SAFETY DATA SHEET

Based upon Regulation (EC) No 1907/2006, as amended by Regulation (EU) No 2020/878

MFL-2480 2K METAL FILLER COMP B

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

1.1. Product identifier

Product name : MFL-2480 2K METAL FILLER COMP B
Registration number REACH : Not applicable (mixture)
Product type REACH : Mixture

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

1.2.1 Relevant identified uses

Adhesive

1.2.2 Uses advised against

No uses advised against known

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

Novatio*
Industrielaan 5B
B-2250 Olen
☎ +32 14 25 76 40
🖷 +32 14 22 02 66
info@novatio.be
*NOVATIO is a registered trademark of Novatech International N.V.

Manufacturer of the product

Novatech International N.V.
Industrielaan 5B
B-2250 Olen
☎ +32 14 85 97 37
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info@novatech.be

1.4. Emergency telephone number

24h/24h (Telephone advice: English, French, German, Dutch) :
+32 14 58 45 45 (BIG)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Skin Sens.	category 1	H317: May cause an allergic skin reaction.
Acute Tox.	category 4	H312: Harmful in contact with skin.
Skin Corr.	category 1B	H314: Causes severe skin burns and eye damage.
Eye Dam.	category 1	H318: Causes serious eye damage.

2.2. Label elements

Contains: N,N'-bis(3-aminopropyl)ethylenediamine; 3,3'-oxybis(ethyleneoxy)bis(propylamine); poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)-; 2-ethyl-4-methylimidazole; Amines, polyethylenepoly-, triethylenetetramine fraction; 4-methylimidazole.

Signal word Danger

H-statements

H317 May cause an allergic skin reaction.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.

P-statements

P280 Wear protective gloves, protective clothing and eye protection/face protection.
P260 Do not breathe vapours/mist.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

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

2.3. Other hazards

Caution! Substance is absorbed through the skin

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark	M-factors and ATE
N,N'-bis(3-aminopropyl)ethylenediamine 01-2119976331-37	10563-26-5 234-147-9	10% <C<40%	Acute Tox. 3; H311 Skin Sens. 1A; H317 Acute Tox. 4; H302 STOT RE 2; H373 Skin Corr. 1B; H314 Eye Dam. 1; H318	(1)(10)	Constituent	
3,3'-oxybis(ethyleneoxy)bis(propylamine) 01-2119963377-26	4246-51-9 224-207-2	5%<C<25%	Skin Sens. 1; H317 Skin Corr. 1B; H314 Eye Dam. 1; H318	(1)(10)	Constituent	
p-toluenesulphonic acid (containing a maximum of 5 % H2SO4) 01-2119538811-39	104-15-4 203-180-0	5%<C<20%	Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335 STOT SE 3; H335: C≥20%, (CLP Annex VI (ATP 0))	(1)(10)	Constituent	
poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)-	64852-22-8	5%<C<10%	Eye Dam. 1; H318 Skin Irrit. 2; H315 Aquatic Chronic 3; H412	(1)(10)	Constituent	
2,4,6-tris(dimethylaminomethyl)phenol 01-2119560597-27	90-72-2 202-013-9	3%<C<5%	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319	(1)(10)	Constituent	
2-ethyl-4-methylimidazole 01-2119980935-21	931-36-2 213-234-5	1%<C<2.5%	Skin Sens. 1; H317 Acute Tox. 4; H302 Eye Dam. 1; H318 Skin Irrit. 2; H315	(1)	Constituent	
Amines, polyethylenepoly-, triethylenetetramine fraction 01-2119487919-13	90640-67-8 292-588-2	1%<C<2.5%	Skin Sens. 1; H317 Acute Tox. 4; H312 Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412 EUH071	(1)(10)	Constituent	
4-methylimidazole	822-36-6 212-497-3	0.1% <C<0.25%	Acute Tox. 4; H312 Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318	(1)	Constituent	

(1) For H- and EUH-statements in full: see section 16
(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

SECTION 4: First aid measures

4.1. Description of first aid measures

General:
Observe (own) safety. If possible, approach victim and check vital functions. In case of injury and/or intoxication, call the European emergency number 112. Treat symptoms starting with most life-threatening injuries and disorders. Keep victim under observation, possibility of delayed symptoms.

After inhalation:
Remove victim into fresh air. Immediately consult a doctor/medical service.

After skin contact:
If possible, wipe up/dry remove chemical. Then rinse/shower immediately for 30 minutes with (lukewarm) water. Cut clothing; never remove burnt clothing from the wound. Do not give any pain medication. Consult a doctor/medical service.

After eye contact:
Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult a doctor/medical service.

After ingestion:
Rinse mouth with water. Immediately consult a doctor/medical service. Do not wait for symptoms to occur to consult Poison Center.

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

4.2.1 Acute symptoms

After inhalation:
EXPOSURE TO HIGH CONCENTRATIONS: Corrosion of the upper respiratory tract.

After skin contact:
Caustic burns/corrosion of the skin.

After eye contact:
Corrosion of the eye tissue. Blindness.

After ingestion:
Burns to the gastric/intestinal mucosa. Possible esophageal perforation.

4.2.2 Delayed symptoms
No effects known.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

5.1. Extinguishing media

5.1.1 Suitable extinguishing media:
Small fire: Quick-acting ABC powder extinguisher, Quick-acting BC powder extinguisher, Quick-acting class B foam extinguisher, Quick-acting CO2 extinguisher.

Major fire: Class B foam (not alcohol-resistant).

5.1.2 Unsuitable extinguishing media:
Small fire: Water (quick-acting extinguisher, reel); risk of puddle expansion.

Major fire: Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture

On burning: release of toxic and corrosive gases/vapours (nitrous vapours, sulphur oxides, carbon monoxide - carbon dioxide).

