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**NAUTILUS EPOXY PRIMER WHITE component A** SAFETY DATA SHEET - April 2023 - batch n° 142-BC

Revision n. 9 - Dated 04/19/2023

La principale via di entrata è quella cutanea, mentre quella respiratoria è meno importante, data la bassa tensione di vapore del prodotto.

### Information on likely routes of exposure

Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

#### XYLENE (MIXTURE OF ISOMERS)

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; inhalation of ambient air.

#### 1-METOSI-2-PROPANOLO

LAVORATORI: inalazione; contatto con la cute.

POPOLAZIONE: ingestione di cibo o di acqua contaminati; inalazione aria ambiente; contatto con la cute di prodotti contenenti la sostanza.

#### 1-methyl-2-methoxy acetate

LAVORATORI: inalazione; contatto con la cute.

#### N-BUTYL ACETATE

WORKERS: inhalation; contact with the skin.

#### 4-HYDROXY-4-METHYLPENTAN-2-ONE

WORKERS: inhalation; contact with the skin.

#### ETHYLBENZENE

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

#### METHANOL

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

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

#### XYLENE (MIXTURE OF ISOMERS)

Toxic effect on the central nervous system (encephalopathy); irritating for the skin, conjunctiva, cornea and respiratory apparatus.

#### 1-METOSI-2-PROPANOLO

La principale via di entrata è quella cutanea, mentre quella respiratoria è meno importante, data la bassa tensione di vapore del prodotto. Al di sopra di 100 ppm si ha irritazione delle mucose oculari, nasali e orofaringee. A 1000 ppm si notano turbe nell'equilibrio e irritazione severa agli occhi. Gli esami clinici e biologici praticati sui volontari esposti non hanno rivelato anomalie. L'acetato produce maggiore irritazione cutanea ed oculare per contatto diretto. Non vengono riportati effetti cronici sull'uomo.

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#### 1-methyl-2-methoxy acetate

Al di sopra di 100 ppm si ha irritazione delle mucose oculari, nasali e orofaringee. A 1000 ppm si notano turbe nell'equilibrio e irritazione severa agli occhi. Gli esami clinici e biologici praticati sui volontari esposti non hanno rivelato anomalie. L'acetato produce maggiore irritazione cutanea ed oculare per contatto diretto. Non vengono riportati effetti cronici sull'uomo (INCR, 2010).

#### N-BUTYL ACETATE

In humans, the substance's vapours cause irritation of the eyes and nose. In the event of repeated exposure, skin irritation, dermatitis (dryness and cracking of the skin) and keratitis appear.

#### 4-HYDROXY-4-METHYLPENTAN-2-ONE

Acute toxicity causes irritation of the eyes, nose and throat in humans at 100 ppm (476 mg/kg) and pulmonary disorders at 400 ppm. No chronic effects on humans have been reported. The substance may have a depressive effect on the respiratory centres and cause death from respiratory failure.

#### ETHYLBENZENE

As the counterparts of benzene, may have an acute effect on the central nervous system, with depression, narcosis, often preceded by dizziness and associated with headache (Ispesl). Is irritating for skin, conjunctiva and respiratory tract.

#### METHANOL

The minimum lethal dose for humans by ingestion is considered to be in the range from 300 to 1000 mg/kg. Ingestion of 4-10 ml of the substance may cause permanent blindness in adult humans (IPCS).

#### Interactive effects

#### XYLENE (MIXTURE OF ISOMERS)

Intake of alcohol interferes with the metabolism of the substance, inhibiting it. Ethanol consumption (0.8 g/kg) before a 4-hour exposure to xylene vapours (145 and 280 ppm) causes a 50% reduction in the excretion of methyl hippuric acid, whereas the concentration of xylenes in the blood increases approx. 1.5-2 times. At the same time there is an increase in the secondary side effects of the ethanol. The metabolism of the xylenes is increased by phenobarbital and 3-methyl-colantrene type enzyme inducers. Aspirin and xylenes mutually inhibit their conjugation with the glycine, which results in a decrease in urinary excretion of methyl hippuric acid. Other industrial products can interfere with the metabolism of xylenes.

