Safety Data Sheet

according to Regulation (EC) No 1907/2006

ARC 988(E) Parl A, color grey and red

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

1.1. Product identifier

ARC 988(E) Parl A, color grey and red

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

Use of the substance/mixture

ARC Polymer Composite. Repair damage caused by impact, abrasion or erosion and chemical attack.

Uses advised against

No information available.

1.3. Details of the supplier of the safety data sheet

Company name:	Chesterton International GmbH	
Street:	Am Lenzenfleck 23	
Place:	DE-85737 Ismaning GERMANY	
Telephone:	+49 89 99 65 46 - 0	Telefax: +49 89 99 65 46 - 50
e-mail:	eu-sds@chesterton.com	
e-mail (Contact person):	eu-sds@chesterton.com	
Internet:	www.chesterton.com	
Responsible Department:	eu-sds@chesterton.com	

1.4. Emergency telephone number:

+49(0) 551 - 1 92 40 (GIZ-Nord, 24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Skin corrosion/irritation: Skin Irrit. 2
Serious eye damage/eye irritation: Eye Irrit. 2
Respiratory or skin sensitisation: Skin Sens. 1
Hazardous to the aquatic environment: Aquatic Chronic 2
Hazard Statements:
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

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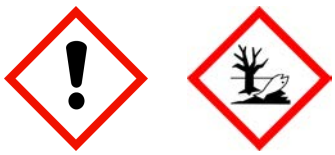
Hazard components for labelling

Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
Epoxy phenol novolac resin
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)
1,6-bis(2,3-epoxypropoxy)hexane
Phenol, styrenated

Signal word: Warning

Pictograms:



Hazard statements

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P391	Collect spillage.

2.3. Other hazards

The safety and health hazards are detailed separately for Part A and Part B. The final cured material is considered nonhazardous. Upon machining, refer to the precautions in the safety data sheets for Part A and Part B.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol			40 - < 45 %
	500-006-8		01-2119454392-40	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			
28064-14-4	Epoxy phenol novolac resin			35 - < 40 %
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H319 H317 H411			
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.			10 - < 15 %
	271-846-8	603-103-00-4	01-2119485289-22	
	Skin Irrit. 2, Skin Sens. 1; H315 H317			
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)			5 - < 10 %
	500-033-5	603-074-00-8	01-2119456619-26	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H319 H317 H411			
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane			< 1 %
	618-939-5		01-2119463471-41	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 3; H315 H319 H317 H412			
61788-44-1	Phenol, styrenated			< 0.1 %
	262-975-0		01-2119980970-27	
	Skin Irrit. 2, Skin Sens. 1A, Aquatic Chronic 2; H315 H317 H411			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

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

After inhalation

In case of inhalation of decomposition products, affected person should be moved into fresh air and kept still.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Seek medical advice immediately.
Do not wash with: Solvents/Thinner

After contact with eyes

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

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After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.
Do NOT induce vomiting.

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

Processing vapours can irritate the respiratory tracts, skin and eyes.
Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

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

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Dry extinguishing powder. Carbon dioxide (CO2). alcohol resistant foam. Water spray jet

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Carbon monoxide Carbon dioxide (CO2). Nitrogen oxides (NOx)

5.3. Advice for firefighters

Special protective equipment for firefighters Protective clothing. In case of fire: Wear self-contained breathing apparatus.
Co-ordinate fire-fighting measures to the fire surroundings.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See protective measures under point 7 and 8.
Provide adequate ventilation.
Personal protection equipment: see section 8
Remove persons to safety.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Cover drains. Adverse environmental effects

6.3. Methods and material for containment and cleaning up

Take up mechanically, placing in appropriate containers for disposal. Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

See protective measures under point 7 and 8. Disposal: see section 13

SECTION 7: Handling and storage

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7.1. Precautions for safe handling

Advice on safe handling

See section 8.
Wear personal protection equipment (refer to section 8).
Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid contact with skin, eyes and clothes.
Take off contaminated clothing and wash it before reuse.
Contaminated work clothing should not be allowed out of the workplace.
When using do not eat, drink or smoke.
Never use pressure to empty container. Keep/Store only in original container.
Do not allow to enter into surface water or drains.

Advice on protection against fire and explosion

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

Further information on storage conditions

Keep away from:
Frost
Heat
Humidity

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
13463-67-7	Titanium dioxide, total inhalable	-	10		TWA (8 h)	WEL

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DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol			
Worker DNEL, long-term		inhalation	systemic	29,39 mg/m³
Worker DNEL, long-term		dermal	systemic	104,15 mg/kg bw/day
Worker DNEL, acute		dermal	local	0,0083 mg/cm²
Consumer DNEL, long-term		inhalation	systemic	8,7 mg/m³
Consumer DNEL, long-term		dermal	systemic	62,5 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	6,25 mg/kg bw/day
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.			
Worker DNEL, long-term		inhalation	systemic	3,6 mg/m³
Worker DNEL, long-term		dermal	systemic	1 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,87 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,5 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,5 mg/kg bw/day
,				
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)			
Worker DNEL, long-term		inhalation	systemic	12,25 mg/m³
Worker DNEL, acute		inhalation	systemic	12,25 mg/m³
Worker DNEL, long-term		dermal	systemic	8,33 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	8,33 mg/kg bw/day
Consumer DNEL, long-term		dermal	systemic	3,571 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	3,571 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,75 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	0,75 mg/kg bw/day
,				
13463-67-7	Titanium dioxide			
Worker DNEL, long-term		inhalation	local	10 mg/m³
Consumer DNEL, long-term		oral	systemic	700 mg/kg bw/day
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane			