5.3. Advice for firefighters

5.3.1 Instructions:
Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water. Use water moderately and if possible collect or contain it. Take account of toxic fire-fighting water.

5.3.2 Special protective equipment for fire-fighters:
Gloves (EN 374). Face shield (EN 166). Corrosion-proof suit (EN 14605). Heat/fire exposure: self-contained breathing apparatus (EN 136 + EN 137).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No naked flames. Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

6.1.1 Protective equipment for non-emergency personnel
See section 8.2

6.1.2 Protective equipment for emergency responders
Gloves (EN 374). Face shield (EN 166). Corrosion-proof suit (EN 14605).

Suitable protective clothing
See section 8.2

6.2. Environmental precautions

Contain released product. Dam up the solid spill. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Solid spill: cover with absorbent material. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See section 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Keep away from naked flames/heat. Observe very strict hygiene - avoid contact. Remove contaminated clothing immediately. Keep container tightly closed. Do not discharge the waste into the drain.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Meet the legal requirements. Store at room temperature. Store in a dry area. Keep container tightly closed.

7.2.2 Keep away from:
Heat sources, oxidizing agents, (strong) acids, (strong) bases.

7.2.3 Suitable packaging material:
No data available

7.2.4 Non suitable packaging material:
No data available

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

Product name	Test	Number
p-Toluenesulfonic acid	NIOSH	5043

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 Threshold values

DNEL/DMEL - Workers

N,N'-bis(3-aminopropyl)ethylenediamine

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	1.5 mg/m³	
	Long-term systemic effects dermal	0.42 mg/kg bw/day	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	59 mg/m³	
	Acute systemic effects inhalation	178 mg/m³	
	Long-term systemic effects dermal	8 mg/kg bw/day	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	24.7 mg/m³	
	Long-term systemic effects dermal	7 mg/kg bw/day	

2,4,6-tris(dimethylaminomethyl)phenol

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.53 mg/m³	
	Acute systemic effects inhalation	2.1 mg/m³	
	Long-term systemic effects dermal	0.15 mg/kg bw/day	
	Acute systemic effects dermal	0.6 mg/kg bw/day	

2-ethyl-4-methylimidazole

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	2.8 mg/m³	
	Long-term systemic effects dermal	1.6 mg/kg bw/day	
	Long-term local effects dermal	289 µg/cm²	

Amines, polyethylenepoly-, triethylenetetramine fraction

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.54 mg/m³	

DNEL/DMEL - General population

N,N'-bis(3-aminopropyl)ethylenediamine

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.26 mg/m³	
	Long-term systemic effects dermal	0.15 mg/kg bw/day	
	Long-term systemic effects oral	0.15 mg/kg bw/day	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	10 mg/m³	
	Acute systemic effects inhalation	31 mg/m³	
	Long-term systemic effects dermal	3 mg/kg bw/day	
	Long-term systemic effects oral	3 mg/kg bw/day	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	4.35 mg/m³	
	Long-term systemic effects dermal	2.5 mg/kg bw/day	
	Long-term systemic effects oral	2.5 mg/kg bw/day	

2,4,6-tris(dimethylaminomethyl)phenol

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.13 mg/m³	
	Acute systemic effects inhalation	0.13 mg/m³	
	Long-term systemic effects dermal	0.075 mg/kg bw/day	
	Acute systemic effects dermal	0.075 mg/kg bw/day	
	Long-term systemic effects oral	0.075 mg/kg bw/day	

Amines, polyethylenepoly-, triethylenetetramine fraction

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Long-term systemic effects inhalation	0.096 mg/m³	
	Long-term systemic effects oral	0.14 mg/kg bw/day	

PNEC

N,N'-bis(3-aminopropyl)ethylenediamine

Compartments	Value	Remark
Fresh water	0.144 mg/l	
Fresh water (intermittent releases)	0.43 mg/l	
Marine water	0.014 mg/l	
STP	3.4 mg/l	
Fresh water sediment	45.3 mg/kg sediment dw	
Marine water sediment	4.53 mg/kg sediment dw	
Soil	8.96 mg/kg soil dw	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Compartments	Value	Remark
Fresh water	0.22 mg/l	
Marine water	0.022 mg/l	
Fresh water (intermittent releases)	2.2 mg/l	
STP	500 mg/l	
Fresh water sediment	1.1 mg/kg sediment dw	
Marine water sediment	0.11 mg/kg sediment dw	
Soil	0.091 mg/kg soil dw	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Compartments	Value	Remark
Fresh water	0.073 mg/l	
Marine water	0.007 mg/l	
Fresh water (intermittent releases)	0.73 mg/l	
STP	65 mg/l	
Fresh water sediment	0.35 mg/kg sediment dw	
Marine water sediment	0.035 mg/kg sediment dw	
Soil	0.028 mg/kg soil dw	

2,4,6-tris(dimethylaminomethyl)phenol

Compartments	Value	Remark
Fresh water	0.046 mg/l	
Marine water	0.005 mg/l	
Fresh water (intermittent releases)	0.46 mg/l	
Marine water (intermittent releases)	0.046 mg/l	
STP	0.2 mg/l	
Fresh water sediment	0.262 mg/kg sediment dw	
Marine water sediment	0.026 mg/kg sediment dw	
Soil	0.025 mg/kg soil dw	

2-ethyl-4-methylimidazole

Compartments	Value	Remark
Fresh water	0.195 mg/l	
Marine water	0.019 mg/l	
Fresh water (intermittent releases)	0.681 mg/l	
STP	20.3 mg/l	
Fresh water sediment	46.9 mg/kg sediment dw	
Marine water sediment	4.69 mg/kg sediment dw	
Soil	9.23 mg/kg soil dw	

Amines, polyethylenepoly-, triethylenetetramine fraction

Compartments	Value	Remark
Fresh water	0.027 mg/l	
Marine water	0.003 mg/l	
Fresh water (intermittent releases)	0.2 mg/l	
Marine water (intermittent releases)	0.02 mg/l	
STP	0.13 mg/l	
Fresh water sediment	8.572 mg/kg sediment dw	
Marine water sediment	0.857 mg/kg sediment dw	
Soil	1.25 mg/kg soil dw	

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

8.2.2 Individual protection measures, such as personal protective equipment

Observe very strict hygiene - avoid contact. Do not eat, drink or smoke during work.

a) Respiratory protection:

High gas/vapour concentration: full face mask with filter type A.

b) Hand protection:

Protective gloves against chemicals (EN 374).

