1999, concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to classification, packaging and labelling of dangerous products.
- **The product has been registered with the code GP010, in accordance with the ex Ministerial Decree of 19/04/2000 replaced by the Decree n.65 of 14 March 2003.**
- **Ministerial Decree of 26/01/2001-** Regulations relating to classification, packaging and labelling of dangerous substances as implementing Directive [2000/32/EC](#) (adapting to technical progress of Directive 67/548/EEC for the 26th time).
- **Ministerial Decree of 11/04/2001-** Implementation of Directive [2000/33/EC](#) adapting to technical progress of Directive 67/548/EEC for the 27th time, regarding the classification, packaging and labelling of dangerous substances.
- **Community Directive [2001/59/EC](#)** of 06/08/2001, adapting to technical progress of Directive 67/548/EEC for the 28th time regarding the classification, packaging and labelling of dangerous substances.
- **Commission Directive [2004/73/EC](#)** of 29 April 2004, adapting to technical progress for the 29th time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.
- **Community Directive 2001/58/EC** of 27/07/01, amending for the second time Directive 91/155/EC defining and laying down the detailed arrangements for the system of specific information relating to dangerous products in implementation of Article 14 of Directive 1999/45/EC.
- **Law Decree of 14 March 2003, no. 65 and Law Decree no.260 of 28 July 2004** – Implementation of Directives 1999/45/EC and 2001/60/EC relating to the classification, packaging and labelling of dangerous products.
- **Decree of 16 January 2004, no.44** – Implementation of Directive 1999/13/EC on the limitation of emissions of volatile organic compounds due to the use of organic solvents in certain activities according to Article 3, paragraph 2 of the Presidential Decree of 24 May 1988, no. 203.
- **Decree 28/02/2006** – Implementation of Directive 2004/74/EC, adapting to technical progress of Directive 67/548/EEC for the 29th time regarding the classification, packaging and labelling of dangerous substances.
- **Regulation (EC) n. 1907/2006** concerning registration, evaluation, authorization and restriction of chemicals (REACH) and establishing a European agency for chemicals.
- **Decree 04/02/2008** - Implementation of Directive 2006/15/EC, which defines a second list of the occupational exposure limit values as implementation of Council Directives 98/24/EC and modifying Directives 91/322/EEC and 200/39/EC.
- **Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of 16 December 2008** on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No. 1907/2006.
- **Commission Regulation (EC) no 552/2009 of 22 June 2009** - amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII
- **Commission Regulation (EC) No 790/2009 of 10 August 2009** amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **Commission Regulation (EU) No 276/2010 of 31 March 2010** amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII (dichloromethane, lamp oils and grill lighter fluids and organostannic compounds)
- **Commission Regulation (EU) no. 453/2010 of 20 May 2010**, amending Regulation (EC) no. 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- **Commission Regulation (EU) No 286/2011 of 10 March 2011**, amending, adapting to technical progress and scientific, of Regulation (EC) No 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- **Commission Regulation (EU) No 109/2012 of 9 February 2012**, amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII (CMR substances)
- **Commission Regulation (EU) No 618/2012 of 10 July 2012**, amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **Commission Regulation (EU) No 126/2013 of 13 February 2013** amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- **Commission Regulation (EU) No 758/2013 of 7 August 2013**, correcting Annex VI to Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **Commission Regulation (EU) No 944/2013 of 2 October 2013**, amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures
- **Directive 2014/27/EU of the European Parliament and of the Council of 26 February 2014**, amending Council Directives 92/58/EEC, 92/85/EEC, 94/33/EC, 98/24/EC and Directive 2004/37/EC of the European Parliament and of the Council, in order to align them to Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures

- **Commission Regulation (EU) No 605/2014 of 5 June 2014**, amending, for the purposes of introducing hazard and precautionary statements in the Croatian language and its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.
- **Commission Regulation (EU) No 2015/830 of 28 May 2015** amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- **Commission Regulation (EU) 2015/1221 of 24 July 2015** amending Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, for the purposes of its adaptation to technical and scientific progress.