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Worker DNEL, long-term	inhalation	systemic	10,57 mg/m³
Worker DNEL, acute	inhalation	systemic	10,57 mg/m³
Worker DNEL, long-term	inhalation	local	0,44 mg/m³
Worker DNEL, long-term	dermal	systemic	6 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	5,29 mg/m³
Consumer DNEL, acute	inhalation	systemic	5,29 mg/m³
Consumer DNEL, long-term	inhalation	local	0,27 mg/m³
Consumer DNEL, long-term	dermal	systemic	3 mg/kg bw/day
Consumer DNEL, acute	dermal	systemic	1,7 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	1,5 mg/kg bw/day
Consumer DNEL, acute	oral	systemic	1,5 mg/kg bw/day
61788-44-1	Phenol, styrenated		
Worker DNEL, long-term	inhalation	systemic	7,4 mg/m³
Worker DNEL, long-term	dermal	systemic	2,1 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	1,31 mg/m³
Consumer DNEL, long-term	dermal	systemic	0,75 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	0,75 mg/kg bw/day

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PNEC values

CAS No	Substance
Environmental compartment	Value
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
Freshwater	0,003 mg/l
Marine water	0,00 mg/l
Freshwater sediment	0,294 mg/kg
Marine sediment	0,029 mg/kg
Soil	0,237 mg/kg
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
Freshwater	0,106 mg/l
Freshwater (intermittent releases)	0,072 mg/l
Marine water	0,011 mg/l
Freshwater sediment	307,16 mg/kg
Marine sediment	30,72 mg/kg
Micro-organisms in sewage treatment plants (STP)	10 mg/l
Soil	1,234 mg/kg
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)
Freshwater	0,006 mg/l
Marine water	0,001 mg/l
Freshwater sediment	0,996 mg/kg
Marine sediment	0,1 mg/kg
Secondary poisoning	11 mg/kg
Soil	0,196 mg/kg
13463-67-7	Titanium dioxide
Freshwater	0,184 mg/l
Freshwater (intermittent releases)	0,193 mg/l
Marine water	0,018 mg/l
Freshwater sediment	1000 mg/kg
Marine sediment	100 mg/kg
Micro-organisms in sewage treatment plants (STP)	100 mg/l
Soil	100 mg/kg
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane
Freshwater	0,011 mg/l
Freshwater (intermittent releases)	0,115 mg/l
Marine water	0,001 mg/l
Freshwater sediment	0,283 mg/kg

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Marine sediment	0,028 mg/kg
Micro-organisms in sewage treatment plants (STP)	1 mg/l
Soil	0,223 mg/kg
61788-44-1	Phenol, styrenated
Freshwater	0,03 mg/l
Freshwater (intermittent releases)	0,046 mg/l
Marine water	0,003 mg/l
Freshwater sediment	1,86 mg/kg
Marine sediment	0,186 mg/kg
Micro-organisms in sewage treatment plants (STP)	36,2 mg/l
Soil	0,355 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

Protective and hygiene measures

Work in well-ventilated zones or use proper respiratory protection. Only wear fitting, comfortable and clean protective clothing. Avoid contact with skin, eyes and clothes. Wash hands and face before breaks and after work and take a shower if necessary.

Eye/face protection

Suitable eye protection:
Eye glasses with side protection
goggles

Hand protection

Tested protective gloves must be worn: EN ISO 374
NBR (Nitrile rubber), Butyl caoutchouc (butyl rubber), PVC (polyvinyl chloride)
Thickness of the glove material >= 0,4 mm
Breakthrough times and swelling properties of the material must be taken into consideration.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Observe the wear time limits as specified by the manufacturer.

Skin protection

Protective clothing

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.
Combination filtering device (EN 14387) A-P2

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Paste
Colour:	grey; red
Odour:	characteristic

		Test method
pH-Value:	not applicable	
Changes in the physical state		
Melting point:	not applicable	
Initial boiling point and boiling range:	not applicable	
Flash point:	>93 °C	
Flammability		
Solid:	No data available	
Gas:	No data available	
Explosive properties		
No information available.		
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Ignition temperature:	No data available	
Auto-ignition temperature		
Solid:	No data available	
Gas:	No data available	
Decomposition temperature:	No data available	
Oxidizing properties		
No information available.		
Vapour pressure:	No data available	
Density:	~1,20 g/cm³	
Water solubility:	Immiscible	
Solubility in other solvents		
No information available.		
Partition coefficient:	No data available	
Viscosity / dynamic: (at 25 °C)	~2500 mPa·s	
Vapour density:	>1	(air = 1)
Evaporation rate:	<1	(Ether = 1)

9.2. Other information

No information available.

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SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable under storage at normal ambient temperatures.

