

Safety Data Sheet

according to Regulation (EC) No 1907/2006

ARC I BX1(E) Part A

Revision date: 19.08.2022

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

1.1. Product identifier

ARC I BX1(E) Part A

UFI: 8K49-1U82-056F-AYPW

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, erosion or corrosion; rebuild worn areas; fill holes and cracks; provide abrasion resistant surfaces.

Uses advised against

No data available

1.3. Details of the supplier of the safety data sheet

Company name:	Chesterton International GmbH	
Street:	Am Lenzenfleck 23	
Place:	D-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

Skin Irrit. 2; H315
Eye Irrit. 2; H319
Skin Sens. 1; H317
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements

Regulation (EC) No 1272/2008

Hazard components for labelling

2,2'-[(1-Methylethyliden)bis(4,1-phenylenoxymethylen)]bisoxiran
1,4-bis(2,3 epoxypropoxy)butane
Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled

Signal word: Warning

Pictograms:



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Hazard statements

H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P302+P352	IF ON SKIN: Wash with plenty of 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.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P501	Dispose of contents/container to an appropriate recycling or disposal facility.

Special labelling of certain mixtures

EUH204	Contains isocyanates. May produce an allergic reaction.
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2.3. Other hazards

This products contains a blocked polyisocyanate which is considered essentially unreactive at room temperature. Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature (120°C [248°F]). The safety and health hazards are detailed separately for Part A and Part B. During the curing process, alkylphenol will be split off. No isocyanate could be traced within the coating during curing. 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	
	Classification (Regulation (EC) No 1272/2008)			
409-21-2	Silicon carbide			15 - < 20 %
	206-991-8		01-2119402892-42	
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane			5 - < 10 %
	701-263-0		01-2119454392-40	
	Skin Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H317 H411			
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran			5 - < 10 %
	216-823-5	603-073-00-2	01-2119456619-26	
	Skin Irrit. 2, Eye Irrit. 2, Skin Sens. 1, Aquatic Chronic 2; H315 H319 H317 H411			
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane			< 1 %
	219-371-7		01-2119494060-45	
	Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1, Aquatic Chronic 3; H332 H312 H302 H315 H318 H317 H412			
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled			< 1 %
	700-991-6		01-2119502450-57	
	Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Skin Sens. 1; H312 H302 H315 H318 H317			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
	701-263-0	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane	5 - < 10 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = > 5000 mg/kg		
1675-54-3	216-823-5	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran	5 - < 10 %
	inhalation: LC50 = ca. 24,6 mg/l (vapours); dermal: LD50 = > 2000 mg/kg; oral: LD50 = 19800 mg/kg Skin Irrit. 2; H315: >= 5 - 100 Eye Irrit. 2; H319: >= 5 - 100		
2425-79-8	219-371-7	1,4-bis(2,3 epoxypropoxy)butane	< 1 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = > 2150 mg/kg; oral: LD50 = 1163 mg/kg		
8007-24-7	700-991-6	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled	< 1 %
	dermal: LD50 = > 2000 mg/kg; oral: LD50 = 5000 mg/kg		

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

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(show directions for use or safety data sheet if possible).

After inhalation

Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.

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

May cause skin sensitization as evidenced by rashes or hives. Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced. Vapors or mist can irritate the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to lower concentrations with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure to higher concentrations may lead to bronchitis, bronchial spasm and pulmonary oedema. Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible. Repeated overexposure or a single large dose by inhalation (including breathing offgases generated during heat curing) can cause respiratory sensitization as evidenced by chest tightness, wheezing, shortness of breath or asthmatic attack. These symptoms can be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Once sensitized, symptoms can occur upon exposure to dust, cold air or other irritants. Sensitization can be permanent. Chronic overexposure to diisocyanates has been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

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

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

Unsuitable extinguishing media

Full water jet

5.2. Special hazards arising from the substance or mixture

At temperatures greater than 177°C (350°F), carbon dioxide is released which can cause pressure build-up in closed containers which may forcibly rupture under extreme heat or when contents are mixed with water.

During a fire, isocyanate vapours and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

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5.3. Advice for firefighters

Co-ordinate fire-fighting measures to the fire surroundings.
In case of fire: Wear self-contained breathing apparatus.

Special protective equipment for firefighters: Protective clothing.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Dispose of waste according to applicable legislation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Remove persons to safety.
Provide adequate ventilation.
Safe handling: see section 7
Personal protection equipment: see section 8

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

For containment

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

Safe handling: see section 7
Personal protection equipment: see section 8
Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Personal protection equipment: see section 8
Avoid contact with skin, eyes and clothes.
Avoid breathing dust/fume/gas/mist/vapours/spray.
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

Usual measures for fire prevention.

