

## Safety Data Sheet

### BSB MICA REFLEX BLUE

Safety Data Sheet dated 27/05/2024 version 6



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

### 1.1. Product identifier

Mixture identification:

Trade name: BSB MICA REFLEX BLUE

Trade code: LN610162

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

Recommended use: Coatings and paints, thinners, paint removers

Mono compound enamel - finish coat

Liquid pigmented dispersion

Professional uses

Uses advised against: N.A.

### 1.3. Details of the supplier of the safety data sheet

Company: Lechler SpA - Via Cecilio, 17 - 22100 Como - CO - Italy

Telephone: +39031586111

First Email: safety@lechler.eu

### 1.4. Emergency telephone number

UNITED KINGDOM: Emergency Number 0044 1606738600 - This telephone number is available during office hours only (8.45-16.45).

UNITED STATES OF AMERICA: Emergency Contact: Lechler SPA -Tel. +39-031-586301 (8.00-18.00).

## SECTION 2: Hazards identification



### 2.1. Classification of the substance or mixture

#### Regulation (EC) n. 1272/2008 (CLP)

Flam. Liq. 3 Flammable liquid and vapour.

Skin Irrit. 2 Causes skin irritation.

Eye Irrit. 2 Causes serious eye irritation.

STOT SE 3 May cause drowsiness or dizziness.

STOT RE 2 May cause damage to organs through prolonged or repeated exposure.

DECL10 This titanium dioxide-containing product is not classified as carcinogen by inhalation because it does not meet the criteria stated in Note 10, Annex VI of Regulation (EC) 1272/2008.

Note 10: 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  $\leq 10 \mu\text{m}$ .

Adverse physicochemical, human health and environmental effects:

No other hazards

### 2.2. Label elements

#### Regulation (EC) No 1272/2008 (CLP):

#### Hazard pictograms and Signal Word



Warning

#### Hazard statements

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.

#### Precautionary statements

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P370+P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.

#### Special Provisions:

EUH211	Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.
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#### Contains

n-butyl acetate  
2-ethoxy-1-methylethyl acetate  
2-methoxy-1-methylethyl acetate  
propan-2-ol

#### Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

#### 2.3. Other hazards

Results of PBT and vPvB assessment Not a PBT, vPvB substance as per the criteria of the REACH Regulation.  
Endocrine disrupting properties-Toxicity 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. Endocrine disrupting properties-Ecotoxicity 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.

Other Hazards: No other hazards

## SECTION 3: Composition/information on ingredients

### 3.1. Substances

N.A.

### 3.2. Mixtures

Mixture identification: BSB MICA REFLEX BLUE

#### Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number
≥40 - ≤50 %	n-butyl acetate	CAS:123-86-4 EC:204-658-1 Index:607-025-00-1	Flam. Liq. 3, H226; STOT SE 3, H336, EUH066	01-2119485493-29
≥12.5 - ≤15 %	xylene	CAS:1330-20-7 EC:215-535-7 Index:601-022-00-9	Flam. Liq. 3, H226; Acute Tox. 4, H332; Acute Tox. 4, H312; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT RE 2, H373; Asp. Tox. 1, H304; Aquatic Chronic 3, H412; STOT SE 3, H335	01-2119488216-32
≥5 - ≤7 %	2-ethoxy-1-methylethyl acetate	CAS:54839-24-6 EC:259-370-9 Index:603-177-00-8	Flam. Liq. 3, H226; STOT SE 3, H336	01-2119475116-39
≥3 - ≤5 %	titanium dioxide	CAS:13463-67-7 EC:236-675-5 Index:022-006-00-2	Not classified as hazardous	01-2119489379-17
≥3 - ≤5 %	mica	CAS:12001-26-2	Not classified as hazardous	

≥1 - ≤2.5 %	2-methoxy-1-methylethyl acetate	CAS:108-65-6 EC:203-603-9 Index:607-195-00-7	STOT SE 3, H336; Flam. Liq. 3, H226	01-2119475791-29
≥1 - ≤2.5 %	ethylbenzene	CAS:100-41-4 EC:202-849-4 Index:601-023-00-4	Flam. Liq. 2, H225; Acute Tox. 4, H332; Asp. Tox. 1, H304; STOT RE 2, H373	01-2119489370-35
≥1 - ≤2.5 %	propan-2-ol	CAS:67-63-0 EC:200-661-7 Index:603-117-00-0	Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	01-2119457558-25
< 0.1 %	tin dioxide	CAS:18282-10-5 EC:242-159-0	Substance with a Union workplace exposure limit.	01-2119946062-44
< 0.1 %	toluene	CAS:108-88-3 EC:203-625-9 Index:601-021-00-3	Flam. Liq. 2, H225; Asp. Tox. 1, H304; Repr. 2, H361d; STOT RE 2, H373; Skin Irrit. 2, H315; STOT SE 3, H336; Aquatic Chronic 3, H412	01-2119471310-51

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

Eye irritation

Eye damages

Skin Irritation

Erythema

### 4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media:

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

Extinguishing media which must not be used for safety reasons:

None in particular.

### 5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

### 5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

For non emergency personnel:

Wear personal protection equipment.  
Remove all sources of ignition.  
Remove persons to safety.  
See protective measures under point 7 and 8.

**For emergency responders:**

Wear personal protection equipment.

**6.2. Environmental precautions**

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.  
Retain contaminated washing water and dispose it.  
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.  
Suitable material for taking up: absorbing material, organic, sand

**6.3. Methods and material for containment and cleaning up**

Suitable material for taking up: absorbing material, organic, sand  
Wash with plenty of water.

**6.4. Reference to other sections**

See also section 8 and 13

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**SECTION 7: Handling and storage**

**7.1. Precautions for safe handling**

Avoid contact with skin and eyes, inhalation of vapours and mists.  
Do not eat or drink while working.  
See also section 8 for recommended protective equipment.

**Advice on general occupational hygiene:**

**7.2. Conditions for safe storage, including any incompatibilities**

Always keep in a well ventilated place.  
Store at below 20 °C. Keep away from unguarded flame and heat sources. Avoid direct exposure to sunlight.  
Keep away from unguarded flame, sparks, and heat sources. Avoid direct exposure to sunlight.

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Cool and adequately ventilated.

