

## Safety Data Sheet

In accordance with Regulation (EC) No. 1907/2006 and No. 453/2010

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

#### 1.1. Product identifier

Trade name: R-KEX II

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

Chemical anchoring system for building industry

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

	Rawlplug S.A.
	ul. Kwidzyńska 6
	51-416 Wrocław
	Poland
Telephone number (Fax)	+48 (0) 71 32 60 100 (+48 (0) 71 37 26 111)
E-mail address of competent person responsible for the SDS	infochem@rawlplug.com

**1.4. Emergency telephone number :** 0048 661 970 365 (Monday-Friday: 8.00-16.00, English)

### Section 2: Hazards identification

#### 2.1. Classification of the substance or mixture

Classification according to Commission Regulation (EC) No. 1272/2008:

Skin Sens. 1	H317	May cause an allergic skin reaction
Resp. Sens. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
Acute Tox. 4	H302	Harmful if swallowed
Skin Corr. 1B	H314	Causes severe skin burns and eye damage
Eye Dam. 1	H318	Causes serious eye damage
Repr. 2	H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child
Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects

#### 2.2. Label elements

GHS pictograms:



Signal word: **Danger**

#### Hazard statements:

H317	May cause an allergic skin reaction
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child
H411	Toxic to aquatic life with long lasting effects
EUH208	Contains DETA; DGEBA MW<700; bisphenol-F-epoxy resin; formaldehyde, oligomeric reaction products with 4,4'-isopropylidenediphenol and DETA. May produce an

allergic reaction.

Precautionary statements:

Prevention:

	P280	Wear protective gloves/ protective clothing/ eye protection/ face protection
Response:	P301+P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
	P302+P352	IF ON SKIN: Wash with plenty of soap and water.
	P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P304+P341	IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P308+P313	IF exposed or concerned: Get medical advice/attention.

Storage: -

Disposal: -

Dangerous substances:

DETA  
DGEBA MW<700  
Bisphenol-F-epoxy resin  
Formaldehyde, oligomeric reaction products with 4,4'-isopropylidenediphenol and DETA

**2.3. Other hazards** This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

**Section 3: : Composition/information on ingredients**

**3.1. Substances** Not applicable

**3.2. Mixtures**

Product identifiers	Ingredient name	Content (% wt.)	Classification
			(EC) 1272/2008 [CLP]
<b>Component A</b>			
CAS: 25068-38-6 WE: 500-033-5	bisphenol-A-epichlorhydrin epoxy resin average MW < 700 (DGEBA)	32,0 – 45,0	Skin Sens. 1, H317; Skin Irrit. 2, H315 (C >=5%); Eye Irrit. 2, H319 (C >=5%); Aquatic Chronic 2, H411
CAS: 9003-36-5 WE: 500-006-8	bisphenol-F-epichlorhydrin epoxy resin	16,0 – 22,5	Skin Irrit. 2, H315; Skin Sens. 1, H317; Aquatic Chronic 2, H411;
CAS: 16096-31-4 WE: 240-260-4	1,6-bis(2,3-epoxypropoxy)hexane	9,5 – 13,0	Skin. Sens. 1, H317; Skin. Irrit. 2, H315; Eye Irrit. 2, H319; Aquatic Chronic 3, H412;
CAS: 872-50-4 WE: 212-828-1	1-methyl-2-pyrrolidone	< 0,75	Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3 (C>=10%), H335; Repr. 1B (C>=5%), H360D
CAS: 64742-95-6 WE: 265-199-0	Solvent naphtha (petroleum), light arom.	<0,5	STOT SE 3: H336; H335 Asp. Tox. 1, H304, Aquatic Chronic 2, H411; Flam. Liq. 3, H226
<b>Component B</b>			
CAS: 77138-45-5 WE: 500-263-6	Formaldehyde, oligomeric reaction products with 4,4'-isopropylidenediphenol and diethylenetriamine (DETA)	18,0 – 25,0	Skin Corr. 1B, H314; Skin Sens.1; H317
CAS: 111-40-0 WE: 203-865-4	Diethylenetriamine (DETA)	9,0 – 12,5	Skin Sens. 1, H317; Skin Corr. 1B, H314; Acute Tox. 4, H312; Acute Tox. 4, H302
CAS: 57214-10-5 WE: 500-137-0	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)	12,0 - 15,5	Skin Corr. 1B, H314; Skin Sens. 1; H317

