GEA PROFUMI SRL
Via Signagatta, 23- 10044 Pianezza (TO) – Italy
Sede Legale: Via O.Antinori, 6 – 10128 Torino (TO) - Italy
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This Material Safety Data Sheet available for professional users.

Material Safety Data Sheet of 18/09/2019, revision 0

SECTION 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: **BLACK SANDAL**

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:

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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)
Italian Poison Control Center:
C.N.I.T. - Pavia
Telephone number: +39 0382-24444
(see section 16 for the complete list of the International poison control centres)

SECTION 2 - Hazards identification

2.1 - Classification of the substance or mixture

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

Classification	Flammable	Label elements for serious eye damage/eye irritation	Hazard to aquatic life (Chronic) with long lasting effects
	Category 2	Category 2	Chronic 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	H319:Causes serious eye irritation	H412: Harmful to aquatic life with long lasting effects.

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2.2 - Label elements

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

Classification	Flammable	Label elements for serious eye damage/eye irritation	Hazard to aquatic life (Chronic) with long lasting effects
	Category 2	Category 2	Chronic 3
GHS Pictograms	 GHS02	 GHS07	
Signal Word	Hazard		
Hazard statement	H225:Highly flammable liquid and vapour	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 **P264: Wash hands thoroughly after handling** **P273: Avoid release to the environment** **P280: Wear protective gloves/protective clothing/eye protection/face protection**		
Precautionary statement - Response	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** **P337+P313: If eye irritation persists: Get medical advice/attention.** 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 Regolament (CE) n.1272/2008 Articol 28 paragraph 3, show no more than six precautionary statement.

EUH208 - Contains:
2-acetoxy-2,3,8,8-tetramethyloctahydronaphthalene (OTNE)
Cedrus atlantica, ext.
acetyl cedrene
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 as 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 e solids category 1 and 2, the packaging of whatever capacity, shall be fitted with a tactile warning of danger.
Previsions relating to tactile waring
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.

2.3.1Other
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.
Substances of very high concern (SVHC)
The product does not contain substances listed in Annex XIV of REACH Regulation (SVHC-update of 16/07/2019); It does not contain substances with authorization (Annex XIV).

SECTION 3 - Composition/information on ingredients

3.1 - Substances
Not applicable. This product is treated as a mixture.

3.2 - Mixtures

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Substances	Registration No.	CAS No. CE No. ELINCS No. INDEX No.	Classification according to Regulation (EC) no. 1272/2008	%
Ethanol 96% denatured (*) (**) Update 20/07/2019	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
reaction mass of 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one and 1-(1,2,3,4,6,7,8,8a-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one and 1-(1,2,3,5,6,7,8,8a-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1-one (OTNE) *alias* (2-acetoxy-2,3,8,8-tetramethyloctahydronaphthalene) Update 24/07/2019	01-2119489989-04-xxxx	(54464-57-2) (259-174-3) **915-730-3** --	 Skin Irrit. 2,H315 Skin Sens. 1B,H317 Aquatic Chronic 1,H410	0,40÷0,88
Cedrus atlantica, ext. Update 15/04/2019	01-2120141735-57-xxxx	92201-55-3 (8023-85-6) 295-985-9 -- --	 Asp. Tox. 1,H304 Skin Sens. 1,H317 Aquatic Chronic 2,H411	0,08÷0,24
[3R-(3α,3aβ,7β,8aα)]-1-(2,3,4,7,8,8a-hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-5-yl)ethan-1-one (alias: acetyl cedrene) Update 24/07/2019	01-2119969651-28-xxxx	32388-55-9 251-020-3 -- --	 Skin Sens. 1B,H317 Aquatic Chronic 1,H410 EUH066	0,08÷0,24
(4E)-3,3-dimethyl-5-(2,2,3-trimethylcyclopent-3-en-1-yl)pent-4-en-2-ol Update 30/07/2019	01-0000015895-58-xxxx	107898-54-4 411-580-3 -- --	 Skin Irrit. 2,H315 Aquatic Chronic 1,H410	0,08÷0,24
(3R-(3alpha,3abeta,7beta,8aalpha))-2,3,4,7,8,8a-Hexahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen M=10	--	469-61-4 207-418-4 -- --	 Aquatic acute 1,H400 Aquatic Chronic 1,H410 Asp. Tox. 1,H304	0,008÷0,020
(3R-(3alpha, 3abeta,7beta,8aalpha))-octahydro-3,8,8-trimethyl-6-methylene-1H-3a,7-methanoazulene M=10 *Alias* (beta-cedrene)	--	546-28-1 208-898-8 -- --	 Aquatic acute 1,H400 Aquatic Chronic 1,H410 Asp. Tox. 1,H304	0,008÷0,020
List of substances, present as impurities, having a Community threshold of exposure in the workplace				

Diethyl phthalate Update 20/08/2019	01-2119486682-27-xxxx	84-66-2 201-550-6 -- --	--	0,5
2-methylpropan-2-ol Update 16/11/2018	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

(*) 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, for hectolitre 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 the hazard warnings in Section 16.
Description of H-phrases (1272/2008)
H225-Highly flammable liquid and vapour
H304-May be fatal if swallowed and enters airways
H315-Causes skin irritation
H317-May cause an allergic skin reaction
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
EUH066-Repeated exposure may cause skin dryness or cracking

SECTION 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). If an irritation occurs seek medical attention.

4.1.4 Ingestion

If swallowed, do not induce vomiting. Call your local poison control centre and/or seek medical attention. Follow the doctor's instructions.

4.2 - Main symptoms and effects, both acute and delayed

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

4.3 - 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.
If swallowed do not induce vomiting without medical advice.

SECTION 5 - Firefighting measures

GENERAL INFORMATIONS:
Cool the containers with jets of water to avoid the decomposition of the product and the development of substances potentially dangerous for health. Overpressure can be created in containers exposed to fire with danger of explosion. Always wear full fire protection equipment. Collect the extinguishing waters that must not be discharged into the drains. Dispose of contaminated water and fire residue according to current regulations.

5.1 - Extinguishing media
The product is highly flammable, it may cause a fire.

5.1.1 Suitable extinguishing media
Water mist, carbon dioxide (CO_2), foaming agents suitable for polar solvents, chemical powders.

5.1.2 Unsuitable extinguishing media
Do not use direct jet of water.

5.2 - Special hazards arising from the substance or mixture
In case the product bursts into flames or is involved in a fire, do not breathe the fumes; CO may be formed as a result of incomplete combustion. Hazardous gas-air mixtures can be developed. Avoid breathing combustion products (carbon oxides, toxic pyrolysis products, etc ...).

5.3 - Advice for firefighters
Use nebulized water to cool closed containers exposed to flame to prevent fires and explosions, to disperse the flammable vapors and protect the people involved in stopping the leak.
Firefighting operations must take into account the risk of explosion; the personnel responsible for extinguishing fires must therefore act as a protected position.
Containers may explode if exposed to fire.
Vapors may cause dizziness, fainting or suffocation.
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 or gas mask
- air purifying respirator equipped with organic vapor/acid gas cartridges and high efficiency filters related to the above-listed risks and dangers, the fire size and where the fire is located (outdoors/confined spaces, etc...)
- 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).

SECTION 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 spill if there is no 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*
The following indications are directed to the duly trained personnel working in the plant units in which the substance is normally used and are intended to ensure, when this is possible without risk, the preliminary safety operations before leaving and waiting for the intervention of the emergency team.