10.2. Chemical stability

Does not decompose when used for intended uses. No known hazardous decomposition products.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Acid, Oxidising agent

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

10.5. Incompatible materials

Strong acid
Strong alkali
Oxidising agent, strong

10.6. Hazardous decomposition products

Carbon monoxide, aldehydes, Acids

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

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

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol				
	oral	LD50 > 5000 mg/kg	Rat	Study report (1988)	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rat	Study report (1988)	OECD Guideline 402
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.				
	oral	LD50 > 2000 mg/kg	Rat	Study report (1977)	Three groups each of four female rats re
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)				
	oral	LD50 > 2000 mg/kg	Rat	Study report (2007)	OECD Guideline 420
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2007)	OECD Guideline 402
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane				
	oral	LD50 3010 mg/kg	Rat	Study report (1981)	OECD Guideline 401
61788-44-1	Phenol, styrenated				
	oral	LD50 > 2000 mg/kg	Rat	Study report (2014)	OECD Guideline 423
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2014)	OECD Guideline 402

Irritation and corrosivity

Causes skin irritation.
Causes serious eye irritation.

Sensitising effects

May cause an allergic skin reaction. (Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol; Epoxy phenol novolac resin; oxirane, mono[(C12-14-alkyloxy)methyl] derivs.; epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin); 2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane; Phenol, styrenated)

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

SECTION 12: Ecological information

12.1. Toxicity

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CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol						
	Acute fish toxicity	LC50	2,54 mg/l	96 h	Oncorhynchus mykiss	Study report (1998)	OECD Guideline 203
	Acute algae toxicity	ErC50	> 1,8 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (1993)	OECD Guideline 201
	Acute crustacea toxicity	EC50	2,55 mg/l	48 h	Daphnia magna	Study report (1998)	OECD Guideline 202
	Crustacea toxicity	NOEC	0,3 mg/l	21 d	Daphnia magna	Study report (1984)	OECD Guideline 211
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.						
	Acute fish toxicity	LC50	> 5000 mg/l	96 h	Oncorhynchus mykiss	Study report (2006)	OECD Guideline 203
	Crustacea toxicity	NOEC	56 mg/l	21 d	Daphnia magna	(2017)	OECD Guideline 211
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)						
	Acute fish toxicity	LC50	3,6 mg/l	96 h	Oncorhynchus mykiss	Study report (1982)	OECD Guideline 203
	Acute algae toxicity	ErC50	> 100 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (2007)	OECD Guideline 201
	Acute crustacea toxicity	EC50	1,7 mg/l	48 h	Daphnia magna	Study report (1984)	OECD Guideline 202
	Crustacea toxicity	NOEC	0,3 mg/l	21 d	Daphnia magna	Study report (1984)	OECD Guideline 211
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane						
	Acute fish toxicity	LC50	ca. 30 mg/l	96 h	Oncorhynchus mykiss	Study report (1990)	OECD Guideline 203
	Acute crustacea toxicity	EC50	ca. 39 - ca. 57 mg/l	48 h	Daphnia magna	Study report (1989)	OECD Guideline 202
61788-44-1	Phenol, styrenated						
	Acute fish toxicity	LC50	1,77 mg/l	96 h	Danio rerio	Study report (2010)	OECD Guideline 203
	Acute algae toxicity	ErC50	20,42 mg/l	72 h	Chlorella vulgaris	REACh Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50	4,6 mg/l	48 h	Daphnia magna	REACh Registration Dossier	OECD Guideline 202
	Fish toxicity	NOEC	1,9 mg/l	14 d	fish	REACh Registration Dossier	other: Refer below principle
	Crustacea toxicity	NOEC	0,2 mg/l	21 d	Daphnia magna	REACh Registration Dossier	other: Refer below principle

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12.2. Persistence and degradability

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)			
	OECD 301F/ ISO 9408/ EEC 92/69/V, C.4-D	5%	25	
	Not readily biodegradable (according to OECD criteria)			
61788-44-1	Phenol, styrenated			
	OECD 301F	7%	28	
	Not readily biodegradable (according to OECD criteria)			

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	2,7
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	3,77
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)	>= 2,64
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane	ca. 0,822
61788-44-1	Phenol, styrenated	2,415

BCF

CAS No	Chemical name	BCF	Species	Source
9003-36-5	Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol	150		Other company data (
68609-97-2	oxirane, mono[(C12-14-alkyloxy)methyl] derivs.	>= 160		REACh Registration D
25068-38-6	epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)	31		Study report (2010)
933999-84-9	2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane	3,57		Publication (2009)
61788-44-1	Phenol, styrenated	18,21	fish	REACh Registration D

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

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13.1. Waste treatment methods

Advice on disposal

Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Dispose of waste according to applicable legislation.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	90
Tunnel restriction code:	-

Inland waterways transport (ADN)

14.1. UN number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Marine pollutant:	P
Special Provisions:	274, 335, 969

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Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-F

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	UN 3082
14.2. UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (epoxy resin)
14.3. Transport hazard class(es):	9
14.4. Packing group:	III
Hazard label:	9
Special Provisions:	A97 A158 A197
Limited quantity Passenger:	30 kg G
Passenger LQ:	Y964
Excepted quantity:	E1
IATA-packing instructions - Passenger:	964
IATA-max. quantity - Passenger:	450 L
IATA-packing instructions - Cargo:	964
IATA-max. quantity - Cargo:	450 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	yes
Danger releasing substance:	epoxy resin

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No information available.