#### N-BUTYL ACETATE

A case of acute intoxication been reported involving a 33 year old worker while cleaning a tank with a preparation containing xylenes, butyl acetate and ethylene glycol acetate. The person had irritation of the conjunctiva and upper respiratory tract, drowsiness and motor coordination disorders, which disappeared within 5 hours. The symptoms are attributed to poisoning by mixed xylenes and butyl acetate, with a possible synergistic effect responsible for the neurological effects. Cases of vacuolar keratitis are reported in workers exposed to a mixture of butyl acetate and isobutanol vapours, but with uncertainty concerning the responsibility of a particular solvent (INRC, 2011).

#### ACUTE TOXICITY

ATE (Inhalation - vapours) of the mixture:	> 20 mg/l
ATE (Oral) of the mixture:	Not classified (no significant component)
ATE (Dermal) of the mixture:	>2000 mg/kg

#### POLYMER EPOXY RESIN (BISPHENOL A EPICHLORHYDRINE) p.m. > 700

LD50 (Dermal):	> 2000 mg/kg RATTO
LD50 (Oral):	> 2000 mg/kg RATTO

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TITANIUM DIOXIDE [in powder form contain  
ing 1 % or more of particles with aerodynamic dia  
meter  $\leq 10 \mu\text{m}$ ]

LD50 (Oral): > 10000 mg/kg Rat  
LC50 (Inhalation vapours): > 343 mg/l/4h 3.43 - 6.82 RATTO

## XYLENE (MIXTURE OF ISOMERS)

LD50 (Dermal): > 5000 ml/kg Rabbit  
STA (Dermal): 1100 mg/kg estimate from table 3.1.2 of Annex I of the CLP  
(figure used for calculation of the acute toxicity estimate of the mixture)

LD50 (Oral): > 3523 mg/kg Rat  
LC50 (Inhalation vapours): 6700 ppm/4h Rat  
STA (Inhalation vapours): 11 mg/l estimate from table 3.1.2 of Annex I of the CLP  
(figure used for calculation of the acute toxicity estimate of the mixture)

## METILETILCHETONE

LD50 (Dermal): 6480 mg/kg Rabbit  
LD50 (Oral): 2737 mg/kg Rat  
LC50 (Inhalation vapours): 23,5 mg/l/8h Rat

## QUARTZ

LD50 (Oral): > 500 mg/kg

## ISOBUTYL ALCOHOL

LD50 (Dermal): 2460 mg/kg Rabbit  
LD50 (Oral): 2460 mg/kg Rat  
LC50 (Inhalation vapours): 19,2 mg/l/4h Rat

## 1-METOSSI-2-PROPANOLO

LD50 (Dermal): 13000 mg/kg Rabbit  
LD50 (Oral): 4016 mg/kg Rat  
LC50 (Inhalation vapours): 54,6 mg/l/4h Rat

## 1-methyl-2-methoxy acetate

LD50 (Dermal): > 3160 mg/kg Rat  
LD50 (Oral): 8500 mg/kg Rat  
LC50 (Inhalation vapours): 6193 mg/m<sup>3</sup>/4h Ratto

## Vinyl chloride copolymère

LD50 (Oral): > 2000 mg/kg RATTO

## N-BUTYL ACETATE

LD50 (Dermal): > 5000 mg/kg Rabbit  
LD50 (Oral): > 6400 mg/kg Rat  
LC50 (Inhalation vapours): 21,1 mg/l/4h Rat

## 4-HYDROXY-4-METHYLPENTAN-2-ONE



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LD50 (Dermal): > 1875 mg/kg RATTO  
LD50 (Oral): 3002 mg/kg Rat