CAS: 80-05-7 WE: 201-45-8	Bisphenol A (4,4'- isopropylidenediphenol)	< 3,5	Repr. 2, H361f; STOT SE 3, H335; Eye Dam. 1, H318; Skin Sens. 1, H317
CAS: 110-85-0 WE: 203-808-3	piperazine	< 3,5	Skin Corr. 1B, H314; Eye Dam. 1, H318; Resp. Sens. 1, H334; Skin Sens. 1, H317; Repr. 2, H361fd;
CAS: 140-31-8 WE: 205-411-0	2-piperazin-1-ylethylamine	< 1,5	Acute Tox. 3, H311; Acute Tox. 4, H302; Skin Corr. 1B, H314; Skin Sens. 1, H317; Aquatic Chronic 3, H412
CAS: 100-51-6 WE: 202-859-9 Index number: 603-057-00-5	benzyl alcohol	< 2,5	Acute Tox. 4, H332; Acute Tox. 4, H302
CAS: 1477-55-0 WE: 216-032-5	m-phenylene- bis(methylamine)	< 2,1	Acute Tox.4, H302; Acute Tox. 3, H331; Skin Corr.1B, H314; Skin Sens.1, H317; Aquatic Chronic 3, H412; Acute Tox. 4, H312; Met. Corr. 1; H290; Eye Dam. 1; H318
CAS: 108-95-2 WE: 203-632-7	phenol	< 0,85	Muta. 2, H341; Acute Tox. 3, H311; Acute Tox. 3, H331; Acute Tox. 3, H301; STOT RE 2, H373; Skin Corr.1B, H314 (C ≥ 3%)

Additional information: For the wording of the listed phrases refer to section 16.

## Section 4: First aid measures

### 4.1. Description of first aid measures

General notes: Remove/Take off immediately all contaminated clothing.

Following inhalation: Move the exposed individual to the fresh air and keep at rest in a position comfortable for breathing. If not breathing, breathing is irregular or respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. If unconscious, place in recovery position and get medical attention immediately. Contact toxicology center.

Following skin contact: Wash with plenty of soap and water for at least 10 minutes. Remove contaminated clothing and shoes. In case irritation or any complaints occur, get medical attention and avoid further exposure.

Following eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Check for and remove any contact lenses. Get medical attention.

Following ingestion: Wash out mouth with water. Move the exposed individual to the fresh air and keep at rest in position comfortable for breathing. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low, so that the vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Loosen tight clothing (e.g. tie, belt). Get medical attention.

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

Product can cause irritation to eyes, skin and respiratory system. It can also lead to skin sensitization. After exposure, symptoms can be delayed. Contact with eyes can result in eye erythema and excessive lacrimation. Exposure of inhalation routes can cause coughing. Prolonged exposure of skin can cause erythema. Lack of data on symptoms occurring after ingestion.

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

In case of inhalation of decomposition products, symptoms may be delayed. Exposed individual may need to be kept under medical surveillance for 48 hours.

## Section 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media:

Use dry chemical (ABC powder) or CO<sub>2</sub>, optionally spray mist water.

Unsuitable

extinguishing media:

Unknown

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

In case of exposition on an open flame, a pressure rise and a packaging may explode. Moreover, hazardous decomposition products can arise: e.g. carbon oxides, unidentified hydrocarbons.

### 5.3. Advice for firefighters

Use full protective clothing compliant with EN 469 standard. Wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face piece operated in positive pressure mode. Product containers exposed to heat cool with water.

## Section 6: Accidental release measures

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

For non-emergency personnel:

No action involving any health risk shall be taken through contact with product. Avoid contact with product without personal protective equipment, in case of contact with large product or ventilation is insufficient. Avoid breathing vapours.

For emergency responders:

Disposal of product spillage should be taken only if personal protective equipment described in section 8 is available.

### 6.2. Environmental precautions

Avoid dispersal of spilled material and its contact with soil, sewers, surface and ground water. Inform the relevant authorities if the product has caused environmental pollution.

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

Secure drains and sewers. Collect product mechanically (e.g. with shovel) together with contaminated soil. Possible spillages absorb with inert, absorbent material (e.g. sand, earth, diatomaceous earth) and place in an appropriate waste disposal container according to local regulations. For further information see section 13

### 6.4. Reference to other sections

See section 8 for information on appropriate personal protective equipment.

See section 13 for additional waste treatment information.