SECTION 15: Regulatory information

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

EU regulatory information

Information according to 2012/18/EU (SEVESO III):	E2 Hazardous to the Aquatic Environment

National regulatory information

Water contaminating class (D):	2 - clearly water contaminating

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
Formaldehyde, oligomeric reaction products with 1-chloro-2,3-epoxypropane and phenol
oxirane, mono[(C12-14-alkyloxy)methyl] derivs.
epoxy resin (number average molecular weight <= 700), reaction product: bisphenol-A-(epichlorhydrin)
Titanium dioxide
2,2'-[hexane-1,6-diylbis(oxymethylene)]dioxirane
Phenol, styrenated

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SECTION 16: Other information

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID:Règlement international conernat le transport des marchandises dangereuses par chemin de fer
(Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Refulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Skin Irrit. 2; H315	Calculation method
Eye Irrit. 2; H319	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.

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H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Further Information

This information is based solely on data privided by suppliers of the materials used, not on the mixture itself.
No warranty is expressed or implied regarding the suitability of the product for the user's particular purpose.
The user must make their own determination as to suitability.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

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Safety Data Sheet

according to Regulation (EC) No 1907/2006

ARC 988(E) Part B

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

1.1. Product identifier

ARC 988(E) Part B

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

Use of the substance/mixture

ARC Polymer Composite. Repair damage caused by impact, abrasion or erosion and chemical attack.

Uses advised against

No information available.

1.3. Details of the supplier of the safety data sheet

Company name:	Chesterton International GmbH	
Street:	Am Lenzenfleck 23	
Place:	DE-85737 Ismaning GERMANY	
Telephone:	+49 89 99 65 46 - 0	Telefax: +49 89 99 65 46 - 50
e-mail:	eu-sds@chesterton.com	
e-mail (Contact person):	eu-sds@chesterton.com	
Internet:	www.chesterton.com	
Responsible Department:	eu-sds@chesterton.com	

1.4. Emergency telephone number:

+49(0) 551 - 1 92 40 (GIZ-Nord, 24h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:
Acute toxicity: Acute Tox. 4
Skin corrosion/irritation: Skin Corr. 1
Serious eye damage/eye irritation: Eye Dam. 1
Respiratory or skin sensitisation: Skin Sens. 1
Hazardous to the aquatic environment: Aquatic Chronic 2
Hazard Statements:
Harmful if swallowed.
Causes severe skin burns and eye damage.
Causes serious eye damage.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

2.2. Label elements

Regulation (EC) No. 1272/2008

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Hazard components for labelling

Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane
3,6-diazaoctanethylenediamin; triethylenetetramine
Amines, polyethylenepoly-, triethylenetetramine fraction
m-Phenylenbis(methylamin)
Phenol, styrenated

Signal word: Danger

Pictograms:

Hazard statements

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
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 doctor.

2.3. Other hazards

The safety and health hazards are detailed separately for Part A and Part B. The final cured material is considered nonhazardous. Upon machining, refer to the precautions in the safety data sheets for Part A and Part B.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	GHS Classification			
38294-69-8	Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane			25 - < 30 %
	500-104-0		01-2120766646-41	
	Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1; H302 H314 H318 H317			
57214-10-5	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)			15 - < 20 %
	500-137-0			
	Aquatic Acute 1, Aquatic Chronic 1; H400 H410			
100-51-6	benzyl alcohol			15 - < 20 %
	202-859-9	603-057-00-5	01-2119492630-38	
	Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2; H332 H302 H319			
90640-67-8	Amines, polyethylenepoly-, triethylenetetramine fraction			10 - < 15 %
	292-588-2		01-2119487919-13	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H318 H317 H412			
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine			5 - < 10 %
	203-950-6	612-059-00-5		
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 3; H312 H302 H314 H318 H317 H412			
1477-55-0	m-Phenylenbis(methylamin)			5 - < 10 %
	216-032-5		01-2119480150-50	
	Acute Tox. 4, Acute Tox. 4, Skin Corr. 1, Skin Sens. 1, Aquatic Chronic 3; H332 H302 H314 H317 H412 EUH071			
61788-44-1	Phenol, styrenated			3 - < 7 %
	262-975-0		01-2119557886-19	
	Skin Irrit. 2, Skin Sens. 1A, Aquatic Chronic 2; H315 H317 H411			
90-72-2	2,4,6-tris(dimethylaminomethyl)phenol			1 - < 5 %
	202-013-9	603-069-00-0	01-2119560597-27	
	Acute Tox. 4, Skin Irrit. 2, Eye Irrit. 2; H302 H315 H319			
4097-89-6	N,N-Bis(2-aminoethyl)ethylendiamine			1 - < 5 %
	223-857-4			
	Acute Tox. 2, Acute Tox. 3, Skin Corr. 1B, Eye Dam. 1, Aquatic Chronic 3; H310 H301 H314 H318 H412			

Full text of H and EUH statements: see section 16.