15.2 - Chemical safety assessment

The chemical safety assessment is like that of Ethanol.

15.3 - Restrictions on marketing and use

Authorisations and/or restrictions on use (Annex XVII):

<p>3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008:</p> <p>(a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F;</p> <p>(b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10;</p> <p>(c) hazard class 4.1;</p> <p>(d) hazard class 5.1</p> <p>◀</p>	<p>1. Shall not be used in:</p> <ul style="list-style-type: none"> — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, <p>2. Articles not complying with paragraph 1 shall not be placed on the market.</p> <p>3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:</p> <ul style="list-style-type: none"> — can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with R65 or H304, <p>4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN).</p> <p>5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met:</p> <p>(a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: ‘Keep lamps filled with this liquid out of the reach of children’; and, by 1 December 2010, ‘Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life-threatening lung damage’;</p> <p>(b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: ‘Just a sip of grill lighter may lead to life threatening lung damage’;</p> <p>(c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.</p> <p>6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.</p> <p>7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned.</p>
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	Member States shall make those data available to the Commission.
<p>40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI ► M19 to Regulation (EC) No 1272/2008 ◀ or not</p>	<p>1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following:</p> <ul style="list-style-type: none"> — metallic glitter intended mainly for decoration, — artificial snow and frost, — ‘whoopee’ cushions, — silly string aerosols, — imitation excrement, — horns for parties, — decorative flakes and foams, — artificial cobwebs, — stink bombs. <p>2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with:</p> <p>‘For professional users only’.</p> <p>3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/324/EEC (2).</p> <p>4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.</p>

15.4 - Greater hazards

Such mixture must be entered in the storage classification summation (Legislative Decree 334/99 as amended).

15.5 - Other regulations

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16 - Other information

Uses and restrictions : Refer to the identified Uses listed in Section 1 for specific available information provided in the exposure scenario/s.

MSDS distribution : The information contained herein should be made available to those who handle the product.

Workers shall be informed and trained according to their specific tasks, pursuant to the relevant regulations in force.

GLOSSARY OF THE HAZARD STATEMENTS LISTED IN THIS DOCUMENT

Description of H-phrases (1272/2008)

H225-Highly flammable liquid and vapour

H226-Flammable liquid and vapour

H304-May be fatal if swallowed and enters airways

H315-Causes skin irritation
 H317-May cause an allergic skin reaction
 H318-Causes serious eye damage.
 H319-Causes serious eye irritation
 H332-Harmful if inhaled
 H335-May cause respiratory irritation
 H400-Very toxic to aquatic life
 H410-Very toxic to aquatic life with long lasting effects
 H411-Toxic to aquatic life with long lasting effects
 H412-Harmful to aquatic life with long lasting effects.

The information contained herein is believed to be accurate and correct based on our present state of knowledge and working experience with this product, and shall not be deemed exhaustive. It is applied to the product complying with the specifications. In case of combinations or mixtures, make sure that no new hazard may occur. It does in no way exempt the user of the product from complying with the ensemble of laws, regulations and administrative provisions concerning the product, working hygiene and safety.

Sources of key data used to compile Safety Data Sheet:

IFRA-IOFI

MAP-FF

Other data banks

This Sheet was drawn by using the ESWIN program together with the SINTALEX database.

Key to abbreviations and acronyms:

