XD 4448 HARDENER

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

1.1 Product identifier

Trade name : XD 4448 HARDENER

Unique Formula Identifier (UFI) : SPMC-E05T-900A-RMWC

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

Use of the Substance/Mixture : Hardener

1.3 Details of the supplier of the safety data sheet

Company : Huntsman Advanced Materials (Europe) BV
Address : Everslaan 45
3078 Everberg
Belgium
Telephone : +41 61 299 20 41
Telefax : +41 61 299 20 40

E-mail address of person responsible for the SDS : Global_Product_EHS_AdMat@huntsman.com

1.4 Emergency telephone number

Emergency telephone number : Centres Antipoison et de Toxicovigilance:
ANGERS: 02 41 48 21 21
BORDEAUX: 05 56 96 40 80
LILLE: 0 825 812 822
LYON: 04 72 11 69 11
MARSEILLE 04 91 75 25 25
NANCY: 03 83 32 36 36
PARIS: 01 40 05 48 48
RENNES: 02 99 59 22 22
STRASBOURG: 03 88 37 37 37
TOULOUSE: 05 61 77 74 47
EUROPE: +32 35 75 1234
France ORFILA: +33(0)145425959
ASIA: +65 6336-6011
China: +86 20 39377888
+86 532 83889090
India: + 91 22 42 87 5333
Australia: 1800 786 152
New Zealand: 0800 767 437
USA: +1 800-424-9300

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquids, Category 3	H226: Flammable liquid and vapour.
Serious eye damage, Category 1	H318: Causes serious eye damage.
Carcinogenicity, Category 1B	H350: May cause cancer.
Reproductive toxicity, Category 2	H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.
Specific target organ toxicity - single exposure, Category 3, Central nervous system	H336: May cause drowsiness or dizziness.
Specific target organ toxicity - single exposure, Category 3, Respiratory system	H335: May cause respiratory irritation.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Danger

Hazard statements :
H226 Flammable liquid and vapour.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H336 May cause drowsiness or dizziness.
H350 May cause cancer.
H361fd Suspected of damaging fertility. Suspected of damaging the unborn child.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Hazardous components which must be listed on the label:

4-hydroxy-4-methylpentan-2-one
1-methoxy-2-propanol
propan-1-ol
formaldehyde

Additional Labelling

Restricted to professional users.

EUH208 Contains formaldehyde, phthalic anhydride. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Hazardous components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
4-hydroxy-4-methylpentan-2-one	123-42-2 204-626-7 603-016-00-1 01-2119473975-21	Eye Irrit. 2; H319 Repr. 2; H361fd STOT SE 3; H335 (Respiratory system) specific concentration limit Eye Irrit. 2; H319 >= 10 %	>= 30 - < 50
1-methoxy-2-propanol	107-98-2 203-539-1 603-064-00-3 01-2119457435-35	Flam. Liq. 3; H226 STOT SE 3; H336 (Central nervous system)	>= 20 - < 30
1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde,	68002-25-5 Polymer	Aquatic Chronic 4; H413	>= 10 - < 20

butylated			
propan-1-ol	71-23-8 200-746-9 603-003-00-0 01-2119486761-29	Flam. Liq. 2; H225 Eye Dam. 1; H318 STOT SE 3; H336 (Central nervous system)	>= 10 - < 20
butan-1-ol	71-36-3 200-751-6 603-004-00-6 01-2119484630-38	Flam. Liq. 3; H226 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H336 (Central nervous system) STOT SE 3; H335 (Respiratory system)	>= 3 - < 10
formaldehyde	50-00-0 200-001-8 605-001-00-5 01-2119488953-20	Acute Tox. 3; H301 Acute Tox. 3; H331 Acute Tox. 3; H311 Skin Corr. 1B; H314 Eye Dam. 1; H318 Skin Sens. 1; H317 Muta. 2; H341 Carc. 1B; H350 specific concentration limit Skin Corr. 1B; H314 >= 25 % Skin Irrit. 2; H315 5 - < 25 % Eye Irrit. 2; H319 5 - < 25 % STOT SE 3; H335 >= 5 % Skin Sens. 1; H317 >= 0,2 % Skin Corr. 1B; H314 >= 25 % Skin Irrit. 2; H315 5 - < 25 % Eye Irrit. 2; H319 5 - < 25 % STOT SE 3; H335 >= 5 % Skin Sens. 1; H317 >= 0,2 %	>= 0,1 - < 0,2
phthalic anhydride	85-44-9 201-607-5 607-009-00-4 01-2119457017-41	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335 (Respiratory system)	>= 0,1 - < 1

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

Protection of first-aiders : First Aid responders should pay attention to self-protection and use the recommended protective clothing
If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
No action shall be taken involving any personal risk or without suitable training.
It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

If inhaled : Call a physician or poison control centre immediately.
If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

4.2 Most important symptoms and effects, both acute and delayed

Risks : Causes serious eye damage.
May cause respiratory irritation.
May cause drowsiness or dizziness.
May cause cancer.
Suspected of damaging fertility. Suspected of damaging the unborn child.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical
Unsuitable extinguishing media	:	Exercise caution when using a high volume water jet as it may scatter and spread fire

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous combustion products	:	No hazardous combustion products are known

5.3 Advice for firefighters

Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Refer to protective measures listed in sections 7 and 8. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

6.2 Environmental precautions

Environmental precautions : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

6.4 Reference to other sections

For disposal considerations see section 13., See Section 1 for emergency contact information., For personal protection see section 8.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Technical measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Local/Total ventilation : Ensure adequate ventilation.

