

SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of: Regulation (EC) No. 1272/2008 and Regulation (EC) No. 1907/2006 as amended by Regulation (EU) No. 2020/878

Revision Date 06-Sep-2024

Version 2

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

1.1. Product identifier

Product Code 24163

Product Name SURFACE PREP 4.5OZ AE

Other means of identification

Unique Formula Identifier (UFI) MR5J-E0NS-200H-C0X0

Mixture. Contains HEPTANE; ISOBUTANE ; ORGANO-COPPER COMPOUND

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

No information available

Uses advised against

1.3. Details of the supplier of the safety data sheet

Manufacturer ITW Permatex, Inc. 6875 Parkland Blvd. Solon, Ohio 44139 USA Telephone: 1-87-Permatex (866) 732-9502	Only Representative (OR) ITW Permatex, Inc. Bay 150 Shannon Industrial Estate Co. Clare Ireland V14 DF82
1	
(866) 732-9502	Ireland
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	353(61)771500
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	customerservice.shannon@itwpp.com

For further information, please contact

Contact Point	ITW Permatex, Inc. 6875 Parkland Blvd. Solon, Ohio 44139 USA Telephone: 1-87-Permatex (866) 732-9502
E-mail address:	mail@permatex.com
Non-Emergency Telephone Number	866-732-9502

1.4. Emergency telephone number

24-hour emergency phone number EU Member States information as follows:

24-hour emergency phone number	- §45 - (EC)1272/2008
Europe	112
Austria	01 406 43 43

Belgium	070 245 245
Bulgaria	+359 2 9154 233
Croatia	+3851 2348 342
Cyprus	1401
Czech Republic	+420 224 919 293/ +420 224 915 402
Denmark	+ 45 8212 1212
Estonia	16662/ (+372) 7943 794
Finland	0800 147 111/ 09 471 977
France	+33 (0)1 45 42 59 59
Germany	+49 228 192 40
Greece	(003) 2107793777
Hungary	+36 80 201 199
Iceland	543 2222
Ireland	01 809 2166
Italy	0382-24444
Latvia	+371 67042473
Liechtenstein	01 406 43 43
Lithuania	+370 (85) 2362052
Luxembourg	(+352) 8002 5500
Malta	112
Netherlands	+31 (0)88 755 8000
Norway	22 59 13 00
Poland	112
Portugal	+351 800 250 250
Romania	+40213183606
Slovakia	+421 2 5477 4166
Slovenia	112
Spain	+34 91 562 04 20
Sweden	112
Switzerland	145
United Kingdom	111

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture Classification according to Regulation (EC) No. 1272/2008 [CLP]

Aerosols	Category 1 - (H222, H229)
None	None
Skin irritation	Category 2 - (H315)
Germ cell mutagenicity	Category 1B - (H340)
Reproductive toxicity	Category 1B - (H360D)
Specific target organ toxicity (single exposure)	Category 3 - (H336)
Category 3 Target organ effects: Narcotic effects.	
Aspiration hazard	Category 1 - (H304)
Acute aquatic toxicity	Category 1 - (H400)
Chronic aquatic toxicity	Category 1 - (H410)

2.2. Label elements

Contains HEPTANE; ISOBUTANE ; ORGANO-COPPER COMPOUND



Signal word Danger

Hazard statements

H222 - Extremely flammable aerosol. H229 - Pressurized container: May burst if heated.

- H222 Extremely flammable aerosol.
- H304 May be fatal if swallowed and enters airways.
- H315 Causes skin irritation.
- H336 May cause drowsiness or dizziness.
- H340 May cause genetic defects.
- H360D May damage the unborn child.

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

Precautionary Statements - EU (§28, 1272/2008)

P201 - Obtain special instructions before use.

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P211 Do not spray on an open flame or other ignition source.
- P251 Do not pierce or burn, even after use.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor.
- P331 Do NOT induce vomiting.
- P391 Collect spillage.
- P412 Do not expose to temperatures exceeding 50 °C/122 °F.

99 % of the mixture consists of ingredient(s) of unknown acute toxicity.

97 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

- 34 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.
- 71 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).
- 99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).
- 32 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Unknown aquatic toxicity

Contains 4 % of components with unknown hazards to the aquatic environment.

Additional information

- -

This product is exempt from the requirement for a child resistant fastening and tactile warning of danger, as it is an aspiration hazard, placed on the market in the form of an aerosol or in a container with a sealed spray attachment.

2.3. Other hazards	
Other hazards	No information available.
PBT & vPvB	The components in this formulation do not meet the criteria for classification as PBT or vPvB.
Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Chemical name	Weight-%	REACH registration number	EC No (EU Index No)	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Specific concentration limit (SCL)	M-Factor	M-Factor (long-ter m)	Notes
HEPTANE 142-82-5	50 - <100	No data available	205-563-8 (601-008-00-2)	Flam. Liq. 2 (H225) Asp. Tox. 1 (H304) Skin Irrit. 2 (H315) STOT SE 3 (H336) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	-	-	-	С
PROPANE 74-98-6	10 - <25	No data available	200-827-9 (601-003-00-5)	Flam. Gas 1 (H220) Press. Gas	-	-	-	U
ISOBUTANE 75-28-5	10 - <25	No data available	200-857-2 (601-004-00-0) (601-004-01-8)	Flam. Gas 1 (H220) Press. Gas	-	-	-	C,U C,S,U
ETHANOL 64-17-5	1 - <2.5	No data available	200-578-6 (603-002-00-5)	Flam. Liq. 2 (H225)	-	-	-	-
ORGANO-COPPER COMPOUND 22221-10-9	0.5 - <1	No data available	244-846-0 (607-230-00-6)	Repr. 1B (H360D)	-	-	-	A,X,12
ORGANO-COPPER COMPOUND 68084-48-0	0.5 - <1	No data available	268-439-2	No data available	-	-	-	-