67/548/EEC	EU Directive on dangerous substances
ACGIH	American Conference of Governmental Industrial Hygienists, Inc.
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS No.	Registry number assigned by the Chemical Abstract Service
CLP	Regulation on classification, labeling and packaging (EC) 1272/2008
CMR	Carcinogenic, mutagenic or reprotoxic
DGEAC	Dangerous Goods Emergency Action Code List 2009
DNEL	Derived no-effect level (is the level of exposure to a substance above which humans should not be exposed). It takes into account the exposure not only of professional origin through the information concerning the life cycle of substance and the predicted routes of exposure.
PNEC	Predicted no effect concentration (it represents the concentration of a chemical in any environmental compartment below which unacceptable effects will most likely not occur). The potential effects on the microbiological activity of the sewage treatment systems are also taken into account.
EC No.	European inventory of Existing Commercial Chemical
Ex-ECB	Ex European Chemicals Bureau
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
kPa	kilopascal
LC50	Median lethal concentration
mg/m ³	milligrams per cubic meter
NOEC	No Observed Effect Concentration
µg/kg	Micrograms per kilogram
ppm	Parts per million
REACH	Registration, Evaluation, Authorization and restriction of Chemicals (EC) 1907/2006
RTECS	Registry of Toxic Effects of Chemical Substances
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time-Weighted Average
vPvB	Very Persistent, Very Bioaccumulative
PBT	Persistent/bioaccumulative/toxic chemicals

Abbreviations and acronyms used herein can be found in the following Webpage://www.wikipedia.org/

International poison control centers:

Country	Regional Centre (if any)	Official Poison Centre	Emergency Number	Operating Time	Available to	Website
Austria	No	Österreich Vergiftungsinformation szentrale (<i>Poison Information Centre</i>)	+431 406 43 43	24h/7 days	General public and Professionals	www.giftinfo.org
Belgium	No	Centre Antipoisons / Antigiftcentrum (<i>Antipoison Centre</i>)	+32 70 245 245	24h/7 days	General public and Professionals	http://www.poisoncentre.be
Bulgaria	No	Университетска многопрофилна болница за активно лечение и спешна медицина "Н.И.Пирогов" (<i>Institute for Emergency Medicine "N.I. Pirogov"</i>)	+359 887 435 325 +359 2 9154 378	24h/7 days	(not specified)	http://www.pirogov.bg
Cyprus	No	Το Κέντρο Δηλητηριάσεων - Παθολογικού Τομέα του Γενικού Νοσοκομείου Παιδών Αθηνών «Π. & Α. Κυριακού» (<i>Greek Poison Information Centre</i>)	+30 210 779 37 77	24h/7 days	General public and Professionals	http://www.aglaiakyriakou.gr/poison.html
Czech Republic	No	Toxikologického informačního střediska (<i>Toxicological Information Centre</i>)	+420 224 919 293 +420 224 915 402	24h/7 days	General public and Professionals	http://www.tis-cz.cz/
Denmark	No	Giftlinjen (<i>Poison Control Hotline</i>)	+45 82 12 12 12	24h/7 days	General public only	http://www.giftlinjen.dk
Estonia	No	Mürgistusteabekeskus (<i>Poison Information Centre</i>)	16662 (hotline) +372 626 93 9 (from abroad)	Esmaspäevast 09.00 kuni laupäeva hommikuni 09.00 - Nädalavahet ustel keskus ei tööta. (<i>Monday through Saturday mornings 9:00am to 9:00pm - close on weekend</i>)	General public and Professionals	http://www.16662.ee/
Finland	No	Myrkytystietokeskuksen (<i>Poison Information Centre</i>)	+358 9 471 977	24h/7 days	General public and Professionals	http://www.hus.fi/default.asp?path=1.28.824.2049.2265.2260
France	Angers	Centre Antipoison et de Toxicovigilance	+33 (0)2 41 48 21 21 +33 (0)1 45 42 59 59	24h/7 days	General public and	http://www.centres-antipoison.net/