Advice on safe handling : Use only with adequate ventilation/personal protection.
Provide sufficient air exchange and/or exhaust in work rooms.
For personal protection see section 8.
Keep container closed when not in use.
Avoid formation of aerosol.
Do not breathe vapours or spray mist.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.
Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product.
Do not breathe vapours/dust.
Avoid exposure - obtain special instructions before use.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Take precautionary measures against static discharges.
Open drum carefully as content may be under pressure.
To avoid spills during handling keep bottle on a metal tray.

Dispose of rinse water in accordance with local and national regulations.
Persons susceptible to skin sensitisation problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Keep in properly labelled containers.

Advice on common storage : For incompatible materials please refer to Section 10 of this SDS.

Further information on storage stability : Stable under normal conditions.

Recommended storage temperature : 2 - 40 °C

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
4-hydroxy-4-methylpentan-2-one	123-42-2	VME	50 ppm 240 mg/m3	FR VLE
	Further information: Indicative exposure limits			
1-methoxy-2-propanol	107-98-2	TWA	100 ppm 375 mg/m3	2000/39/EC
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		STEL	150 ppm	2000/39/EC

			568 mg/m3	
	Further information: Identifies the possibility of significant uptake through the skin, Indicative			
		VME	50 ppm 188 mg/m3	FR VLE
	Further information: Risk of penetration through skin, Regulatory binding exposure limits			
		VLCT (VLE)	100 ppm 375 mg/m3	FR VLE
	Further information: Risk of penetration through skin, Regulatory binding exposure limits			
propan-1-ol	71-23-8	VME	200 ppm 500 mg/m3	FR VLE
	Further information: Indicative exposure limits			
butan-1-ol	71-36-3	VLCT (VLE)	50 ppm 150 mg/m3	FR VLE
	Further information: Indicative exposure limits			
formaldehyde	50-00-0	VME	0,3 ppm 0,37 mg/m3	FR VLE
	Further information: Carcinogenic category 1B - Probably carcinogenic to humans, Mutagenic category 2 - Possibly mutagenic to humans, Skin sensitisation, Regulatory binding exposure limits			
		VLCT (VLE)	0,6 ppm 0,74 mg/m3	FR VLE
	Further information: Carcinogenic category 1B - Probably carcinogenic to humans, Mutagenic category 2 - Possibly mutagenic to humans, Skin sensitisation, Regulatory binding exposure limits			
		STEL	0,6 ppm 0,74 mg/m3	2004/37/EC
	Further information: Dermal sensitisation, Carcinogens or mutagens			
		TWA	0,3 ppm 0,37 mg/m3	2004/37/EC
	Further information: Dermal sensitisation, Carcinogens or mutagens			
phthalic anhydride	85-44-9	VLCT (VLE)	6 mg/m3	FR VLE
	Further information: Risk for sensitisation, Indicative exposure limits			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
1-methoxy-2-propanol	Workers	Inhalation	Long-term systemic effects	369 mg/m3
	Workers	Inhalation	Acute systemic effects	533,5 mg/m3
	Workers	Inhalation	Acute local effects	553,5 mg/m3
	Workers	Dermal	Long-term systemic effects	183 mg/kg
	Consumers	Inhalation	Long-term systemic effects	43,9 mg/m3
	Consumers	Dermal	Long-term systemic effects	78 mg/kg
	Consumers	Oral	Long-term systemic effects	33 mg/kg
4-hydroxy-4-methylpentan-2-one	Workers	Inhalation	Long-term systemic effects	32,6 mg/m3

	Workers	Dermal	Long-term systemic effects	467 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	5,8 mg/m3
	Consumers	Dermal	Long-term systemic effects	167 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	1,67 mg/kg bw/day
butan-1-ol	Workers	Inhalation	Long-term local effects	310 mg/m3
	Consumers	Inhalation	Long-term systemic effects	55,357 mg/m3
	Consumers	Inhalation	Long-term local effects	115 mg/m3
	Consumers	Dermal	Long-term systemic effects	3,125 mg/m3
	Consumers	Oral	Long-term systemic effects	1,562 mg/m3
cyanoguanidine	Workers	Inhalation	Long-term systemic effects	15,3 mg/m3
	Workers	Inhalation	Acute systemic effects	76,5 mg/m3
	Workers	Dermal	Long-term systemic effects	30,1 mg/kg
	Consumers	Inhalation	Long-term local effects	11,2 mg/m3
	Consumers	Inhalation	Acute systemic effects	56 mg/m3
	Consumers	Dermal	Long-term systemic effects	6,5 mg/kg
	Consumers	Oral	Long-term systemic effects	6,5 mg/kg
phthalic anhydride	Workers	Inhalation	Long-term systemic effects	49,4 mg/m3
	Workers	Dermal	Long-term systemic effects	14 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	8,7 mg/m3
	Consumers	Dermal	Long-term systemic effects	5 mg/kg bw/day
	Consumers	Oral	Long-term systemic effects	5 mg/kg bw/day
	Consumers	Oral	Acute systemic effects	25 mg/kg bw/day
formaldehyde	Workers	Inhalation	Long-term systemic effects	9 mg/m3
	Workers	Inhalation	Long-term local effects	0,375 mg/m3
	Workers	Inhalation	Acute local effects	0,75 mg/m3
	Workers	Dermal	Long-term systemic effects	240 mg/kg bw/day
	Workers	Dermal	Long-term local effects	0,037 mg/cm2
	Consumers	Inhalation	Long-term systemic	3,2 mg/m3