Materials	Measured breakthrough time	Thickness	Protection index	Remark
neoprene (chloroprene rubber)	> 480 minutes	0.5 mm	Class 6	
nitrile rubber	> 480 minutes	0.5 mm	Class 6	
PVC	> 480 minutes	0.5 mm	Class 6	

c) Eye protection:

Face shield (EN 166).

d) Skin protection:

Corrosion-proof clothing (EN 14605).

8.2.3 Environmental exposure controls:

See sections 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Paste
Colour	Off-white
Odour	Characteristic odour
Odour threshold	No data available in the literature
Melting point	No data available in the literature
Boiling point	No data available in the literature
Flammability	Not classified as flammable
Explosion limits	Not applicable
Flash point	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	No data available in the literature
pH	No data available in the literature
Kinematic viscosity	No data available in the literature
Dynamic viscosity	51000 mPa.s
Solubility	Water ; insoluble
Log Kow	Not applicable (mixture)
Vapour pressure	No data available in the literature
Absolute density	1340 kg/m³
Relative density	1.34
Relative vapour density	Not applicable
Particle size	Not applicable

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity
No data available.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
Precautionary measures
Keep away from naked flames/heat.

10.5. Incompatible materials
Oxidizing agents, (strong) acids, (strong) bases.

10.6. Hazardous decomposition products
On burning: release of toxic and corrosive gases/vapours (nitrous vapours, sulphur oxides, carbon monoxide - carbon dioxide).

SECTION 11: Toxicological information

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

Acute toxicity

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Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	ATE		> 2000 mg/kg bw			Calculated value	
Dermal	ATE		1923 mg/kg bw			Calculated value	

Judgement is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	BASF test	1140 mg/kg bw		Rat (male / female)	Experimental value	
Dermal	LD50	OECD 402	> 200 mg/kg bw	24 h	Rabbit (male / female)	Experimental value	
Inhalation						Data waiving	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	3160 mg/kg bw		Rat (male / female)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	> 2150 mg/kg	24 h	Rat (male / female)	Experimental value	
Inhalation						Data waiving	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 401	1410 mg/kg bw		Rat (male / female)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	> 2000 mg/kg bw	24 h	Rabbit (male / female)	Experimental value	
Inhalation (vapours)	LC50		50 mg/l - 100 mg/l	8 h	Rat (male / female)	Read-across	

Classification of this substance according to Annex VI is debatable as it does not correspond to the conclusion from the test

2,4,6-tris(dimethylaminomethyl)phenol

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	OECD 401	2169 mg/kg bw		Rat (male / female)	Experimental value	
Oral			category 4			Annex VI	

Classification of this substance according to Annex VI is debatable as it does not correspond to the conclusion from the test

2-ethyl-4-methylimidazole

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	731 mg/kg		Rat (male / female)	Experimental value	
Dermal	LD50	Equivalent to OECD 402	> 400 mg/kg bw	24 h	Rabbit (male / female)	Experimental value	
Inhalation (vapours)	LC50	Equivalent to OECD 403	> 0.03 mg/l	8 h	Rat (male / female)	Experimental value	(maximum achievable concentration)

Amines, polyethylenepoly-, triethylenetetramine fraction

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	1716 mg/kg bw		Rat (male / female)	Experimental value	
Skin	LD50	OECD 402	1465 mg/kg bw	24 h	Rabbit (male / female)	Experimental value	

4-methylimidazole

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral			category 4			Literature study	
Dermal			category 4			Literature study	

Conclusion

Harmful in contact with skin.

Not classified for acute toxicity

Corrosion/irritation

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No (test)data on the mixture available

Classification is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	Equivalent to OECD 405		24; 72 hours	Rabbit	Experimental value	Single treatment without rinsing
Skin	Corrosive	Equivalent to OECD 404	20 h	24; 48; 72 hours	Rabbit	Experimental value	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage; category 1					Data waiving	
Skin	Corrosive	BASF test	1 h	24; 48; 72 hours	Rabbit	Experimental value	

Data waiving for eye corrosion based on corrosive properties

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage		5 seconds - 30 seconds		Rabbit	Read-across	Single treatment
Eye	Irritating; category 2					Annex VI	
Skin	Corrosive	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	
Skin	Irritating; category 2					Annex VI	
Inhalation	Irritating; STOT SE cat.3					Annex VI	

Classification of this substance according to Annex VI is debatable as it does not correspond to the conclusion from the test

poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)-

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage; category 1					Literature study	
Skin	Irritating; category 2					Literature study	

2,4,6-tris(dimethylaminomethyl)phenol

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	16 CFR 1500.42		24; 48; 72 hours	Rabbit	Experimental value	Single treatment
Skin	Corrosive	OECD 404	4 h	7 days	Rabbit	Experimental value	
Skin	Irritating; category 2					Annex VI	

Classification of this substance according to Annex VI is debatable as it does not correspond to the conclusion from the test

2-ethyl-4-methylimidazole

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	OECD 405		24; 48; 72 hours	Rabbit	Experimental value	Single treatment without rinsing
Skin	Irritating	Equivalent to OECD 404	1 h - 4 h	24; 48; 72 hours	Rabbit	Experimental value	

Amines, polyethylenepoly-, triethylenetetramine fraction

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage	Equivalent to OECD 405			Rabbit	Experimental value	Single treatment without rinsing
Skin	Corrosive	OECD 404	4 h	24; 48; 72 hours	Rabbit	Experimental value	

4-methylimidazole

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Serious eye damage; category 1					Literature study	
Skin	Corrosive; category 1B					Literature study	

Conclusion

Causes severe skin burns and eye damage.