#### CARBONIO AMORFO

LD50 (Oral): > 8000 mg/kg RATTO

#### FORMALDEHYDE

LD50 (Dermal): 270 mg/kg Rabbit  
LD50 (Oral): 100 mg/kg Rat  
LC50 (Inhalation vapours): 0,588 mg/l/4h Rat

#### ETHYLBENZENE

LD50 (Dermal): 15354 mg/kg Rabbit  
LD50 (Oral): 3500 mg/kg Rat  
LC50 (Inhalation vapours): 17,2 mg/l/4h Rat

#### METHANOL

LD50 (Dermal): 17100 mg/kg  
STA (Dermal): 300 mg/kg estimate from table 3.1.2 of Annex I of the CLP  
(figure used for calculation of the acute toxicity estimate of the mixture)  
LD50 (Oral): 100 mg/kg  
LC50 (Inhalation vapours): > 128,2 mg/l/4h ratto

#### SKIN CORROSION / IRRITATION

Causes skin irritation

#### SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

#### RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

#### GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

#### CARCINOGENICITY

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Does not meet the classification criteria for this hazard class

TITANIUM DIOXIDE [in powder form containing 1 % or more of particles with aerodynamic diameter  $\leq 10 \mu\text{m}$ ]

The classification as a carcinogen by inhalation applies only to mixtures in powder form containing 1% or more of titanium dioxide which is in the form of or incorporated in particles with aerodynamic diameter  $\leq 10 \mu\text{m}$ .

### XYLENE (MIXTURE OF ISOMERS)

Classified in Group 3 (not classifiable as a human carcinogen) by the International Agency for Research on Cancer (IARC).

The US Environmental Protection Agency (EPA) affirms that "the data is inadequate for an assessment of the carcinogenic potential".

### ETHYLBENZENE

Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2000).

Classified in Group D (not classifiable as a human carcinogen) by the US Environmental Protection Agency (EPA) - (US EPA file on-line 2014).

### REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

### STOT - SINGLE EXPOSURE

May cause drowsiness or dizziness

### STOT - REPEATED EXPOSURE

May cause damage to organs

### ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class Viscosity:  $>20,5 \text{ mm}^2/\text{sec}$  (40°C)

### 11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

## SECTION 12. Ecological information

Use this product according to good working practices. Avoid littering. Inform the competent authorities, should the product reach waterways or

contaminate soil or vegetation.

**12.1. Toxicity****XYLENE (MIXTURE OF ISOMERS)**

LC50 - for Fish 2,6 mg/l/96h

TITANIUM DIOXIDE [in powder form containing 1 % or more of particles with aerodynamic diameter  $\leq 10 \mu\text{m}$ ]

EC50 - for Crustacea &gt; 2,41 mg/l/48h 2.41 - 103.9

EC50 - for Algae / Aquatic Plants &gt; 3,58 mg/l/72h 3.58 - 100

**TALC**

LC50 - for Fish &gt; 89,581 g/l/96h 89.581 - 110 g/L

**1-methyl-2-methoxy acetate**LC50 - for Fish > 100 mg/l/96h *Oncorhynchus mykiss*EC50 - for Crustacea > 408 mg/l/48h *Daphnia magna*

EC50 - for Algae / Aquatic Plants &gt; 100 mg/l/72h

Chronic NOEC for Fish 47,5 mg/l *Oncorhynchus mykiss*Chronic NOEC for Crustacea > 99 mg/l *Daphnia magna*Chronic NOEC for Algae / Aquatic Plants > 999 mg/l *Selenastrum capricornutum***ISOBUTYL ALCOHOL**LC50 - for Fish > 1,43 mg/l/96h *Pimephales promelas*EC50 - for Crustacea > 1,1 mg/l/48h *Daphnia pulex*