Note A - Without prejudice to Article 17(2) of Regulation (EC) No 1272/2008, the name of the substance must appear on the label in the form of one of the designations given in Part 3 of Annex VI to that Regulation. In that Part, use is sometimes made of a general description such as "... compounds" or "... salts". In this case, the supplier who places such a substance on the market is required to state on the label the correct name, due account being taken of Section 1.1.1.4 of Annex VI to Regulation (EC) No 1272/2008. Note C - Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.

Note P - The harmonized classification as a carcinogen or mutagen applies unless it can be shown that the substance contains less than 0.1 % w/w benzene (Einecs No 200-753-7), in which case a classification in accordance with Title II of this Regulation shall be performed also for those hazard classes. Where the substance is not classified as a carcinogen or mutagen, at least the precautionary statements (P102-)P260-P262-P301 + P310-P331 shall apply.

Note R - The harmonized classification as a carcinogen applies except in the case of fibers with a Length Weighted Geometric Mean Diameter (LWGMD) minus two geometric standard errors greater than 6 µm, as measured in accordance with Test method A.22 in the Annex to Commission Regulation (EC) No 440/2008.

Note S - This substance may not require a label according to Article 17 of Regulation (EC) No 1272/2008 (see section 1.3 of Annex I to that Regulation).

Note U - When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case. The following codes are assigned: Press. Gas (Comp.), Press. Gas (Liq.), Press. Gas (Ref. Liq.), Press. Gas (Diss.). Aerosols shall not be classified as gases under pressure (See Annex I, Part 2, Section 2.3.2.1, Note 2).

Note X - The classification for the hazard class(es) in this entry is based only on the hazardous properties of the part of the substance which is common to all substances in the entry. The hazardous properties of any substances in the entry also depend on the properties of the part of the substance which is not common to all substances in the group. The latter must be evaluated to assess whether more severe classification(s) (i.e. a higher category) or a broader scope of the same classification (additional differentiation, target organs and/or hazard statements) might apply for the hazard class(es) in the entry.

Note 12 - The classification of mixtures as reproductive toxicant is necessary if the sum of the concentrations of individual substances covered by this entry in the mixture as placed on the market is equal to, or above, the applicable generic concentration limit for the assigned category, or a specific concentration limit given in this entry.

Full text of H- and EUH-phrases: see section 16

Acute Toxicity Estimate

If LD50/LC50 data is not available or does not correspond to the classification category, then the appropriate conversion value from CLP Annex I, Table 3.1.2, is used to calculate the acute toxicity estimate (ATEmix) for classifying a mixture based on its components

Chemical name	Oral LD50 mg/kg		Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
HEPTANE 142-82-5	No data available	3000	29.29	No data available	No data available
PROPANE 74-98-6	No data available	No data available	No data available	No data available	200000
ISOBUTANE 75-28-5	No data available	No data available	No data available	No data available	200000
ETHANOL 64-17-5	7060	No data available	116.9 133.8	No data available	No data available
ORGANO-COPPER COMPOUND 22221-10-9	No data available	2000	No data available	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration >=0.1% (Regulation (EC) No. 1907/2006 (REACH), Article 59).

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Inhalation	Remove to fresh air. Aspiration into lungs can produce severe lung damage. If breathing has stopped, give artificial respiration. Get medical attention immediately. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
Skin contact	In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
Ingestion	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. ASPIRATION HAZARD IF SWALLOWED - CAN ENTER LUNGS AND CAUSE DAMAGE. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. Get immediate medical attention.
Self-protection of the first aider	Remove all sources of ignition. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

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

Symptoms	Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Effects of Exposure	May cause adverse reproductive effects - such as birth defect, miscarriages, or infertility. Mutagenic effects.
4.3. Indication of any immediate me	edical attention and special treatment needed
Note to physicians	Because of the danger of aspiration, emesis or gastric lavage should not be employed unless the risk is justified by the presence of additional toxic substances.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media	Dry chemical. Carbon dioxide (CO2). Water spray.
Small Fire Large Fire	In case of fire, use water spray, foam, dry chemical, or CO2. In case of fire, use water spray, foam, dry chemical, or CO2.
Unsuitable extinguishing media	DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.
5.2. Special hazards arising from th	e substance or mixture
Specific hazards arising from the chemical	Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. Cylinders may rupture under extreme heat. Damaged cylinders should be handled only by specialists. Containers may explode when heated. Ruptured cylinders may rocket.
Hazardous combustion products	No information available
5.3. Advice for firefighters	
Special protective equipment and precautions for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	Evacuate personnel to safe areas. Use personal protective equipment as required. See section 8 for more information. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharges. Avoid breathing dust/fume/gas/mist/vapors/spray. Contents under pressure. Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.		
Other information	Ventilate the area. Refer to protective measures listed in Sections 7 and 8.		
For emergency responders	Use personal protection recommended in Section 8.		
6.2. Environmental precautions			
Environmental precautions	Refer to protective measures listed in Sections 7 and 8. Prevent further leakage or spillage if		

safe to do so. Prevent product from entering drains.