In case of accidental spill and release of the product, use the following personal protective equipment:
- wear suitable personal protective equipment (see Section 8.2)
- for more information on protective devices see section 8
- eliminate any ignition sources (cigarettes, flames, sparks, etc…) than the spilling area
- stop leak if possible without personal risk
- do not handle damaged containers or leaked product without first wearing appropriate protective equipment
- remove persons without personal protective equipment
- if possible operate above wind
- the vapors that develop are flammable and heavier than air and therefore tend to stratify downwards, they could also trigger away from the point of release and cause a flashback

6.1.2 *For emergency responders*
The following indications are addressed to expert personnel such as the personnel belonging to the emergency team and, for this purpose, specially trained; they are added to the indications referred to in the point relating to personnel who do not intervene directly; the same personnel refer to the indications regarding environmental precautions and methods of containment and reclamation.
During interventions use:
- those involved will be provided with appropriate personal protection equipment (refer to section 8)
- wearing provision special fire-fighters protective equipment refer to section 5
- all equipment used when handling the product must be grounded
- wearing clothing and equipment antistatic during working
- to limit evaporation and minimize the area affected by the dispersion of the vapors, place barriers to contain the spilled substance; the use of filming foams can also be effective
- it may also be effective to dilute the spill with water

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.
- in case of spills into rivers, lakes or drains, notify the competent authorities according to local laws and provisions
- avoid waste and downflow spill of material and contact with soil, waterways, drains and sewers
- clear-fell vapours with nebulized water; can use nebulized water to dilute the vapours

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
- pumping in suitable containers (material not compatible with product) and absorb the spilled material with absorbing inert material (clay, sand or other non-combustible material)
- collect most of the resulting material with non-sparking equipment and deposit it in containers for disposal
- eliminate the residue with jets of water if there are no contraindications
- ensure adequate ventilation in the spilled area
- cleaning floor with water after collected the spilled material
- do not use to cleaning product based of strong oxidants

6.4 - Reference to other sections
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7 - Handling and Storage

7.1 Precautions for safe handling

7.1.1 Recommendations for handling
Instructions for safety handling:
- wearing personal protection equipment (see section 8)
- avoid inhalation, ingestion and contact with skin and eyes
- check the integrity of the containers before moving them
- if possible operate above wind
- before carrying out transfer operations in other containers, make sure that there are no residues of incompatible substances inside the containers
- make sure that the transport lines are perfectly clean and do not contain acid or oxidizing substances before using the substance

Advice on protection against fire and explosion:
- avoid accumulation of electrostatic charges
- keep containers closed and in a well-ventilated area
- vapours may ignite with explosion, therefore accumulation must be avoided by keeping windows and doors open, and ensuring cross ventilation
- without adequate ventilation the vapours can accumulate at the bottom and ignite even at a distance, if triggered, with danger of backfire
- keep away from heat, sparks and naked flames, do not smoke or use matches or lighters
- put the containers on the ground during pouring operations and wear antistatic shoes
- the strong agitation and the vigorous flow of the liquid in the pipes and equipment can cause formation and accumulation of electrostatic charges, due to the low conductivity of the product
- to avoid the risk of fire and explosion, never use compressed air during handling
- open the containers with care, because they can be pressurized
- the containers, once emptied, must be transferred without delay to the area identified for collection of the same awaiting disposal or the start for reuse
- never reuse empty containers before they have undergone industrial cleaning or reconditioning
- before working on the fire, reclaim lines and containers

7.1.2 Advice on general occupational hygiene
During handling use the protective equipment reported in paragraph 8 of this sheet and follow the following procedures:
- do not smoke, do not eat, do not drink during handling. Normal precautions (use of gloves, ...)
- food and drinks should only be consumed in the areas identified for this purpose after removing contaminated clothing and protective equipment and after washing hands. Wash hands in any case after handling the substance

7.2 - Conditions for safe storage, including any incompatibilities
- Observe the following precautions when storing the product:
- keep the product chemical-physical characteristics in mind to avoid any interactions with other products (see paragraph 10)
- store in a cool place
- keep containers tightly closed in in a dry and well-ventilated place
- store in closed and labeled containers. The containers must also be protected from damage, accidental impact and falls
- provide the inertization of the container or equip it with flame-retarder devices
- provide for the possibility of cooling the containers containing the product with water or other systems
- ventilate the storage area adequately so that any vapors from the containers can be diluted
- provide electrical equipment compliant with current legislation on electrical safety for places with fire and explosion hazard
- provide for protection from atmospheric discharges of rooms used for storage
- storage in well-ventilated, dry and cool place
- protect from direct sunlight
- minimize all possible sources of substance loss through appropriate procedural and plant engineering interventions
- keep away from all possible sources of ignition
- avoid the accumulation of electrostatic charges, especially during the pouring
- store away from incompatible materials such as perchlorates, peroxides, silver oxide, hydrogen peroxide, potassium, sodium, chlorine, permanganate or chromate in acid solutions, ruthenium oxide, uranium hexafluoride, iodine or bromine pentafluoride, chromile chloride, iodine heptafluoride, bromide or acetyl chloride, disulfuryl difluoride, platinum, nitric acid, peroxides, calcium hypochlorite, chlorine oxides, silver nitrate, dipotassium dioxide, tetraphosphorus trioxide, chromium trioxide, nitrate of fluorine, strong oxidants
- store only in original containers
- the storage area must be positioned to prevent percolation of accidental spills into the ground
- keep the containers away from strong oxidizing agents.
- ensure the equipotential bonding and grounding of tanks and equipment

German storage class (TGRS 510): 3; Flammable liquid

Storage temperature: Ambient
Storage pressure: Atmosphere
Special Sensitivity: There is nothing in particular

Suitable materials and coating: Carbon Steel, Stainless Steel, Polyethylene, Polypropylene, Polyester Teflon.
Dissolves many plastics, please check before using.
Shipping containers usually used: Flacons, bottles, containers of different sizes.

The containers, included the empty ones already used, shall be kept in ventilated places at temperatures ranging from +1 to 20°C with safety catch on.

OTHER WARNINGS: Empty containers retain residue and can be dangerous. Continue to follow all the precautions.

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)

SECTION 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 preparation, 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	**Ethanol**			
CAS No.	64-17-5			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
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)	200	380	800 (1)	1520 (1)
Germany (DFG)	200	380	800 (1)	1520 (1)
Hungary		1900		7600
Ireland			1000 (1)	
Latvia		1000		
New Zealand	1000	1880		

Poland		1900		
Romania	1000	1900	5000 (1)	9500 (1)
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			
Romania	(1) 15 minutes average value			
Sweden	(1) 15 minutes average value			

MAK-COMMISSION
This data is recommended by scientific experience and is not established law.

200 ml/m³
380 mg/m³

Peak limitation: Excursion factor 4
Duration 15 min, mean; 4 times per shift; interval 1 hour
Category II - Substances with systemic effects

Cancerogenic: Category 5
Substance with carcinogenic and genetically toxical effects whose effect strength is judged however as so small that on adherence to the MAK-value no considerable contribution is to be expected for the cancer risk for humans.

Pregnancy: Group C
There is no reason to fear a risk of damage to the developing embryo or fetus when MAK and BAT values are adhered to.

Germ cell mutagenic: Category 5
Substance with minimal effect. The compliance of the MAK-value should not give any genetic risk to humans.