	Bordeaux	Centre Antipoison et de Toxicovigilance	+33 (0)5 56 96 40 80 +33 (0)1 45 42 59 59		Professionals	
	Lille	Centre Antipoison et de Toxicovigilance	0800 59 59 59 (nation) +33 (0)1 45 42 59 59			
	Lyon	Centre Antipoison et de Toxicovigilance	+33 (0)4 72 11 69 11 +33 (0)1 45 42 59 59			
	Marseille et - Réunion	Centre Antipoison et de Toxicovigilance	+33 (0)4 91 75 25 25 +33 (0)1 45 42 59 59			
	Nancy	Centre Antipoison et de Toxicovigilance	+33 (0)3 83 32 36 36 +33 (0)1 45 42 59 59			
	Paris et - Guadelupe - Martinique - Guyane	Centre Antipoison et de Toxicovigilance	+33 (0)1 40 05 48 48 +33 (0)1 45 42 59 59			http://www.ineris.fr/reach-info/jsp/index.jsp?content=orfila
	Rennes	Centre Antipoison et de Toxicovigilance	+33 (0)2 99 59 22 22 +33 (0)1 45 42 59 59			
	Strasbourg	Centre Antipoison et de Toxicovigilance	+33 (0)3 88 37 37 37 +33 (0)1 45 42 59 59			
	Toulouse	Centre Antipoison et de Toxicovigilance	+33 (0)5 61 77 74 47 +33 (0)1 45 42 59 59			
Germany	Berlin	Deutschland Berlin - Klinische Toxikologie und Giftnotruf Berlin	030 19 240 (national number)	24h/7 days	General public and Professionals	http://www.bbges.de/content/index28aa.html
	Bonn	Informationszentrale Vergiftungen Bonn	0228 19 240 (national number)			http://www.gizbonn.de/
	Erfurt	Giftnotruf Erfurt	0361 73 0730 (national number)			http://www.ggiz-erfurt.de/
	Freiburg	Vergiftungs- Informations-Zentrale Freiburg	0761 19 240 (national number)			http://www.uniklinik-freiburg.de/giftberatung/live/index.html
	Goettingen	Giftinformationszentrum-Nord	0551 19 240 (national number)			http://www.giz-nord.de/cms/
	Homburg/Saar	Informations- und Behandlungszentrum für Vergiftungen des Saarlandes	06841 19 240 (national number)			http://www.uniklinikum-saarland.de/de/einrichtungen/kliniken-und-institute/kinder-und-jugendmedizin/informations-und-behandlungszentrum-fuer-vergiftungen-des-saarlandes
	Mainz	Giftinfo Mainz Klinische Toxikologie der Universitätsmedizin Mainz	+49 (0)6131 19240			http://www.giftinfo.uni-mainz.de/
	München	Toxikologische Abteilung der II. Medizinischen Klinik der Technischen Universität München	089 19 240 (national number)			http://www.toxinfo.org/frame-set.php?class=21&hauptframe=showClass.php?class=21

Greece	No	Το Κέντρο Δηλητηριάσεων - Παθολογικού Τομέα του Γενικού Νοσοκομείου Παιδών Αθηνών «Π. & Α. Κυριακού» (<i>Poison Information Centre</i>)	+30 210 779 37 77	24h/7 days	General public and Professionals	http://www.aglaiakyriakou.gr/poison.html
Hungary	No	Országos Kémiai Biztonsági Intézet (<i>National Institute of Chemical Safety</i>)	+36 80 20 11 99	24h/7 days	General public and Professionals	http://www.okbi.hu
Ireland	No	National Poisons Information Centre Heath professionals	+353 1 8379964 +353 1 809 25 66	24h/7 days	Health professionals only	http://www.poisons.ie
	No	National Poisons Information Centre General public	+353 1 809 2166	Monday through Friday from 9am to 5 pm	General public	http://www.poisons.ie
Italy	Bergamo	Centro Antiveneni Ospedali Riuniti di Bergamo	118 or 800 88 3300 (national numbers)	24h/7 days	General public	http://www.ospedaliriuniti.bergamo.it/portale/sanagrafiche.nsf/%28all%29/AF37158220A2678EC12575630030FF90?OpenDocument
	Milano	Centro Antiveneni Ospedal Niguardia	+39 (0)2 661 010 29	24h/7 days	General public and Professionals	http://www.centroantiveneni.org/
	Firenze	Centro Antiveneni	+39 (0)55 427 72 38	24h/7 days	General public	http://www.tox.it/index.php?option=com_content&task=view&id=39&Itemid=64
	Napoli	Centro Antiveneni	+39 (0)8 174 72 870	24h/7 days	General public	http://www.tox.it/index.php?option=com_content&task=view&id=39&Itemid=64
	Lecce	Centro Antiveneni, Ospedale Vito Fazzi	+39 0832 66 1374 +39 0832 35 1105	24h/7 days	General public	
	Roma	Centro Antiveneni (Gemelli)	+39 (0)6 305 43 43	24h/7 days	General public and Professionals	www.tox.it
Ireland	No	National Poison Information Centre	01 809 21 66 (national number - public) 01 837 99 64 (national number -professionals)	8am-10pm/7 days	General public and Professionals	http://www.poisons.ie/
Latvia	No	Rīgas Austrumu klīniskā universitātes slimnīca (<i>Latvian Poisons Information Centre Clinical Hospital "Gailezers"</i>)	+371 704 26 73 +371 704 24 68	24h/7 days	General public and Professionals	http://www.aslimnica.lv/index.php?cat=46
Lithuania	No	Neatidėliotina informacija apsinuodijus (<i>Poisoning emergency information</i>)	+370 5 236 2052 +370 687 53 378	24h/7 days	(not specified)	http://www.tox.lt/