6.3. Methods and material for containment and cleaning up

Methods for containment	Stop leak if you can do it without risk. A vapor suppressing foam may be used to reduce vapors. Dike far ahead of spill to collect runoff water. Keep out of drains, sewers, ditches and waterways. Flood with water to complete polymerization and scrape off floor.
Methods for cleaning up	Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.
Prevention of secondary hazards	Clean contaminated objects and areas thoroughly observing environmental regulations.
6.4. Reference to other sections	
Reference to other sections	See section 8 for more information. See section 13 for more information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not spray on an open flame or other ignition source. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use spark-proof tools and explosion-proof equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Keep in an area equipped with sprinklers. Do not puncture or incinerate cans. Contents under pressure. In case of rupture. Avoid breathing vapors or mists. Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes. Take off contaminated clothing and wash before reuse. In case of insufficient ventilation, wear suitable respiratory equipment.			
Do not eat, drink or smoke when using this product. Contaminated work clothing should no be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection.			
luding any incompatibilities			
Protect from sunlight. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labeled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store in a cool, dry area away from potential sources of heat, open flames, sunlight or other chemicals. Store locked up. Keep out of the reach of children. Store away from other materials.			
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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure Limits

Chemical name	European Union	Austria	Belgium	Bulgaria	Croatia
HEPTANE	TWA: 500 ppm	TWA: 500 ppm	TWA: 400 ppm	TWA: 1600 mg/m ³	TWA: 500 ppm
142-82-5	TWA: 2085 mg/m ³	TWA: 2000 mg/m ³	TWA: 1664 mg/m ³	, i i i i i i i i i i i i i i i i i i i	TWA: 2085 mg/m ³
	_	STEL 2000 ppm	STEL: 500 ppm		Sk*
		STEL 8000 mg/m ³	STEL: 2085 mg/m ³		
PROPANE	-	TWA: 1000 ppm	TWA: 1000 ppm	TWA: 1800.0 mg/m ³	-
74-98-6		TWA: 1800 mg/m ³		_	
		STEL 2000 ppm			
		STEL 3600 mg/m ³			
ISOBUTANE	-	TWA: 800 ppm	TWA: 1000 ppm	-	-
75-28-5		TWA: 1900 mg/m ³	STEL: 980 ppm		
		STEL 1600 ppm	STEL: 2370 mg/m ³		
		STEL 3800 mg/m ³			
ETHANOL	-	TWA: 1000 ppm	TWA: 1000 ppm	TWA: 1000 mg/m ³	TWA: 1000 ppm
64-17-5		TWA: 1900 mg/m ³	TWA: 1907 mg/m ³		TWA: 1900 mg/m ³
		STEL 2000 ppm			
		STEL 3800 mg/m ³			
ORGANO-COPPER	-	TWA: 1 mg/m ³	-	-	-
COMPOUND		TWA: 0.1 mg/m ³			
22221-10-9		STEL 4 mg/m ³			
		STEL 0.4 mg/m ³			
ORGANO-COPPER	-	TWA: 1 mg/m ³	-	-	-
COMPOUND		TWA: 0.1 mg/m ³			
68084-48-0		STEL 4 mg/m ³			
		STEL 0.4 mg/m ³			
Chemical name	Cyprus	Czech Republic	Denmark	Estonia	Finland
HEPTANE	TWA: 500 ppm	TWA: 1000 mg/m ³	TWA: 200 ppm	TWA: 500 ppm	TWA: 300 ppm
142-82-5	TWA: 2085 mg/m ³	Ceiling: 2000 mg/m ³	TWA: 820 mg/m ³	TWA: 2085 mg/m ³	TWA: 1200 mg/m ³
			STEL: 400 ppm		STEL: 500 ppm
			STEL: 1640 mg/m ³		STEL: 2100 mg/m ³
PROPANE	-	-	TWA: 1000 ppm	TWA: 1000 ppm	TWA: 800 ppm
74-98-6			TWA: 1800 mg/m ³	TWA: 1800 mg/m ³	TWA: 1500 mg/m ³
			STEL: 2000 ppm		STEL: 1100 ppm
			STEL: 3600 mg/m ³		STEL: 2000 mg/m ³
ISOBUTANE	-	-	-	TWA: 800 ppm	TWA: 800 ppm
75-28-5				TWA: 1900 mg/m ³	TWA: 1900 mg/m ³
					STEL: 1000 ppm
					STEL: 2400 mg/m ³
ETHANOL	-	TWA: 1000 mg/m ³	TWA: 1000 ppm	TWA: 500 ppm	TWA: 1000 ppm
64-17-5		Ceiling: 3000 mg/m ³	TWA: 1900 mg/m ³	TWA: 1000 mg/m ³	TWA: 1900 mg/m ³
			STEL: 2000 ppm	STEL: 1000 ppm	STEL: 1300 ppm
			STEL: 3800 mg/m ³	STEL: 1900 mg/m ³	STEL: 2500 mg/m ³
ORGANO-COPPER	-	-	-	-	TWA: 0.02 mg/m ³
COMPOUND					
22221-10-9					
ORGANO-COPPER	-	-	-	-	TWA: 0.02 mg/m ³
COMPOUND					
68084-48-0	1	1			
	_				
Chemical name	France	Germany TRGS	Germany DFG	Greece	Hungary
	France TWA: 400 ppm TWA: 1668 mg/m ³	Germany TRGS TWA: 500 ppm TWA: 2100 mg/m ³	Germany DFG TWA: 500 ppm TWA: 2100 mg/m ³	Greece TWA: 500 ppm TWA: 2000 mg/m ³	Hungary TWA: 2000 mg/m ³