SECTION 4: First aid measures

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4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection!
Take off immediately all contaminated clothing and wash it before reuse.
IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

After inhalation

IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a doctor.

After contact with skin

After contact with skin, wash immediately with plenty of water and soap. Seek medical advice immediately.
Do not wash with: Solvents/Thinner

After contact with eyes

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

After ingestion

If accidentally swallowed rinse the mouth with plenty of water (only if the person is conscious) and obtain immediate medical attention.
Do NOT induce vomiting.

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

Causes severe skin burns and eye damage.
Harmful if swallowed.
Skin sensitisation
Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

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

First Aid, decontamination, treatment of symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Dry extinguishing powder. Carbon dioxide (CO_2). alcohol resistant foam. Water spray jet

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

Carbon monoxide Carbon dioxide (CO_2). Nitrogen oxides (NO_x)

5.3. Advice for firefighters

Special protective equipment for firefighters Protective clothing. In case of fire: Wear self-contained breathing apparatus.
Co-ordinate fire-fighting measures to the fire surroundings.

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Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

See protective measures under point 7 and 8.
Provide adequate ventilation.
Personal protection equipment: see section 8
Remove persons to safety.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Cover drains. Adverse environmental effects

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

See protective measures under point 7 and 8. Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

See section 8.
Wear personal protection equipment (refer to section 8).
Avoid breathing dust/fume/gas/mist/vapours/spray.
Avoid contact with skin, eyes and clothes.
Take off contaminated clothing and wash it before reuse.
Contaminated work clothing should not be allowed out of the workplace.
When using do not eat, drink or smoke.
Never use pressure to empty container. Keep/Store only in original container.
Do not allow to enter into surface water or drains.

Advice on protection against fire and explosion

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed in a cool, well-ventilated place. Keep/Store only in original container.

Further information on storage conditions

Keep away from:
Frost
Heat
Humidity

7.3. Specific end use(s)

No information available.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
38294-69-8	Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane			
Worker DNEL, long-term		inhalation	systemic	0,529 mg/m³
Worker DNEL, long-term		dermal	systemic	0,6 mg/kg bw/day
57214-10-5	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)			
Worker DNEL, long-term		inhalation	systemic	0,02 mg/m³
Worker DNEL, acute		inhalation	systemic	2 mg/m³
Worker DNEL, long-term		inhalation	local	0,6 mg/m³
Worker DNEL, acute		inhalation	local	6 mg/m³
Worker DNEL, long-term		dermal	systemic	0,385 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	3,85 mg/kg bw/day
Worker DNEL, long-term		dermal	local	0,00028 mg/cm²
Worker DNEL, acute		dermal	local	0,0028 mg/cm²
Consumer DNEL, long-term		dermal	systemic	0,00772 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	0,00772 mg/kg bw/day
Consumer DNEL, long-term		dermal	local	0,000167 mg/cm²
Consumer DNEL, acute		dermal	local	0,000167 mg/cm²
Consumer DNEL, long-term		oral	systemic	3,33 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	3,33 mg/kg bw/day
,				
100-51-6	benzyl alcohol			
Worker DNEL, long-term		inhalation	systemic	22 mg/m³
Worker DNEL, acute		inhalation	systemic	110 mg/m³
Worker DNEL, long-term		dermal	systemic	8 mg/kg bw/day
Worker DNEL, acute		dermal	systemic	40 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	5,4 mg/m³
Consumer DNEL, acute		inhalation	systemic	27 mg/m³
Consumer DNEL, long-term		dermal	systemic	4 mg/kg bw/day
Consumer DNEL, acute		dermal	systemic	20 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	4 mg/kg bw/day

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Consumer DNEL, acute	oral	systemic	20 mg/kg bw/day
,			
90640-67-8 Amines, polyethylenepoly-, triethylenetetramine fraction			
Worker DNEL, long-term	inhalation	systemic	0,54 mg/m³
Worker DNEL, acute	inhalation	systemic	5380 mg/m³
Worker DNEL, long-term	dermal	systemic	0,57 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	0,096 mg/m³
Consumer DNEL, acute	inhalation	systemic	1600 mg/m³
Consumer DNEL, long-term	dermal	systemic	0,25 mg/kg bw/day
Consumer DNEL, acute	dermal	systemic	8 mg/kg bw/day
Consumer DNEL, long-term	dermal	local	0,43 mg/cm²
Consumer DNEL, acute	dermal	local	1 mg/cm²
Consumer DNEL, long-term	oral	systemic	0,14 mg/kg bw/day
Consumer DNEL, acute	oral	systemic	20 mg/kg bw/day
1477-55-0 m-Phenylenbis(methylamin)			
Worker DNEL, long-term	dermal	systemic	0,33 mg/kg bw/day
Worker DNEL, long-term	inhalation	local	0,2 mg/m³
Worker DNEL, long-term	inhalation	systemic	1,2 mg/m³
61788-44-1 Phenol, styrenated			
Worker DNEL, long-term	inhalation	systemic	74 mg/m³
Worker DNEL, long-term	dermal	systemic	21 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	13,1 mg/m³
Consumer DNEL, long-term	dermal	systemic	7,5 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	7,5 mg/kg bw/day