Substance	**Diethyl phthalate**			
CAS No.	84-66-2			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
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)
Japan (JSOH)	5	
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) 15 minutes average value	

Substance	**2-Methylpropan-2-ol (tert-butyl alcohol)**			
CAS No.	75-65-0			
	Limit value - Eight hours		Limit value - Short term	
	ppm	mg/m³	ppm	mg/m³
Australia	75	65		
Austria	20	62	80	248
Belgium	100	307		
Canada - Ontario	100			
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)
Japan (JSOH)	50	150		
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) 15 minutes average value			
USA - NIOSH	(1) 15 minutes average value			

• **The following data refer to Ethanol:**
N° CAS: 64-17-5

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

Workers:
Long-term exposure - systemic effects
Inhalation: DNEL: 950 mg/m³
Dermal: DNEL: 343 mg/kg bw/day
DN(M)EL: NOAEL 24
8 238 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
Medium hazard (no threshold derived)

Consumer:
Long-term exposure - systemic effects
Inhalation: DNEL: 114 mg/m³
Dermal: DNEL: 206 mg/kg bw/day
DN(M)EL: NOAEL 40
1 730 mg/kg bw/day
Oral: DNEL: 87 mg/kg bw/day
DN(M)EL: NOAEL 20
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
Medium hazard (no threshold derived)

PREDICTED NO EFFECT CONCENTRATION (PNEC)

SUMMARY 1:

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
0.96 mg/l	0.79 mg/l	2.75 mg/l	580 mg/l	3.6 mg/kg sediment dw	2.9 mg/kg sediment dw	0.63 mg/kg soil dw	0.38 g/kg food

SUMMARY 2:

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
0.96 mg/l	0.79 mg/l	2.75 mg/l	580 mg/l	3.6 mg/kg sediment dw	2.9 mg/kg sediment dw	0.63 mg/kg soil dw	no potential for bioaccumulation

• **The following data refer to 1-(1,2,3,4,5,6,7,8-Octahydro-2,3,8,8-Tetramethyl-2-Naphtalenyl)-Ethanone (OTNE):**
N° CAS: 54464-57-2

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

Workers
Long-term exposure - systemic effects
Inhalation: **DNEL:** 30 mg/m³
DN(M)EL: Dose descriptor starting point — NOAEL 6 120 mg/kg bw/day
Modified dose descriptor starting point — NOAEC 182 mg/m³
Dermal: **DNEL:** 28.7 mg/kg bw/day
DN(M)EL: Dose descriptor starting point — NOAEL 24 120 mg/kg bw/day
Modified dose descriptor starting point — NOAEC 688 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: **DNEL:** 648 µg/cm²
DN(M)EL: NOAEL 1
Short-term exposure - local effects
Inhalation: No hazard identified
Dermal: Low hazard (no threshold derived)
Hazard for the eyes - local effects
No hazard identified

Consumer
Long-term exposure - systemic effects
Inhalation: **DNEL:** 9 mg/m³
DN(M)EL: Dose descriptor starting point — NOAEL 10 120 mg/kg bw/day
Modified dose descriptor starting point — NOAEC 90 mg/m³
Dermal: **DNEL:** 17.2 mg/kg bw/day
DN(M)EL: Dose descriptor starting point — NOAEL 40 120 mg/kg bw/day

Modified dose descriptor starting point NOAEL
688 mg/kg bw/day

Oral: DNEL: 3 mg/kg bw/day
DN(M)EL: Dose descriptor starting point NOAEL 40
120 mg/kg bw/day

Modified dose descriptor starting point NOAEL
120 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: **DNEL:** 380 µg/cm²
DN(M)EL: NOAEL 1.7
Short-term exposure - local effects
Inhalation: No hazard identified
Dermal: Low hazard (no threshold derived)
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)
2.8 µg/l	0.28 µg/l	10 mg/l	3.73 mg/kg sediment dw	0.75 mg/kg sediment dw	2.7 mg/kg soil dw	10 mg/kg food

- **The following data refer to <u>Acetyl cedrene</u>:**
  N° CAS: 32388-55-9

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

Workers:
Long-term exposure - systemic effects
Inhalation: **DNEL:** 1.175 mg/m³
DN(M)EL: NOAEC 75
88.157 mg/m³
Dermal: **DNEL:** 0.333 mg/kg bw/day
DN(M)EL: NOAEL 300
100 mg/kg bw/day
Short-term exposure - systemic effects
Inhalation: Hazard unknown (no further information necessary)
Dermal: No DNEL required: short term exposure controlled by conditions for long-term
Long-term exposure - local effects
Inhalation: No-threshold effect and/or no dose-response information available
Dermal: Hazard unknown (no further information necessary)
Short-term exposure - local effects
Inhalation: Hazard unknown (no further information necessary)
Dermal: Medium hazard (no threshold derived)
Hazard for the eyes - local effects
No hazard identified

Consumer:
Long-term exposure - systemic effects
Inhalation: **DNEL:** 0.289 mg/m³
DN(M)EL: NOAEC 150
43.478 mg/m³
Dermal: **DNEL:** 0.166 mg/kg bw/day
DN(M)EL: NOAEL 600
100 mg/kg bw/day
Oral: **DNEL:** 0.166 mg/kg bw/day
DN(M)EL: NOAEL 600

100 mg/kg bw/day
Short-term exposure - systemic effects
Inhalation: Hazard unknown (no further information necessary)
Dermal: No DNEL required: short term exposure controlled by conditions for long-term
Oral: No hazard identified
Long-term exposure - local effects
Inhalation: Hazard unknown (no further information necessary)
Dermal: Hazard unknown (no further information necessary)
Short-term exposure - local effects
Inhalation: Hazard unknown (no further information necessary)
Dermal: Medium hazard (no threshold derived)
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)
1.74 µg/l	0.174 µg/l	8.6 µg/l	10 mg/l	24.4 mg/kg sediment dw	2.44 mg/kg sediment dw	4.87 mg/kg soil dw	No potential to cause toxic effects if accumulated (in higer organisms) via the food chain

• **The following data refer to (+/-) trans-3,3-dimethyl-5-(2,2,3-trimethyl-cyclopent-3-en-1-yl)pent-4-en-2-ol:**
N° CAS: 107898-54-4

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

Workers:
Long-term exposure - systemic effects
Inhalation: No hazard identified
Dermal: No hazard identified
Short-term exposure - systemic effects
Inhalation: No hazard identified
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: No hazard identified
Dermal: Low hazard (no threshold derived)
Hazard for the eyes - local effects
No hazard identified

Consumer:
Long-term exposure - systemic effects
Inhalation: No hazard identified
Dermal: No hazard identified
Oral: No hazard identified
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: Low hazard (no threshold derived)
Short-term exposure - local effects
Inhalation: No hazard identified
Dermal: Low hazard (no threshold derived)
Hazard for the eyes - local effects

No hazard identified

PREDICTED NO EFFECT CONCENTRATION (PNEC)

Aqua (fresh water)	Aqua (marine water)	Aqua (intermittent release) (fresh water)	Aqua (intermittent release) (marine water)	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary poisoning)
1.2 µg/l	0.12 µg/l	12 µg/l	1.2 µg/l	0.1 mg/l	0.246 mg/kg sediment dw	0.025 mg/kg sediment dw	0.048 mg/kg soil dw	222.2 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	Aqua (intermittent	Sewage treatment plant	Sediment (fresh water)	Sediment (marine water)	Soil	Oral (secondary

	water)	release)					poisoning)
2 mg/l	0.2 mg/l	9.33 mg/l	690 mg/l	8.04 mg/kg sediment dw	0.804 mg/kg sediment dw	1 mg/kg soil dw	88700 g/kg food

Recommended monitoring procedures
This product contains ingredients with exposure limits, personal monitoring of the atmosphere or biological in the work environment may be required to determine the effectiveness of ventilation or other control measures and / or the need to use respiratory protective equipment. To find information on this subject, consult:
http://amcaw.ifa.dguv.de/WForm09.aspx.