Not classified as irritating to the respiratory system

Respiratory or skin sensitisation

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No (test)data on the mixture available

Classification is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	OECD 406			Guinea pig (female)	Experimental value	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing					QSAR	

p-toluenesulphonic acid (containing a maximum of 5 % H_2SO_4)

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Not sensitizing	EU Method B.6			Guinea pig (female)	Experimental value	

2,4,6-tris(dimethylaminomethyl)phenol

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Limited positive test result	OECD 406			Guinea pig (male)	Experimental value	

Classification of this substance according to Annex VI is debatable as it does not correspond to the conclusion from the test

2-ethyl-4-methylimidazole

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Dermal (on the ears)	Sensitizing	OECD 429			Mouse (female)	Experimental value	

Amines, polyethylenepoly-, triethylenetetramine fraction

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Skin	Sensitizing	Equivalent to OECD 406			Guinea pig (male / female)	Experimental value	

Conclusion

May cause an allergic skin reaction.
Not classified as sensitizing for inhalation

Specific target organ toxicity

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No (test)data on the mixture available

Judgement is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 422	30 mg/kg bw/day	No effect	29 day(s) - 53 day (s)	Rat (male / female)	Experimental value	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL systemic effects	OECD 422	≥ 600 mg/kg bw/day	No effect	59 day(s) - 62 day (s)	Rat (male / female)	Experimental value	
Oral (stomach tube)	NOAEL local effects	OECD 422	100 mg/kg bw/day	No effect	62 day(s)	Rat (female)	Experimental value	
Oral (stomach tube)	LOAEL local effects	OECD 422	100 mg/kg bw/day	Histopathology	59 day(s)	Rat (male)	Experimental value	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral	NOAEL	OECD 407	≥ 500 mg/kg bw/day	No effect	4 weeks (daily)	Rat (male / female)	Experimental value	
Dermal	NOAEL	EPA OPP 82-2	> 800 mg/kg bw/day	No effect	2 weeks (5 days / week)	Rat (male / female)	Read-across	
Inhalation							Data waiving	

2,4,6-tris(dimethylaminomethyl)phenol

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 408	15 mg/kg bw/day	No effect	90 day(s)	Rat (male / female)	Experimental value	
Dermal	NOEL	Subchronic toxicity test	5 mg/kg bw/day	Skin (no effect)	4 weeks (5 days / week)	Rat	Experimental value	
Inhalation							Data waiving	

2-ethyl-4-methylimidazole

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (stomach tube)	NOAEL	OECD 408	80 mg/kg bw/day	No effect	94 day(s) - 95 day (s)	Rat (male / female)	Experimental value	

Amines, polyethylenepoly-, triethylenetetramine fraction

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Oral (drinking water)	NOAEL	Equivalent to OECD 408	> 270 mg/kg bw/day	No effect	92 day(s)	Rat (male)	Experimental value	
Oral (drinking water)	NOAEL	Equivalent to OECD 408	60 mg/kg bw/day	No effect	92 day(s)	Rat (female)	Experimental value	

Conclusion

Not classified for subchronic toxicity

Mutagenicity (in vitro)

MFL-2480 2K METAL FILLER COMP B

No (test)data on the mixture available

Judgement is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S. typhimurium and E. coli)		Experimental value	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 476	Chinese hamster ovary (CHO)	No effect	Experimental value	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S.typhimurium)	No effect	Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 473	Chinese hamster lung fibroblasts (V79)	No effect	Experimental value	

2,4,6-tris(dimethylaminomethyl)phenol

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S. typhimurium and E. coli)		Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 473	Human lymphocytes		Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 476	Mouse (lymphoma L5178Y cells)		Experimental value	

2-ethyl-4-methylimidazole

Result	Method	Test substrate	Effect	Value determination	Remark
Negative with metabolic activation, negative without metabolic activation	OECD 471	Bacteria (S. typhimurium and E. coli)	No effect	Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 476	Chinese hamster lung fibroblasts (V79)	No effect	Experimental value	

Amines, polyethylenepoly-, triethylenetetramine fraction

Result	Method	Test substrate	Effect	Value determination	Remark
Ambiguous	OECD 471	Bacteria (S. typhimurium and E. coli)		Experimental value	
Negative with metabolic activation, negative without metabolic activation	OECD 487	Human lymphocytes		Experimental value	

Mutagenicity (in vivo)

MFL-2480 2K METAL FILLER COMP B

No (test)data on the mixture available

Judgement is based on the relevant ingredients

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Oral (stomach tube))	OECD 474		Mouse (male / female)	Bone marrow (no effect)	Read-across	Single treatment

Amines, polyethylenepoly-, triethylenetetramine fraction

Result	Method	Exposure time	Test substrate	Organ/Effect	Value determination	Remark
Negative (Intraperitoneal)	Equivalent to OECD 474		Mouse (male / female)	No effect	Experimental value	Single intraperitoneal injection

Conclusion

Not classified for mutagenic or genotoxic toxicity

Carcinogenicity

MFL-2480 2K METAL FILLER COMP B

No (test)data on the mixture available

Judgement is based on the relevant ingredients

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Subcutaneous	Dose level	Equivalent to OECD 453	727 mg/kg bw	No carcinogenic effect	104 weeks (5 days / week)	Mouse (male / female)	Read-across	