## Section 7: Handling and storage

### 7.1. Precautions for safe handling

Put on an appropriate personal protective equipment (see section 8). Persons with a history of skin sensitization problems should avoid contact with product. Do not allow product to contact eyes or skin. Avoid breathing vapours released during curing process. Use only in places with sufficient ventilation. Wear appropriate respirator when ventilation is inadequate. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Follow the manufacturer's instructions for use of product. Keep product in the original container. Do not use product after the expiration date.

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

Store in original container, keep tightly closed when not in use. Protect from direct

sunlight and other heat sources in dry, well-ventilated area, away from incompatible materials, food and drink. Store at 5– 25 °C. To ensure product stability avoid temperature fluctuation during storage (overheating and undercooling).

**7.3. Specific end use(s)** See Section 1

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

**8.1. Control parameters**

Ingredient name	Long-term exposure		Short-term exposure		Comments
	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	
<u>1-methyl-2-pyrrolidone</u>					
European Union / France / Ireland / Italy / Belgium / Austria	40	10	80	20	-
Spain / United Kingdom / Australia	103	25	309	75	-
Switzerland	80	20	160	40	-
The Netherlands / Poland	40	-	80	-	-
Sweden	200	50	300	75	-
Latvia	100	-	-	-	-
Germany	82	20	164	40	-
<u>Diethylenetriamine</u>					
Australia / New Zealand	4,2	1	-	-	-
Belgium / Spain / United Kingdom	4,3	1	-	-	-
Switzerland / USA / Ireland / France / Austria	4	1	-	-	-
Poland	4	-	12	-	-
Sweden	4,5	1	10	2	-
Hungary	4	-	4	-	-
Denmark	4	1	8	2	-
<u>(4,4'-isopropylidenediphenol)</u>					
Austria / Germany / Switzerland	5	-	5	-	Inhalable aerosol
Belgium / European Union	10	-	-	-	Inhalable aerosol
Poland	5	-	10	-	-
<u>Piperazine</u>					
Austria / Belgium / European Union / France / Hungary / Ireland / Italy / Latvia / Poland / Spain / United Kingdom / The Netherlands	0,1	-	0,3	-	-
Germany	0,1	-	0,1	-	-
Denmark	0,1	0,003	0,2	0,006	-
<u>m-Phenylenebis(methylamine)</u>					
Australia / Belgium / France	-	-	0,1	-	-

Austria	0,1	-	-	-	-
Switzerland	-	0,1	-	-	-
New Zealand	-	-	-	0,1	-
Denmark	0,1	0,02	0,1	0,02	-
<u>Phenol</u>					
Austria / Belgium / Ireland / Italy / European Union / Germany	8	2	16	4	-
Denmark / Sweden	4	1	8	2	-
France	7,8	2	15,6	4	-
Poland	7,8	-	16	-	-
Hungary	7,8	-	7,8	-	-
Latvia	7,8	2	-	-	-
Spain	8	2	-	-	-
United Kingdom	-	2	-	-	-

**DN(M)ELs**

Ingredient name	Route of exposure	Value	Group	Effect	
bisphenol-A-epichlorhydrin epoxy resin average MW < 700	Dermal	8,3 mg/kg	Workers	Systematic, short-term	
		8,3 mg/kg	Workers	Systematic, long-term	
		3,6 mg/kg	Consumers	Systematic, short-term	
	Inhalation	3,6 mg/kg	Consumers	Systematic, long-term	
		12,3 mg/m <sup>3</sup>	Workers	Systematic, short-term	
		12,3 mg/m <sup>3</sup>	Workers	Systematic, long-term	
		0,75 mg/m <sup>3</sup>	Consumers	Systematic, short-term	
		0,75 mg/m <sup>3</sup>	Consumers	Systematic, long-term	
		Oral	0,75 mg/kg	Consumers	Systematic, long-term
			0,75 mg/kg	Consumers	Systematic, long-term
Bisphenol A	Dermal	1,4 mg/m <sup>3</sup>	Workers	Systematic, short-term	
		1,4 mg/m <sup>3</sup>	Workers	Systematic, long-term	
		0,7 mg/kg	Consumers	Systematic, long-term	
	Inhalation	0,7 mg/kg	Consumers	Systematic, short-term	
		10 mg/m <sup>3</sup>	Workers	Systematic, short-term	
		10 mg/m <sup>3</sup>	Workers	Systematic, long-term	
		0,25 mg/m <sup>3</sup>	Consumers	Systematic, long-term	
		5 mg/m <sup>3</sup>	Consumers	Local, long-term	
		5 mg/m <sup>3</sup>	Consumers	Local, short-term	
		Oral	0,05 mg/kg	Consumers	Systematic, long-term
	0,05 mg/kg		Consumers	Systematic, short-term	
	0,05 mg/kg		Consumers	Systematic, short-term	
	bisphenol-F-epichlorhydrin epoxy resin	Inhalation	29,39 mg/m <sup>3</sup>	Workers	Systematic, long-term
8,7 mg/m <sup>3</sup>			Consumers	Systematic, long-term	
Dermal		104 mg/kg	Workers	Systematic, long-term	
		8,3 µg/cm <sup>2</sup>	Workers	Local, short-term	
		62,5mg/kg	Consumers	Systematic, short-term	
Oral		6,25 mg/kg	Consumers	Systematic, long-term	
Diethylenetriamine		Inhalation	15,4 mg/m <sup>3</sup>	Workers	Systematic, long-term
	4,6 mg/m <sup>3</sup>		Consumers	Systematic, long-term	
	92,1 mg/m <sup>3</sup>		Workers	Systematic, short-term	
	Dermal	27,5 mg/m <sup>3</sup>	Consumers	Systematic, short-term	
		0,87 mg/m <sup>3</sup>	Workers	Local, long-term	
		0,87 mg/m <sup>3</sup>	Workers	Local, long-term	