Luxembourg	No	Belgian Centre Antipoisons / Antigiftcentrum (<i>Antipoison Centre</i>)	+32 70 245 245	24h/7 days	General public and Professionals	http://www.poisoncentre.be
Netherlands	No	Nationaal Vergiftigingen Informatie centrum (voor gezondheidswerker) (<i>National Poisons Information Centre (for healthcare)</i>)	+31 30 274 88 88	24h/7 days	Professionals only	https://www.vergiftigingen.info
Norway	No	Giftinformasjon (<i>Poisons information</i>)	+47 22 59 1300	24h/7 days	General public and Professionals	http://helsenorge.no/Helseog_sunnhet/Giftinformasjon/Sider/default.aspx
Poland	Krakow	Ośrodek Informacji Toksykologicznej (<i>Poison Information Centre</i>)	+48 12 411 99 99	24h/7 days	(not specified)	http://www.oit.cm-uj.krakow.pl/index.php
	Gdansk	Regional Poison Information Centre	+48 58 682 04 04	24h/7 days	(not specified)	
	Warszawa	Warsaw Poison Information and Control Centre	+48 22 619 66 54	24h/7 days	(not specified)	
Portugal	No	Centro de Informação Antivenenos Instituto Nacional de Emergência Médica (INEM) (<i>Poison Information Centre</i>)	808 250 143 (national number) +351 21 330 3284	24h/7 days	General public and Professionals	http://www.inem.pt/
Romania	No	Biroul pentru Regulamentul Sanitar International si Informare Toxicologica (<i>Office of International Health Regulations and Toxicological Information</i>)	021 318 36 06 (national number)	8:00 am to 3:00 pm	General public	http://www.insp.gov.ro/index.php?option=com_content&view=article&id=9&Itemid=22
	No	Emergency Clinical Hospital for Children "Grigore Alexandrescu"	+402 1 210 6282 +402 1 210 6183	24h/7 days	General public	
Slovakia	No	Národné toxikologické informačné centrum (<i>National Poison Information Centre</i>)	+421 2 5477 4166 +421 2 5465 2307	24h/7 days	General public and Professionals	http://www.ntic.sk
Slovenia	No	UKC Ljubljana (<i>University Medical Centre Ljubljana</i>)	+386(1) 522 84 08 +386(1) 522 84 09 (01) 522 52 76 (national number) (01) 522 53 42 (national number)	24h/7 days	General public and Professionals	http://www4.kclj.si/index.php
	No	Zastrupitve nadzor centra Ljubljani (<i>Poison Control Centre</i>)	+386 41 635 500	24h/7 days	Professionals only	http://www.zastrupitve.net/
Spain	No	Instituto Nacional de Toxicología	+34 91 562 04 20	24h/7 days	General public and Professionals	http://institutodetoxicologia.justicia.es/wps/portal/intcf_internet/portada/utilidades_portal/telefono_emergencias/