**7.3. Specific end use(s)**

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

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**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Community Occupational Exposure Limits (OEL)**

	OEL Type	Country	Occupational Exposure Limit
n-butyl acetate CAS: 123-86-4	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 724 mg/m3 - 150 ppm; Short Term: 966 mg/m3 - 200 ppm
	EU		Long Term: 241 mg/m3 - 50 ppm; Short Term: 723 mg/m3 - 150 ppm Behaviour Indicative 2019/1831/EU
	ACGIH		Long Term: 50 ppm; Short Term: 150 ppm Eye and URT irr
xylene CAS: 1330-20-7	ACGIH		Long Term: 20 ppm A4, BEI - URT and eye irr; hematologic eff; CNS impair
	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 220 mg/m3 - 50 ppm; Short Term: 441 mg/m3 - 100 ppm Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to

titanium dioxide CAS: 13463-67-7	EU		Long Term: 221 mg/m3 - 50 ppm; Short Term: 442 mg/m3 - 100 ppm Behaviour Indicative 2000/39/EC
	EU		Identifies the possibility of significant uptake through the skin
	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m3 Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.
mica CAS: 12001-26-2	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 4 mg/m3 Where no specific short-term exposure limit is listed, a figure three times the long-term exposure limit should be used.
	ACGIH		Long Term: 0.2 mg/m3 Nanoscale particles; R ; A3 - LRT irr, pneumoconiosis
	ACGIH		Long Term: 2.5 mg/m3 Finescale particles; R ; A3 - LRT irr, pneumoconiosis
	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 10 mg/m3 For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected wh
	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 0.8 mg/m3 For the purposes of these limits, respirable dust and inhalable dust are those fractions of airborne dust which will be collected wh
2-methoxy-1-methylethyl acetate CAS: 108-65-6	ACGIH		Long Term: 0.1 mg/m3 R - Pneumoconiosis
	EU		Long Term: 275 mg/m3 - 50 ppm; Short Term: 550 mg/m3 - 100 ppm Behaviour Indicative 2000/39/EC
	EU		Identifies the possibility of significant uptake through the skin
ethylbenzene CAS: 100-41-4	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 274 mg/m3 - 50 ppm; Short Term: 548 mg/m3 - 100 ppm Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to
	EU		Long Term: 442 mg/m3 - 100 ppm; Short Term: 884 mg/m3 - 200 ppm Behaviour Indicative 2000/39/EC
	EU		Identifies the possibility of significant uptake through the skin
	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 441 mg/m3 - 100 ppm; Short Term: 552 mg/m3 - 125 ppm Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to
	ACGIH		Long Term: 20 ppm OTO; A3, BEI - URT & eye irr; ototoxicity; kidney eff; CNS impair
propan-2-ol CAS: 67-63-0	EH40	UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND	Long Term: 999 mg/m3 - 400 ppm; Short Term: 1250 mg/m3 - 500 ppm
	ACGIH		Long Term: 200 ppm; Short Term: 400 ppm A4, BEI - Eye and URT irr, CNS impair

tin dioxide  
CAS: 18282-10-5

ACGIH

Long Term: 2 mg/m<sup>3</sup>  
I - Pneumoconiosis

EH40 UNITED  
KINGDOM OF  
GREAT  
BRITAIN AND  
NORTHERN  
IRELAND

Long Term: 2 mg/m<sup>3</sup>; Short Term: 4 mg/m<sup>3</sup>

EU

Long Term: 2 mg/m<sup>3</sup>  
Behaviour Indicative  
91/322/EEC

EU

Existing scientific data on health effects appear to be particularly limited

EU

Tin

EU

Long Term: 192 mg/m<sup>3</sup> - 50 ppm; Short Term: 384 mg/m<sup>3</sup> - 100 ppm  
Behaviour Indicative  
2006/15/EC

toluene  
CAS: 108-88-3

EU

Identifies the possibility of significant uptake through the skin

EH40 UNITED  
KINGDOM OF  
GREAT  
BRITAIN AND  
NORTHERN  
IRELAND

Long Term: 191 mg/m<sup>3</sup> - 50 ppm; Short Term: 384 mg/m<sup>3</sup> - 100 ppm  
Can be absorbed through the skin. The assigned substances are those for which there  
are concerns that dermal absorption will lead to

### Biological limit values

xylene  
CAS: 1330-20-7

Biological Indicator: xylene; Sampling Period: End of turn  
Value: 1.5 mg/L; Medium: Blood  
Remark: Croatia. Biological Exposure Limits

Biological Indicator: Methylhippuric acid; Sampling Period: End of turn  
Value: 1.5 g/l; Medium: Urine  
Remark: New Zealand. Biological Exposure Indices

Biological Indicator: xylene; Sampling Period: End of turn  
Value: 1.5 mg/L; Medium: Blood  
Remark: Slovakia. Biological Limit Values

Biological Indicator: sum of 2,3,4-methylhippuric acid; Sampling Period: End of turn  
Value: 2000 mg/L; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: methylhippuric acid; Sampling Period: End of turn  
Value: 3 g/l; Medium: Urine  
Remark: Romania. Biological limit values

Biological Indicator: methylhippuric acid (all isomers); Sampling Period: End of turn  
Value: 2 g/l; Medium: Urine  
Remark: Slovenia. BAT-values

Biological Indicator: xylene; Sampling Period: Immediately after exposure or after working hours  
Value: 1.5 mg/L; Medium: Blood  
Remark: TRGS 903 - Biological limit values

Biological Indicator: methylhippuric acid (all isomers); Sampling Period: Immediately after exposure or  
after working hours  
Value: 2 g/l; Medium: Urine  
Remark: TRGS 903 - Biological limit values

Biological Indicator: Methylhippuric acid; Sampling Period: Last 4 hours of shift  
Value: 2 mg/L; Medium: Urine  
Remark: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.

Biological Indicator: total (o-, m-, p-)methylhippuric acid; Sampling Period: End of turn; End of working  
week  
Value: 800 mg/L; Medium: Urine  
Remark: Occupational exposure limits based on biological monitoring (JSOH).

Biological Indicator: methyl hippuric acid; Sampling Period: At the end of a work week / at the end of a  
work day / at the end of a shift  
Value: 1.5 g/l; Medium: Urine  
Remark: Austria. Regulation on health surveillance in the workplace 2014

Biological Indicator: xylene; Sampling Period: End of workday  
Value: 1 mg/L; Medium: Blood

Remark: Austria. Regulation on health surveillance in the workplace 2014

Biological Indicator: Methylhippuric acid; Sampling Period: At the end of exposure, in 4 hours

Value: 2 mg/L; Medium: Urine

Remark: Kenya. Occupational Safety and Health Act (CAP.514), Schedule I, Table 3 Biological Exposure Limits

Biological Indicator: methyl hippuric acid; Sampling Period: After shift

Value: 5 Millimoles per liter; Medium: Urine

Remark: Finland. Biological limit values

Biological Indicator: methyl hippuric acid; Sampling Period: Immediately after exposure or after working hours

Value: 2 g/l; Medium: Urine

Remark: Svizzera. Lista di valori BAT

ethylbenzene  
CAS: 100-41-4

Biological Indicator: mandelic acid; Sampling Period: after the last shift of the last day of the work week

Value: 15 g/g creatinine; Medium: Urine

Remark: Argentina. Biological Exposure Indices

Biological Indicator: Ethylbenzene; Sampling Period: after the last shift of the last day of the work week

Value: 15 g/g creatinine; Medium: Air at the end of exhalation

Remark: Argentina. Biological Exposure Indices

Biological Indicator: mandelic acid; Sampling Period: End of turn; End of working week

Value: 15 g/g creatinine; Medium: Urine

Remark: Brazil. NR7. Parameters for Biological Control of Occupational Exposure to Some Chemical Agents

Biological Indicator: total mandelic acid plus phenylglyoxylic acid; Sampling Period: End of turn

Value: 2000 mg/g Creatinine; Medium: Urine

Remark: Bulgaria. Biological limit values

Biological Indicator: mandelic acid; Sampling Period: End of turn

Value: 1500 mg/g Creatinine; Medium: Urine

Remark: Chile. Biological Limit Values

Biological Indicator: Sum of mandelic acid and phenyl glyoxylic acid; Sampling Period: End of turn