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PNEC values

CAS No	Substance
Environmental compartment	Value
38294-69-8	Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane
Freshwater	0 mg/l
Freshwater (intermittent releases)	0,002 mg/l
Marine water	0 mg/l
Freshwater sediment	0,002 mg/kg
Marine sediment	0 mg/kg
Micro-organisms in sewage treatment plants (STP)	1 mg/l
Soil	0 mg/kg
57214-10-5	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)
Freshwater	0,02 mg/l
Marine water	0,002 mg/l
100-51-6	benzyl alcohol
Freshwater	1 mg/l
Freshwater (intermittent releases)	2,3 mg/l
Marine water	0,1 mg/l
Freshwater sediment	5,27 mg/kg
Marine sediment	0,527 mg/kg
Micro-organisms in sewage treatment plants (STP)	39 mg/l
Soil	0,456 mg/kg
90640-67-8	Amines, polyethylenepoly-, triethylenetetramine fraction
Freshwater	0,027 mg/l
Freshwater (intermittent releases)	0,2 mg/l
Marine water	0,003 mg/l
Freshwater sediment	8,572 mg/kg
Marine sediment	0,857 mg/kg
Secondary poisoning	0,18 mg/kg
Micro-organisms in sewage treatment plants (STP)	0,13 mg/l
Soil	1,25 mg/kg
1477-55-0	m-Phenylenbis(methylamin)
Freshwater	0,094 mg/l
Freshwater (intermittent releases)	0,152 mg/l
Marine water	0,009 mg/l

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Freshwater sediment	12,4 mg/kg
Marine sediment	1,24 mg/kg
Micro-organisms in sewage treatment plants (STP)	10 mg/l
Soil	2,44 mg/kg
61788-44-1	Phenol, styrenated
Freshwater	0,004 mg/l
Freshwater (intermittent releases)	0,046 mg/l
Marine water	0,0004 mg/l
Freshwater sediment	0,248 mg/kg
Marine sediment	0,0248 mg/kg
Micro-organisms in sewage treatment plants (STP)	36,2 mg/l
Soil	0,0473 mg/kg
90-72-2	2,4,6-tris(dimethylaminomethyl)phenol
Freshwater	0,084 mg/l
Freshwater (intermittent releases)	0,84 mg/l
Marine water	0,008 mg/l
Micro-organisms in sewage treatment plants (STP)	0,2 mg/l

8.2. Exposure controls

Appropriate engineering controls

Provide adequate ventilation as well as local exhaustion at critical locations.

Protective and hygiene measures

Work in well-ventilated zones or use proper respiratory protection. Only wear fitting, comfortable and clean protective clothing. Avoid contact with skin, eyes and clothes. Wash hands and face before breaks and after work and take a shower if necessary.

Eye/face protection

Suitable eye protection:
Eye glasses with side protection
goggles

Hand protection

Tested protective gloves must be worn: EN ISO 374
NBR (Nitrile rubber), Butyl caoutchouc (butyl rubber), PVC (polyvinyl chloride)
Thickness of the glove material >= 0,4 mm
Breakthrough times and swelling properties of the material must be taken into consideration.
For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.
Observe the wear time limits as specified by the manufacturer.

Skin protection

Protective clothing

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Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient , respiratory protection must be worn.
Combination filtering device (EN 14387) A-P2

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid, viscous
Colour:	brown
Odour:	like: Amines

		Test method
pH-Value:	not applicable	
Changes in the physical state		
Melting point:	not applicable	
Initial boiling point and boiling range:	not applicable	
Flash point:	>93 °C	
Flammability		
Solid:	No data available	
Gas:	No data available	
Explosive properties		
No information available.		
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Ignition temperature:	No data available	
Auto-ignition temperature		
Solid:	No data available	
Gas:	No data available	
Decomposition temperature:	No data available	
Oxidizing properties		
No information available.		
Vapour pressure:	No data available	
Density:	~1,05 g/cm³	
Water solubility:	Immiscible	
Solubility in other solvents		
No information available.		
Partition coefficient:	No data available	
Viscosity / dynamic: (at 25 °C)	~350 mPa·s	

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Vapour density:	>1 (air = 1)
Evaporation rate:	<1 (Ether = 1)

9.2. Other information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable under storage at normal ambient temperatures.

10.2. Chemical stability

Does not decompose when used for intended uses. No known hazardous decomposition products.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Acid, Oxidising agent

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames.

10.5. Incompatible materials

Strong acid
Strong alkali
Oxidising agent, strong

10.6. Hazardous decomposition products

Carbon monoxide, aldehydes, Acids

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Harmful if swallowed.