EC50 - for Algae / Aquatic Plants &gt; 3,48 mg/l/72h DAFNIE

**ETHYLBENZENE**

LC50 - for Fish &gt; 4,2 mg/l/96h 4.2 - 5.1 mg/L

EC50 - for Crustacea &gt; 1,8 mg/l/48h 1.8 - 2.4 mg/L

EC50 - for Algae / Aquatic Plants &gt; 4,9 mg/l/72h 4.9 - 5.4 mg/L

**METHANOL**

LC50 - for Fish &gt; 15,4 mg/l/96h

**4-HYDROXY-4-METHYLPENTAN-2-ONE**LC50 - for Fish > 100 mg/l/96h *ORYZIAS LATIPES*

EC50 - for Crustacea &gt; 1000 mg/l/48h DAFNIA

EC50 - for Algae / Aquatic Plants > 1000 mg/l/72h *PSEUDOKIRCHNERIELLA SUBCAPITATA***FORMALDEHYDE**

LC50 - for Fish &gt; 6,7 mg/l/96h

EC50 - for Crustacea &gt; 5,8 mg/l/48h DAFNIE

EC50 - for Algae / Aquatic Plants &gt; 5,67 mg/l/72h

**METILETILCHETONE**LC50 - for Fish > 2,993 mg/l/96h *Pimephales promelas*EC50 - for Crustacea > 508 mg/l/48h *Daphnia Magna***N-BUTYL ACETATE**

LC50 - for Fish &gt; 18 mg/l/96h

EC50 - for Crustacea &gt; 32 mg/l/48h

EC50 - for Algae / Aquatic Plants &gt; 246 mg/l/72h

Oleic acid, compound with (Z)-N-octadec-9-enylpropane-1,3-diamine (2:1)

LC50 - for Fish &gt; 1,34 mg/l/96h

EC50 - for Algae / Aquatic Plants &gt; 410 µg/L

EC10 for Crustacea &gt; 1,35 mg/l/21d

EC10 for Algae / Aquatic Plants &gt; 323 µg/L 72 h

**CARBONIO AMORFO**LC50 - for Fish > 1000 mg/l/96h *Leuciscus idus*EC50 - for Algae / Aquatic Plants > 10000 mg/l/72h *Scenedesmus subspicatus* ; OCSE 201Chronic NOEC for Fish > 1000 mg/l *Leuciscus idus*Chronic NOEC for Algae / Aquatic Plants > 10000 mg/l *Scenedesmus subspicatus* ; OCSE 201**12.2. Persistence and degradability****XYLENE (MIXTURE OF ISOMERS)**

Solubility in water 100 - 1000 mg/l

Rapidly degradable

TITANIUM DIOXIDE [in powder form containing 1 % or more of particles with aerodynamic diameter  $\leq 10 \mu\text{m}$ ]

Solubility in water &lt; 0,001 mg/l

Degradability: information not available

**TALC**

Solubility in water &lt; 0,1 mg/l

**1-methyl-2-methoxy acetate**

Solubility in water &gt; 10000 mg/l

Rapidly degradable

**ISOBUTYL ALCOHOL**

Solubility in water &gt; 70 g/l

Rapidly degradable

**ETHYLBENZENE**

Solubility in water 1000 - 10000 mg/l

Rapidly degradable

**METHANOL**

Solubility in water &gt; 1000000 mg/l

Rapidly degradable

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

Solubility in water 1000 - 10000 mg/l

Rapidly degradable

**1-METOSI-2-PROPANOLO**

Solubility in water 1000 - 10000 mg/l

Rapidly degradable

**FORMALDEHYDE**

Solubility in water 55000 mg/l

Rapidly degradable

**METILETILCHETONE**

Solubility in water &gt; 10000 mg/l

Rapidly degradable

**N-BUTYL ACETATE**

Solubility in water 5.3 - 14 g/L @ 20 °C mg/l

Rapidly degradable

**CARBONIO AMORFO**

Solubility in water &gt; 1 mg/l

**12.3. Bioaccumulative potential****XYLENE (MIXTURE OF ISOMERS)**

Partition coefficient: n-octanol/water 3,12

BCF 25,9

**1-methyl-2-methoxy acetate**

Partition coefficient: n-octanol/water 1,2

**ISOBUTYL ALCOHOL**

Partition coefficient: n-octanol/water 0,76

**ETHYLBENZENE**

Partition coefficient: n-octanol/water 3,6

**METHANOL**

Partition coefficient: n-octanol/water -0,77

BCF 0,2

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

Partition coefficient: n-octanol/water -0,09

**1-METOSI-2-PROPANOLO**

Partition coefficient: n-octanol/water &lt; 1

**FORMALDEHYDE**

Partition coefficient: n-octanol/water 0,35

BCF &lt; 1

**METILETILCHETONE**

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Partition coefficient: n-octanol/water 0,3