Value: 15 g/g creatinine; Medium: Urine

Remark: Maximum allowable occupational exposure limits in the workplace - Table 3. Adopted Biological Exposu

Biological Indicator: Ethylbenzene; Sampling Period: during exposure

Value: 141 micromol per litre; Medium: Blood

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Ethylbenzene; Sampling Period: during exposure

Value: 1.5 mg/L; Medium: Blood

Remark: Croatia. Biological Exposure Limits

Biological Indicator: mandelic acid; Sampling Period: End of turn; End of working week

Value: 112 mol/mol creatinine; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: mandelic acid; Sampling Period: End of turn; End of working week

Value: 15 g/g creatinine; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: mandelic acid; Sampling Period: End of turn

Value: 1500 mg/g Creatinine; Medium: Urine

Remark: Czech Republic. Biological Exposure Indices

Biological Indicator: mandelic acid; Sampling Period: End of turn

Value: 1100 micromoles per millimole creatinine; Medium: Urine

Remark: Czech Republic. Biological Exposure Indices

Biological Indicator: mandelic acid; Sampling Period: After the work shift at the end of week or exposure period

Value: 5.2 Millimoles per liter; Medium: Urine

Remark: Finland. Biological limit values

Biological Indicator: mandelic acid + phenylglyoxylic acid; Sampling Period: Immediately after exposure or after working hours

Value: 250 mg/g Creatinine; Medium: Urine

Remark: TRGS 903 - Biological limit values

Biological Indicator: mandelic acid; Sampling Period: After shift

Value: 1500 mg/g Creatinine; Medium: Urine

Remark: Hungary. Permissible limit values of biological exposure (effect) indices

Biological Indicator: mandelic acid; Sampling Period: After shift  
Value: 1110 micromoles per millimole creatinine; Medium: Urine  
Remark: Hungary. Permissible limit values of biological exposure (effect) indices

Biological Indicator: Mandelic acid; Sampling Period: End of turn; End of working week  
Value: 15 g/g creatinine; Medium: Urine  
Remark: Kenya. Occupational Safety and Health Act (CAP.514), Schedule I, Table 3 Biological Exposure Limits

Biological Indicator: Ethylbenzene  
Medium: Air at the end of exhalation  
Remark: Kenya. Occupational Safety and Health Act (CAP.514), Schedule I, Table 3 Biological Exposure Limits

Biological Indicator: Sum of Mandelic acid plus phenylglyoxylic acid; Sampling Period: End of turn; End of working week  
Value: 7 g/g creatinine; Medium: Urine  
Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work

Biological Indicator: Ethylbenzene; Sampling Period: Not critical  
Medium: exhaled air  
Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work

Biological Indicator: Sum of mandelic acid and phenylglyoxylic acids; Sampling Period: End of turn  
Value: 25 g/g creatinine; Medium: Urine  
Remark: New Zealand. Biological Exposure Indices

Biological Indicator: Sum of mandelic acid and phenyl glyoxylic acid; Sampling Period: End of turn  
Value: 7 g/g creatinine; Medium: Urine  
Remark: Portuguese Norm 1796 - Biological Exposure Indices

Biological Indicator: mandelic acid; Sampling Period: End of working week  
Value: 15 g/g creatinine; Medium: Urine  
Remark: Romania. Biological limit values

Biological Indicator: 2- and 4-ethylphenol; Sampling Period: End of turn  
Value: 12 mg/L; Medium: Blood  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Mandelic acid and phenylglyoxylic; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 1600 mg/L; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: 2- and 4-ethylphenol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 986 micromol per litre; Medium: Blood  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Mandelic acid and phenylglyoxylic; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 10590 micromol per litre; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Mandelic acid and phenylglyoxylic; Sampling Period: End of turn  
Value: 1067 mg/g Creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Mandelic acid and phenylglyoxylic; Sampling Period: End of turn  
Value: 799 micromoles per millimole creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: 2- and 4-ethylphenol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 803 mg/g Creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: 2- and 4-ethylphenol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 744 micromoles per millimole creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Mandelic acid and phenylglyoxylic; Sampling Period: End of turn  
Value: 250 mg/g Creatinine; Medium: Urine  
Remark: Slovenia. BAT-values

Biological Indicator: Mandelic acid; Sampling Period: End of turn; End of working week  
Value: 15 g/g creatinine; Medium: Urine



Remark: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.

Biological Indicator: Ethylbenzene

Medium: Air at the end of exhalation

Remark: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.

Biological Indicator: sum of mandelic acid and phenylglyoxylic acid; Sampling Period: FSL

Value: 700 mg/g Creatinine; Medium: Urine

Remark: Occupational Exposure Limits for Chemical Agents in Spain - Biological Exposure Values

Biological Indicator: Mandelic acid and phenylglyoxylic; Sampling Period: Immediately after exposure or after working hours

Value: 600 mg/g Creatinine; Medium: Urine

Remark: Svizzera. Lista di valori BAT

Biological Indicator: Sum of mandelic acid and phenyl glyoxylic acid; Sampling Period: End of turn

Value: 15 g/g creatinine; Medium: Urine

Remark: ACGIH - Indicatori di Esposizione Biologica (BEI)

Biological Indicator: Mandelic acid; Sampling Period: End of workday at end of workweek

Value: 7 g/g creatinine; Medium: Urine

Remark: VE.Biological Exposure Limits

Biological Indicator: Ethylbenzene; Sampling Period: At discretion

Medium: in exhaled air

Remark: VE.Biological Exposure Limits

Biological Indicator: Acetone

Value: 2 mg/g Creatinine; Medium: Urine

Remark: Argentina. Biological Exposure Indices

Biological Indicator: Acetone; Sampling Period: End of turn; End of working week

Value: 40 mg/L; Medium: Urine

Remark: Maximum allowable occupational exposure limits in the workplace - Table 3. Adopted Biological Exposu

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 50 mg/L; Medium: Blood

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 86 micromol per litre; Medium: Blood

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 50 mg/L; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 86 micromol per litre; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Acetone; Sampling Period: Immediately after exposure or after working hours

Value: 25 mg/L; Medium: Blood

Remark: TRGS 903 - Biological limit values

Biological Indicator: Acetone; Sampling Period: Immediately after exposure or after working hours

Value: 25 mg/L; Medium: Urine

Remark: TRGS 903 - Biological limit values

Biological Indicator: Acetone; Sampling Period: End of turn; End of working week

Value: 40 mg/L; Medium: Urine

Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work

Biological Indicator: Acetone; Sampling Period: End of turn; End of working week

Value: 40 mg/L; Medium: Urine

Remark: Portuguese Norm 1796 - Biological Exposure Indices

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 50 mg/L; Medium: Urine

Remark: Romania. Biological limit values

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 25 mg/L; Medium: Blood

Remark: Slovenia. BAT-values

Biological Indicator: Acetone; Sampling Period: End of turn

Value: 25 mg/L; Medium: Urine

Remark: Slovenia. BAT-values

propan-2-ol  
CAS: 67-63-0

Biological Indicator: Acetone; Sampling Period: FSL  
Value: 40 mg/L; Medium: Urine  
Remark: Occupational Exposure Limits for Chemical Agents in Spain - Biological Exposure Values