		2,6 mg/m <sup>3</sup> 11,4 mg/kg 4,88 mg/kg 4,88 mg/kg 1,1 mg/cm <sup>2</sup>	Workers Workers Consumers Consumers Workers	Local, short-term Systematic, long-term Systematic, long-term Systematic, short-term Local, short-term
Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)	Inhalation	0,02 mg/m <sup>3</sup>	Workers	Systematic, long-term
		2 mg/m <sup>3</sup>	Workers	Systematic, short-term
		0,6 mg/m <sup>3</sup>	Workers	Local, long-term
		6 mg/m <sup>3</sup>	Workers	Local, short-term
	Dermal	0,385 mg/kg	Workers	Systematic, long-term
		7,72 µg/kg	Consumers	Systematic, long-term
		3,85 mg/kg	Workers	Systematic, short-term
		7,72 µg/kg	Consumers	Systematic, short-term
		0,28 µg/cm <sup>2</sup>	Workers	Local, long-term
		0,167 µg/cm <sup>2</sup>	Consumers	Local, long-term
	Oral	2,8 µg/cm <sup>2</sup>	Workers	Local, short-term
		0,167 µg/cm <sup>2</sup>	Consumers	Local, short-term
		3,33 mg/kg	Consumers	Systematic, long-term
		3,33 mg/kg	Consumers	Systematic, short-term

#### PNECs

	Environmental protection target	Value
bisphenol-A-epichlorhydrin epoxy resin average MW < 700	Fresh water	0,006 mg/l
	Marine water	0,0006 mg/l
	Intermittent releases	0,018 mg/l
	Freshwater sediments	0,996 mg/kg
	Marine water sediments	0,0996 mg/kg
	STP	10 mg/l
	Soil	0,196 mg/kg
Bisphenol A	Fresh water	0,018 mg/l
	Marine water	0,016 mg/l
	Intermittent releases	0,01 mg/l
	Freshwater sediments	2,2 mg/kg
	Marine water sediments	0,44 mg/kg
	STP	320 mg/l
bisphenol-F-epichlorhydrin epoxy resin	Fresh water	0,003 mg/l
	Marine water	0,0003 mg/l
	Intermittent releases	0,0254 mg/l
	Freshwater sediments	0,294 mg/kg
	Marine water sediments	0,0294 mg/kg
	STP	10 mg/l
Diethylenetriamine	Fresh water	0,56 mg/l
	Marine water	0,056 mg/l
	Intermittent releases	0,32 mg/l
	Freshwater sediments	1072 mg/kg
	Marine water sediments	107,2 mg/kg
	STP	6 mg/l
Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)	Fresh water	20 µg/l
	Marine water	2 µg/l
	Intermittent releases	200 µg/l
	Freshwater sediments	0,1001 mg/kg
	Marine water sediments	0,01001 mg/kg
	STP	30 mg/l



	Soil	0,0236 mg/kg
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## 8.2. Exposure controls

Appropriate engineering controls: Ensure sufficient ventilation in working place. In case of insufficient ventilation use appropriate engineering controls (e.g. local fume hood) which will keep exposure level below recommended threshold, or use appropriate breathing apparatus.