### N-BUTYL ACETATE

Partition coefficient: n-octanol/water 2,3

BCF 15,3

## 12.4. Mobility in soil

### XYLENE (MIXTURE OF ISOMERS)

Partition coefficient: soil/water 2,73

### ISOBUTYL ALCOHOL

Partition coefficient: soil/water 0,31

### FORMALDEHYDE

Partition coefficient: soil/water 1,202

### N-BUTYL ACETATE

Partition coefficient: soil/water < 3

## 12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage  $\geq$  than 0,1%.

## 12.6. Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

## 12.7. Other adverse effects

Information not available

# SECTION 13. Disposal considerations

## 13.1. Waste treatment methods

Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations.

Waste transportation may be subject to ADR restrictions.

### CONTAMINATED PACKAGING

Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations.

**SECTION 14. Transport information****14.1. UN number or ID number**

1263

**14.2. UN proper shipping name**

ADR / RID: PAINT or PAINT RELATED MATERIAL  
 IMDG: PAINT or PAINT RELATED MATERIAL  
 IATA: PAINT or PAINT RELATED MATERIAL

**14.3. Transport hazard class(es)**

ADR / RID: Class: 3 Label: 3  
 IMDG: Class: 3 Label: 3  
 IATA: Class: 3 Label: 3

**14.4. Packing group**

ADR / RID, IMDG, IATA: II

**14.5. Environmental hazards**

ADR / RID: NO  
 IMDG: NO  
 IATA: NO

**14.6. Special precautions for user**

ADR / RID:	HIN - Kemler: 33	Limited Quantities: 5 L	Tunnel restriction code: (D/E)
	Special provision: 163, 367, 640D, 650		
IMDG:	EMS: F-E, S-E	Limited Quantities: 5 L	
IATA:	Cargo:	Maximum quantity: 60 L	Packaging instructions: 364
	Passengers:	Maximum quantity: 5 L	Packaging instructions: 353
	Special provision:	A3, A72, A192	

**14.7. Maritime transport in bulk according to IMO instruments**

Information not relevant



## SECTION 15. Regulatory information

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

Seveso Category - Directive 2012/18/EU: P5c

Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006

<u>Product</u>	
Point	3 - 40

Contained substance

Point	75
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Point	72	FORMALDEHYDE REACH Reg.: 01-2119488953-20-XXXX
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Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors

not applicable

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage  $\geq$  than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)

WGK 2: Hazard to waters



**15.2. Chemical safety assessment**

A chemical safety assessment has been performed for the following contained substances

XYLENE (MIXTURE OF ISOMERS)