8.2 - Exposure controls

8.2.1 *Appropriate engineering controls*
In open-circuit systems, where contact with product is liekly, 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 preparation, 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-heave 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°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.

SECTION 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 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.

9.2 Other information (data referred to ethanol):

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

SECTION 10 - Stability and reactivity

10.1 - Reactivity
Stable under recommended handling and storage conditions.

10.2 - Chemical stability
Product must be regarded as:
- stable, but it may become unstable under special conditions (see subsections 10.3 and 10.4).

10.3 - Possibility of hazardous reactions
Violent reaction with oxidizing agents.
Form explosive mixtures with air.

10.4 - Conditions to avoid
- exposure of the product to heat, sparks or flame
- avoid the accumulation of electrostatic charges
- absence of ventilation
- exposure to air
- containers not properly closed

10.5 - Incompatible materials
Avoid contact with: strong oxidants.
Perchlorides, peroxides, silver oxide, hydrogen peroxide, potassium, sodium, chlorine, permanganate or chromium in acid solutions, ruthenium oxide, uranium hexafluoride, iodine or bromine pentafluoride, chromile chloride, iodine heptafluoride, bromide or chloride of acetyl, disulfuryl difluoride, platinum, nitric acid, peroxides, calcium hypochlorite, chlorine oxides, silver nitrate, dipotassium dioxide, tetraphosphorus tearxide, chromium trioxide, fluorine nitrate, strong oxidants

10.6 - Hazardous decomposition products
As a result of heat or in the event of fire, carbon oxides and vapors can be released, which can be harmful to health. Vapors can form explosive mixtures with air.
In combustion produces irritating, corrosive and/or toxic vapors.

SECTION 11 - Toxicological information

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

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes. Inhalation of high vapor concentrations may cause irritation of the eyes and respiratory tract.
The substance may cause effects on the central nervous system.

EFFECTS OF REPEATED OR LONG-TERM EXPOSURE:
The liquid has degreasing characteristics to the skin. The substance may have effects on the upper respiratory tract and the central nervous system, causing irritation, headache, fatigue and lack of concentration.

CHRONIC TOXICITY:
The product must be considered endowed with chronic toxicity of medium size.
Central nervous system: headache, state of general depression, weakness, drowsiness, dizziness, drowsiness, narcosis. Possible impaired liver function.

Penetration ways: Ingestion, inhalation, poorly by skin contact.

11.1 - Information on toxicological effects
The product must be considered to have low systemic toxicity due to acute overexposure.
Chronic medium-term toxicity.
Target organs: central nervous system and liver.
Medium irritant power.
No evidence for sensitizing, carcinogenic, mutagenic and reproductive action.

It is distributed in all tissues and liquids of the body, especially the brain, lungs and liver.
About 80-90% of the ingested quantity is metabolized in the liver to acetaldehyde and then into acetic acid. Acetaldehyde is rapidly metabolized to acetic acid from the aldehyde dehydrogenase of the liver. The acetic acid is subsequently oxidized in the peripheral tissues in carbon dioxide and water. A small amount of ethanol absorbed (2 to 5%) is eliminated unchanged with urine and exhaled air. It can also be eliminated in breast milk at a concentration comparable to that of maternal blood.
Its effects are due to the inhibition of synaptic transmission in the brain and depresses the central nervous system with a mainly analgesic and anesthetic action.
It also has action on lipid metabolism.

11.1.1 Acute toxicity
Rat DL50 (oral): 7000 mg/kg (HSDB, 2015);
Mouse DL50 (oral): 3400 mg/kg (HSDB, 2015);
Rabbit DL50 (dermal): > 20000 mg/kg (INRS, 2011);
Rat CL50-10 ore (inhalation): 20000 ppm (HSDB, 2015);
Mouse CL50-4 hours: 39 mg/m^3 (HSDB, 2015).

11.1.2 Skin corrosion/Skin irritation
The substance is not irritating (OECD, 2004).
Mild passive irritation was observed on rabbit skin after prolonged contact for 24 hours under occlusive dressing.
In the rabbit it was non-irritant in a study conducted according to OECD TG 404 (OECD, 2004).

11.1.3 Serious eye damage/Eye irritation
Moderately irritating (OECD, 2004).
In humans, direct contact with ethanol causes pain, tearing, lesions of the corneal epithelium and conjunctival hyperemia; the sensation of a foreign body in the eye may last 1 or 2 days but, in general, healing is spontaneous, rapid and complete (INRS, 2011; OECD, 2004).
Pure rabbit ethanol on the rabbit eye causes moderate eye irritation that occurs with mild corneal opacity and moderate to severe conjunctivitis. These effects are reversible in less than 14 days [OECD TG 405] (INRS, 2011; OECD, 2004).

11.1.4 Respiratory or skin sensitisation
The substance did not show sensitizing properties (OECD, 2004).
No reaction was observed in a guinea pig maximal test at a concentration of 75% v/v ethanol and in the ear swelling test in mice at a concentration of 95% v/v (INRS, 2011; OECD, 2004).

Skin contact
The product contains substances that may produce an allergic reaction.

11.1.5 CMR Effects

Germ cell mutagenicity
In vitro, it causes an increase in exchanges between sister chromatids in cultures of hamster ovary cells or human lymphocytes. In vivo, there is an increase in exchanges between sister chromatids in rats and mice exposed to oral doses at massive doses (> 7 g/kg/day) of ethanol for several weeks. It also determines mutations of dominant lethal in rats and mice. Orally exposed to 1240 mg/kg/day for 3 days and micronucleus formation in bone marrow erythrocytes in mice from 620 mg/kg dose intraperitoneally. The rates of chromosomal aberrations were negative.

Carcinogenicity
Consumption of alcohol can cause cancer of the oral cavity, pharynx, larynx, esophagus, colorectal, liver (hepatocellular carcinoma) and, in women, breast cancer. There was also an association between alcohol consumption and pancreatic cancer. There is sufficient epidemiological evidence to show that individuals who consume alcohol and who have deficiencies in the oxidation of acetaldehyde to acetate have a substantially increased risk of developing cancer, particularly of the esophagus and upper respiratory and digestive tract (IARC, 2012).
- The International Agency for Research on Cancer (IARC) allocates ethanol in alcoholic beverages in Group 1 (human carcinogen) based on evidence of sufficient carcinogenicity in humans (as regards alcohol consumption) and in laboratory animals (as regards ethanol) (IARC, 2012).

Toxicity to reproduction
- Adverse effects on sexual function and fertility:
  Ingestion of the substance alters male fertility: testicular atrophy, decreased libido and testosterone.
  In the woman there are changes in the menstrual cycle. There is also a decrease in the incidence of conception per cycle in cases of substance consumption in quantities of 5 glasses per week.
- Adverse effects on development:
  Alcohol consumption causes multiple congenital anomalies: growth retardation, CNS changes, external malformations. The frequency of these abnormalities depends on the daily dose of alcohol absorbed.
  In women who took daily doses of 10 to 20 g, it was observed: an increase in spontaneous abortions, intellectual delays (reduced IQ) and behavioral.
- Effects on breastfeeding or through breastfeeding:
  Ethanol crosses the placental barrier.
  Excessive consumption of alcoholic beverages during lactation, in women already taking alcohol during pregnancy, can increase the negative effects.