Sweden	No	Giftinformationscentralen (<i>Swedish Poisons Information Centre</i>)	+46 8 33 12 31 (acute poisoning) 112 (emergency)	Emergency: 24h/7 days Acute poisoning: Monday/Friday 9am/5pm	General public and Professionals	http://www.giftinformation.se
Switzerland	No	Swiss Toxicological Information Centre Freiestrasse 16 Zurich, Switzerland	+41 44 251 66 66 Emergency No: +41 44 251 51 51 (in Switzerland (145))	24h/7 days	General public and Professionals	Email address : info@toxi.ch Website : www.toxi.ch
Turkey	No	Toxicology Department and Poisons Centre. Refik Saydam Central Institute of Hygiene Cemal Gürsel Cad No. 18 Sıhhiye Ankara	+90 0312 433 70 07 Emergency No +90 0312 433 70 01 or 0 800 314 7900	24h/7 days	General public and Professionals	zehir@saglik.gov.tr www.rshm.gov.tr/en
United Kingdom	UK	UK National Poisons Information Service	+44 844 892 0111 +44 870 600 6266 0845 4647 (national number) 08454 24 24 24 (national number)	24h/7 days	Professionals only	http://www.npis.org/
	London	Guy's & St Thomas' Poisons Unit Medical Toxicology Unit	+44 20 7188 0600	24h/7 days	General public and Professionals	http://www.guysandstthomas.nhs.uk/our-services/toxicology/medical-toxicology.aspx
	Scotland	National Poisons Information Service (Edinburgh)	0844 892 0111 (national number)	24h/7 days	Professionals only	http://www.spib.scot.nhs.uk/

Updated on 25-Jul-2012

Additional information on European Poison Centres is available on:

- The European Association of Poisons Centres and Clinical Toxicologists (EAPCCT): <http://www.eapcct.org/index.php?page=home>
- World Health Organization Directory of Poison Centres: http://www.who.int/gho/phe/chemical_safety/poisons_centres/en/index.html

For technical information: phone number +39 011-4340245

Revision summary:

This sheet was revised in section/s: 2,3,16.

In those sections, a vertical bar (|) on the left margin indicates the amendments from the previous version. If a section is marked, but it does not point out the bar, then it indicates that the text was cancelled.

SHEET VERSION no. 2 of 29/08/2016

This version replaces and nullifies all previous versions.

SHEET PRINTED ON 29/08/2016

12. Exposure scenario for Consumers use of Ethanol in products (<50g per event)				
Ethanol REACH Association -reference no. ES9c				
Systematic title based on use descriptor	SU21 PC: 1, 3, 8, 12, 14, 15, 18, 23, 24, 27, 28, 30, 31, 34, 39 ERC8a, ERC8d			
Processes, tasks, activities covered	Covers the consumer use of products which contain Ethanol with amount applied in use of less than 50g per event			
Assessment Method	Ectoc TRA integrated model version 2, ConsExpo v 4.1			
12.1 Exposure scenario				
12.1.1. Operational conditions and risk management measures				
<p>Product categories: Adhesives (other than carpet and floor glue), sealants; Air care products; Artists supply and hobby products; Building and construction products; Metal-surface treatment products; Non-metal-surface treatment products; Ink and toners; Lawn and garden products; Leather tanning, finishing, impregnation, dye and care products; Lubricants, greases and release products; Plant protection products; Cosmetics and toiletries; Perfumes and fragrances; Photochemicals; Polishes and wax blends; Textile dye, finishing and impregnation products.</p> <p>Environmental release category: Wide dispersive indoor and outdoor use. Use (usually) results in direct release into the sewage system or environment.</p> <p>Number of sites using the substance: Substance widely used.</p>				
12.1.2 Control of consumer exposure				
Substance content in the product	< 1 %	1 – 5 %	5 – 25 %	> 25 %
Product characteristic (including package design affecting exposure)	PC24, PC31	PC5, PC10, PC22, PC23, PC27, PC30, PC34	PC1, PC8, PC14, PC15, PC18,	PC3, PC28
Amounts of product used / applied per event	< 50 g	< 50 g	< 50 g	< 10 g
Frequency and duration of use/exposure	Frequency of use: Up to daily			