METILETILCHETONE

ISOBUTYL ALCOHOL

1-METOSI-2-PROPANOLO

1-methyl-2-methoxy acetate

N-BUTYL ACETATE

4-HYDROXY-4-METHYLPENTAN-2-ONE

**SECTION 16. Other information**

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

<b>Flam. Liq. 2</b>	Flammable liquid, category 2
<b>Flam. Liq. 3</b>	Flammable liquid, category 3
<b>Carc. 1B</b>	Carcinogenicity, category 1B
<b>Carc. 2</b>	Carcinogenicity, category 2
<b>Muta. 2</b>	Germ cell mutagenicity, category 2
<b>Repr. 2</b>	Reproductive toxicity, category 2
<b>Acute Tox. 3</b>	Acute toxicity, category 3
<b>STOT SE 1</b>	Specific target organ toxicity - single exposure, category 1
<b>Acute Tox. 4</b>	Acute toxicity, category 4
<b>STOT RE 1</b>	Specific target organ toxicity - repeated exposure, category 1
<b>Asp. Tox. 1</b>	Aspiration hazard, category 1
<b>STOT RE 2</b>	Specific target organ toxicity - repeated exposure, category 2
<b>Skin Corr. 1B</b>	Skin corrosion, category 1B
<b>Eye Dam. 1</b>	Serious eye damage, category 1
<b>Eye Irrit. 2</b>	Eye irritation, category 2
<b>Skin Irrit. 2</b>	Skin irritation, category 2
<b>STOT SE 3</b>	Specific target organ toxicity - single exposure, category 3
<b>Skin Sens. 1</b>	Skin sensitization, category 1
<b>Aquatic Acute 1</b>	Hazardous to the aquatic environment, acute toxicity, category 1
<b>Aquatic Chronic 2</b>	Hazardous to the aquatic environment, chronic toxicity, category 2
<b>Aquatic Chronic 3</b>	Hazardous to the aquatic environment, chronic toxicity, category 3
<b>H225</b>	Highly flammable liquid and vapour.
<b>H226</b>	Flammable liquid and vapour.
<b>H350</b>	May cause cancer.
<b>H351</b>	Suspected of causing cancer.
<b>H341</b>	Suspected of causing genetic defects.
<b>H361</b>	Suspected of damaging fertility or the unborn child.



<b>H301</b>	Toxic if swallowed.
<b>H311</b>	Toxic in contact with skin.
<b>H331</b>	Toxic if inhaled.
<b>H370</b>	Causes damage to organs.
<b>H312</b>	Harmful in contact with skin.
<b>H332</b>	Harmful if inhaled.
<b>H372</b>	Causes damage to organs through prolonged or repeated exposure.
<b>H304</b>	May be fatal if swallowed and enters airways.
<b>H373</b>	May cause damage to organs through prolonged or repeated exposure.
<b>H314</b>	Causes severe skin burns and eye damage.
<b>H318</b>	Causes serious eye damage.
<b>H319</b>	Causes serious eye irritation.
<b>H315</b>	Causes skin irritation.
<b>H335</b>	May cause respiratory irritation.
<b>H317</b>	May cause an allergic skin reaction.
<b>H336</b>	May cause drowsiness or dizziness.
<b>H400</b>	Very toxic to aquatic life.
<b>H411</b>	Toxic to aquatic life with long lasting effects.
<b>H412</b>	Harmful to aquatic life with long lasting effects.
<b>EUH066</b>	Repeated exposure may cause skin dryness or cracking.
<b>EUH211</b>	Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

**LEGEND:**

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent bioaccumulative and toxic as REACH Regulation
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very Persistent and very Bioaccumulative as for REACH Regulation
- WGK: Water hazard classes (German).

**GENERAL BIBLIOGRAPHY**

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
  2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
  3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
  4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
  5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
  6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
  7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
  8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
  9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
  10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
  11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
  12. Regulation (EU) 2016/1179 (IX Atp. CLP)
  13. Regulation (EU) 2017/776 (X Atp. CLP)
  14. Regulation (EU) 2018/669 (XI Atp. CLP)
  15. Regulation (EU) 2019/521 (XII Atp. CLP)
  16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
  17. Regulation (EU) 2019/1148
  18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
  19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
  20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
  21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
  22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
- The Merck Index. - 10th Edition
  - Handling Chemical Safety
  - INRS - Fiche Toxicologique (toxicological sheet)
  - Patty - Industrial Hygiene and Toxicology
  - N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
  - IFA GESTIS website
  - ECHA website
  - Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

**Note for users:**

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

**CALCULATION METHODS FOR CLASSIFICATION**

Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

**Changes to previous review:**

The following sections were modified:

01 / 02 / 03 / 08 / 09 / 10 / 11 / 12 / 14 / 15 / 16.