11.1.6 Specific target organ toxicity (STOT)

STOT-Single exposure
In humans, in case of acute intoxication by ingestion, the manifestations are essentially neuropsychic (intellectual and psychic excitation with cerebellar motor incoordination, then more or less deep coma and possible paralysis of the respiratory centers).

STOT-repeated exposure
Repeated exposure by ingestion causes toxicity of the nervous system (polyneuritis, cerebellar atrophy, memory disorders), digestive system (steatosis and cirrhosis of the liver, chronic gastritis, pancreatitis) of the cardiovascular system (myocardiopathy, arterial hypertension).

11.1.7 Aspiration hazard
On humans, a concentration of 5000 ppm vapors is listed as annoying and tolerable irritant and breathing (Lester, 1951). The greater the concentration that this causes tearing and coughing.
Conclusion
The high concentration of vapors in the air of ethanol is irritating to breathing.

11.1.8 Further information
Immediate, delayed and chronic effects resulting from short and long term exposure
Acute toxicity is mild both by ingestion and by inhalation. By the skin it is minimal.
In humans, in case of acute intoxication by ingestion, the manifestations are essentially neuropsychic (intellectual and psychic excitation with cerebellar motor incoordination, then more or less deep coma and possible paralysis of the respiratory centers). These disorders are closely related to the rate of alcohol.
Industrial alcohol that has denaturing additives, for concentrations of 70% ethanol, causes serious gastric injuries.
In case of inhalation of ethanol vapors, the risk of severe intoxication is slight.
The chronic effects of ethylism by ingestion are: neuropsychics (polyneuritis, cerebellar atrophy, memory disorders), digestive (steatosis and cirrhosis of the liver, chronic gastritis, pancreatitis) cardiovascular (myocardiopathy, arterial hypertension) and hematological.
In case of repeated inhalation of ethanol vapors there are irritation of the eyes, upper airways, headaches, fatigue, decreased concentration and alertness.
Studies show that excessive consumption of alcohol is a factor that causes arteriosclerosis, while a moderate consumption has a protective power.
At the cutaneous level the repeated contact can cause erythema and edema particularly if there is an occlusion which determines the evaporation of the ethanol.

Interactive effects
In the industrial field it is possible to have syntactic hepatotoxic effects for simultaneous exposure to chlorinated solvents and for interactions with amides, oxymes, thiurams and carbonates, aldehyde dehydrogenase inhibitors.

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SECTION 12 - Ecological information

The content in COV (Volatile Organic Compound) in accordance with the Directive 2010/75/UE is approximately of 78,7% 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
0,88	2-acetoxy-2,3,8,8-tetramethyloctahydronaphthalene (OTNE)	54464-57-2	259-174-3
0,24	Acetyl cedrene	32388-55-9	251-020-3
0,24	4-Penten-2-ol, 3,3-dimethyl-5-(2,2,3-trimethyl-3-cyclopenten-1-yl)	107898-54-4	411-580-3
0,020	α-Cedrene (0.01 mg/l< L(E)C50 <=0.1 mg/l); M=10	469-61-4	207-418-4
0,020	Beta-cedrene M=10	546-28-1	208-898-8

H400-Very toxic to aquatic life.
H410-Very toxic to aquatic life with long lasting effects.

%	Substance	CAS	EINECS
0,24	Cedrus atlantica, ext.	92201-55-3	295-985-9

H411-Toxic to aquatic life with long lasting effects.

12.1 - Toxicity
Data related to ethyl alcohol
LC50 Palaemonetes > 250 mg/l/96 h at 21° C, LC50 Salmo gairdnerii 13000 mg/l/96 h at 12°C; LC50 Pimephales promelas (fathead minnows) 15.3 g/l/96 h; age 30 days, water hardness 47.3 mg/l (CaCO3), temp 24.3°C, pH 7.60, dissolved oxygen 6.8 mg/l, alkalinity 43.7 mg/l (CaCO3); volume of the tank 6.3 l; additions: 3.81 vol/day/flow bioassay; EC50 Pimephales promelas (fathead minnows) 12.9 g/l/96 h; age 30 days, water hardness 47.3 mg/l (CaCO3), temp 24.3°C, pH 7.60, dissolved oxygen 6.8 mg/l, alkalinity 43.7 mg/l (CaCO3); tank volume: 6.3 l; additions: 3.81 vol/day/flow biosening/; Toxicity threshold (Cell multiplication inhibition test) Scenedesmus quadricauda (green algae) 5000 mg/l; Toxicity threshold (Cell multiplication inhibition test) Microcystis aeruginosa (algae) 1450 mg/l; Toxicity threshold (Cell multiplication inhibition test): Uronema parduczi Chatton-Lwoff (protozoa) 6120 mg/l; Toxicity threshold (Cell multiplication inhibition test): Entosiphon sulcatum (protozoa) 65 mg/l; Toxicity threshold (Cell multiplication inhibition test): Pseudomonas putida (bacteria) 6500 mg/l

Toxicity to fish

Species	Duration of the test (hours)	LC_{50} (mg/l)
Salmo gairdneri	96	13000
Salmo gairdneri	96	11200
Pimephales promelas	96	>100
Pimephales promelas	96	14200
Pimephales promelas	96	13480

Toxicity to acquatic invertebrate

Species	Test and Duration	Value (mg/l)
Ceriodaphnia	LC_{50} (48hr)	5012
Daphnia magna	LC_{50}(48hr)	12340
Artemia salina	LC_{50}(24hr)	1833
Paramecium caudatum	LC_{50}(4hr)	5980
Palaemonetes kadiakensis	EC_{50}(18hr)	1000
Daphnia pulex	EC_{50}(18hr)	2000
Hyallela azteca	EC_{50}(18hr)	1000
Artemia salina	EC_{50}(24hr)	23874

Toxicity to aquatic plants

Species	Duration of the test (days)	EC_{50}(mg/l)
Chlorella vulgaris	4	1000
Lemna gibba	7	4432
Lemna minor	7	3690
Selenastrum capricornatum	4	10000
Chlamydomonas eugametos	2	2000
Skeletonema costatum	4	10943-11619
Chlorella pyrenoidosa	10	1180

Long-term effects
Crustaceans: (Ceriodaphnia sp.) NOEC-10 days: 9,6 mg/l (effects on reproduction) (OECD, 2004)
Algae: (Lemna gibba) NOEC-7 days: 280 mg/l (OECD, 2004).

12.2 - Persistence and degradability
Subject to biodegradation. BOD5 125%; ThOD 5 days: 44.2% The half-life of ethanol in the atmosphere varies from 4 to 5.9 days (reaction with hydroxy radicals)
Ethanol is stable to hydrolysis but is readily biodegradable (74% after 5 days) and is probably not bioaccumulative (calculated logBCF = 0.5). Ethanol is not persistent in the environment.
The vapor pressure (7906 Pa at 25°C) indicates that when released into the atmosphere, ethanol exists only as vapor in the atmosphere where it degrades by reaction with photochemically produced hydroxyl radicals; for this reaction in air a half-life of 36 hours is estimated (HSDB, 2015).
Ethanol does not contain chromophores that absorb wavelengths at > 290 nm, and therefore it is not expected to be susceptible to direct photolysis by solar radiation (HSDB, 2015).
It is not expected that hydrolysis is an important environmental fate process as ethanol is devoid of functional groups that hydrolyze under ambient conditions (pH 5 to 9) (HSDB, 2015).
Ethanol was biodegraded with half-lives of a few days using microcosms built with sandy soil with low organic content and groundwater, this indicates that biodegradation is an important environmental fate process in soil and water (HSDB, 2015) .