Amines, polyethylenepoly-, triethylenetetramine fraction

Route of exposure	Parameter	Method	Value	Organ/Effect	Exposure time	Species	Value determination	Remark
Dermal	NOAEL	Equivalent to OECD 451	> 20 mg/kg bw/day	No carcinogenic effect	104 weeks (3 times / week)	Mouse (male)	Experimental value	2 % aqueous solution
Dermal	NOAEL	Equivalent to OECD 451	> 50 mg/kg bw/day	No carcinogenic effect	104 weeks (3 times / week)	Mouse (male)	Experimental value	5 % aqueous solution

Conclusion

Not classified for carcinogenicity

Reproductive toxicity

MFL-2480 2K METAL FILLER COMP B

No (test)data on the mixture available

Judgement is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	≥ 300 mg/kg bw/day	14 days (gestation, daily)	Rat	No effect	Experimental value	
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	150 mg/kg bw/day	14 days (gestation, daily)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))	NOAEL	OECD 422	100 mg/kg bw/day	29 day(s) - 53 day (s)	Rat (male / female)	No effect	Experimental value	

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL (P)	OECD 414	≥ 600 mg/kg bw/day	14 days (gestation, daily)	Rat	No effect	Experimental value	
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	≥ 600 mg/kg bw/day	14 days (gestation, daily)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))	NOAEL (P)	OECD 422	≥ 600 mg/kg bw/day		Rat (male / female)	No effect	Experimental value	

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	> 1000 mg/kg bw/day	10 day(s)	Rat	Foetus (no effect)	Read-across	
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	> 1000 mg/kg bw/day	10 day(s)	Rat	No effect	Read-across	
Effects on fertility (Oral (stomach tube))	NOAEL	Equivalent to OECD 421	300 mg/kg bw/day	46 day(s)	Rat (male / female)	No effect	Read-across	

2,4,6-tris(dimethylaminomethyl)phenol

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	150 mg/kg bw/day	15 days (gestation, daily)	Rat	No effect	Experimental value	
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	50 mg/kg bw/day	15 days (gestation, daily)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))	NOAEL	OECD 443	> 150 mg/kg bw/day		Rat (male / female)	No effect	Experimental value	

2-ethyl-4-methylimidazole

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	230 mg/kg bw/day	14 days (gestation, daily)	Rat	No effect	Experimental value	
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	80 mg/kg bw/day	14 days (gestation, daily)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))	NOAEL	OECD 422	150 mg/kg bw/day	29 day(s) - 56 day (s)	Rat (male / female)	No effect	Experimental value	

Amines, polyethylenepoly-, triethylenetetramine fraction

Category	Parameter	Method	Value	Exposure time	Species	Effect	Value determination	Remark
Developmental toxicity (Oral (stomach tube))	NOAEL	OECD 414	≥ 750 mg/kg bw/day	10 days (gestation, daily)	Rat	No effect	Experimental value	
Maternal toxicity (Oral (stomach tube))	NOAEL	OECD 414	≥ 750 mg/kg bw/day	10 days (gestation, daily)	Rat	No effect	Experimental value	
Effects on fertility (Oral (stomach tube))		OECD 443			Rat (male / female)		Experimental study planned	

Conclusion

Not classified for reprotoxic or developmental toxicity

Aspiration hazard

MFL-2480 2K METAL FILLER COMP B

Judgement is based on the relevant ingredients
Not classified for aspiration toxicity

Toxicity other effects

MFL-2480 2K METAL FILLER COMP B

No (test)data on the mixture available

Chronic effects from short and long-term exposure

MFL-2480 2K METAL FILLER COMP B

Skin rash/inflammation.

11.2. Information on other hazards

No evidence of endocrine disrupting properties

SECTION 12: Ecological information

12.1. Toxicity

MFL-2480 2K METAL FILLER COMP B

No (test)data on the mixture available
Judgement of the mixture is based on the relevant ingredients

N,N'-bis(3-aminopropyl)ethylenediamine

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	DIN 38412-15	220 mg/l - 460 mg/l	96 h	Leuciscus idus	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EC50	EU Method C.2	43 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Locomotor effect
Toxicity algae and other aquatic plants	ErC50	OECD 201	> 100 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; Nominal concentration
	NOEC	OECD 201	50 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; Growth rate
Long-term toxicity aquatic crustacea	NOEC	OECD 211	7.2 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value; Reproduction
Toxicity aquatic micro-organisms	EC10	OECD 209	34 mg/l	180 minutes	Activated sludge	Static system	Fresh water	Experimental value; Nominal concentration

3,3'-oxybis(ethyleneoxy)bis(propylamine)

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	DIN 38412-15	215 mg/l - 464 mg/l	96 h	Leuciscus idus	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EC50	EU Method C.2	218 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Nominal concentration
Toxicity algae and other aquatic plants	EC50	DIN 38412-9	> 500 mg/l	72 h	Scenedesmus subspicatus	Static system	Fresh water	Experimental value; Nominal concentration
	EC10	DIN 38412-9	5.4 mg/l	72 h	Scenedesmus subspicatus	Static system	Fresh water	Experimental value; Nominal concentration
Long-term toxicity fish	NOEC		> 1 mg/l		Leuciscus idus		Fresh water	Calculated value
Long-term toxicity aquatic crustacea	NOEC		> 1 mg/l		Daphnia magna		Fresh water	Calculated value
Toxicity aquatic micro-organisms	EC50	DIN 38412-8	222 mg/l	17 h	Pseudomonas putida	Static system	Fresh water	Experimental value; Nominal concentration