### Individual protective measures:

General recommendation: Obey hygiene rules: do not eat, drink, or smoke at workplace. Wash your hands with soap and water after you finish working with product. Avoid contamination of your clothes. Contaminated clothes wash before use.

Eye/face protection: Use safety glasses with side shields.

Hand protection: Use chemical resistant gloves standard when working with the product. It is advised to use butyl or nitrile rubber gloves.

Skin and body protection: Use protective clothes.

Respiratory protection: At concentrations causing irritation use mask, filter type: A – against organic gases and vapours.

Remarks: Advice on personal protection is applicable for high exposure levels. Select proper personal protection based on a risk assessment of the actual situation. Personal protective equipment must meet requirements of directive 89/686/CE.

### Environmental exposure controls:

Do not allow to contaminate soil, sewage and surface/ ground water. If the product contaminates waterways and drains, alert the relevant authorities.

## Section 9: Physical and chemical properties

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

Appearance:	paste
Colour:	Component A – dark grey, Component B – red
Odour:	Component A – sweet, nauseating, Component B – amine, acute
Odour threshold:	Not determined
pH:	Not determined
Melting point / freezing point:	Not applicable
Initial boiling point and boiling range:	component B: > 200°C
Flash point:	Not determined
Evaporation rate:	Not determined
Flammability (solid, gas):	Not applicable
Upper/lower flammability or explosive limits:	Not determined
Vapour pressure:	Not determined
Relative density:	Component A: $1,4 \pm 0,05 \text{ g/cm}^3$ , Component B: $1,3 \pm 0,05 \text{ g/cm}^3$ (PN-EN 542:2005)
Solubility:	Insoluble in water, partly soluble in acetone and isopropyl alcohol



Partition coefficient n-octanol/water:	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Dynamic viscosity (23 <sup>0</sup> C; 100 [s <sup>-1</sup> ]):	Component A: 8,0 ± 1,0 [Pa·s] Component B: 18,5 ± 1,0 [Pa·s]. (EN ISO 3219:2000)
Explosive properties:	Not determined
Oxidizing properties:	Not applicable

**9.2. Other information**      No additional data

**Section 10: Stability and reactivity**

**10.1. Reactivity**

No specific data available

**10.2. Chemical stability**

Product is stable under normal storage conditions (temp. 5 - 25<sup>0</sup>C). In case of change of apparent consistency or presence of significant air amounts in components, it is advised to interrupt work with product and consult producer.

**10.3. Possibility of hazardous reactions**

No hazardous reaction when handled and stored under normal conditions of use.

**10.4. Conditions to avoid**

To avoid thermal degradation of product do not allow to overheat it over the temperature of recommended storage. Protect from sunlight. Overheating of B component over SADT temperature (Self Accelerating Decomposition Temperature, see section 9.1) can cause spontaneous decomposition of the substances in the packaging during transport.

**10.5. Incompatible materials**

No specific data

**10.6. Hazardous decomposition products**

Unidentified hydrocarbons, carbon and nitrogen oxides.

**Section 11: Toxicological information**

**11.1. Information on toxicological effects**

Acute toxicity      Product is harmful if swallowed (based on available data for ingredients of the product)

Ingredient name	Route of exposure	Species	Result
bisphenol-A-epichlorhydrin epoxy resin average MW < 700	LD <sub>50</sub> (oral)	rat	>2000 mg/kg
	LD <sub>50</sub> (dermal)	rat	>2000 mg/kg
Bisphenol A	LD <sub>50</sub> (oral)	rat	> 2000 ≤ 5000 mg/kg
	LD <sub>50</sub> (dermal)	rabbit	3000 mg/kg
bisphenol-F-epichlorhydrin epoxy resin	LD <sub>50</sub> (oral)	rat	>5000 mg/kg
	LD <sub>50</sub> (dermal)	rat	>2000 mg/kg
Diethylenetriamine	LD <sub>50</sub> (oral)	rat	1,62 ml/kg
	LD <sub>50</sub> (dermal)	rabbit	1,09 ml/kg
Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)	LD <sub>50</sub> (oral)	rat	>2000 mg/kg
	LD <sub>50</sub> (dermal)	rat	>2020 mg/kg