	Duration of use/application: up to 4 hours			
Setting and external conditions during use	Indoors (minimum room volume 20m ³) or outdoors			
Technical (product related) use conditions	n.a.	n.a.	n.a.	Controlled spray or release device
Organisational consumer protection measures (e.g. recommendation and/or use instruction information for consumer; e.g. product labelling)	No specific measures required.	No specific measures required.	No specific measures required.	Do not spray empty in small, enclosed areas. Avoid inhalation and skin contact.
12.1.3 Control of environmental exposure				
Product characteristics	Physical state		Liquid	
	Concentration of substance in product		Could be >25%	
Amounts used	Daily at point source		n.a.	
	Annually at point source		n.a. (wide dispersive use)	
	Annually total		10,000 t/year total market, excluding cosmetics and toiletries	
Frequency and duration of use	Pattern of release		365 days per year	
Environment factors not influenced by risk management	Flow rate of receiving surface water		18,000 m ³ /day (default)	
Other given operational conditions affecting environmental exposure	Processing setting (indoor/outdoor)		Indoor	
	Processing temperature		Ambient	
	Processing pressure		Ambient	
Conditions and measures related to municipal	Size of STP		> 2000 m ³ /day	
sewage treatment plant	Degradation efficacy		90%	
	Sludge treatment (disposal or recovery)		Disposal or recovery	

Conditions and measures related to disposal of waste resulting from the use of the products	No specific measures required.		
Conditions and measures related to recovery of waste resulting from the use	No specific measures required.		
12.2. Exposure estimation			
La Consumer exposure estimation provided below is only indicative for one particular PC. The estimates are calculated with the industry model (draft version MasterCSA_8April2010) CSA (PC31 Polishes and wax blends for floor, furniture, shoes).			
Consumer exposure	Exposure estimate	DNEL	Comment
Skin contact (mg/kg/day)	2,87	LTS 206	-
Oral (mg/kg/day)	0,00	LTS 87	-
Inhalation (mg/m3 for 24 hr/day)	10,31	LTS 144	-
All routes systemic	-	-	-
Environmental exposure estimation is based on Ecetoc TRA model v2 based on ERC8a and ERC8d default settings. Below presented estimates are based on ERC8d with total use of 10,000 tpa. This volume excludes cosmetics and toiletries use, where a 200,000 tpa total market is assumed – all emissions from this sector are assumed to be emissions to air. Ethanol is fully soluble in water, readily biodegradable, not bio-accumulative, does not accumulate in the sediments or soil and is assumed to be degraded for >90% in the STP under evaluated conditions.			
Release times per year (day/year)	365	Local release to air (kg/day)	n.a. wide dispersive
Fraction used at main local source	0,002	Local release to waste water (kg/day)	n.a. wide dispersive
Amount used locally (kg/day)	Not applicable	Local release to soil (kg/day)	n.a. wide dispersive
Environmental exposure	PEC	PNEC	Comment
In STP (mg/l)	0,340	580	-
In local freshwater (mg/l)	0,0447	0,96	-
In local soil (mg/kg)	0,0003	0,63 (mg/kgwwt)	-
In local marine water (mg/l)	0,0044	0,79	-
Total daily intake via local environment (mg/kgdw/d)	Negligible compared to daily dietary intake and endogenous formation.		
Additional good practice advice beyond the REACH CSA Note: The measures reported in this section have not been taken into account in the exposure estimates related to the exposure scenario above. They are not subject to obligation laid down in Article 37 (4) of REACH			
Use specific measures expected to reduce the predicted exposure beyond the level estimated based on the exposure scenario when possible.			