	TWA: 1000 mg/m ³		Peak: 500 ppm	STEL: 500 ppm	
	STEL: 500 ppm		Peak: 2100 mg/m ³	STEL: 2000 mg/m ³	
	STEL: 2085 mg/m ³				
	STEL: 1500 mg/m ³				
PROPANE	-	TWA: 1000 ppm	TWA: 1000 ppm	TWA: 1000 ppm	-
74-98-6		TWA: 1800 mg/m ³	TWA: 1800 mg/m ³	TWA: 1800 mg/m ³	
			Peak: 4000 ppm		
			Peak: 7200 mg/m ³		
ISOBUTANE	-	TWA: 1000 ppm	TWA: 1000 ppm	-	-
75-28-5		TWA: 2400 mg/m ³	TWA: 2400 mg/m ³		
		-	Peak: 4000 ppm		
			Peak: 9600 mg/m ³		
ETHANOL	TWA: 1000 ppm	TWA: 200 ppm	TWA: 200 ppm	TWA: 1000 ppm	TWA: 1000 ppm
64-17-5	TWA: 1900 mg/m ³	TWA: 380 mg/m ³	TWA: 380 mg/m ³	TWA: 1900 mg/m ³	TWA: 1900 mg/m ³
	STEL: 5000 ppm	Ŭ	Peak: 800 ppm	0	STEL: 2000 ppm
	STEL: 9500 mg/m ³		Peak: 1520 mg/m ³		STEL: 3800 mg/m ³
ORGANO-COPPER	-	-	-	-	TWA: 0.1 mg/m ³
COMPOUND					STEL: 0.2 mg/m ³
22221-10-9					5 · · · ·
ORGANO-COPPER	-	-	-	-	TWA: 0.1 mg/m ³
COMPOUND					STEL: 0.2 mg/m ³
68084-48-0					01 E E. 0.2 mg/m
Chemical name	Ireland	Italy MDLPS	Italy AIDII	Latvia	Lithuania
HEPTANE	TWA: 500 ppm	TWA: 500 ppm	TWA: 400 ppm	TWA: 85 ppm	TWA: 500 ppm
142-82-5	TWA: 2085 mg/m ³	TWA: 2085 mg/m ³	TWA: 1639 mg/m ³	TWA: 350 mg/m ³	TWA: 2085 mg/m ³
	STEL: 1500 ppm		STEL: 500 ppm	TWA: 100 mg/m ³	TWA: 200 ppm
	STEL: 6255 mg/m ³		STEL: 2049 mg/m ³	STEL: 500 ppm	TWA: 800 mg/m ³
	0122. 0200 mg/m		0122.2010 mg/m	STEL: 2085 mg/m ³	STEL: 750 ppm
				STEL: 300 mg/m ³	STEL: 3128 mg/m ³
				•••==:•••••	STEL: 300 ppm
					STEL: 1200 mg/m ³
PROPANE	STEL: 3000 ppm	-	•	TWA: 1000 ppm	-
74-98-6			·		
	Simple asphyxiant		Simple asphyxiant	TWA· 1800 ma/m ³	
74-90-0	Simple asphyxiant		Simple asphyxiant	TWA: 1800 mg/m ³ TWA: 100 mg/m ³	
74-90-0	Simple asphyxiant		Simple asphyxiant	TWA: 100 mg/m ³	
	Simple asphyxiant			TWA: 100 mg/m ³ STEL: 300 mg/m ³	
ISOBUTANE	Simple asphyxiant	-	STEL: 1000 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³	-
ISOBUTANE 75-28-5	-	-	STEL: 1000 ppm STEL: 2377 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³	- TWA: 500 ppm
ISOBUTANE 75-28-5 ETHANOL	Simple asphyxiant - STEL: 1000 ppm	-	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³	- TWA: 500 ppm TWA: 1000 mg/m³
ISOBUTANE 75-28-5	-		STEL: 1000 ppm STEL: 2377 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³	TWA: 1000 mg/m ³
ISOBUTANE 75-28-5 ETHANOL	-	-	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm
ISOBUTANE 75-28-5 ETHANOL 64-17-5	-	-	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³	TWA: 1000 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER	-	-	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND	-	-	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9	-	-	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER	-	- - - -	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND	-	- - - -	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0	- STEL: 1000 ppm -	- - - -	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name	- STEL: 1000 ppm - - Luxembourg	- - - - Malta TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ Norway TWA: 200 ppm	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - Poland TWA: 1200 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name	- STEL: 1000 ppm - - Luxembourg		STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ Norway TWA: 200 ppm TWA: 800 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - Poland TWA: 1200 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - Poland TWA: 1200 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³ STEL: 250 ppm	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - Poland TWA: 1200 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³ STEL: 250 ppm STEL: 1000 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - Poland TWA: 1200 mg/m ³
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³ STEL: 250 ppm STEL: 1000 mg/m ³ STEL: 1000 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - - - - - - - - - - - - - - - - -
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE 142-82-5		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³ STEL: 250 ppm STEL: 1000 mg/m ³ STEL: 1000 mg/m ³ STEL: 60 ppm	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - - - - - - - - - - - - - - - - -
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE 142-82-5		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³ STEL: 250 ppm STEL: 1000 mg/m ³ STEL: 1000 mg/m ³ STEL: 60 ppm STEL: 343.75 mg/m ³	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - - - - - - - - - - - - - - - - -
ISOBUTANE 75-28-5 ETHANOL 64-17-5 ORGANO-COPPER COMPOUND 22221-10-9 ORGANO-COPPER COMPOUND 68084-48-0 Chemical name HEPTANE 142-82-5		TWA: 500 ppm	STEL: 1000 ppm STEL: 2377 mg/m ³ STEL: 1000 ppm STEL: 1884 mg/m ³ TWA: 1 mg/m ³ TWA: 1 mg/m ³ Netherlands TWA: 288 ppm TWA: 1200 mg/m ³ STEL: 384 ppm	TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 100 mg/m ³ STEL: 300 mg/m ³ TWA: 1000 mg/m ³ TWA: 1000 mg/m ³ TWA: 0.5 mg/m ³ TWA: 0.5 mg/m ³ TWA: 200 ppm TWA: 200 ppm TWA: 800 mg/m ³ TWA: 40 ppm TWA: 275 mg/m ³ STEL: 250 ppm STEL: 1000 mg/m ³ STEL: 1000 mg/m ³ STEL: 60 ppm	TWA: 1000 mg/m ³ STEL: 1000 ppm STEL: 1900 mg/m ³ - - - - - - - - - - - - - - - - - - -