ATEmix calculated

ATE (oral) 673,2 mg/kg

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
38294-69-8	Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane				
	oral	LD50 > 300 - < 2000 mg/kg	Rat	Study report (2017)	OECD Guideline 420
100-51-6	benzyl alcohol				
	oral	LD50 1580 mg/kg	Mouse	Cosmet. Toxicol. 11, 1011-1013 (1973) (1	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rabbit	Raw Material Data Handbook, Vol.1:(Orga	EPA OTS 798.1100
	inhalation vapour	ATE 11 mg/l			
	inhalation (4 h) aerosol	LC50 >4,178 mg/l	Rat	ECHA	OECD 403
90640-67-8	Amines, polyethylenepoly-, triethylenetetramine fraction				
	oral	LD50 1861,9 mg/kg	Rat	Study report (1992)	other: EPA FR Vol.50, No. 188, September
	dermal	LD50 1465,4 mg/kg	Rabbit	Study report (1993)	OECD Guideline 402
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine				
	oral	LD50 2500 mg/kg	Rat		
	dermal	LD50 805 mg/kg	Rabbit		
1477-55-0	m-Phenylenbis(methylamin)				
	oral	LD50 930 mg/kg	Rat	Study report (1973)	OECD Guideline 401
	dermal	LD50 > 3100 mg/kg	Rat	Study report (1975)	TK 11813 was applied to a shaved area of
	inhalation vapour	ATE 11 mg/l			
	inhalation (4 h) aerosol	LC50 1,34 mg/l	Rat		
61788-44-1	Phenol, styrenated				
	oral	LD50 > 2000 mg/kg	Rat	Study report (2014)	OECD Guideline 423
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2014)	OECD Guideline 402
90-72-2	2,4,6-tris(dimethylaminomethyl)phenol				
	oral	LD50 2169 mg/kg	Rat	Study report (1992)	OECD Guideline 401
4097-89-6	N,N-Bis(2-aminoethyl)ethylendiamine				

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	oral	ATE mg/kg	100			
	dermal	ATE	50 mg/kg			

Irritation and corrosivity

Causes severe skin burns and eye damage.
Causes serious eye damage.

Sensitising effects

May cause an allergic skin reaction. (Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane; Amines, polyethylenepoly-, triethylenetetramine fraction; 3,6-diazaoctanethylenediamin; triethylenetetramine; m-Phenylenbis(methylamin); Phenol, styrenated)

Carcinogenic/mutagenic/toxic effects for reproduction

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

STOT-single exposure

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

STOT-repeated exposure

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

Aspiration hazard

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

SECTION 12: Ecological information

12.1. Toxicity

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] | [d]	Species	Source	Method
38294-69-8	Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane					
	Acute fish toxicity	LC50 > 47 mg/l	96 h	Oncorhynchus mykiss	Study report (2017)	OECD Guideline 203
	Acute algae toxicity	ErC50 > 0,31 mg/l	72 h	Pseudokirchneriella subcapitata	Study report (2017)	OECD Guideline 201
	Acute bacteria toxicity	(> 100 mg/l)	3 h	activated sludge of a predominantly domestic sewag	Study report (2017)	OECD Guideline 209
100-51-6	benzyl alcohol					
	Acute fish toxicity	LC50 > 100 mg/l	96 h	Oryzias latipes	Review article or handbook (2009)	OECD Guideline 203
	Acute algae toxicity	ErC50 770 mg/l	72 h	Pseudokirchneriella subcapitata	Review article or handbook (2009)	OECD Guideline 201
	Acute crustacea toxicity	EC50 230 mg/l	48 h	Daphnia magna	Review article or handbook (2009)	OECD Guideline 202
	Fish toxicity	NOEC 48,897 mg/l	30 d	Fish species	http://epa.gov/oppt/exposure/pubs/episui	other: QSAR
	Algae toxicity	NOEC 51 mg/l	3 d			
	Crustacea toxicity	NOEC 51 mg/l	21 d	Daphnia magna	Review article or handbook (2009)	OECD Guideline 211
	Acute bacteria toxicity	(1385 mg/l)	3 h	activated sludge, domestic	Study report (1989)	OECD Guideline 209
90640-67-8	Amines, polyethylenepoly-, triethylenetetramine fraction					
	Acute fish toxicity	LC50 330 mg/l	96 h	Pimephales promelas	REACh Registration Dossier	other: U.S EPA-TSCA, 40 CFR Part 797 14
	Acute algae toxicity	ErC50 20 mg/l	72 h	Pseudokirchneriella subcapitata	REACh Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50 31,1 mg/l	48 h	Daphnia magna	REACh Registration Dossier	EU Method C.2
	Acute bacteria toxicity	(800 mg/l)	0,5 h	activated sludge, domestic	REACh Registration Dossier	other: EEC L133 1988 p 118-122
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine					
	Acute algae toxicity	ErC50 > 100 mg/l	72 h			
	Acute crustacea toxicity	EC50 92 mg/l	48 h	Daphnia magna		
1477-55-0	m-Phenylenbis(methylamin)					