			effects	
	Consumers	Inhalation	Long-term local effects	0,1 mg/m3
	Consumers	Dermal	Long-term systemic effects	102 mg/kg bw/day
	Consumers	Dermal	Long-term local effects	0,012 mg/cm2
	Consumers	Oral	Long-term systemic effects	4,1 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
1-methoxy-2-propanol	Fresh water	10 mg/l
	Marine water	1 mg/l
	Freshwater - intermittent	100 mg/l
	Sewage treatment plant	100 mg/l
	Fresh water sediment	52,3 mg/kg
	Marine sediment	5,2 mg/kg
	Soil	4,59 mg/kg
4-hydroxy-4-methylpentan-2-one	Marine water	0,2 mg/l
	Fresh water	2 mg/l
	Sewage treatment plant	10 mg/l
	Intermittent use/release	1 mg/l
	Fresh water sediment	7,4 mg/kg dry weight (d.w.)
	Marine sediment	0,74 mg/kg dry weight (d.w.)
	Soil	0,31 mg/kg dry weight (d.w.)
cyanoguanidine	Fresh water	2,5 mg/l
	Marine water	0,25 mg/l
	Freshwater - intermittent	10 mg/l
	Sewage treatment plant	34 mg/l
	Fresh water sediment	5,83 mg/kg
	Marine sediment	0,58 mg/kg
	Soil	3,16 mg/kg
phthalic anhydride	Marine water	0,1 mg/l
	Remarks:Assessment Factors	
	Freshwater - intermittent	5,6 mg/l
	Sewage treatment plant	10 mg/l
	Remarks:Assessment Factors	
	Fresh water sediment	3,8 mg/kg
	Remarks:Equilibrium method	
	Marine sediment	0,38 mg/kg
	Remarks:Equilibrium method	
	Soil	0,173 mg/kg
	Remarks:Equilibrium method	

8.2 Exposure controls

Personal protective equipment

Eye/face protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing

problems.

Hand protection

Material	:	butyl-rubber
Material	:	Ethyl Vinyl Alcohol Laminate (EVAL)
Break through time	:	> 8 h
Material	:	Nitrile rubber
Break through time	:	10 - 480 min
Remarks	:	Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	Ensure adequate ventilation. Suitable respiratory equipment: Respirator with a half face mask Recommended Filter type: Combined particulates and organic vapour type Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. In the case of vapour formation use a respirator with an approved filter.
Filter type	:	Filter type A-P2 (organic vapours, particles)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	liquid
Colour	:	colourless
Odour	:	slight
Odour Threshold	:	No data is available on the product itself.

Melting point/freezing point	:	No data is available on the product itself.
Boiling point	:	No data is available on the product itself.
Flammability (solid, gas)	:	No data is available on the product itself.
Lower explosion limit / Lower flammability limit	:	No data is available on the product itself.
Upper explosion limit / Upper flammability limit	:	No data is available on the product itself.
Flash point	:	23 °C Method: Pensky-Martens closed cup
Auto-ignition temperature	:	No data is available on the product itself.
Decomposition temperature	:	> 200 °C
pH	:	substance/mixture is non-soluble (in water)
Viscosity		
Viscosity, dynamic	:	20 mPa.s (25 °C)
Solubility(ies)		
Water solubility	:	insoluble (20 °C)
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Vapour pressure	:	< 19 hPa (20 °C)
Density	:	0,95 g/cm3 (25 °C)
Relative density	:	No data is available on the product itself.
Relative vapour density	:	No data is available on the product itself.
Particle characteristics	:	No data is available on the product itself.

9.2 Other information

No data is available on the product itself.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Conditions to avoid : Heat, flames and sparks.

10.5 Incompatible materials

Materials to avoid : Strong acids and strong bases
Strong oxidizing agents

None known.

10.6 Hazardous decomposition products

Carbon oxides
Burning produces noxious and toxic fumes.
No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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

Acute toxicity

Not classified due to lack of data.

Product:

Acute oral toxicity : Acute toxicity estimate: > 2 000 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Calculation method

Acute dermal toxicity : Acute toxicity estimate: > 2 000 mg/kg
Method: Calculation method

Components:

4-hydroxy-4-methylpentan-2-one:

Acute oral toxicity : LD50 (Rat, male and female): 3 002 mg/kg
Method: OECD Test Guideline 401
GLP: no

Acute inhalation toxicity : LC0 (Rat, male and female): >= 7,6 mg/l

Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): 13 750 mg/kg

LD50 (Rat, male and female): 2ml/kg
Method: OECD Test Guideline 402

1-methoxy-2-propanol:

Acute oral toxicity : LD50 (Rat, male and female): 4 016 mg/kg
Method: Directive 67/548/EEC, Annex V, B.1.
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat, male and female): > 7000 ppm
Exposure time: 6 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rat, male and female): > 2 000 mg/kg
Method: Directive 67/548/EEC, Annex V, B.3.
Assessment: The substance or mixture has no acute dermal toxicity

butan-1-ol:

Acute oral toxicity : Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC0 (Rat, male and female): > 17,76 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, male): 3 430 mg/kg
Method: OECD Test Guideline 402

formaldehyde:

Acute oral toxicity : LD50 (Rat, male): 640 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): < 463 ppm
Exposure time: 4 h
Test atmosphere: vapour
Method: OECD Test Guideline 403
GLP: yes
Assessment: The component/mixture is toxic after short term inhalation.