					TWA: 27	5 mg/m³					
					STEL: 6	25 ppm					
					STEL: 112	25 mg/m ³					
					STEL: 6	S0 ppm					
					STEL: 343						
ISOBUTANE	-		-		TWA: 4		_				
75-28-5					TWA: 27						
10200					STEL: 6						
					STEL: 343						
ETHANOL				TWA: 137 ppm	TWA: 50		TWA: 1900 mg/m ³				
64-17-5	-		-	TWA: 137 ppm TWA: 260 mg/m ³	TWA: 50		1 WA. 1900 mg/m ²				
04-17-5											
				STEL: 1000 ppm	STEL: 6						
				STEL: 1900 mg/m ³	STEL: 118	7.5 mg/m ³					
				Sk*	<u>.</u>						
Chemical name	Portu		Romania	Slovakia	Slove		Spain				
HEPTANE	TWA: 50		TWA: 500 ppm	TWA: 500 ppm	TWA: 50		TWA: 500 ppm				
142-82-5	TWA: 208		TWA: 2085 mg/m ³	TWA: 2085 mg/m ³	TWA: 208		TWA: 2085 mg/m ³				
	STEL: 50	0 ppm	TWA: 700 mg/m ³		STEL: 5	00 ppm					
			STEL: 1000 mg/m ³		STEL: 208	35 mg/m ³					
PROPANE	TWA: 100	0 ppm	TWA: 778 ppm	-	TWA: 10		TWA: 1000 ppm				
74-98-6		••	TWA: 1400 mg/m ³		TWA: 180						
			TWA: 700 mg/m ³		STEL: 40						
			STEL: 1000 ppm		STEL: 720						
			STEL: 1800 mg/m ³			oo mg/m					
			STEL: 1000 mg/m ³								
ISOBUTANE	TWA: 100	0 0 0 0 0 0	TWA: 700 mg/m ³	TWA: 1000 ppm	T\//4.1000 ppm		TWA: 1000 ppm				
75-28-5	STEL: 100				TWA: 1000 ppm TWA: 2400 mg/m ³		TWA. 1000 ppm				
75-26-5	SIEL. IU	Jo ppm	STEL: 1000 mg/m ³	TWA: 2400 mg/m ³							
				STEL: 5000 ppm	STEL: 40						
ETHANOL				STEL: 12000 mg/m ³							
ETHANOL	STEL: 1000 ppm		TWA: 1000 ppm	TWA: 500 ppm	TWA: 96		STEL: 1000 ppm				
64-17-5							TWA: 1900 mg/m ³	TWA: 960 mg/m ³	TWA: 50		STEL: 1910 mg/m ³
			STEL: 5000 ppm	Ceiling: 1920 mg/m ³							
			STEL: 9500 mg/m ³		STEL: 192	20 mg/m ³					
ORGANO-COPPER	-		-	-	-		TWA: 0.01 mg/m ³				
COMPOUND											
22221-10-9											
ORGANO-COPPER	-		-	-	-		TWA: 0.01 mg/m ³				
COMPOUND							Ű				
68084-48-0											
Chemical name			Sweden	Switzerlar	nd	Ur	nited Kingdom				
HEPTANE		N	IGV: 200 ppm	TWA: 400 ppm			NA: 500 ppm				
142-82-5			GV: 800 mg/m ³	TWA: 1600 m			A: 2085 mg/m ³				
			GV: 350 mg/m ³	STEL: 400 ppm		STEL: 1500 ppm					
			ande KGV: 300 ppm	STEL: 1600 mg/m ³		STEL: 6255 mg/m ³					
			edande KGV: 1200		ig/111	516	.c. 0200 mg/m-				
		vagle									
		mg/m ³		T\N/A + 4000 ====							
PROPANE		NGV: 350 mg/m ³		TWA: 1000 ppm			-				
74-98-6			TWA: 1800 mg/m ³								
			STEL: 4000 ppm								
				STEL: 7200 mg/m ³							
ISOBUTANE			GV: 350 mg/m³	TWA: 800 p			-				
75-28-5				TWA: 1900 mg/m ³							
				STEL: 3200 ppm							
				STEL: 7600 n	ng/m³						
ETHANOL		Ν	IGV: 500 ppm	TWA: 500 p		TV	VA: 1000 ppm				
64-17-5			GV: 1000 mg/m ³	TWA: 960 m			A: 1920 mg/m ³				
			ande KGV: 1000 ppm				EL: 3000 ppm				
			edande KGV: 1900	STEL: 1920 n			L: 5760 mg/m ³				
		, agic	mg/m ³				37 33 mg/m				
l mg/m ³											