12.3 - Bioaccumulative potential
Although the literature does not provide information about the BCF based on a log Kow of -0.31, it can be inferred that the potential for bioaccumulation of ethanol in fish is zero or poor.
Based on the Kow partition coefficient value of -0.31, bioaccumulation of ethanol in aquatic organisms is not expected.
An estimated BCF of 3 suggests low potential for bioconcentration in aquatic organisms (HSDB, 2015).
The octanol-water partition coefficient and the value of Henry's Law suggest that ethanol is not bioaccumulative and volatilized from the surface of water, gas leaks from groundwater and has a high retarding vapor phase.
Ethanol is considered to be moderately volatile and is stable to hydrolysis.

12.4 - Mobility in soil
Ethanol is not persistent in the environment. The model of fugacity (level III) shows that, released into the environment, it is mainly distributed in air and water. Relevant distributions among the compartments are 57% in air, 34% in water and 9% in soil. This prediction is supported by the limited data available on prevailing concentrations, which show that ethanol was detected in outdoor air and in river water (OECD, 2004).
The Koc of 2.75 (determined by the log Kow of 0.44) indicates that if released to the soil, ethanol has very high mobility and, if released into the water, does not adsorb to suspended solids and sediments.
Henry's Law Law of 5 X 10-6 atm-m3 / mole indicates that volatilization from both wet soil surfaces and water surfaces is a process of important fate (for a model river and a model lake they have been estimated volatilization half-lives, respectively, of 5 and 39 days).
The vapor pressure indicates that ethanol can volatize from dry soil surfaces.

12.5 - Results of PBT and vPvB assessment
All the substances present in the mixture are not classified PBT or vPvB.

12.6 - Other adverse effects

Photodegradation
Although ethanol can absorb radiation and is subject to direct photolysis, the main mechanism for degradation is probably photochemical oxidation in the presence of atmospheric pollution (photochemical sensitization) in parts of the major industrialized regions are nitrogen oxides (NOx) and oxides of sulfide (SOx). Therefore it is expected to rapidly degrade in NOx and SOx in polluted atmospheres.
Distribution of ethanol in the environment

Distribution level III calculations Relative distributions between compartments based on the issue of the model of 1000:100:10 (Mackay, 1996)	
Air	57%
Water	34%
Soil	9%

Expected rains to play an appreciable role in removing ethanol from the atmosphere (Howard, 1990).

These predictions are supported by the limited data available on the prevailing concentrations, these show that ethanol is found in air and in river waters. The total half-life of the ethanol in the troposphere is estimated to be 10-36 hours, with degradation due to

hydrolysis, NOx and SOx radical-intermediates of the photo-oxidation. As a volatile organic compound in the atmosphere, ethanol is a potential contributor to ozone formation under certain conditions, however its potential creation of photochemical ozone is considered to be moderately low (40-45 in relation to ethylene as 100).

Water hazard class for the final product (German Regulation):
Water Hazard Class (WGK): 2 – hazard to waters (self-classification)
Prevent product from reaching waterways, sewage systems or from entering the ground

SECTION 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.

SECTION 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: 163-640D
ADR-RID	(Overland transport)	Limited quantities: 5L
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

14.6 - Special precautions for user

IMDG	(Transport by sea)	Emergency procedure (Ems): F-E, S-D
ADR-RID	(Overland transport)	Tunnel restriction code: 2 (D/E)

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

SECTION 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 89/391EEC, 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.
- Law Decree of 3 April 2006, n. 152 "Norms Concerning the Environment"
- 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 preparations (L.D. 285 of 16/07/1998 - Implementation of Community Directives regarding the classification, packaging and labelling of dangerous preparations, 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 preparations.
- **The product has been registered with the code GP299, 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 lying down the detailed arrangements for the system of specific information relating to dangerous preparations 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 preparations.
- **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 mixture, 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. 453/2010 of 20 May 2010,** amending Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

- **Commission Regulation (EU) No. 286/2011 of 10 March 2011** 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 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 487/2013** of **8 May 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
- **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.
- **Commission Regulation (EU) 2016/918** of **19 May 2016** 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) 2016/1179** of **19 July 2016** 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) 2017/776 of 4 May** 2017 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

15.2 - Chemical safety assessment
The chemical safety assessment is like that of Ethanol.

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

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: (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; (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; (c) hazard class 4.1; (d) hazard class 5.1 ◄	1. Shall not be used in: — 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, 2. Articles not complying with paragraph 1 shall not be placed on the market. 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: — 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, 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). 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: (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'; (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'; (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. 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. 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. Member States shall make those data available to the Commission.
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	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: — 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. 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: 'For professional users only'. 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). 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.

APPLICABLE SEVESO III - Directive
Annex I Part 1 Section: P5a
Flammable liquids Category 2 or 3 (or other liquids with a flash point ≤ 60°C), maintained at a temperature above their boiling point.

Qualifying quantity fir the application of
Lower-tier requirements: 10 t
Upper-tier requirements: 50 t

Annex I Part 1 Section: P5b
Flammable liquids Category 2 or 3 (or other liquids with a flash point ≤ 60°C), where particular processing conditions, such as high pressure or high temperature, may create major-accident hazards or accident hazards.

Qualifying quantity fir the application of
Lower-tier requirements: 50 t
Upper-tier requirements: 200 t

Annex I Part 1 Section: P5c
Flammable liquids Category 2 or 3 not covered by P5a and P5b.

Qualifying quantity fir the application of
Lower-tier requirements: 5000 t
Upper-tier requirements: 50000 t

SECTION 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.

Procedure used to derive the classification in accordance with Regulation (EC) No 1272/2008

Classification	Justification
Flam. Liq. 2,H225	Based on analytical data
Eye Irrit. 2,H319	Method of calculation
Aquatic Chronic 3,H412	Method of calculation

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
H304-May be fatal if swallowed and enters airways
H315-Causes skin irritation
H317-May cause an allergic skin reaction
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.
EUH066-Repeated exposure may cause skin dryness or cracking