Acute dermal toxicity : LD50 (Rabbit): 270 mg/kg
Assessment: The component/mixture is toxic after single

contact with skin.

phthalic anhydride:

Acute oral toxicity	:	LD50 (Rat, male): 1 530 mg/kg Assessment: The component/mixture is moderately toxic after single ingestion.
Acute inhalation toxicity	:	LC50 (Rat, male and female): > 2,14 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: OECD Test Guideline 403 GLP: yes Assessment: The substance or mixture has no acute inhalation toxicity

Skin corrosion/irritation

Not classified due to lack of data.

Components:

4-hydroxy-4-methylpentan-2-one:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

1-methoxy-2-propanol:

Species	:	Rabbit
Assessment	:	No skin irritation
Method	:	Directive 67/548/EEC, Annex V, B.4.
Result	:	No skin irritation

butan-1-ol:

Species	:	Rabbit
Assessment	:	Irritant
Result	:	Irritating to skin.

formaldehyde:

Species	:	Rabbit
Assessment	:	Causes burns.
Method	:	OECD Test Guideline 404
Result	:	Corrosive after 3 minutes to 1 hour of exposure

phthalic anhydride:

Species	:	Rabbit
Assessment	:	Irritating to skin.
Result	:	Skin irritation

Serious eye damage/eye irritation

Causes serious eye damage.

Components:

4-hydroxy-4-methylpentan-2-one:

Species	:	Rabbit
Assessment	:	Irritant
Method	:	OECD Test Guideline 405
Result	:	Irritating to eyes.

1-methoxy-2-propanol:

Species	:	Rabbit
Assessment	:	No eye irritation
Method	:	Directive 67/548/EEC, Annex V, B.5.
Result	:	No eye irritation

propan-1-ol:

Species	:	Rabbit
Assessment	:	Corrosive
Method	:	OECD Test Guideline 405
Result	:	Irreversible effects on the eye

butan-1-ol:

Species	:	Rabbit
Method	:	OECD Test Guideline 405
Result	:	Risk of serious damage to eyes.

formaldehyde:

Assessment	:	Risk of serious damage to eyes.

phthalic anhydride:

Species	:	Rabbit
Assessment	:	Risk of serious damage to eyes.
Result	:	Risk of serious damage to eyes.
GLP	:	no

Respiratory or skin sensitisation

Skin sensitisation

Not classified due to lack of data.

Respiratory sensitisation

Not classified due to lack of data.

Components:

4-hydroxy-4-methylpentan-2-one:

Test Type	:	Maximisation Test
Exposure routes	:	Skin
Species	:	Guinea pig
Method	:	OECD Test Guideline 406

Result : Did not cause sensitisation on laboratory animals.

1-methoxy-2-propanol:

Test Type : Maximisation Test
Exposure routes : Skin
Species : Guinea pig
Method : Directive 67/548/EEC, Annex V, B.6.
Result : Does not cause skin sensitisation.

formaldehyde:

Exposure routes : Skin
Species : Guinea pig
Assessment : Probability or evidence of low to moderate skin sensitisation rate in humans
Method : OECD Test Guideline 406
Result : Probability or evidence of low to moderate skin sensitisation rate in humans

Test Type : Local lymph node assay (LLNA)
Exposure routes : Respiratory Tract
Species : Mouse
Assessment : Did not cause sensitisation on laboratory animals.
Result : Did not cause sensitisation on laboratory animals.

Assessment : May cause sensitisation by skin contact.

phthalic anhydride:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Respiratory Tract
Species : Guinea pig
Assessment : May cause sensitisation by inhalation.
Result : May cause sensitisation by inhalation.

Test Type : Maximisation Test
Exposure routes : Skin
Species : Guinea pig
Assessment : Probability or evidence of high skin sensitisation rate in humans
Method : OECD Test Guideline 406
Result : Probability or evidence of high skin sensitisation rate in humans

Germ cell mutagenicity

Not classified due to lack of data.

Components:

4-hydroxy-4-methylpentan-2-one:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Germ cell mutagenicity-Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

1-methoxy-2-propanol:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negative

Test Type: Ames test
Test system: Salmonella typhimurium
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: negative
Method: OECD Test Guideline 476
Result: negative

butan-1-ol:

Genotoxicity in vitro : Concentration: 740 µg/L
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Metabolic activation: negative
Result: negative

formaldehyde:

Genotoxicity in vitro : Test Type: unscheduled DNA synthesis assay
Result: positive

Test Type: unscheduled DNA synthesis assay
Result: positive

Test Type: gene mutation test
Test system: Chinese hamster lung cells

Concentration: 0, 3.75, 7.5, 15 µg/mL
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 476
Result: positive

Test Type: reverse mutation assay
Test system: Salmonella typhimurium
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 471
Result: positive

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: positive

Genotoxicity in vivo : Cell type: Germ + somatic
Result: Positive results were obtained in some in vivo tests.

Test Type: in vivo assay
Species: Rat (male)
Application Route: inhalation (vapour)
Dose: 0.7/2/5.8/9.1 ppm
Result: negative

Test Type: in vivo assay
Species: Rat (male)
Application Route: inhalation (vapour)
Dose: 0.7/2/5.8/9.1 ppm
Result: negative

Test Type: in vivo assay
Species: Rat (male)
Application Route: inhalation (gas)
Dose: 0.7/2/5.8/9.1/15.2 ppm
Result: positive

Germ cell mutagenicity-Assessment : Positive result(s) from in vivo non-mammalian somatic cell mutagenicity tests, supported by positive results from in vitro mutagenicity assays.

phthalic anhydride:

Genotoxicity in vitro : Test Type: reverse mutation assay
Test system: Salmonella tryphimurium and E. coli
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

Test Type: sister chromatid exchange assay
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

GLP: yes

Test Type: gene mutation test
Test system: Chinese hamster lung cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative
GLP: yes

Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mouse (male)
Cell type: Bone marrow
Application Route: Intraperitoneal injection
Method: OECD Test Guideline 474
Remarks: Information given is based on data obtained from similar substances.