Biological Indicator: Acetone; Sampling Period: Immediately after exposure or after working hours  
Value: 25 mg/L; Medium: Urine  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: Acetone; Sampling Period: Immediately after exposure or after working hours  
Value: 4 Millimoles per liter; Medium: Urine  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: Acetone; Sampling Period: Immediately after exposure or after working hours  
Value: 25 mg/L; Medium: Blood  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: Acetone; Sampling Period: Immediately after exposure or after working hours  
Value: 4 Millimoles per liter; Medium: Blood  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: Acetone; Sampling Period: End of turn; End of working week  
Value: 40 mg/L; Medium: Urine  
Remark: ACGIH - Indicatori di Esposizione Biologica (BEI)

Biological Indicator: Acetone; Sampling Period: End of workday at end of workweek  
Value: 40 mg/L; Medium: Urine  
Remark: VE.Biological Exposure Limits

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 0.5 mg/L; Medium: Urine  
Remark: Argentina. Biological Exposure Indices

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 16 g/g creatinine; Medium: Urine  
Remark: Argentina. Biological Exposure Indices

Biological Indicator: Toluene; Sampling Period: Prior to last shift of workweek  
Value: 0.05 mg/L; Medium: Blood  
Remark: Argentina. Biological Exposure Indices

Biological Indicator: O-Cresol; Sampling Period: At the end of a work week / at the end of a work day / at the end of a shift  
Value: 0.8 mg/L; Medium: Urine  
Remark: Austria. Regulation on health surveillance in the workplace 2014

Biological Indicator: Toluene; Sampling Period: End of workday  
Value: 250 µg/L; Medium: Blood  
Remark: Austria. Regulation on health surveillance in the workplace 2014

Biological Indicator: Hippuric acid; Sampling Period: End of last day of the working day (recommended to avoid the first day of the week)  
Value: 25 g/g creatinine; Medium: Urine  
Remark: Brazil. NR7. Parameters for Biological Control of Occupational Exposure to Some Chemical Agents

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 16 mmol/mmol creatinine; Medium: Urine  
Remark: Bulgaria. Biological limit values

Biological Indicator: Toluene; Sampling Period: Before shift at end of workweek  
Value: 0.05 mg/L; Medium: Blood  
Remark: Chile. Biological Limit Values

Biological Indicator: Toluene; Sampling Period: End of workday  
Value: 30 µg/L; Medium: Urine  
Remark: Chile. Biological Limit Values

Biological Indicator: Hippuric acid; Sampling Period: End of workshift (after exposure has ended)  
Value: 1 mol/mol creatinine; Medium: Urine  
Remark: China. Biological Occupational Exposure Limits for 15 chemicals.

Biological Indicator: Hippuric acid; Sampling Period: End of workshift (after exposure has ended)  
Value: 15 g/g creatinine; Medium: Urine  
Remark: China. Biological Occupational Exposure Limits for 15 chemicals.

Biological Indicator: Hippuric acid; Sampling Period: End of workshift (after exposure has ended)  
Value: 11 Millimoles per liter; Medium: Urine  
Remark: China. Biological Occupational Exposure Limits for 15 chemicals.

Biological Indicator: Hippuric acid; Sampling Period: End of workshift (after exposure has ended)  
Value: 2 g/l; Medium: Urine

toluene  
CAS: 108-88-3

Remark: China. Biological Occupational Exposure Limits for 15 chemicals.

Biological Indicator: Toluene; Sampling Period: End of workshift (15-30 min after exposure has ended)

Value: 20 mg/m<sup>3</sup>; Medium: Air at the end of exhalation

Remark: China. Biological Occupational Exposure Limits for 15 chemicals.

Biological Indicator: Toluene

Value: 5 mg/m<sup>3</sup>; Medium: Air at the end of exhalation

Remark: China. Biological Occupational Exposure Limits for 15 chemicals.

Biological Indicator: O-Cresol; Sampling Period: End of turn

Value: 3 mg/g Creatinine; Medium: Urine

Remark: Maximum allowable occupational exposure limits in the workplace - Table 3. Adopted Biological Exposure

Biological Indicator: Toluene; Sampling Period: End of turn

Value: 0.03 mg/L; Medium: Urine

Remark: Maximum allowable occupational exposure limits in the workplace - Table 3. Adopted Biological Exposure

Biological Indicator: Toluene; Sampling Period: Prior to last shift of workweek

Value: 0.02 mg/L; Medium: Blood

Remark: Maximum allowable occupational exposure limits in the workplace - Table 3. Adopted Biological Exposure

Biological Indicator: Toluene; Sampling Period: End of turn

Value: 1085 micromol per litre; Medium: Blood

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Toluene; Sampling Period: End of turn

Value: 1 mg/L; Medium: Blood

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Toluene; Sampling Period: during exposure

Value: 83 micromol per litre; Medium: Air at the end of exhalation

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Toluene; Sampling Period: during exposure

Value: 20 ppm; Medium: Air at the end of exhalation

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Hippuric acid; Sampling Period: End of turn

Value: 158 mol/mol creatinine; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Hippuric acid; Sampling Period: End of turn

Value: 25 g/g creatinine; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: O-Cresol; Sampling Period: End of turn

Value: 105 Millimoles per mole Creatinine; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: O-Cresol; Sampling Period: End of turn

Value: 1 mg/g Creatinine; Medium: Urine

Remark: Croatia. Biological Exposure Limits

Biological Indicator: Hippuric acid; Sampling Period: End of turn

Value: 1600 mg/g Creatinine; Medium: Urine

Remark: Czech Republic. Biological Exposure Indices

Biological Indicator: Hippuric acid; Sampling Period: End of turn

Value: 1000 micromoles per millimole creatinine; Medium: Urine

Remark: Czech Republic. Biological Exposure Indices

Biological Indicator: O-Cresol; Sampling Period: End of turn

Value: 15 mg/g Creatinine; Medium: Urine

Remark: Czech Republic. Biological Exposure Indices

Biological Indicator: O-Cresol; Sampling Period: End of turn

Value: 16 micromoles per millimole creatinine; Medium: Urine

Remark: Czech Republic. Biological Exposure Indices

Biological Indicator: Toluene; Sampling Period: Morning after working day

Value: 500 mg/L; Medium: Blood

Remark: Finland. Biological limit values

Biological Indicator: Toluene; Sampling Period: End of turn

Value: 600 µg/L; Medium: Blood

Remark: TRGS 903 - Biological limit values

Biological Indicator: O-Cresol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 1.5 mg/L; Medium: Urine  
Remark: TRGS 903 - Biological limit values

Biological Indicator: O-Cresol; Sampling Period: After shift  
Value: 1 mg/g Creatinine; Medium: Urine  
Remark: Hungary. Permissible limit values of biological exposure (effect) indices

Biological Indicator: O-Cresol; Sampling Period: After shift  
Value: 105 micromoles per millimole creatinine; Medium: Urine  
Remark: Hungary. Permissible limit values of biological exposure (effect) indices

Biological Indicator: Hippuric acid  
Value: 16 g/g creatinine; Medium: Urine  
Remark: Israel. Safety at Work Regulations - Annex III Biological Exposure Indices

Biological Indicator: Toluene; Sampling Period: Within 2 h prior to end of shift at end of work week  
Value: 0.6 mg/L; Medium: Blood  
Remark: Occupational exposure limits based on biological monitoring (JSOH).