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

ACGIH	American Conference of Governmental Industrial Hygienists (Documentation of the Threshold Limit Values)
ADR	The European Agreement concerning the International Carriage of Dangerous Goods by Road
ASTM	ASTM International, originally known as American Society for Testing and Materials (ASTM)
bw	Body weight
CAS	Chemical Abstracts Service (division of the American Chemical Society)
BMDL05	The lowest benchmark dose lower confidence limit for a 5% response
CER	European Waste Catalogue
NAEC	No Adverse Effects Concentration
CMR	Carcinogen, Mutagen and Reprotoxic
CONCAWE	CONservation of Clean Air and Water in Europe
CSA	Chemical Safety Assessment
CSR	Chemical Safety Report
DMEL	Derived Minimum Effect Level
DNEL	Derived No Effect Level
dw	Dry weight
EC number	European Chemical number
EC50	Effective Concentration 50
EINECS	European Inventory of Existing Commercial Substances
EL50	Effective Load, 50%
GWP	Global warming potential
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
IC50	Inhibitor Concentration 50
IMDG code	International Maritime Dangerous Good code
LC50	Lethal Concentration 50
LD50	Lethal Dose 50
LL50	Loaded lethal, 50%
LL0	Loaded lethal, 0%
LOAEL	Low Observed Adverse Effects Level
NIOSH/OSHA	Occupational Health Guidelines for Chemical Hazards (Registry of Toxic Effects of Chemical Substances)
NOEC	No Observed Effects Concentration
NOAEL	No Observed Adverse Effects Level
NOEL	No Observed Effects Level
ODP	Ozone depletion potential
OECD	Organization for Cooperation and Economic Development
PNEC	Predicted No-Effect Concentration
PBT	Persistent, bioaccumulative and toxic
RID	The Regulation concerning the International Carriage of Dangerous Goods by Rail
RMM	Risk Management Measure
SNC	Central Nervous System
STEL	Short term exposure limit
STOT	Specific target organ toxicity
TLV	Threshold limit value (America Conference of Governmental Industrial Hygienists)
TWA	Time Weighted Average
STEL	Short term exposure limit
UVCB	Substances of unknown or variable composition, complex reaction products or Biological material
vPvB	Very Persistent very bioaccumulative
VOC	Volatile Organic Compounds
VwVwS	Text of Administrative Regulation on the Classification of Substances hazardous to waters into Water Hazard Classes (Verwaltungsvorschrift wassergefährdende Stoffe - VwVwS)
WAF	Water Accommodated Fraction

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

International Poison Control Centres

Country	Poison Centre	Address	Telephone Number	E-mail	Website
Austria	Gesundheit Österreich GmbH	Stubenring 6 1010 Wien	+43 1 515 61-0	kontakt@goeg.at	https://goeg.at/de/VIZ

Belarus	MINSK CITY EMERGENCY HOSPITAL	Kizhevatova Street , 58 Minsk 220024	+375 (17) 287-89-26	minsk.bsmp@gmail.com	http://www.bsmp.by/index.php/home
Belgium	BELGISCH ANTIGIFCENTRUM	p/a Militair hospitaal Koningin Astrid Bruynstraat 1, 1120 Brussel	+32 02 264 96 36	info@poisoncentre.be	https://www.poisoncentre.be/
Croatia	Institut za medicinska istraživanja i medicinu rada	Ksaverska cesta 2, POB 291, 10000 Zagreb	+385 1 2348 342	--	https://www.imi.hr/en/poison-control-centre/
Czech Republic	Toxikologického informačního střediska	Klinika pracovního lékařství VFN a 1. LF UK Na Bojišti 1, Praha 2	+420 224 91 92 93	tis@vfn.cz	http://www.tis-cz.cz/
Denmark	Giftlinjen	--	+45 82 12 12 12	--	https://www.bispebjerghospital.dk/giftlinjen/Sider/default.aspx
Estonia	Mürgistusteabekeskus	Paldiski mnt 81 Tallinn 10617	+372 6943 884	info@16662.ee	https://www.16662.ee/
Finland	Myrkytystietokeskus	--	+358 09 471 977	--	http://www.hus.fi/sairaanhoito/sairaanhoitopalvelut/myrkytystietokeskus/Sivut/default.aspx
France	Centre Antipoison et de Toxicovigilance de ANGERS	C.H.U 4 rue Larrey 49033 Angers Cedex 9	+33 02 41 48 21 21	cap49@chu-angers.fr	http://www.centres-antipoison.net/angers/index.html
	Centre Antipoison et de Toxicovigilance de BORDEAUX	CHU Pellegrin Tripode Place Amélie Raba Léon 33076 Bordeaux Cedex	+33 05 56 96 40 80	centre-antipoison@chu-bordeaux.fr	http://www.centres-antipoison.net/bordeaux/index.html
	Centre Antipoison et de Toxicovigilance de LILLE	C.H.R.U 5 avenue Oscar Lambret 59037 Lille Cedex	+33 0800 59 59 59 +33 03 20 44 59 62	cap@chru-lille.fr	http://cap.chru-lille.fr
	Centre Antipoison et de Toxicovigilance de LYON	Bâtiment A, 4ème étage 162, avenue Lacassagne 69424 Lyon Cedex 03	+33 04 72 11 69 11	centre.antipoison@chu-lyon.fr	http://www.centres-antipoison.net/lyon/index.html
	Centre Antipoison et de Toxicovigilance de MARSEILLE	Hôpital Sainte Marguerite 270 boulevard de Sainte Marguerite 13274 Marseille Cedex 09	+33 04 91 75 25 25	cap-mrs@mail.ap-hm.fr	http://www.centres-antipoison.net/marseille/index.html
	Centre Antipoison et de Toxicovigilance	Hôpital Central 29 avenue du Maréchal de Lattre de	+33 03 83 22 50 50	cap@chu-nancy.fr	http://www.centres-antipoison.net/nancy/index.html

	de NANCY	Tassigny 54035 Nancy Cedex			
	Centre Antipoison et de Toxicovigilance de PARIS	Hôpital Fernand WIDAL 200 rue du Faubourg Saint Denis 75475 Paris Cedex 10	+33 01 40 05 48 48	cap.paris.lrb@aphp.fr	http://www.centres-antipoison.net/paris/index.html
	Centre Antipoison et de Toxicovigilance de STRASBOURG	Hôpitaux universitaires 1 Place de l'Hôpital BP 426 67091 Strasbourg Cedex	+33 03 88 37 37 37	Christine.TOURNOUD@chru-strasbourg.fr	http://www.centres-antipoison.net/strasbourg/index.html
	Centre Antipoison et de Toxicovigilance de TOULOUSE	Hôpital Purpan Pavillon Louis Lareng Place du Docteur Baylac 31059 Toulouse Cedex	+33 05 61 77 74 47	cap.reg@chu-toulouse.fr	http://www.centres-antipoison.net/toulouse/index.html
FYROM	ЈЗУУ Клиника за токсикологија	ул.Водњанска 17, 1000 Скопје, Македонија	+389 02 31 47 635	contact@toxicocenter.com.mk	http://www.toxicocenter.com.mk/
Germany	Giftnotruf der Charité	Charité – Universitätsmedizin Berlin Charitéplatz 1, 10117 Berlin	+49 30 19240	firmenservice(at)giftnotruf.de	https://giftnotruf.charite.de/
	Informationszentrale gegen Vergiftungen, Zentrum für Kinderheilkunde, Universitätsklinikum Bonn	Adenauerallee 119, 53113 Bonn	+49 0228 - 19240 +49 0228 287-33211	info@giftzentrale-Bonn.de	http://www.gizbonn.de/272.0.html
	Gemeinsames Giftinformations-zentrum der Länder	Gemeinsames Giftinformationszentrum der Länder Mecklenburg-Vorpommern, Sachsen, Sachsen-Anhalt und Thüringen c/o HELIOS Klinikum Erfurt Nordhäuser Straße 74 99089 Erfurt	+49 361 730730	--	https://www.ggiz-erfurt.de/home.html
	Vergiftungs-Informations-Zentrale Freiburg	Mathildenstr. 1 79106 Freiburg	+49 (0) 761 19240	giftinfo@uniklinik-freiburg.de	https://www.uniklinik-freiburg.de/giftberatung.html
	Giftinformationszentrum-Nord	Robert-Koch-Straße 40 37075 Göttingen	+49 0551 19 240	giznord@giz-nord.de	https://www.giz-nord.de/cms/
	Informations- und Behandlungszentr	Universitätsklinikum des	+49 06841 19240	info @uks.eu	http://www.uniklinikum-saarland.de/de/einrichtun