Carcinogenicity

May cause cancer.

Components:

4-hydroxy-4-methylpentan-2-one:

Species	:	Rat
Application Route	:	Inhalation
Result	:	negative
Remarks	:	Information given is based on data obtained from similar substances.

1-methoxy-2-propanol:

Species	:	Mouse, male and female
Application Route	:	inhalation (vapour)
Exposure time	:	24 month(s)
Dose	:	300, 1000, 3000 ppm
Frequency of Treatment	:	5 daily
Method	:	OECD Test Guideline 453
Result	:	negative

formaldehyde:

Species	:	Rat, male
Application Route	:	Inhalation
Exposure time	:	24 month(s)
Dose	:	6 ppm
Frequency of Treatment	:	6 hour
Result	:	positive

Carcinogenicity - Assessment : Sufficient evidence of carcinogenicity in inhalation studies with animals

phthalic anhydride:

Species	:	Rat, male and female
Application Route	:	Oral
Exposure time	:	105 weeks
Dose	:	0/500/1000 mg/kg
Frequency of Treatment	:	7 daily
NOAEL	:	1 000 mg/kg body weight
Result	:	negative

Species	:	Mouse, male and female
Application Route	:	Oral
Exposure time	:	104 weeks
Frequency of Treatment	:	7 daily
NOAEL	:	1 785 - 3 570 mg/kg body weight
Result	:	negative

Reproductive toxicity

Suspected of damaging fertility. Suspected of damaging the unborn child.

Components:

4-hydroxy-4-methylpentan-2-one:

Effects on fertility	:	Species: Rat, male and female Application Route: Oral Dose: 30, 100, 300, 1000 mg/kg bw/d General Toxicity - Parent: NOAEL: 300 mg/kg body weight Method: OECD Test Guideline 422 Result: Some evidence of adverse effects on development, based on animal experiments.
Effects on foetal development	:	Species: Rabbit General Toxicity Maternal: NOAEL: 300 mg/kg body weight Developmental Toxicity: NOAEL: 100 mg/kg body weight Method: OECD Test Guideline 414 Result: No teratogenic effects
Reproductive toxicity - Assessment	:	Suspected of damaging fertility. Suspected of damaging the unborn child., Some evidence of adverse effects on development, based on animal experiments.

1-methoxy-2-propanol:

Effects on fertility	:	Species: Rat, male and female Application Route: inhalation (vapour) Dose: 300, 1000, 3000 ppm Frequency of Treatment: 1 daily Method: OECD Test Guideline 416 Result: No effects on fertility and early embryonic development were detected.
Effects on foetal development	:	Species: Rat, female Application Route: Inhalation Dose: 0, 500, 1500, 3000 ppm Duration of Single Treatment: 21 Days Frequency of Treatment: 1 daily

General Toxicity Maternal: NOAEL: 1 500 ppm
Method: OECD Test Guideline 414
Result: Not classified due to inconclusive data.

Species: Rabbit, female
Application Route: Inhalation
Dose: 0, 500, 1500, 3000 ppm
Duration of Single Treatment: 29 Days
Frequency of Treatment: 1 daily
General Toxicity Maternal: NOAEL: 1 500 ppm
Method: OECD Test Guideline 414
Result: No teratogenic effects

butan-1-ol:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Result: No effects on fertility and early embryonic development were detected.

Effects on foetal development : Species: Rat, female
Application Route: Oral
General Toxicity Maternal: NOAEL: 1 454 mg/kg body weight
Result: No teratogenic effects

formaldehyde:

Effects on foetal development : Test Type: Pre-natal
Species: Rat, female
Application Route: inhalation (gas)
Dose: 2/5/10 ppm
Duration of Single Treatment: 10 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: NOAEC: 5 ppm
Developmental Toxicity: NOAEC: 10 ppm
Method: OECD Test Guideline 414
Result: No teratogenic effects

Test Type: Pre-natal
Species: Dog, female
Application Route: Oral
Dose: 3.1 and 9.4 mg/kg bw/day
Duration of Single Treatment: 50 d
General Toxicity Maternal: LOAEL: > 9,4 mg/kg body weight
Developmental Toxicity: LOAEL: > 9,4 mg/kg body weight
Method: OECD Test Guideline 414

phthalic anhydride:

Effects on foetal development : Species: Rat, female
Application Route: Oral
Dose: 1021/1763/2981 milligram per kilogram
General Toxicity Maternal: NOAEL: ca. 1 021 mg/kg body weight
Developmental Toxicity: NOAEL: 1 763 mg/kg body weight
Result: No teratogenic effects

Remarks: Information given is based on data obtained from similar substances.

STOT - single exposure

May cause respiratory irritation.
May cause drowsiness or dizziness.

Components:

4-hydroxy-4-methylpentan-2-one:

Exposure routes	:	Inhalation
Assessment	:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation.

1-methoxy-2-propanol:

Exposure routes	:	Inhalation
Target Organs	:	Central nervous system
Assessment	:	May cause drowsiness or dizziness.

propan-1-ol:

Exposure routes	:	Inhalation
Target Organs	:	Central nervous system
Assessment	:	The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

butan-1-ol:

Exposure routes	:	Inhalation
Target Organs	:	Respiratory Tract, Narcotic effects
Assessment	:	May cause respiratory irritation., May cause drowsiness or dizziness.

phthalic anhydride:

Exposure routes	:	Inhalation
Target Organs	:	Respiratory Tract
Assessment	:	May cause respiratory irritation.