Biological Indicator: Toluene; Sampling Period: Within 2 h prior to end of shift at end of work week  
Value: 0.06 mg/L; Medium: Urine  
Remark: Occupational exposure limits based on biological monitoring (JSOH).

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 25 g/g creatinine; Medium: Urine  
Remark: Kenya. Occupational Safety and Health Act (CAP.514), Schedule I, Table 3 Biological Exposure Limits

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 1 mg/L; Medium: venous blood  
Remark: Kenya. Occupational Safety and Health Act (CAP.514), Schedule I, Table 3 Biological Exposure Limits

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 1 mg/g Creatinine; Medium: Urine  
Remark: Kenya. Occupational Safety and Health Act (CAP.514), Schedule I, Table 3 Biological Exposure Limits

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 16 g/g creatinine; Medium: Urine  
Remark: Latvia. Biological Exposure Indices

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 0.05 mg/L; Medium: Blood  
Remark: Latvia. Biological Exposure Indices

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 0.5 mg/L; Medium: Urine  
Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 16 g/g creatinine; Medium: Urine  
Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work

Biological Indicator: Toluene; Sampling Period: Before last turn of the working week  
Value: 0.05 mg/L; Medium: Blood  
Remark: Official Mexican Norm NOM-047-SSA1-2011, Environmental Health - Biological exposure indices for work

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 0.03 mg/L; Medium: Urine  
Remark: New Zealand. Biological Exposure Indices

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 3 mg/g Creatinine; Medium: Urine  
Remark: New Zealand. Biological Exposure Indices

Biological Indicator: Toluene; Sampling Period: Before shift at end of workweek  
Value: 0.02 mg/L; Medium: Blood  
Remark: Portuguese Norm 1796 - Biological Exposure Indices

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 0.03 mg/L; Medium: Urine  
Remark: Portuguese Norm 1796 - Biological Exposure Indices

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 3 mg/g Creatinine; Medium: Urine

Remark: Portuguese Norm 1796 - Biological Exposure Indices

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 2 g/l; Medium: Urine  
Remark: Romania. Biological limit values

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 3 mg/L; Medium: Urine  
Remark: Romania. Biological limit values

Biological Indicator: Toluene; Sampling Period: Prior to last shift of workweek  
Value: 0.05 mg/L; Medium: Blood  
Remark: Singapore. Biological Threshold Limit Values

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 600 µg/L; Medium: Blood  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 6517 micromol per litre; Medium: Blood  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 2401 mg/L; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 13399 micromol per litre; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 1600 mg/g Creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 1010 micromoles per millimole creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 143 micromol per litre; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: O-Cresol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 103 mg/g Creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 108 micromoles per millimole creatinine; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: O-Cresol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 1.5 mg/L; Medium: Urine  
Remark: Slovakia. Biological Limit Values

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 600 micromol per litre; Medium: Blood  
Remark: Slovenia. BAT-values

Biological Indicator: O-Cresol; Sampling Period: during long-term exposure: at the end of the work shift  
after several consecutive workdays  
Value: 1.5 mg/L; Medium: Urine  
Remark: Slovenia. BAT-values

Biological Indicator: Hippuric acid; Sampling Period: End of turn  
Value: 25 g/g creatinine; Medium: Urine  
Remark: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 1 mg/L; Medium: venous blood  
Remark: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 1 mg/g Creatinine; Medium: Urine  
Remark: South Africa. Hazardous Chemical Substances Regulations, Biological Exposure Indices.

Biological Indicator: Toluene; Sampling Period: End of workday  
Value: 0.08 mg/L; Medium: Urine  
Remark: Occupational Exposure Limits for Chemical Agents in Spain - Biological Exposure Values

Biological Indicator: O-Cresol; Sampling Period: End of workday

Value: 6 mg/g Creatinine; Medium: Urine  
Remark: Occupational Exposure Limits for Chemical Agents in Spain - Biological Exposure Values

Biological Indicator: Toluene; Sampling Period: prior to last shift of workweek  
Value: 0.05 mg/L; Medium: Blood  
Remark: Occupational Exposure Limits for Chemical Agents in Spain - Biological Exposure Values

Biological Indicator: Hippuric acid; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 2 g/g creatinine; Medium: Urine  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: O-Cresol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 0.5 mg/L; Medium: Urine  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: toluol; Sampling Period: Immediately after exposure or after working hours  
Value: 648 micromol per litre; Medium: Blood  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: Hippuric acid; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 126 mmol/mmol creatinine; Medium: Urine  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: O-Cresol; Sampling Period: In case of long-term exposure: after more than one shift  
Value: 462 micromol per litre; Medium: Urine  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: toluol; Sampling Period: Immediately after exposure or after working hours  
Value: 600 µg/L; Medium: Blood  
Remark: Svizzera. Lista di valori BAT

Biological Indicator: Hippuric acid; Sampling Period: End of workday  
Value: 16 g/g creatinine; Medium: Urine  
Remark: Uruguay. Health surveillance of workers - Biological Exposure Indices (BEI).

Biological Indicator: O-Cresol; Sampling Period: End of workday  
Value: 0.5 mg/L; Medium: Urine  
Remark: Uruguay. Health surveillance of workers - Biological Exposure Indices (BEI).

Biological Indicator: Toluene; Sampling Period: Prior to last shift of workweek  
Value: 0.02 mg/L; Medium: Blood  
Remark: ACGIH - Indicatori di Esposizione Biologica (BEI)

Biological Indicator: Toluene; Sampling Period: End of turn  
Value: 0.03 mg/L; Medium: Urine  
Remark: ACGIH - Indicatori di Esposizione Biologica (BEI)

Biological Indicator: O-Cresol; Sampling Period: End of turn  
Value: 3 mg/g Creatinine; Medium: Urine  
Remark: ACGIH - Indicatori di Esposizione Biologica (BEI)

Biological Indicator: O-Cresol; Sampling Period: End of workday  
Value: 0.5 mg/L; Medium: Urine  
Remark: VE.Biological Exposure Limits

Biological Indicator: Hippuric acid; Sampling Period: End of workday  
Value: 16 g/g creatinine; Medium: Urine  
Remark: VE.Biological Exposure Limits

Biological Indicator: Toluene; Sampling Period: Prior to last workday of workweek  
Value: 0.05 mg/L; Medium: Blood  
Remark: VE.Biological Exposure Limits

#### **Predicted No Effect Concentration (PNEC) values**

n-butyl acetate  
CAS: 123-86-4

Exposure Route: Fresh Water; PNEC Limit: 0.18 mg/l

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.36 mg/l

Exposure Route: Marine water; PNEC Limit: 0.01 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 0.98 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.09 mg/kg

Exposure Route: Soil; PNEC Limit: 0.09 mg/kg

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 35.6 mg/l

xylene  
CAS: 1330-20-7

Exposure Route: Fresh Water; PNEC Limit: 0.32 mg/l

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.32 mg/l

Exposure Route: Marine water; PNEC Limit: 0.32 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 12.46 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 12.46 mg/kg