	um für Vergiftungen des Saarlandes	Saarlandes Klinik/Institut für Xxxxxx Gebäude "XX" Kirrberger Straße D-66421 Homburg			gen/kliniken_institute/kinder_und_jugendmedizin/informations_und_behandlungszentrum_fuer_vergiftungen_des_saarlandes/
	Giftinformationszentrum der Länder Rheinland-Pfalz und Hessen	Langenbeckstraße 1 Gebäude 601 55131 Mainz	+49 06131 19240	mail@giftinfo.uni-mainz.de	http://www.giftinfo.uni-mainz.de/giz/uebersicht.html
	Abteilung für Klinische Toxikologie und Giftnotruf München	Ismaninger Str. 22 81675 München	+49 089 4140 2241	tox-sekretariat@mri.tum.de	http://www.toxinfo.med.tum.de/
Greece	Poison Information Centre	Children's Hospital "P & A Kyriakou" Athens 11527	+30 2107793777	poison_ic@aglaiakyriakou.gr	http://0317.syzefxis.gov.gr/wp-content/uploads/2016/09/Site-KD-English-Version-16_9_2016.pdf
Hungary	Egészségügyi toxikológiai tájékoztatás	Nagyvárad tér 2 Budapest 1096	+36 80 20 11 99 +36 06 1 476 6464	kembizt@emmi.gov.hu	http://www.okbi.hu/
Iceland	Føroyskt - Landspítali	101 Reykjavík	+354 543 1236 +354 543 1237	billing@landspitali.is	https://www.landspitali.is/sjuklingar-adstandendur/deildir-og-thjonusta/eitrunarmidstod/
Ireland	National Poisons Information Centre	Beaumont Hospital PO Box 1297 Beaumont Road Dublin 9	+353 (01) 809 2166 +353 (01) 809 2566	--	https://www.poisons.ie/
Italy	Centro antiveleni e tossicologia	ASST Papa Giovanni XXIII Piazza OMS - Organizzazione Mondiale della Sanità, 1 24127 Bergamo	+39 800 88 3300 +39 035.267 4460	clintox@asst-pg23.it	http://www.asst-pg23.it/section/259/Tossicologia_-_Centro_antiveleni
	Centro Antiveleni	Firenze	+39 055 427 72 38	--	http://www.tox.it/index.php?option=com_content&task=view&id=39&Itemid=64
	Centro Antiveleni di Milano	ASST Grande Ospedale Metropolitano Niguarda	+39 02 66101029	cav@ospedaleniguarda.it	https://www.centroantiveleni.org/
	Centro Antiveleni del Policlinico Gemelli	Largo Agostino Gemelli 8, 00168 Roma	+39 06 3054343	--	http://www.tox.it/index.htm
	Tossicologia Clinica - Centro Antiveleni (CAV) e Antidroga	Viale del Policlinico, 155 - 00161 Roma	+39 06 49978000	--	http://cav.policlinicoumberto1.it/
Lituania	Neatidėliotina informacija apsinuodijus (*Poisoning emergency*	--	+370 5 236 2052 +370 687 53 378	--	http://www.tox.lt/

	information)				
Netherlands	Nationaal Vergiftigingen Informatie Centrum	UMC Utrecht Heidelberglaan 100 3584 CX Utrecht	+31 030 274 8888	vergiftigingen.info@umcutrecht.nl	https://www.vergiftigingen.info/f?p=300:HOME::::::
Norway	Giftinformasjonen	Norwegian Poison Information Centre	+47 22 59 13 00	--	https://helsenorge.no/Giftinformasjon
Poland	Pracownia Informacji Toksykologicznej i Analiz Laboratoryjnych	31-501 Kraków ul. Kopernika 15, III piętro, pok. 329, 330	+48 (12) 411 99 99 +48 (12) 424 83 56	oit@cm-uj.krakow.pl	http://www.oit.cm.uj.edu.pl/
	Pomorskie Centrum Toksykologii	ul. Kartuska 4/6 80-104 Gdańsk	+48 (58) 682 04 04 +48 (58) 309 83 83	pct@pctox.pl	http://www.pctox.pl/new/
Portugal	CIAV - Centro de Informação Antivenenos	Instituto Nacional de Emergência Médica Rua Almirante Barroso, 36 1000-013 Lisboa	+351 213 303 271	ciav.tox@inem.pt	https://www.inem.pt/
Slovakia	Národné toxikologické informačné centrum	NTIC Limbová 5, 833 05 Bratislava	+421 2 5477 4166 +421 2 5465 2307	ntic@ntic.sk	http://www.ntic.sk/
Slovenia	Center za klinično toksikologijo in farmakologijo	Center za klinično toksikologijo in farmakologijo Interna klinika Univerzitetni klinični center Ljubljana Zaloška cesta 7 1000 Ljubljana Slovenija	+386 01 522 52 83 +386 01 522 52 76	--	http://ktf.si/
Spain	Instituto Nacional de Toxicología	--	+34 91 562 04 20	--	http://institutodetoxicologia.justicia.es/wps/portal/intcf_internet/portada/utilidades_portal/telefono_emergencias/
Sweden	Giftinformationscentralen	171 76 STOCKHOLM	+46 10 456 6700	giftinformation@gic.se	https://giftinformation.se/
Switzerland	Tox Info Suisse	Freiestrasse 16 8032 Zürich	+41 44 251 51 51 +41 44 251 66 66	info@toxinfo.ch	https://toxinfo.ch/
Turkey	Toxicology Department and Poisons Centre	Refik Saydam Central Institute of Hygiene Cemal Gürsel Cad No. 18 Sihhiye Ankara	+90 0312 433 70 07 Emergency No +90 0312 433 70 01 or 0 800 314 7900	zehir@saglik.gov.tr	www.rshm.gov.tr/en
United Kingdom	National Poisons Information Service A service commissioned by Public Health England	NPIS Edinburgh Royal Infirmary of Edinburgh Edinburgh EH16 4SA	+44 0344 892 0111	mail@toxbase.org	http://www.npis.org/

	Edinburgh Clinical Toxicology	National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh Little France Crescent Edinburgh EH16 4SA	+44 0131 242 1360	--	http://www.edinburghclinicaltoxicology.org/home/

Updated on 20-Jul-2018
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: all.
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.

Formulation Number: **2018299**
Unique Formula Identifier (UFI): **KYN9-ATRW-750N-SWC6**

SHEET VERSION no. 0 of 18/09/2019
This version replaces and nullifies all previous versions.
SHEET PRINTED ON 18/09/2019

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	Ecetoc TRA integrated model version 2, ConsExpo v 4.1

12.1 Exposure scenario

12.1.1. Operational conditions and risk management measures

Product categories: Adhesives (other than carpet and floor glue), sealants; **Air care products**; Artists supply and hobby preparations; Building and construction preparations; Metal-surface treatment products; Non-metal-surface treatment products; Ink and toners; Lawn and garden preparations; 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.

Environmental release category: Wide dispersive indoor and outdoor use. Use (usually) results in direct release into the sewage system or environment.

Number of sites using the substance: Substance widely used.

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 20m3) 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 m3/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 m3/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 assume d 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/say)	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.