Acute Toxicity Estimate	
ATE <sub>mix</sub> (oral) =	1904,39 mg/kg

<u>Irritation / Corrosivity</u>	Product causes severe skin burns and eye damage (based on available data for ingredients the product)
<u>Sensitisation</u>	Product causes skin sensitisation (based on available data for ingredients the product)
<u>Repeated dose toxicity</u>	Based on available data, the classification criteria are not meet
<u>CMR</u>	Product is suspected of damaging fertility and the unborn child

Symptoms related to the physical, chemical and toxicological characteristics:

Inhalation:	Vapours released during curing process may cause respiratory tract irritation, coughing, nausea and dizziness. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Skin exposure:	Irritation and redness. May cause sensitization by skin contact. Skin reaction may be delayed in time.
Eye exposure:	pain, lacrimation, irritation and redness
Ingestion:	No specific data

**Section 12: Ecological information**

**12.1. Toxicity**

Ingredient name	Dose / time of exposure / method	Species	Results
bisphenol-A-epichlorhydrin epoxy resin average MW < 700	LC <sub>50</sub> /96h	<i>Oncorhynchus mykiss</i>	1,2 mg/l
	EC <sub>50</sub> /48h / OECD 202	<i>Daphnia magna</i>	2,8 mg/l
	EC <sub>50</sub> (biomass)/72h	<i>Scenedesmus capricornutum</i>	9,4 mg/l
Bisphenol A	LC <sub>50</sub> / 96h / OECD 203	<i>Menidia menidia</i>	9,4 mg/l
	EC <sub>50</sub> / 48h	<i>Daphnia magna</i>	10,2 mg/l
	EC <sub>50</sub> / 96h / OECD 201	<i>Pseudokirchnerella subcapitata</i>	1,1 mg/l
bisphenol-F-epichlorhydrin epoxy resin	LC <sub>50</sub> /96h/ OECD 203	<i>Oncorhynchus mykiss</i>	>1000 mg/l
	EL <sub>50</sub> /48h / OECD 202	<i>Daphnia magna</i>	>1000 mg/l
	EC <sub>50</sub> /72h / OECD 201	<i>Pseudokirchnerella subcapitata</i>	>1,8 mg/l
Diethylenetriamine	LC <sub>50</sub> / 96h	<i>Poecilia reticulata</i>	0,43 mg/l
	EC <sub>50</sub> / 48h	<i>Daphnia magna</i>	16 mg/l
	EC <sub>50</sub> (growth rate)/72h / OECD 201	<i>Pseudokirchnerella subcapitata</i>	1164 mg/l
Formaldehyde, oligomeric reaction products with phenol and m-phenylene-bis(methylamine)	LC <sub>50</sub> /96h / OECD 203	<i>Oncorhynchus mykiss</i>	25,9 mg/l
	EC <sub>50</sub> /48h / OECD 202	<i>Daphnia magna</i>	29,8 mg/l
	EC <sub>50</sub> /72h / OECD 201	<i>Pseudokirchnerella subcapitata</i>	20,4 mg/l

**12.2. Persistence and degradability**

Bisphenol-A-epichlorhydrin epoxy resin average MW < 700	Degr. 82% after 28 days. Readily biodegradable (OECD 301 F)
Bisphenol A	Degr. 89% after 28 days. Readily biodegradable (OECD 301 F)
Diethylenetriamine	Degr. 87% after 21 days. Readily biodegradable (OECD 301 D)
Formaldehyde, oligomeric reaction products with phenol and m-phenylene-bis(methylamine)	Degr. 20% after 7 days. Inherently biodegradable (OECD 301D)

### 12.3. Bioaccumulative potential

Bisphenol-A-epichlorhydrin epoxy resin average MW < 700	BCF = 31
Bisphenol A	BCF = 5,1 -13,3 L/kg (conc. 150 µg/l)
bisphenol-F-epichlorhydrin epoxy resin	BCF = 150 L/kg
Diethylenetriamine	BCF >2,8<=6,3 (conc. 0,2 mg/l)

### 12.4. Mobility in soil

Bisphenol-A-epichlorhydrin epoxy resin average MW < 700	logK <sub>oc</sub> = 2,65 (calc.)
Bisphenol A	logK <sub>oc</sub> = 2,95 (OECD 106)
bisphenol-F-epichlorhydrin epoxy resin	logK <sub>oc</sub> = 3,65 (OECD 121)
Diethylenetriamine	logK <sub>oc</sub> >=3,4<=4,6
Formaldehyde, oligomeric reaction products with phenol and m-phenylene- bis(methylamine)	logK <sub>oc</sub> = 1,72 (OECD 121)