Exposure Route: Soil; PNEC Limit: 2.31 mg/kg

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 6.58 mg/l

2-ethoxy-1-methylethyl  
acetate  
CAS: 54839-24-6

Exposure Route: Fresh Water; PNEC Limit: 2 mg/l

Exposure Route: Marine water; PNEC Limit: 0.2 mg/l

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 2 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 8.2 mg/l

Exposure Route: Marine water sediments; PNEC Limit: 0.67 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 62.5 mg/l

Exposure Route: Oral; PNEC Limit: 117 mg/l

Exposure Route: Fresh Water; PNEC Limit: 1 mg/l

titanium dioxide  
CAS: 13463-67-7

Exposure Route: Freshwater sediments; PNEC Limit: 1000 mg/kg

Exposure Route: Marine water; PNEC Limit: 0.127 mg/l

Exposure Route: Marine water sediments; PNEC Limit: 100 mg/kg

Exposure Route: Soil; PNEC Limit: 100 mg/kg

2-methoxy-1-methylethyl  
acetate  
CAS: 108-65-6

Exposure Route: Fresh Water; PNEC Limit: 0.635 mg/kg

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 6.35 mg/l

Exposure Route: Marine water; PNEC Limit: 0.064 mg/kg

Exposure Route: Freshwater sediments; PNEC Limit: 3.29 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.329 mg/kg

Exposure Route: Soil; PNEC Limit: 0.29 mg/kg

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 100 mg/l

Exposure Route: Fresh Water; PNEC Limit: 140.9 mg/l

propan-2-ol  
CAS: 67-63-0

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 140.9 mg/l

Exposure Route: Marine water; PNEC Limit: 140.9 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 552 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 552 mg/kg

Exposure Route: Soil; PNEC Limit: 28 mg/kg

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 2251 mg/l

Exposure Route: Fresh Water; PNEC Limit: 0.68 mg/l

toluene  
CAS: 108-88-3

Exposure Route: Marine water; PNEC Limit: 0.68 mg/l

Exposure Route: Freshwater sediments; PNEC Limit: 16.39 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 16.39 mg/kg

Exposure Route: Soil; PNEC Limit: 2.89 mg/kg

Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.68 mg/l

Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 13.61 mg/l

#### Derived No Effect Level (DNEL) values

n-butyl acetate  
CAS: 123-86-4

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Industry: 300 mg/m<sup>3</sup>

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Worker Industry: 600 mg/m<sup>3</sup>

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects

Worker Industry: 300 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects  
Worker Industry: 600 mg/m3

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Worker Industry: 11 mg/kg dry weight (d.w.)

Exposure Route: Human Dermal; Exposure Frequency: Short Term, systemic effects  
Worker Industry: 11 mg/kg dry weight (d.w.)

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 35.7 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Consumer: 300 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects  
Consumer: 35.7 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects  
Consumer: 300 mg/m3

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Consumer: 6 mg/kg dry weight (d.w.)

Exposure Route: Human Dermal; Exposure Frequency: Short Term, systemic effects  
Consumer: 6 mg/kg dry weight (d.w.)

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 2 mg/kg dry weight (d.w.)

Exposure Route: Human Oral; Exposure Frequency: Short Term, systemic effects  
Consumer: 2 mg/kg dry weight (d.w.)

xylene  
CAS: 1330-20-7

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 65.3 mg/m3

Exposure Route: Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 12.5 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects  
Worker Professional: 442 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 212 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 221 mg/m3

2-ethoxy-1-methylethyl  
acetate  
CAS: 54839-24-6

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Worker Industry: 2366 mg/m3; Worker Professional: 2366 mg/kg; Consumer: 1420 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Industry: 152 mg/m3; Worker Professional: 152 mg/m3; Consumer: 181 mg/m3

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Worker Industry: 103 mg/kg; Worker Professional: 103 mg/kg; Consumer: 62 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 13.1 mg/kg

titanium dioxide  
CAS: 13463-67-7

Exposure Route: Human Inhalation; Exposure Frequency: Local Effects  
Worker Professional: 10 mg/m3

Exposure Route: Human Oral; Exposure Frequency: Specific Effects  
Consumer: 700 ppm

2-methoxy-1-methylethyl  
acetate  
CAS: 108-65-6

Exposure Route: Human Inhalation; Exposure Frequency: Short Term (acute)  
Consumer: 33 mg/m3

Exposure Route: Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 36 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Consumer: 320 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 33 mg/m3



Exposure Route: Human Inhalation; Exposure Frequency: Short Term (acute)  
Worker Professional: 550 mg/m3

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 796 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 275 mg/m3

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 89 mg/m3

Exposure Route: Oral; Exposure Frequency: Long Term, systemic effects

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 500 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Short Term (acute)  
Consumer: 226 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Consumer: 226 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 56.5 mg/m3

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 8.13 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Consumer: 226 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Short Term (acute)  
Worker Professional: 384 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects  
Worker Professional: 384 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects  
Worker Professional: 192 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 192 mg/m3

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 384 mg/kg

propan-2-ol  
CAS: 67-63-0

toluene  
CAS: 108-88-3

## 8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

Use adequate protective respiratory equipment.

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

Hygienic and Technical measures

N.A.

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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: Blue

Odour: N.A.

pH: Not Relevant

Kinematic viscosity: > 20,5 mm<sup>2</sup>/sec (40 °C)  
Melting point/freezing point: N.A.  
Boiling point or initial boiling point and boiling range: N.A.  
Flash point: 23°C / 60°C  
Lower and upper explosion limit: N.A.  
Relative vapour density: N.A.  
Vapour pressure: N.A.  
Density and/or relative density: 0.99 g/cm<sup>3</sup>  
Solubility in water: N.A.  
Solubility in oil: N.A.  
Partition coefficient n-octanol/water (log value): N.A.  
Auto-ignition temperature: N.A.  
Decomposition temperature: N.A.  
Flammability: The product is classified Flam. Liq. 3 H226  
Kinematic viscosity m<sup>2</sup>/s (40°C) > 20,5 mm<sup>2</sup>/sec (40 °C)  
Viscosity: = 65.00 s - Method: ISO/DIN 2431 84 - Section: 6.00 mm

**Particle characteristics:**

Particle size: N.A.

**9.2. Other information**

Evaporation rate: N.A.  
Miscibility: N.A.  
Conductivity: N.A.  
No other relevant information

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**SECTION 10: Stability and reactivity**

**10.1. Reactivity**

Stable under normal conditions

**10.2. Chemical stability**

Data not available.

**10.3. Possibility of hazardous reactions**

None.

**10.4. Conditions to avoid**

Stable under normal conditions.

**10.5. Incompatible materials**

Avoid contact with combustible materials. The product could catch fire.

**10.6. Hazardous decomposition products**

None.