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	Equivalent to OECD 203	> 500 mg/l	96 h	Leuciscus idus	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EC50	OECD 202	> 103 mg/l	48 h	Daphnia magna	Static system	Fresh water	Read-across; Locomotor effect
Toxicity algae and other aquatic plants	ErC50	OECD 201	73 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Read-across; GLP
	NOEC	OECD 201	45 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Read-across; Growth rate
Toxicity aquatic micro-organisms	NOEC	Equivalent to OECD 209	580 mg/l	3 h	Activated sludge	Static system	Fresh water	Experimental value; Respiration

2,4,6-tris(dimethylaminomethyl)phenol

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	APHA	175 mg/l	96 h	Cyprinus carpio	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	LC50	Other	718 mg/l	96 h	Palaemonetes vulgaris	Static system	Salt water	Experimental value; Nominal concentration
Toxicity algae and other aquatic plants	ErC50	OECD 201	84 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; GLP
Long-term toxicity fish								Data waiving
Long-term toxicity aquatic crustacea								Data waiving
Toxicity aquatic micro-organisms	NOEC	OECD 301D	2 mg/l	28 day(s)	Activated sludge	Static system	Fresh water	Experimental value; Nominal concentration

2-ethyl-4-methylimidazole

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	DIN 38412-15	68 mg/l	96 h	Leuciscus idus	Static system	Fresh water	Experimental value; Nominal concentration
Acute toxicity crustacea	EC50	EU Method C.2	297 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Nominal concentration
Toxicity algae and other aquatic plants	ErC50	DIN 38412-9	125 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; Nominal concentration
	NOEC	DIN 38412-9	31 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value; Growth rate
Long-term toxicity fish	NOEC		24 mg/l	33 day(s)	Pimephales promelas		Fresh water	QSAR; Growth
Long-term toxicity aquatic crustacea	EC10		2 mg/l	21 day(s)	Daphnia magna		Fresh water	QSAR; Reproduction
Toxicity aquatic micro-organisms	EC50	OECD 209	> 1000 mg/l	30 minutes	Activated sludge	Static system	Fresh water	Experimental value; Nominal concentration

Amines, polyethylenepoly-, triethylenetetramine fraction

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	Equivalent to EPA OPPTS 797.1400	330 mg/l	96 h	Pimephales promelas	Static system	Fresh water	Experimental value; GLP
Acute toxicity crustacea	EC50	EU Method C.2	31 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value; Locomotor effect
Toxicity algae and other aquatic plants	ErC50	OECD 201	20 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; GLP

4-methylimidazole

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Toxicity aquatic micro-organisms			2000 mg/l	30 minutes				

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

N,N'-bis(3-aminopropyl)ethylenediamine

Biodegradation water

Method	Value	Duration	Value determination
OECD 301B	70 %; GLP	28 day(s)	Experimental value

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
AOPWIN v1.92	1.6 h	5E5 /cm³	Calculated value

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Biodegradation water

Method	Value	Duration	Value determination
OECD 301B	0 %; GLP	28 day(s)	Experimental value

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Biodegradation water

Method	Value	Duration	Value determination
OECD 301B	69 % - 87 %; GLP	29 day(s)	Weight of evidence

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
AOPWIN v1.92	94 h	1.5E6 /cm³	Calculated value

2,4,6-tris(dimethylaminomethyl)phenol

Biodegradation water

Method	Value	Duration	Value determination
OECD 301D	4 %; GLP	28 day(s)	Experimental value

Biodegradation soil

Method	Value	Duration	Value determination
			Data waiving

2-ethyl-4-methylimidazole

Biodegradation water

Method	Value	Duration	Value determination
OECD 301A	86 %; GLP	28 day(s)	Experimental value

Amines, polyethylenepoly-, triethylenetetramine fraction

Biodegradation water

Method	Value	Duration	Value determination
OECD 301D	0 %; GLP	162 day(s)	Experimental value

4-methylimidazole

Biodegradation water

Method	Value	Duration	Value determination
OECD 302B	94 %		Experimental value

Conclusion

Water

Contains non readily biodegradable component(s)

12.3. Bioaccumulative potential

MFL-2480 2K METAL FILLER COMP B

Log Kow

Method	Remark	Value	Temperature	Value determination
	Not applicable (mixture)			

N,N'-bis(3-aminopropyl)ethylenediamine

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	Equivalent to OECD 305	< 5	6 week(s)	Cyprinus carpio	Read-across

Log Kow

Method	Remark	Value	Temperature	Value determination
Equivalent to OECD 107		-1.6	23 °C	Practical experience/observation

3,3'-oxybis(ethyleneoxy)bis(propylamine)

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF	BCFBAF v3.01	0.89 - 3.2		Pisces	Estimated value

Log Kow

Method	Remark	Value	Temperature	Value determination
OECD 107		-1.3	25 °C	Experimental value

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Log Kow

Method	Remark	Value	Temperature	Value determination
EU Method A.8		-0.96	50 °C	Experimental value

poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)-

Log Kow

Method	Remark	Value	Temperature	Value determination
	No data available in the literature			

2,4,6-tris(dimethylaminomethyl)phenol

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
					Data waiving

Log Kow

Method	Remark	Value	Temperature	Value determination
EPA OPPTS 830.7550		-0.660	21.5 °C	Experimental value

2-ethyl-4-methylimidazole

Log Kow

Method	Remark	Value	Temperature	Value determination
Equivalent to OECD 107		1.1	25 °C	Experimental value

Amines, polyethylenepoly-, triethylenetetramine fraction

Log Kow

Method	Remark	Value	Temperature	Value determination
KOWWIN		-2.5		Weight of evidence approach

4-methylimidazole

Log Kow

Method	Remark	Value	Temperature	Value determination
		0.35		Experimental value

Conclusion

No straightforward conclusion can be drawn based upon the available numerical values

12.4. Mobility in soil

N,N'-bis(3-aminopropyl)ethylenediamine

(log) Koc

Parameter	Method	Value	Value determination
log Koc	OECD 106	3.2 - 3.7	Experimental value