ORGANO-COPPER COMPOUND 22221-10-9	-	-	TWA: 1 mg/m ³ STEL: 2 mg/m ³
ORGANO-COPPER COMPOUND 68084-48-0	-	-	TWA: 1 mg/m ³ STEL: 2 mg/m ³

Biological occupational exposure limits

Chemical name	Denmark	Denmark Finland		France		Germany DFC	3	Germany TRGS
HEPTANE	-	-		-		250 µg/L (urine) - (250 µg/L (urine -
142-82-5						Heptan-2,5-dio	ne	Heptan-2,5-dione
						end of shift)		end of shift)
						250 µg/L - BAT (end	
						of exposure or e	end	
						of shift) urine		
Chemical name	Sloven	Slovenia Sp		bain	S	Switzerland		United Kingdom
HEPTANE	-	•		-	200	µg/L (urine -		-
142-82-5					Heptan	-2 5-dione end of		
						shift)		

Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
HEPTANE	-	300 mg/kg bw/day [4] [6]	2085 mg/m³ [4] [6]
142-82-5			
ETHANOL	-	343 mg/kg bw/day [4] [6]	950 mg/m³ [4] [6]
64-17-5			1900 mg/m ³ [5] [7]
ORGANO-COPPER COMPOUND	-	0.39 mg/kg bw/day [4] [6]	0.69 mg/m³ [4] [6]
22221-10-9			

Notes

[4]	Systemic health effects.
[5]	Local health effects.
[6]	Long term.
[7]	Short term.

Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
HEPTANE 142-82-5	149 mg/kg bw/day [4] [6]	-	447 mg/m³ [4] [6]
ETHANOL 64-17-5	87 mg/kg bw/day [4] [6]	-	114 mg/m³ [4] [6] 950 mg/m³ [5] [7]
ORGANO-COPPER COMPOUND 22221-10-9	0.2 mg/kg bw/day [4] [6]	-	0.17 mg/m ³ [4] [6]

Notes

Systemic health effects.
Local health effects.
Long term.
Short term.

Predicted No Effect Concentration (PNEC) No information available.

8.2. Exposure controls

Engineering controls	No information available.		
Personal protective equipment			
Eye/face protection	Tight sealing safety goggles. Safety glasses with side shields are recommended for medical or industrial exposures.		
Hand protection	Impervious gloves. Wear suitable gloves.		
Skin and body protection	Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. Antistatic boots.		
Respiratory protection	Appropriate respiratory protection should be selected and used according to the chemical nature, hazards and use of this product and safety requirements of the local jurisdiction. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.		
Thermal hazards	No information available.		
Other protective equipment	No information available.		
Environmental exposure controls	No information available.		

SECTION 9: Physical and chemical properties

<u>9.1. Information on basic physical</u> Physical state Color Odor Odor threshold	and chemical properties Aerosol Green No information available. No information available	
<u>Property</u> Melting point / freezing point Boiling point / boiling range Flammability (solid, gas)	<u>Values</u> No data available No data available No data available	Remarks • Method Estimated Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.
Flammability Limit in Air Upper flammability limit: Lower flammability limit: Flash point Autoignition temperature Decomposition temperature	9.5% 1.0% < 0 °C No data available	None known Gives a flame projection at full valve opening or flashback at any degree of valve opening Estimated Remarks: Self-Accelerating decomposition
pH pH (as aqueous solution) Kinematic viscosity Dynamic viscosity	No data available No data available No Data Available No data available	temperature (SADT): 50 °C SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction. 10% in deionized water None known Kinematic viscosity at 100 degrees C Remarks: Self-Accelerating decomposition temperature (SADT): 50 °C SADT-Self Accelerating Decomposition Temperature. Lowest temperature at which the tested package size will undergo a self-accelerating decomposition reaction.

Water solubility Solubility(ies) Partition coefficient Vapor pressure Relative density Bulk density Density Vapor density Particle characteristics Particle Size Particle Size	No data available Negligible No Data Available No Data Available 71 psig 0.66 No data available No data available >1 No information available No information available	None known None known Air = 1
9.2. Other information VOC content	95	
9.2.1. Information with regard to ph Not applicable	iysical hazard classes	
9.2.2. Other safety characteristics No information available Sensitivity to mechanical impact	Yes	

<1 Ether = 1

SECTION 10: Stability and reactivity

10.1. Reactivity			
Reactivity	No information available.		
Remarks	No Data Available.		
10.2. Chemical stability			
Stability	Stable under normal conditions.		
Explosion data Sensitivity to mechanical impac Sensitivity to static discharge	t Yes. Yes.		
10.3. Possibility of hazardous reacti	ons		
Possibility of hazardous reactions	None under normal processing.		
Hazardous polymerization	No information available.		
10.4. Conditions to avoid			
Conditions to avoid	Heat, flames and sparks. Excessive heat.		
10.5. Incompatible materials			
Incompatible materials	Strong acids. Strong bases. Strong oxidizing agents.		
10.6. Hazardous decomposition pro	ducts		
Hazardous Decomposition Products Carbon oxides. Phosphorus. Copper compounds.			