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**SECTION 11: Toxicological information**

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

**Toxicological Information of the Preparation**

a) acute toxicity	Not classified Based on available data, the classification criteria are not met ATEmix - Dermal : 7909.25 mg/kg bw ATEmix - Inhalation (Vapours) : 69.8871 mg/l
b) skin corrosion/irritation	The product is classified: Skin Irrit. 2(H315)
c) serious eye damage/irritation	The product is classified: Eye Irrit. 2(H319)
d) respiratory or skin sensitisation	Not classified Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified Based on available data, the classification criteria are not met
h) STOT-single exposure	The product is classified: STOT SE 3(H336)
i) STOT-repeated exposure	The product is classified: STOT RE 2(H373)
j) aspiration hazard	Not classified

**Toxicological information on main components of the mixture:**

n-butyl acetate	a) acute toxicity	LD50 Oral Rat = 10760 mg/kg	OECD Test Guideline 423
		LC50 Inhalation > 20 mg/l 4h	
		LD50 Skin Rabbit > 14112 mg/kg	OECD Test Guideline 402
xylene	a) acute toxicity	LD50 Oral Mouse = 5627 mg/kg	
		LC50 Inhalation Rat = 6700 Ppm 4h	
		LD50 Skin Rabbit > 5000 mg/kg	
2-ethoxy-1-methylethyl acetate	a) acute toxicity	LD50 Oral Rat > 5000	OECD Test Guideline 401
		LC50 Inhalation Mist Rat > 6.99 4h	OECD Test Guideline 403
titanium dioxide	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg	
		LD50 Skin Rabbit > 5000 mg/kg	
2-methoxy-1-methylethyl acetate	a) acute toxicity	LD50 Oral Rat > 5000 mg/kg	
		LC0 Inhalation Rat > 2000 Ppm 3h	
		LD50 Skin Rabbit > 5000 mg/kg	
ethylbenzene	a) acute toxicity	LD50 Oral Rat = 3500 mg/kg	
		LD50 Skin Rabbit > 5000 mg/kg	
propan-2-ol	a) acute toxicity	LD50 Oral Rat = 5840 mg/kg	
		LC50 Inhalation Rat > 10000 Ppm 6h	
toluene	a) acute toxicity	LD50 Oral Rat = 5000 mg/kg	
		LC50 Inhalation Rat = 25.7 mg/l 4h	
		LD50 Skin Rabbit = 12267 mg/kg	

**11.2. Information on other hazards****Endocrine disrupting properties:**

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 12: Ecological information****12.1. Toxicity**

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

**List of Eco-Toxicological properties of the product**

Not classified for environmental hazards.

No data available for the product

**List of Eco-Toxicological properties of the components**

Component	Ident. Numb.	Ecotox Data
n-butyl acetate	CAS: 123-86-4 - EINECS: 204- 658-1 - INDEX: 607-025-00-1	a) Aquatic acute toxicity : LC50 Fish Pimephales promelas (fathead minnow) = 18 mg/L 96 H OECD Test Guideline 203
		a) Aquatic acute toxicity : EC50 Invertebrates Daphnia magna (Water flea) = 44 mg/L 48 H OECD Test Guideline 202
		e) Plant toxicity : EC50 Algae Selenastrum capricornutum (green algae) = 397 mg/L 72 H OECD Test Guideline 201

		c) Bacteria toxicity : IC50 Microorganisms Tetrahymena pyriformis = 356 mg/L 40 H
xylene	CAS: 1330-20-7 - EINECS: 215-535-7 - INDEX: 601-022-00-9	<p>a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss (rainbow trout) = 2.6 mg/L 96 H</p> <p>a) Aquatic acute toxicity : IC50 Invertebrates Daphnia magna (Water flea) = 1 mg/L 24 H</p> <p>e) Plant toxicity : EC0 Algae Pseudokirchneriella subcapitata (green algae) = 0.44 mg/L 72 H</p> <p>b) Aquatic chronic toxicity : NOEC Fish Oncorhynchus mykiss (rainbow trout) &gt; 1.3 mg/L 56 D</p> <p>e) Plant toxicity : Algae Pseudokirchneriella subcapitata (green algae) = 4.36 mg/L 72 H</p>
2-ethoxy-1-methylethyl acetate	CAS: 54839-24-6 - EINECS: 259-370-9 - INDEX: 603-177-00-8	<p>a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss (rainbow trout) = 140 mg/L 96 H OECD Test Guideline 203</p> <p>a) Aquatic acute toxicity : EC50 Invertebrates Daphnia magna (Water flea) = 110 mg/L 48 H OECD Test Guideline 202</p> <p>e) Plant toxicity : EC50 Algae Desmodesmus subspicatus (green algae) &gt; 100 mg/L 72 H OECD Test Guideline 201</p> <p>c) Bacteria toxicity : EC10 Microorganisms Pseudomonas putida = 560 mg/L 16 H</p> <p>b) Aquatic chronic toxicity : NOEC Invertebrates Daphnia magna (Water flea) &gt;= 100 mg/L 21 D</p> <p>a) Aquatic acute toxicity : NOEC Fish Oryzias latipes (Orange-red killifish) = 47.5 mg/L 96 H</p> <p>e) Plant toxicity : NOEC Algae Desmodesmus subspicatus (green algae) &gt;= 100 mg/L 72 H</p>
titanium dioxide	CAS: 13463-67-7 - EINECS: 236-675-5 - INDEX: 022-006-00-2	<p>a) Aquatic acute toxicity : LC50 Fish &gt; 100 mg/L 96h</p> <p>a) Aquatic acute toxicity : EC50 Daphnia &gt; 100 mg/L 48h</p>
2-methoxy-1-methylethyl acetate	CAS: 108-65-6 - EINECS: 203-603-9 - INDEX: 607-195-00-7	<p>a) Aquatic acute toxicity : LC50 Fish Oncorhynchus mykiss (rainbow trout) 100 mg/L 96 H</p> <p>a) Aquatic acute toxicity : EC50 Invertebrates Daphnia magna (Water flea) &gt; 500 mg/L 48 H</p> <p>e) Plant toxicity : EC50 Algae Selenastrum capricornutum (green algae) &gt; 1000 mg/L 96 H</p> <p>b) Aquatic chronic toxicity : NOEC Fish Oryzias latipes (Japanese medaka) = 47.5 mg/L 14 D</p> <p>b) Aquatic chronic toxicity : NOEC Invertebrates Daphnia magna (Water flea) &gt;= 100 mg/L 21 D</p> <p>e) Plant toxicity : NOEC Algae Selenastrum capricornutum (green algae) &gt;= 1000 mg/L 96 H</p>
propan-2-ol	CAS: 67-63-0 - EINECS: 200-661-7 - INDEX: 603-117-00-0	<p>a) Aquatic acute toxicity : LC50 Fish Pimephales promelas (fathead minnow) = 9640 mg/L 96 H</p> <p>a) Aquatic acute toxicity : EC50 Invertebrates Daphnia magna (Water flea) &gt; 10000 mg/L 24 H</p> <p>e) Plant toxicity : EC50 Algae Scenedesmus quadricauda (Green algae) =</p>

1800 mg/L 7 D

toluene

CAS: 108-88-3 -  
EINECS: 203-  
625-9 - INDEX:  
601-021-00-3

a) Aquatic acute toxicity : LC50 Fish Oncorhynchus kisutch (coho salmon) =  
5.5 mg/L 96 H

a) Aquatic acute toxicity : EC50 Invertebrates Ceriodaphnia dubia (water flea)  
= 3.78 mg/L 48 H

e) Plant toxicity : EC50 Algae algae = 134 mg/L 96 H

b) Aquatic chronic toxicity : NOEC Fish Oncorhynchus kisutch (coho salmon) =  
1.39 mg/L 40 D

## 12.2. Persistence and degradability

N.A.