3,3'-oxybis(ethyleneoxy)bis(propylamine)

(log) Koc

Parameter	Method	Value	Value determination
log Koc		1.2	Calculated value

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

(log) Koc

Parameter	Method	Value	Value determination
log Koc	SRC PCKOCWIN v2.0	0.58 - 1.2	Calculated value

2,4,6-tris(dimethylaminomethyl)phenol

(log) Koc

Parameter	Method	Value	Value determination
Koc	SRC PCKOCWIN v2.0	20.98	QSAR
log Koc		1.32	Calculated value

Percent distribution

Method	Fraction air	Fraction biota	Fraction sediment	Fraction soil	Fraction water	Value determination
Mackay level I	0.001 %	0 %	0.002 %	0.002 %	99.996 %	Calculated value

2-ethyl-4-methylimidazole

(log) Koc

Parameter	Method	Value	Value determination
log Koc		3.3	Calculated value

Amines, polyethylenepoly-, triethylenetetramine fraction

(log) Koc

Parameter	Method	Value	Value determination
log Koc	Equivalent to OECD 106	3.2 - 3.7	Experimental value

Conclusion

Contains component(s) with potential for mobility in the soil
Contains component(s) that adsorb(s) into the soil

12.5. Results of PBT and vPvB assessment

Does not contain component(s) that meet(s) the criteria of PBT and/or vPvB as listed in Annex XIII of Regulation (EC) No 1907/2006.

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties

12.7. Other adverse effects

MFL-2480 2K METAL FILLER COMP B

Greenhouse gases

None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

Groundwater

Groundwater pollutant

N,N'-bis(3-aminopropyl)ethylenediamine

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

Water ecotoxicity pH

pH shift

3,3'-oxybis(ethyleneoxy)bis(propylamine)

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

Water ecotoxicity pH

pH shift

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Groundwater

Groundwater pollutant

Water ecotoxicity pH

pH shift

poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)-

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

2,4,6-tris(dimethylaminomethyl)phenol

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Groundwater

Groundwater pollutant

Water ecotoxicity pH

pH shift

2-ethyl-4-methylimidazole

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 2024/590)

Water ecotoxicity pH

pH shift

Amines, polyethylenepoly-, triethylenetetramine fraction

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

4-methylimidazole

Greenhouse gases

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 2024/573)

Water ecotoxicity pH

pH shift

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

European Union

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.
Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).
08 04 09* (wastes from MFSU of adhesives and sealants (including waterproofing products): waste adhesives and sealants containing organic solvents or other hazardous substances). Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment. Dispose of at authorized waste collection point.

13.1.3 Packaging/Container

European Union

Waste material code packaging (Directive 2008/98/EC).
15 01 10* (packaging containing residues of or contaminated by dangerous substances).

SECTION 14: Transport information

Road (ADR)

14.1. UN number or ID number

UN number	2735

14.2. UN proper shipping name

Proper shipping name	amines, liquid, corrosive, n.o.s. (N,N'-bis(3-aminopropyl) ethylenediamine; 3,3'-oxybis(ethyleneoxy)bis(propylamine))

14.3. Transport hazard class(es)

Hazard identification number	80

Class	8
Classification code	C7

14.4. Packing group

Packing group	II
Labels	8

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	274
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg (gross mass).

Rail (RID)

14.1. UN number or ID number

UN number	2735

14.2. UN proper shipping name

Proper shipping name	amines, liquid, corrosive, n.o.s. (N,N'-bis(3-aminopropyl) ethylenediamine; 3,3'-oxybis(ethyleneoxy)bis(propylamine))

14.3. Transport hazard class(es)

Hazard identification number	80
Class	8
Classification code	C7

14.4. Packing group

Packing group	II
Labels	8

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	274
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg (gross mass).

Inland waterways (ADN)

14.1. UN number or ID number

UN number/ID number	2735

14.2. UN proper shipping name

Proper shipping name	amines, liquid, corrosive, n.o.s. (N,N'-bis(3-aminopropyl) ethylenediamine; 3,3'-oxybis(ethyleneoxy)bis(propylamine))

14.3. Transport hazard class(es)

Class	8
Classification code	C7

14.4. Packing group

Packing group	II
Labels	8

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	274
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg (gross mass).

Sea (IMDG/IMSBC)

14.1. UN number or ID number

UN number	2735

14.2. UN proper shipping name

Proper shipping name	amines, liquid, corrosive, n.o.s. (N,N'-bis(3-aminopropyl) ethylenediamine; 3,3'-oxybis(ethyleneoxy)bis(propylamine))

14.3. Transport hazard class(es)

Class	8

14.4. Packing group

Packing group	II
Labels	8

14.5. Environmental hazards

Marine pollutant	-
Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	274
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg (gross mass).

14.7. Maritime transport in bulk according to IMO instruments

Annex II of MARPOL 73/78	Not applicable, based on available data

Air (ICAO-TI/IATA-DGR)

14.1. UN number or ID number

UN number/ID number	2735

14.2. UN proper shipping name

Proper shipping name	amines, liquid, corrosive, n.o.s. (N,N'-bis(3-aminopropyl) ethylenediamine; 3,3'-oxybis(ethyleneoxy)bis(propylamine))

14.3. Transport hazard class(es)

Class	8

14.4. Packing group

Packing group	II
Labels	8

14.5. Environmental hazards

Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	A3
Special provisions	A803

Passenger and cargo transport

Limited quantities: maximum net quantity per packaging	0.5 L

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
31 %	
415 g/l	

Directive 2012/18/EU (Seveso III)

Not subject to registration according to Directive 2012/18/EU (Seveso III)

REACH Candidate list

Does not contain component(s) included in candidate list of substances of very high concern (SVHC) for authorisation (Article 59 of Regulation (EC) No 1907/2006)