### 12.5. Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### 12.6. Other adverse effects

No reports on other adverse effects

## Section 13: Disposal considerations

### 13.1. Waste treatment methods

**Product:** Minimum waste quantities. Must not be disposed together with household garbage. Do not allow product to reach sewage system, ground water and water course. Uncured product dispose of as a chemical waste in licensed facility, in accordance with local regulations of environmental protection and binding legislation on recycling. It is recommended to incinerate wastes arose during product usage in a proper incineration oven. Small quantities of both components may be reacted together, allowed to cure and dispose of as a solid waste.







**Packaging:** Used product packaging (cartridge) may be delivered to plastic waste recycling plant. Contaminated package must be disposed like wastes arose during product usage.

**European Waste Code:** 08 04 09\* – Waste adhesives and sealants containing organic solvents or other dangerous substances.

**Legal basis:** Council Directive 2008/98/EC on waste and European Parliament and Council Directive 94/62/EC on packaging and packaging waste. Regulation (EC) No 1013/2006 of 14 June 2006 on shipments of waste.

## Section 14: Transport information

	Land transport ADR /RID	Maritime transport IMDG	Air transport IATA
<b>14.1. UN number</b>			
Component A	UN3077	UN3077	UN3077
Component B	UN3259	UN3259	UN3259
<b>14.2. UN proper shipping name</b>			
Component A	ENVIROMENTALLY HAZARDOUS SUBSTANCE, SOLID,	ENVIROMENTALLY HAZARDOUS SUBSTANCE, SOLID,	ENVIROMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

	N.O.S. (Bisphenol A/F epoxy resin)	N.O.S. (Bisphenol A/F epoxy resin)	(Bisphenol A/F epoxy resin)
Component B	POLYAMINES, SOLID, CORROSIVE, N.O.S. (diethylenetriamine mixture)	POLYAMINES, SOLID, CORROSIVE, N.O.S. (diethylenetriamine mixture)	POLYAMINES, SOLID, CORROSIVE, N.O.S. (diethylenetriamine mixture)
In a land transport applies the nomenclature in a country origin language and English, French or German version. In case of a maritime transport applies the English terminology (the most convenient). In an air transport applies only the English language.			
<b>14.3. Transport hazard class(es)</b>	Component A: 9 Component B : 8	Component A: 9 Component B : 8	Component A: 9 Component B : 8
<b>14.4. Packing group</b>	III	III	III
Label number:	9, 8 	9, 8 	8, 9 Miscellaneous 
Packaging instruction:	P002	P002	<b>Component A:</b> <u>Passenger and cargo aircraft:</u> E1; Ltd Qty (Pkg Inst.: Y956; Max Net Qty/Pkg: 30kg G); Pkg Inst.: 956; Max Net Qty/Pkg: 400kg. <u>Cargo aircraft only:</u> Pkg Inst.: 956; Max Net Qty/Pkg: 400kg <b>Component B:</b> <u>Passenger and cargo aircraft:</u> E1; Ltd Qty (Pkg Inst.: Y845; Max Net Qty/Pkg: 5kg); Pkg Inst.: 860; Max Net Qty/Pkg: 25kg. <u>Cargo aircraft only:</u> Pkg Inst.: 864; Max Net Qty/Pkg: 100kg
Limited quantities (LQ):	5kg 	5kg 	Component A : 30kg G Component B : 5kg All Packed In One 
	<b>Note:</b> Chemical kit containing dangerous goods in inner packaging which do not exceed the quantity limits for LQ applicable to individual substances as specified in Column 7a of the Dangerous Goods List may be transported in accordance with Chapter 3.4		
Excepted quantities:	E 1	E 1	E 1
Transport category:	3	3 (multimodal transport only)	Not applicable
Tunnel restriction code:	E	E (multimodal transport only)	Not applicable

Special provisions:			
Component A	274, 335, 601	274, 335,966,967	A 97, A158, A 179
Component B	274	223,274	A3, A803
Storage and segregation:	Not applicable	Category A	Not applicable
EmS:	Not applicable	F-A, S-P	Not applicable
ERG:	Not applicable	Not applicable	Component A: 9L Component B: 8L
<b>14.5. Environmental hazards</b>	Hazardous for environment (Bisphenol A/F epoxy resin)	Hazardous for environment (Bisphenol A/F epoxy resin)	Hazardous for environment (Bisphenol A/F epoxy resin)
<b>14.6. Special precautions for use</b>	No specific data	No specific data	No specific data
<b>14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable	Not applicable	Not applicable

## Section 15: Regulatory information

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

Regulation (EC) No 1272/2008 of 16 December 2008 on classification, labeling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC and amending regulation (EC) No 1907/2006 (text with EEA relevance).

Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) (text with EEA relevance).

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste.

Commission Regulation (EC) No. 790/2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures.

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

Council Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment (and its amendments).

### 15.2. Chemical safety assessment

Not applicable

## Section 16: Other information

Full text of H-statements:	H314	Causes severe skin burns and eye damage.
	H315	Causes skin irritation.
	H331	Toxic if inhaled.
	H312	Harmful in contact with skin.
	H226	Flammable liquid and vapour.
	H336	May cause drowsiness or dizziness.
	H361f	Suspected of damaging fertility.
	H360D	May damage the unborn child.
	H290	May be corrosive to metals.
	H341	Suspected of causing genetic defects
	H302	Harmful if swallowed.

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 through prolonged or repeated exposure
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH208	Contains DETA; DGEBA MW<700; bisphenol-F-epoxy resin; formaldehyde, oligomeric reaction products with 4,4'-isopropylidenediphenol and DETA. May produce an allergic reaction.

Hazard class:	Acute Tox. 3	Acute toxicity category 3
	Acute Tox. 2	Acute toxicity category 2
	Acute Tox. 4	Acute toxicity category 4
	Eye Dam. 1	Serious eye damage category 1
	Eye Irrit. 2	Eye irritation category 2
	Skin Corr. 1B	Skin corrosive category 1B
	Skin Sens. 1	Skin sensitization category 1
	STOT SE 3	Specific target organ toxicity – Single exposure – category 3
	Aquatic Chronic 3	Aquatic Chronic category 3
	Aquatic Acute 1	Aquatic acute category 1
	Org. Perox. B	Organic peroxide category B
	Org. Perox. E	Organic peroxide category E
	STOT RE 2	Specific target organ toxicity – Repetitive exposure – category 2
	Resp. Sens. 1	Respiratory sensitization, category 1
	Muta. 2	Mutagenic, category 2
	Met. Corr. 1	Corrosive to metals, category 1
	Repr. 2	Reproductive toxicity, category 2

Acronyms and abbreviations

DNEL	Derived no-effect level
PNEC	Predicted No Effect Concentration
PBT	Persistent, bioaccumulative and toxicity substances
vPvB	Very persistent and very bioaccumulative substances

Additional information:

**Component A**

Skin Sens. 1	H317	May cause an allergic skin reaction.
Eye Irrit. 2	H319	Causes serious eye irritation.
Skin Irrit. 2	H315	Causes skin irritation
Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects.

**Component B**

Skin Sens. 1	H317	May cause an allergic skin reaction.
Resp. Sens. 1	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin Corr. 1B	H314	Causes severe skin burns and eye damage.
Eye Dam. 1	H318	Causes serious eye damage.
Acute Tox. 4	H302	Harmful if swallowed.
Repr. 2	H361fd	Suspected of damaging fertility. Suspected of damaging the unborn child.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC)

Classification according to Regulation (EC) No 1272/2008	Classification procedure
Skin Sens. 1, H317	Calculation method
Resp. Sens. 1, H334	Calculation method
Acute Tox. 4, H302	Calculation method

1272/2008 [CLP]:

Skin Corr. 1B, H314	Calculation method
Eye Dam. 1, H318	Calculation method
Repr. 2, H361fd	Calculation method
Aquatic Chronic 2, H411	Calculation method

Alterations compared to the previous version Sections and subsections where changes have been made to the previous version of the safety data sheet: 2, 3, 8-12, 14, 15, 16.

Training advice: People using the product professionally, should be trained in handling the product, safety and hygiene. Drivers should be trained and obtain the appropriate certificate in accordance with the ADR requirements.

The information contained in the Safety Data Sheet is based on current state of knowledge and applies to product with its identified use. The information is intended to aid the user in controlling the handling risks and not to guarantee product quality. If conditions of product use are not under manufacturer control, responsibility for safe use falls to the user. Employer is obliged to inform all employees working with the product, about possible hazards and personal protection specified in Safety Data Sheet.