## 12.3. Bioaccumulative potential

N.A.

## 12.4. Mobility in soil

N.A.

## 12.5. Results of PBT and vPvB assessment

No PBT or vPvB substances present in concentration  $\geq 0.1\%$

## 12.6. Endocrine disrupting properties

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

N.A.

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## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

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## SECTION 14: Transport information

### 14.1. UN number or ID number

1263

### 14.2. UN proper shipping name

ADR-Shipping Name: PAINT

IATA-Shipping Name: PAINT

IMDG-Shipping Name: PAINT

### 14.3. Transport hazard class(es)

ADR-Class: 3

IATA-Class: 3

IMDG-Class: 3

### 14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III

IMDG-Packing group: III

### 14.5. Environmental hazards

Toxic ingredients quantity: 0.00

Very toxic ingredients quantity: 0.00

Marine pollutant: No

Environmental Pollutant: No

IMDG-EMS: F-E, S-E

### 14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 3

ADR - Hazard identification number: -

ADR-Special Provisions: 163 367 650

ADR-Transport category (Tunnel restriction code): 3 (E)

Air (IATA):

IATA-Passenger Aircraft: 355  
IATA-Cargo Aircraft: 366  
IATA-Label: 3  
IATA-Subsidiary hazards: -  
IATA-Erg: 3L  
IATA-Special Provisions: A3 A72 A192

Sea (IMDG):

IMDG-Stowage and handling: Category A  
IMDG-Segregation: -  
IMDG-Subsidiary hazards: -  
IMDG-Special Provisions: 163 223 367 955

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

N.A.

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### **SECTION 15: Regulatory information**

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) n. 2020/217 (ATP 14 CLP)

Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Regulation (EU) n. 2021/643 (ATP 16 CLP)

Regulation (EU) n. 2021/849 (ATP 17 CLP)

Regulation (EU) n. 2022/692 (ATP 18 CLP)

Regulation (EU) n. 2020/878

#### **Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:**

Restrictions related to the product: 3, 40

Restrictions related to the substances contained: 48, 75

#### **Provisions related to directive EU 2012/18 (Seveso III):**

<b>Seveso III category according to Annex 1, part 1</b>	<b>Lower-tier threshold (tonnes)</b>	<b>Upper-tier threshold (tonnes)</b>
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Product belongs to category: P5c	5000	50000
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#### **Regulation (EU) No 649/2012 (PIC regulation)**

No substances listed

#### **German Water Hazard Class.**

2: Hazard to waters

#### **German Lagerklasse according to TRGS 510:**

LGK 3

#### **SVHC Substances:**

No SVHC substances present in concentration  $\geq 0.1\%$

#### **DIRECTIVE 2010/75/EU (VOC directive)**

Volatile Organic compounds - VOCs = 73.79 %

Volatile Organic compounds - VOCs = 730.57 g/L

Estimated Total Content of Water 0.00 %

Estimated Total Solid Content 26.21 %

Classification according to VbF

Classification according to VbF A II - Flash point 21 °C to 55 °C, at 15 °C not miscible in water

Mal-Code (Denmark)

Mal-Code (Denmark)	Mal Factor	Unit of Measure	Revision Status / Number	Regulatory Base
4 - 6	1.691	m3 air/10 g	1993	Administrative determined MAL-Factors

Biocides

REGULATION (EC) No 528/2012

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Code	Description
EUH066	Repeated exposure may cause skin dryness or cracking.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/2	Flam. Liq. 2	Flammable liquid, Category 2
2.6/3	Flam. Liq. 3	Flammable liquid, Category 3
3.1/4/Dermal	Acute Tox. 4	Acute toxicity (dermal), Category 4
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), Category 4
3.10/1	Asp. Tox. 1	Aspiration hazard, Category 1
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
3.7/2	Repr. 2	Reproductive toxicity, Category 2
3.8/3	STOT SE 3	Specific target organ toxicity — single exposure, Category 3
3.9/2	STOT RE 2	Specific target organ toxicity — repeated exposure, Category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
Flam. Liq. 3, H226	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2, H319	Calculation method
STOT SE 3, H336	Calculation method
STOT RE 2, H373	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists  
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.  
 AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
 ATE: Acute Toxicity Estimate  
 ATEmix: Acute toxicity Estimate (Mixtures)  
 BCF: Biological Concentration Factor  
 BEI: Biological Exposure Index  
 BOD: Biochemical Oxygen Demand  
 CAS: Chemical Abstracts Service (division of the American Chemical Society).  
 CAV: Poison Center  
 CE: European Community  
 CLP: Classification, Labeling, Packaging.  
 CMR: Carcinogenic, Mutagenic and Reprotoxic  
 COD: Chemical Oxygen Demand  
 COV: Volatile Organic Compound  
 CSA: Chemical Safety Assessment  
 CSR: Chemical Safety Report  
 DMEL: Derived Minimal Effect Level  
 DNEL: Derived No Effect Level.  
 DPD: Dangerous Preparations Directive  
 DSD: Dangerous Substances Directive  
 EC50: Half Maximal Effective Concentration  
 ECHA: European Chemicals Agency  
 EINECS: European Inventory of Existing Commercial Chemical Substances.  
 ES: Exposure Scenario  
 GefStoffVO: Ordinance on Hazardous Substances, Germany.  
 GHS: Globally Harmonized System of Classification and Labeling of Chemicals.  
 IARC: International Agency for Research on Cancer  
 IATA: International Air Transport Association.  
 IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).  
 IC50: half maximal inhibitory concentration  
 ICAO: International Civil Aviation Organization.  
 ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).  
 IMDG: International Maritime Code for Dangerous Goods.  
 INCI: International Nomenclature of Cosmetic Ingredients.  
 IRCCS: Scientific Institute for Research, Hospitalization and Health Care  
 KAFH: KAFH  
 KSt: Explosion coefficient.  
 LC50: Lethal concentration, for 50 percent of test population.  
 LD50: Lethal dose, for 50 percent of test population.  
 LDLo: Leathal Dose Low  
 N.A.: Not Applicable  
 N/A: Not Applicable  
 N/D: Not defined/ Not available  
 NA: Not available  
 NIOSH: National Institute for Occupational Safety and Health  
 NOAEL: No Observed Adverse Effect Level  
 OSHA: Occupational Safety and Health Administration  
 PBT: Persistent, Bioaccumulative and Toxic  
 PGK: Packaging Instruction  
 PNEC: Predicted No Effect Concentration.  
 PSG: Passengers  
 RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.  
 STEL: Short Term Exposure limit.  
 STOT: Specific Target Organ Toxicity.  
 TLV: Threshold Limiting Value.  
 TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).  
 vPvB: Very Persistent, Very Bioaccumulative.  
 WGK: German Water Hazard Class.

**Paragraphs modified from the previous revision:**

- SECTION 2: Hazards identification
- SECTION 3: Composition/information on ingredients



- SECTION 7: Handling and storage
- SECTION 8: Exposure controls/personal protection
- SECTION 9: Physical and chemical properties
- SECTION 11: Toxicological information
- SECTION 12: Ecological information
- SECTION 14: Transport information
- SECTION 15: Regulatory information
- SECTION 16: Other information