STOT - repeated exposure

Not classified due to lack of data.

Repeated dose toxicity

Components:

4-hydroxy-4-methylpentan-2-one:

Species	:	Rat, male and female
NOAEL	:	600 mg/kg
Application Route	:	Inhalation
Exposure time	:	6 weeks
Method	:	OECD Test Guideline 408
Target Organs	:	Liver, Kidney

NOAEL	:	1041 mg/m3
Application Route	:	Inhalation

Species	:	Rat
Application Route	:	Oral
Exposure time	:	8 weeks
Method	:	OECD Test Guideline 408
Target Organs	:	Liver, Kidney

1-methoxy-2-propanol:

Species	:	Rat, male
NOAEL	:	919 mg/kg
LOAEL	:	2 757 mg/kg
Application Route	:	oral (gavage)
Exposure time	:	35 days
Number of exposures	:	5 days/week
Method	:	Subacute toxicity

Species	:	Rat, male and female
NOAEL	:	1000 ppm
Application Route	:	Inhalation
Test atmosphere	:	vapour
Exposure time	:	13 weeks
Number of exposures	:	6 hours/day; 5 days/week
Dose	:	300, 1000 and 3000 ppm
Method	:	OECD Test Guideline 413

Species	:	Rabbit, male and female
NOAEL	:	1000 ppm
Application Route	:	Inhalation
Test atmosphere	:	vapour
Exposure time	:	13 weeks
Number of exposures	:	6 hours/day; 5 days/week
Dose	:	300, 1000 and 3000 ppm
Method	:	OECD Test Guideline 413

Species	:	Rat, male and female
NOAEL	:	300 ppm
Application Route	:	Inhalation
Test atmosphere	:	vapour
Exposure time	:	52 weeks
Number of exposures	:	6 hours/day, 5 days/week
Dose	:	300, 1000 and 3000 ppm
Method	:	OECD Test Guideline 453

Species	:	Rabbit, male and female
NOAEL	:	> 1000 mg/kg
Application Route	:	Dermal
Exposure time	:	21 days
Number of exposures	:	1 application/day
Dose	:	1000 mg/kg
Method	:	OECD Test Guideline 410

butan-1-ol:

Species	:	Rat, male and female
NOAEL	:	125 mg/kg
Application Route	:	Ingestion
Method	:	Subchronic toxicity

formaldehyde:

Species	:	Rat, male and female
NOAEL	:	82 mg/kg
Application Route	:	oral (drinking water)
Exposure time	:	103 Weeks
Number of exposures	:	7 days/week
Dose	:	5/25/125 mg/kg bw/day
Method	:	OECD Test Guideline 453
Target Organs	:	Gastrointestinal tract, Stomach

phthalic anhydride:

Species	:	Rat, male and female
NOAEL	:	500 mg/kg
Application Route	:	oral (feed)
Exposure time	:	105 Weeks
Number of exposures	:	daily
Dose	:	0/500/1000 mg/kg bw/day

Aspiration toxicity

Not classified due to lack of data.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment	:	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

Experience with human exposure

No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Product:

Remarks	:	Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects.

Solvents may degrease the skin.

SECTION 12: Ecological information

12.1 Toxicity

Components:

4-hydroxy-4-methylpentan-2-one:

Toxicity to fish	:	LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203 GLP: yes
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 1 000 mg/l Exposure time: 48 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 202 GLP: yes
Toxicity to algae/aquatic plants	:	NOEC (Pseudokirchneriella subcapitata (green algae)): 1 000 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes EC50 (Pseudokirchneriella subcapitata (green algae)): > 1 000 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes
Toxicity to microorganisms	:	EC50 (activated sludge): > 1 000 mg/l Exposure time: 3 h Test Type: static test Method: OECD Test Guideline 209
Toxicity to fish (Chronic toxicity)	:	GLP: yes
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 100 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 211

1-methoxy-2-propanol:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): > 1 000 mg/l Exposure time: 96 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	LC50 (Daphnia magna (Water flea)): 23 300 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: Other guidelines
Toxicity to algae/aquatic plants	:	EgC50 (Selenastrum capricornutum (green algae)): > 1 000 mg/l Exposure time: 168 h Test Type: static test Test substance: Fresh water
Toxicity to microorganisms	:	IC50 : > 1 000 mg/l Exposure time: 3 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209

1,3,5-Triazine-2,4,6-triamine, polymer with formaldehyde, butylated:

Ecotoxicology Assessment

Chronic aquatic toxicity	:	May cause long lasting harmful effects to aquatic life.

propan-1-ol:

Toxicity to fish	:	LC50 : 4 630 mg/l Exposure time: 96 h

butan-1-ol:

Toxicity to algae/aquatic plants	:	IC50 : 8 500 mg/l Exposure time: 72 h

formaldehyde:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 24,1 mg/l End point: mortality Exposure time: 96 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia pulex (Water flea)): 5,8 mg/l End point: Immobilization Exposure time: 48 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants	:	ErC50 (Desmodesmus subspicatus (green algae)): 4,89 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201 EC50 (Desmodesmus subspicatus (green algae)): 3,48 mg/l Exposure time: 72 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 201
Toxicity to microorganisms	:	EC50 (Bacteria): 20,4 mg/l Exposure time: 120 h Test Type: static test Test substance: Fresh water Method: OECD Test Guideline 209
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 1,04 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Test substance: Fresh water Method: OECD Test Guideline 211

phthalic anhydride:

Toxicity to fish	:	LC50 (Brachydanio rerio (zebrafish)): 560 mg/l Exposure time: 168 h Test Type: semi-static test Test substance: Fresh water Method: OECD Test Guideline 210 GLP: no
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 640 mg/l Exposure time: 48 h Test Type: static test Test substance: Fresh water GLP: yes Remarks: Information given is based on data obtained from similar substances.
Toxicity to algae/aquatic plants	:	NOEC (Desmodesmus subspicatus (green algae)): >= 100 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Test substance: Fresh water Method: OECD Test Guideline 201 GLP: yes Remarks: Information given is based on data obtained from similar substances.
Toxicity to microorganisms	:	EC50 (activated sludge): > 1 000 mg/l Exposure time: 3 h

Test Type: static test
Test substance: Fresh water
Method: ISO 8192
GLP: no

EC50 (Pseudomonas putida): 213 mg/l
Exposure time: 16 h
Test Type: static test
Test substance: Fresh water
Method: ISO Method, other

Toxicity to fish (Chronic toxicity) : NOEC: 10 mg/l
Exposure time: 60 d
Species: Oncorhynchus mykiss (rainbow trout)
Test Type: semi-static test
Analytical monitoring: no
Test substance: Fresh water
Method: OECD Test Guideline 210
GLP: no

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: 16 mg/l
Exposure time: 21 d
Species: Daphnia magna (Water flea)
Test substance: Fresh water
Method: OECD Test Guideline 211
GLP: yes

Plant toxicity : EC50: 731 mg/l
Exposure time: 72 h
Species: Lactuca sativa (lettuce)

12.2 Persistence and degradability

Components:

4-hydroxy-4-methylpentan-2-one:

Biodegradability : Test Type: aerobic
Inoculum: activated sludge
Concentration: 57,5 mg/l
Result: Readily biodegradable.
Biodegradation: 98,51 %
Related to: Dissolved organic carbon (DOC)
Exposure time: 28 d
Method: OECD Test Guideline 301A

1-methoxy-2-propanol:

Biodegradability : Test Type: aerobic
Inoculum: see user defined free text
Result: Readily biodegradable.
Biodegradation: 96 %
Exposure time: 28 d
Method: OECD Test Guideline 301E

butan-1-ol:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: > 60 % Exposure time: 28 d

formaldehyde:

Biodegradability	:	Test Type: anaerobic Inoculum: activated sludge Concentration: 1 360 mg/l Result: Readily biodegradable. Biodegradation: 100 % Exposure time: 4 d Test substance: Fresh water Test Type: aerobic Inoculum: Sewage (STP effluent) Result: Readily biodegradable. Biodegradation: 99 % Related to: Dissolved organic carbon (DOC) Exposure time: 28 d Method: OECD Test Guideline 303A Test substance: Fresh water
Biochemical Oxygen Demand (BOD)	:	0,33 - 1,07 mg/l Incubation time: 5 d
Chemical Oxygen Demand (COD)	:	1.07 mgO2/g

phthalic anhydride:

Biodegradability	:	Test Type: aerobic Inoculum: Mixture Concentration: 100 mg/l Result: Readily biodegradable. Biodegradation: 85,2 % Exposure time: 14 d Method: OECD Test Guideline 301C GLP: yes Test Type: aerobic Inoculum: Domestic sewage Concentration: 3 mg/l Result: Readily biodegradable. Biodegradation: 74 % Exposure time: 30 d Method: OECD Test Guideline 301D GLP: no Inoculum: activated sludge Result: Inherently biodegradable. Biodegradation: 88 % Exposure time: 1 d
Stability in water	:	Degradation half life (DT50): 0,7 h (25 °C) pH: 4

Remarks: Fresh water

Degradation half life (DT50): 0,3 h (25 °C)
pH: 7
Remarks: Fresh water

Degradation half life (DT50): 0,02 h (25 °C)
pH: 9
Remarks: Fresh water

Photodegradation : Test Type: Water
Degradation (direct photolysis): 50 %
Test substance: Marine water

Test Type: Water
Degradation (direct photolysis): 50 %

Test Type: Air
Degradation (direct photolysis): 50 %

Test Type: Air
Degradation (direct photolysis): 50 %
Test substance: Marine water

Degradation (direct photolysis): 50 %

12.3 Bioaccumulative potential

Components:

4-hydroxy-4-methylpentan-2-one:

Bioaccumulation : Remarks: Does not bioaccumulate.

Partition coefficient: n-octanol/water : log Pow: -0,09
Method: QSAR
GLP: no

1-methoxy-2-propanol:

Bioaccumulation : Bioconcentration factor (BCF): 0,25

Partition coefficient: n-octanol/water : log Pow: 0,43

butan-1-ol:

Partition coefficient: n-octanol/water : log Pow: 0,8 - 0,9

formaldehyde:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): < 1
Remarks: Does not bioaccumulate.