SECTION 11: Toxicological information

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

Information on likely routes of exposure

Inhalation	Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Specific test data for the substance or mixture is not available. Aspiration into lungs can produce severe lung damage. May cause pulmonary edema. Pulmonary edema can be fatal. May cause irritation of respiratory tract. May cause drowsiness or dizziness.			
Eye contact	Specific test data for the substance or mixture is not available. May cause irritation.			
Skin contact	Repeated exposure may cause skin dryness or cracking. Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).			
Ingestion	Specific test data for the substance or mixture is not available. Potential for aspiration if swallowed. May cause lung damage if swallowed. Aspiration may cause pulmonary edema and pneumonitis. May be fatal if swallowed and enters airways. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.			
Symptoms related to the physical, chemical and toxicological characteristics				
Symptoms	Difficulty in breathing. Coughing and/ or wheezing. Dizziness. Redness. May cause redness and tearing of the eyes. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.			

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

Acute toxicity

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

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document:

ATEmix (oral) 10,590.00 mg/kg

ATEmix (dermal) 3,046.20 mg/kg

ATEmix (inhalation-gas) 207,142.90 ppm

ATEmix (inhalation-vapor) 99,999.00 mg/l

ATEmix (inhalation-dust/mist) 30.40 mg/l

97 % of the mixture consists of ingredient(s) of unknown acute oral toxicity.

34 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

71 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas).

99 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor).

32 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
HEPTANE	-	= 3000 mg/kg (Rabbit)	> 29.29 mg/L (Rat) 4 h
PROPANE	-	-	> 800000 ppm (Rat) 15 min
ISOBUTANE	-	-	> 800000 ppm (Rat) 15 min
ETHANOL	= 7060 mg/kg (Rat)	-	= 116.9 mg/L (Rat) 4 h
			= 133.8 mg/L (Rat) 4 h
ORGANO-COPPER COMPOUND	-	> 2000 mg/kg (Rat)	-

Skin corrosion/irritation Classification based on data available for ingredients. Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization E

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

Germ cell mutagenicity

Contains a known or suspected mutagen. Classification based on data available for ingredients. May cause genetic defects.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as mutagenic.

Chemical name	European Union	
ISOBUTANE	Muta. 1B	

Carcinogenicity

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

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	European Union	
ISOBUTANE	Carc. 1A	

Reproductive toxicity Classification based on data available for ingredients. May damage fertility or the unborn child.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as reproductive toxins.

Chemical name	European Union
ORGANO-COPPER COMPOUND	Repr. 1B

STOT - single exposure	May cause drowsiness or dizziness.
------------------------	------------------------------------

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

Aspiration hazard May be fatal if swallowed and enters airways.

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

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

11.2.2. Other information

Other adverse effects No information available.

SECTION 12: Ecological information

12.1. Toxicity

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Unknown aquatic toxicity

Contains 4 % of components with unknown hazards to the aquatic environment.

Chemical name	Algae/aquatic plants	Fish	Toxicity to	Crustacea
			microorganisms	
HEPTANE	-	LC50: =375.0mg/L (96h,	-	-
		Cichlid fish)		
ETHANOL	-	LC50: 12.0 - 16.0mL/L	-	LC50: 9268 -

(96h, Oncorhynchus mykiss)	14221mg/L (48h, Daphnia magna)
LC50: >100mg/L (96h, Pimephales promelas)	EC50: =2mg/L (48h, Daphnia magna)
LC50: 13400 -	
15100mg/L (96h,	
Pimephales promelas)	

12.2. Persistence and degradability

Persistence and degradability No information available.

12.3. Bioaccumulative potential

Bioaccumulation

Chemical name	Partition coefficient
HEPTANE	4.66
PROPANE	1.09
ISOBUTANE	2.8
ETHANOL	-0.35

12.4. Mobility in soil

Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

PBT and vPvB assessment

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

Chemical name	PBT and vPvB assessment
HEPTANE	The substance is not PBT / vPvB
PROPANE	The substance is not PBT / vPvB
ISOBUTANE	The substance is not PBT / vPvB
ETHANOL	The substance is not PBT / vPvB
ORGANO-COPPER COMPOUND	PBT assessment does not apply
ORGANO-COPPER COMPOUND	PBT assessment does not apply

12.6. Endocrine disrupting properties

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

Other adverse effects No information available.

PMT or vPvM properties Based on available data, the classification criteria are not met.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused Should not be released into the environment. Dispose of in accordance with local

products

regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

Other information

No information available.