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	Acute fish toxicity	LC50 > 100 mg/l	96 h	Oncorhynchus mykiss	REACh Registration Dossier	OECD Guideline 203
	Acute algae toxicity	ErC50 12 mg/l	72 h	Desmodesmus subspicatus	REACh Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50 15,2 mg/l	48 h	Daphnia magna (Big water flea)		
	Crustacea toxicity	NOEC 4,7 mg/l	21 d	Daphnia magna	REACh Registration Dossier	OECD Guideline 211
	Acute bacteria toxicity	(> 1000 mg/l)	0,5 h	Activated sludge from laboratory wastewater plant	Study report (2004)	OECD Guideline 209
61788-44-1	Phenol, styrenated					
	Acute fish toxicity	LC50 5,6 mg/l	96 h	fish	REACh Registration Dossier	other: Refer below principle
	Acute algae toxicity	ErC50 20,42 mg/l	72 h	Chlorella vulgaris	REACh Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50 4,6 mg/l	48 h	Daphnia magna	REACh Registration Dossier	OECD Guideline 202
	Fish toxicity	NOEC 0,0618 mg/l	63 d	Danio rerio	REACh Registration Dossier	other: OECD 234 Fish Sexual Development
	Crustacea toxicity	NOEC 0,2 mg/l	21 d	Daphnia magna	REACh Registration Dossier	other: Refer below principle
90-72-2	2,4,6-tris(dimethylaminomethyl)phenol					
	Acute fish toxicity	LC50 175 mg/l	96 h	Cyprinus carpio	Study report (1973)	other: Fish Bioassay Procedure in 1970 e
	Acute algae toxicity	ErC50 84 mg/l	72 h	Desmodesmus subspicatus	Study report (2004)	OECD Guideline 201

12.2. Persistence and degradability

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CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
100-51-6	benzyl alcohol			
	OECD 301A/ ISO 7827/ EEC 92/69/V, C.4-A	95 - 97%	21	
	Readily biodegradable (according to OECD criteria).			
1477-55-0	m-Phenylenbis(methylamin)			
	OECD 301B/ ISO 9439/ EEC 92/69/V, C.4-C	49 %	28	
	Not readily biodegradable (according to OECD criteria)			
61788-44-1	Phenol, styrenated			
	OECD 301F	7%	28	
	Not readily biodegradable (according to OECD criteria)			

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
38294-69-8	Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane	0,292
100-51-6	benzyl alcohol	1
90640-67-8	Amines, polyethylenepoly-, triethylenetetramine fraction	-2,9
112-24-3	3,6-diazaoctanethylenediamin; triethylenetetramine	-1,66
1477-55-0	m-Phenylenbis(methylamin)	ca. 0,18
61788-44-1	Phenol, styrenated	3,03
90-72-2	2,4,6-tris(dimethylaminomethyl)phenol	>= 0,219

BCF

CAS No	Chemical name	BCF	Species	Source
100-51-6	benzyl alcohol	1,371	QSAR model	http://epa.gov/oppt/
1477-55-0	m-Phenylenbis(methylamin)	3,16	no data	Validated suite of c
61788-44-1	Phenol, styrenated	168	Cyprinus carpio	http://www.safe.nite

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Dispose of waste according to applicable legislation.

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Contaminated packaging

Non-contaminated packages may be recycled. Dispose of waste according to applicable legislation.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (polymeric reaction product with triethylenetetramine and bisphenol-A-diglycidylether, Amines, polyethylenepoly-, triethylenetetramine fraction)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Classification code:	C7
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (polymeric reaction product with triethylenetetramine and bisphenol-A-diglycidylether, Amines, polyethylenepoly-, triethylenetetramine fraction)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Classification code:	C7
Special Provisions:	274
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (polymeric reaction product with triethylenetetramine and bisphenol-A-diglycidylether, Amines, polyethylenepoly-, triethylenetetramine fraction)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Marine pollutant:	P
Special Provisions:	223, 274

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Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-B

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	UN 2735
14.2. UN proper shipping name:	AMINES, LIQUID, CORROSIVE, N.O.S. (polymeric reaction product with triethylenetetramine and bisphenol-A-diglycidylether, Amines, polyethylenepoly-, triethylenetetramine fraction)
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8
Special Provisions:	A3 A803
Limited quantity Passenger:	1 L
Passenger LQ:	Y841
Excepted quantity:	E1
IATA-packing instructions - Passenger:	852
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	856
IATA-max. quantity - Cargo:	60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)

14.6. Special precautions for user

No information available.

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

No information available.

SECTION 15: Regulatory information

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

EU regulatory information

Information according to 2012/18/EU (SEVESO III):	E2 Hazardous to the Aquatic Environment

National regulatory information

Water hazard class (D):	2 - obviously hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
Phenol, 4,4'-(1-methylethylidene)bis-, polymer withN1,N2-bis(2-aminoethyl)-1,2-ethanediamine and 2-(chloromethyl)oxirane
benzyl alcohol

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Amines, polyethylenepoly-, triethylenetetramine fraction
m-Phenylenbis(methylamin)
Phenol, styrenated
2,4,6-tris(dimethylaminomethyl)phenol

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,3,11.

Abbreviations and acronyms

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID:Règlement international conernat le transport des marchandises dangereuses par chemin de fer
(Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Refulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
CAS: Chemical Abstracts Service
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

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Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Skin Corr. 1; H314	Calculation method
Eye Dam. 1; H318	Calculation method
Skin Sens. 1; H317	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal 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.
H332	Harmful if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH071	Corrosive to the respiratory tract.

Further Information

This information is based solely on data privided by suppliers of the materials used, not on the mixture itself.
No warranty is expressed or implied regarding the suitability of the product for the user's particular purpose.
The user must make their own determination as to suitability.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

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