Partition coefficient: n- : log Pow: 0,35 (25 °C)

octanol/water

phthalic anhydride:

Bioaccumulation : Bioconcentration factor (BCF): 5,28
Method: No information available.
Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

Bioconcentration factor (BCF): 0,01

Partition coefficient: n-octanol/water : log Pow: 2,07 (25 °C)
Method: QSAR
GLP: no

12.4 Mobility in soil

Components:

1-methoxy-2-propanol:

Distribution among environmental compartments : Koc: 0,21

butan-1-ol:

Distribution among environmental compartments : Koc: 71,6

formaldehyde:

Distribution among environmental compartments : Koc: 15,9, log Koc: 1,202
Method: Calculation method

phthalic anhydride:

Mobility : Medium: Air
Content: 0 %

: Medium: Water
Content: 99,91 %

: Medium: Soil
Content: 0,04 %

: Medium: Sediment
Content: 0,04 %

: Content: 0 %

: Medium: Biota
Content: 0 %

: Content: 0 %

Distribution among : Koc: 2 - 31

environmental compartments | Method: OECD Test Guideline 106

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Components:

phthalic anhydride:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of contents and container in accordance with all local, regional, national and international regulations.
Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with chemical or used container.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.
Do not burn, or use a cutting torch on, the empty drum.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : UN 1987

ADR : UN 1987

RID : UN 1987

IMDG	:	UN 1987
IATA	:	UN 1987

14.2 UN proper shipping name

ADN	:	ALCOHOLS, N.O.S. (1-Methoxy-2-propanol, Propyl alcohol)
ADR	:	ALCOHOLS, N.O.S. (1-Methoxy-2-propanol, Propyl alcohol)
RID	:	ALCOHOLS, N.O.S. (1-Methoxy-2-propanol, Propyl alcohol)
IMDG	:	ALCOHOLS, N.O.S. (1-Methoxy-2-propanol, Propyl alcohol)
IATA	:	Alcohols, n.o.s. (1-Methoxy-2-propanol, Propyl alcohol)

14.3 Transport hazard class(es)

		Class	Subsidiary risks
ADN	:	3	
ADR	:	3	
RID	:	3	
IMDG	:	3	
IATA	:	3	

14.4 Packing group

ADN

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3

ADR

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3
Tunnel restriction code	:	(D/E)

RID

Packing group	:	III
Classification Code	:	F1
Hazard Identification Number	:	30
Labels	:	3

IMDG

Packing group	:	III
Labels	:	3
EmS Code	:	F-E, S-D

IATA (Cargo)

Packing instruction (cargo aircraft)	:	366

Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

IATA (Passenger)
Packing instruction (passenger aircraft) : 355
Packing instruction (LQ) : Y344
Packing group : III
Labels : Flammable Liquids

14.5 Environmental hazards

ADN
Environmentally hazardous : no

ADR
Environmentally hazardous : no

RID
Environmentally hazardous : no

IMDG
Marine pollutant : no

14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : This product does not contain substances of very high concern.

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) : Conditions of restriction for the following entries should be considered:
Number on list 75, 3

If you intend to use this product as tattoo ink, please contact your vendor.

formaldehyde (Number on list 72, 28)

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	P5c	FLAMMABLE LIQUIDS

Occupational Illnesses (R-461-3, France)	:	84, 43bis, 66bis, 66, 51
Installations classified for the protection of the environment (Environment Code R511-9)	:	4331

Other regulations:

Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.

Take note of Directive 94/33/EC on the protection of young people at work or stricter national regulations, where applicable.

The components of this product are reported in the following inventories:

DSL	:	All components of this product are on the Canadian DSL
AIIC	:	All components are listed on the inventory, regulatory obligations/restrictions apply. Please contact your sales representative for more information before import into Australia
ENCS	:	On the inventory, or in compliance with the inventory
KECI	:	On the inventory, or in compliance with the inventory
PICCS	:	On the inventory, or in compliance with the inventory
IECSC	:	On the inventory, or in compliance with the inventory
TCSI	:	On the inventory, or in compliance with the inventory
TSCA	:	All substances listed as active on the TSCA inventory

Inventories

AICS (Australia), AIIC (Australia), DSL (Canada), IECSC (China), ENCS (Japan), KECI (Korea), NZIOC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States of America (USA))

15.2 Chemical safety assessment

Chemical Safety Assessments for all substances in this product are either Complete or Not applicable.

SECTION 16: Other information

Full text of H-Statements

H225	:	Highly flammable liquid and vapour.
H226	:	Flammable liquid and vapour.
H301	:	Toxic if swallowed.
H302	:	Harmful if swallowed.
H311	:	Toxic in contact with skin.
H314	:	Causes severe skin burns and eye damage.
H315	:	Causes skin irritation.
H317	:	May cause an allergic skin reaction.
H318	:	Causes serious eye damage.
H319	:	Causes serious eye irritation.
H331	:	Toxic if inhaled.
H334	:	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	:	May cause respiratory irritation.
H336	:	May cause drowsiness or dizziness.
H341	:	Suspected of causing genetic defects.
H350	:	May cause cancer.
H361fd	:	Suspected of damaging fertility. Suspected of damaging the unborn child.
H413	:	May cause long lasting harmful effects to aquatic life.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Carc.	:	Carcinogenicity
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Flam. Liq.	:	Flammable liquids
Muta.	:	Germ cell mutagenicity
Repr.	:	Reproductive toxicity
Resp. Sens.	:	Respiratory sensitisation
Skin Corr.	:	Skin corrosion
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure
2000/39/EC	:	Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2004/37/EC	:	Europe. Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
FR VLE	:	France. Occupational Exposure Limits
2000/39/EC / TWA	:	Limit Value - eight hours
2000/39/EC / STEL	:	Short term exposure limit
2004/37/EC / STEL	:	Short term exposure limit
2004/37/EC / TWA	:	Long term exposure limit

FR VLE / VME : Time Weighted Average
FR VLE / VLCT (VLE) : Short Term Exposure Limit

Further information

Classification of the mixture:		**Classification procedure:**
Flam. Liq. 3	H226	Based on product data or assessment
Eye Dam. 1	H318	Calculation method
Carc. 1B	H350	Calculation method
Repr. 2	H361fd	Calculation method
STOT SE 3	H336	Calculation method
STOT SE 3	H335	Calculation method

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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