SECTION 14: Transport information

<u>IATA</u>

 14.1 UN number or ID number 14.2 UN proper shipping name 14.3 Transport hazard class(es) 14.4 Packing group 14.5 Environmental hazards 14.6 Special precautions for user Special Provisions 	ID 8000 Consumer Commodity 9 Not regulated Not applicable None
IMDG14.1UN number or ID number14.2UN proper shipping name14.3Transport hazard class(es)14.4Packing group14.5Environmental hazards14.6Special precautions for user Special Provisions14.7Maritime transport in bulk according to IMO instruments	1950 Aerosols, Limited Quantity (LQ) 2.1 Not regulated Not applicable None No information available
RID14.1UN number or ID number14.2UN proper shipping name14.3Transport hazard class(es)14.4Packing group14.5Environmental hazards14.6Special precautions for user Special Provisions	1950 Not regulated 2.1 Not regulated Not applicable 190, 625
ADR 14.1 UN number or ID number 14.2 UN proper shipping name 14.3 Transport hazard class(es) 14.4 Packing group 14.5 Environmental hazards 14.6 Special precautions for user Special Provisions Classification code	1950 Not regulated 2.1 Not regulated Not applicable 190, 625 5F
ADN 14.1 UN number or ID number 14.2 UN proper shipping name 14.3 Transport hazard class(es) 14.4 Packing group 14.5 Environmental hazard 14.6 Special precautions for user Special Provisions	Not regulated Not regulated Not regulated Not regulated Not applicable None

SECTION 15: Regulatory information

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

National regulations

France

Chemical name	French RG number
HEPTANE - 142-82-5	RG 84
ETHANOL - 64-17-5	RG 84

Germany

Water hazard class (WGK)

obviously hazardous to water (WGK 2)

Netherlands

Carcinogenic, mutagenic and reproductive toxic effects

Chemical name	Netherlands - List of Carcinogens	Netherlands - List of Mutagens	Netherlands - List of Reproductive Toxins
ETHANOL	Present	-	Fertility Category 1A Development Category 1A Can be harmful via breastfeeding
ORGANO-COPPER COMPOUND	-	-	Development Category 1B

Switzerland

Ordinance on the Incentive Tax on Volatile Organic Compounds (OVOC) SR 814.018	Group I
Storage of Hazardous Material	SC 10/12
WPO (GSchV) SR 814.201; WPA (GSchG) SR 814.20	Class B

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Authorizations and/or restrictions on use:

This product contains one or more substance(s) subject to restriction (Regulation (EC) No. 1907/2006 (REACH), Annex XVII)

Chemical name	Restricted substance per REACH	Substance subject to authorization per
	Annex XVII	REACH Annex XIV
HEPTANE - 142-82-5	75	-
ISOBUTANE - 75-28-5	28	-
	29	
	75	

Persistent Organic Pollutants

Not applicable

Dangerous substance category per Seveso Directive (2012/18/EU)

P3a - FLAMMABLE AEROSOLS

P3b - FLAMMABLE AEROSOLS

E1 - Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1

Ozone-depleting substances (ODS) regulation (EC) 1005/2009

Not applicable

Biocidal Products Regulation (EU) No 528/2012 (BPR)

Chemical name	Biocidal Products Regulation (EU) No 528/2012 (BPR)
ETHANOL - 64-17-5	Product-type 1: Human hygiene Product-type 2: Disinfectants and algaecides not intended for direct application to humans or animals Product-type 4: Food and
	feed area

International Inventories	
TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECI	Complies
PICCS	Complies
AICS	Complies
NZIoC	Complies
TCSI	Contact supplier for inventory compliance status

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing Chemicals Inventory

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIOC - New Zealand Inventory of Chemicals

TCSI - Taiwan Chemical Substance Inventory

15.2. Chemical safety assessment

Chemical Safety Report

No information available

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Full text of H-Statements referred to under section 3

H220 - Extremely flammable gas

H225 - Highly flammable liquid and vapor

H304 - May be fatal if swallowed and enters airways

H315 - Causes skin irritation

H336 - May cause drowsiness or dizziness

H360D - May damage the unborn child

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

Legend

SVHC: Substances of Very High Concern for Authorization: PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances STOT: Specific Target Organ Toxicity ATE: Acute Toxicity Estimate

Exposure Limit)

LC50: 50% Lethal Concentration LD50: 50% Lethal Dose

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term
Ceiling	Maximum limit value	*	Skin designation
+	Sensitizers		

Classification procedure	
Classification according to Regulation (EC) No. 1272/2008 [CLP]	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method
Flammable aerosol	On basis of test data
Gases under pressure	On basis of test data

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR) U.S. Environmental Protection Agency ChemView Database European Food Safety Authority (EFSA) European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA_RAC) European Chemicals Agency (ECHA) (ECHA_API) **Environmental Protection Agency** Acute Exposure Guideline Level(s) (AEGL(s)) U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act U.S. Environmental Protection Agency High Production Volume Chemicals Food Research Journal Hazardous Substance Database International Uniform Chemical Information Database (IUCLID) National Institute of Technology and Evaluation (NITE) Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS) NIOSH (National Institute for Occupational Safety and Health) National Library of Medicine's ChemID Plus (NLM CIP) National Library of Medicine's PubMed database (NLM PUBMED) U.S. National Toxicology Program (NTP) New Zealand's Chemical Classification and Information Database (CCID) Organization for Economic Co-operation and Development Environment, Health, and Safety Publications Organization for Economic Co-operation and Development High Production Volume Chemicals Program Organization for Economic Co-operation and Development Screening Information Data Set World Health Organization **Revision Date** 06-Sep-2024

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006

Disclaimer

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End of Safety Data Sheet