REACH Annex XIV - Authorisation

Does not contain component(s) included in Annex XIV of Regulation (EC) No 1907/2006: list of substances subject to authorisation

REACH Annex XVII - Restriction

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
· N,N'-bis(3-aminopropyl)ethylenediamine · 3,3'-oxybis(ethyleneoxy)bis(propylamine) · poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)- · 2,4,6-tris(dimethylaminomethyl)phenol · Amines, polyethylenepoly-, triethylenetetramine fraction	Liquid substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: — can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with H304, 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: “Keep lamps filled with this liquid out of the reach of children”; and, by 1 December 2010, “Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life- threatening lung damage”; b) grill lighter fluids, labelled with H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: “Just a sip of grill lighter may lead to life threatening lung damage”; c) lamp oils and grill lighters, labelled with H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.
· p-toluenesulphonic acid (containing a maximum of 5 % H2SO4) · 2,4,6-tris(dimethylaminomethyl)phenol	Substances falling within one or more of the following points: (a) substances classified as any of the following in Part 3 of Annex VI to Regulation (EC) No 1272/2008: — carcinogen category 1A, 1B or 2, or germ	Mixtures for tattooing purposes are subject to the restrictions of Regulation (EU) 2020/2081

	cell mutagen category 1A, 1B or 2, but excluding any such substances classified due to effects only following exposure by inhalation — reproductive toxicant category 1A, 1B or 2 but excluding any such substances classified due to effects only following exposure by inhalation — skin sensitiser category 1, 1A or 1B — skin corrosive category 1, 1A, 1B or 1C or skin irritant category 2 — serious eye damage category 1 or eye irritant category 2 (b) substances listed in Annex II to Regulation (EC) No 1223/2009 of the European Parliament and of the Council (c) substances listed in Annex IV to Regulation (EC) No 1223/2009 for which a condition is specified in at least one of the columns g, h and i of the table in that Annex (d) substances listed in Appendix 13 to this Annex. The ancillary requirements in paragraphs 7 and 8 of column 2 of this entry apply to all mixtures for use for tattooing purposes, whether or not they contain a substance falling within points (a) to (d) of this column of this entry.	

National legislation Belgium

MFL-2480 2K METAL FILLER COMP B

No data available

National legislation The Netherlands

MFL-2480 2K METAL FILLER COMP B

Waterbezwaarlijkheid	B (3); Algemene Beoordelingsmethodiek (ABM)

4-methylimidazole

SZW - Lijst van kankerverwekkende stoffen	4-methylimidazool; Opgenomen in SZW-lijst van kankerverwekkende stoffen
SZW - Lijst van voor de voortplanting giftige stoffen (ontwikkeling)	4-methylimidazool; Opgenomen in SZW-lijst van voor de voortplanting giftige stoffen (ontwikkeling); 2
SZW - Lijst van voor de voortplanting giftige stoffen (vruchtbaarheid)	4-methylimidazool; Opgenomen in SZW-lijst van voor de voortplanting giftige stoffen (vruchtbaarheid); 1B

National legislation France

MFL-2480 2K METAL FILLER COMP B

No data available

National legislation Germany

MFL-2480 2K METAL FILLER COMP B

Lagerklasse (TRGS510)	8 B: Nicht brennbare ätzende Gefahrstoffe
WGK	1; Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (AwSV) - 18. April 2017

N,N'-bis(3-aminopropyl)ethylenediamine

TA-Luft	5.2.5/I

3,3'-oxybis(ethyleneoxy)bis(propylamine)

TA-Luft	5.2.5

p-toluenesulphonic acid (containing a maximum of 5 % H2SO4)

TA-Luft	5.2.1

poly[oxy(methyl-1,2-ethaandiyl)], α,α',α''-1,2,3-propaantriyltris[ω-(2-aminomethylethoxy)-

TA-Luft	5.2.5

2,4,6-tris(dimethylaminomethyl)phenol

TA-Luft	5.2.5

2-ethyl-4-methylimidazole

TA-Luft	5.2.1

Amines, polyethylenepoly-, triethylenetetramine fraction

TA-Luft	5.2.5

4-methylimidazole

TA-Luft	5.2.5/I

National legislation Austria

MFL-2480 2K METAL FILLER COMP B

No data available

National legislation United Kingdom

MFL-2480 2K METAL FILLER COMP B

No data available

National legislation Ireland

MFL-2480 2K METAL FILLER COMP B

No data available

Other relevant data

MFL-2480 2K METAL FILLER COMP B

No data available

4-methylimidazole

IARC - classification	2B; 4-Methylimidazole

15.2. Chemical safety assessment

No chemical safety assessment is required for a mixture.

SECTION 16: Other information

Full text of any H- and EUH-statements referred to under section 3:

H302 Harmful if swallowed.
H311 Toxic in contact with skin.
H312 Harmful in contact with skin.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to organs (teeth) through prolonged or repeated exposure if swallowed.
H412 Harmful to aquatic life with long lasting effects.
EUH071 Corrosive to the respiratory tract.

(*)	INTERNAL CLASSIFICATION BY BIG
ADI	Acceptable daily intake
AOEL	Acceptable operator exposure level
ATE	Acute Toxicity Estimate
BCF	Bioconcentration Factor
BEI	Biological Exposure Indices
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC10	Effect Concentration 10 %
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
GLP	Good Laboratory Practice
LC0	Lethal Concentration 0 %
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
LOAEC/LOAEL	Lowest Observed Adverse Effect Concentration/Lowest Observed Adverse Effect Level
NOAEC/NOAEL	No Observed Adverse Effect Concentration/No Observed Adverse Effect Level
NOEC/NOEL	No Observed Effect Concentration/No Observed Effect Level
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration
STP	Sludge Treatment Process
vPvB	very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.