Advice on general occupational hygiene

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. Take off contaminated clothing and wash it before reuse.

Further information on handling

Health risks with handling these ARC Composites are further reduced as Part A: • contains a mixture of 100% blocked isocyanate, with a blend of polymers such as epoxy resin. • is a gritty paste that cannot be inhaled. •

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should never see exposures to temperatures of 120°C (248°F) under normal storage and use-conditions, thereby minimizing risk of unblocking. • when mixed with Part B components, cannot generate an exothermic reaction temperature anywhere near the 120° (248°F) blocking limit. Medical Surveillance: While health risks are reduced when using a blocked isocyanate, it is best practice to implement a proper protective equipment program supported by a medical surveillance program for workers using isocyanates (blocked or unblocked). All applicants who are assigned to an isocyanate work area should undergo a pre-placement medical evaluation. A history of eczema or respiratory allergies such as hay fever, are possible reasons for medical exclusion from isocyanate areas. Applicants who have a history of adult asthma should be restricted from work with isocyanates. Applicants with a history of prior isocyanate sensitization should be excluded from further work with isocyanates. A comprehensive annual medical surveillance program should be instituted for all employees who are potentially exposed to diisocyanates. Once a worker has been diagnosed as sensitized to any isocyanate, no further exposure can be permitted.

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.

Hints on joint storage

Keep away from food, drink and animal feedingstuffs.

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

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
1344-28-1	Aluminium oxides, respirable dust	-	4		TWA (8 h)	
409-21-2	Silicon carbide, respirable dust	-	3		TWA (8 h)	

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DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
1344-28-1	Aluminium oxide			
Worker DNEL, long-term		inhalation	systemic	3 mg/m ³
Worker DNEL, long-term		inhalation	local	3 mg/m ³
Worker DNEL, long-term		dermal	systemic	0,84 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,75 mg/m ³
Consumer DNEL, long-term		inhalation	local	0,75 mg/m ³
Consumer DNEL, long-term		dermal	systemic	0,3 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	1,32 mg/kg bw/day
409-21-2	Silicon carbide			
Worker DNEL, acute		inhalation	systemic	94 mg/m ³
Consumer DNEL, acute		inhalation	systemic	23 mg/m ³
Consumer DNEL, acute		dermal	systemic	200 mg/kg bw/day
Consumer DNEL, acute		oral	systemic	13 mg/kg bw/day
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane			
Worker DNEL, long-term		inhalation	systemic	29,39 mg/m ³
Worker DNEL, long-term		dermal	systemic	104,15 mg/kg bw/day
Worker DNEL, long-term		inhalation	local	0,0083 mg/m ³
Consumer DNEL, long-term		inhalation	systemic	8,7 mg/m ³
Consumer DNEL, long-term		dermal	systemic	62,5 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	6,25 mg/kg bw/day
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran			
Worker DNEL, long-term		inhalation	local	310 mg/m ³
Consumer DNEL, long-term		inhalation	local	55 mg/m ³
Worker DNEL, long-term		inhalation	systemic	4,93 mg/m ³
Worker DNEL, long-term		dermal	systemic	0,75 mg/kg bw/day
Consumer DNEL, long-term		inhalation	systemic	0,87 mg/m ³
Consumer DNEL, long-term		dermal	systemic	0,0893 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	0,5 mg/kg bw/day

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2425-79-8	1,4-bis(2,3 epoxypropoxy)butane		
Worker DNEL, long-term	inhalation	systemic	4,7 mg/m ³
Worker DNEL, long-term	dermal	systemic	6,66 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	1,16 mg/m ³
Consumer DNEL, long-term	dermal	systemic	3,33 mg/kg bw/day
Consumer DNEL, long-term	oral	systemic	0,33 mg/kg bw/day
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled		
Worker DNEL, long-term	inhalation	systemic	7,4 mg/m ³
Worker DNEL, long-term	dermal	systemic	2,1 mg/kg bw/day
Consumer DNEL, long-term	inhalation	systemic	1,31 mg/m ³
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
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	
	Freshwater	0,003 mg/l
	Freshwater (intermittent releases)	0,025 mg/l
	Marine water	0 mg/l
	Freshwater sediment	0,294 mg/kg
	Marine sediment	0,029 mg/kg
	Micro-organisms in sewage treatment plants (STP)	10 mg/l
	Soil	0,237 mg/kg
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenylenoxymethylen)]bisoxiran	
	Freshwater	0,006 mg/l
	Freshwater (intermittent releases)	0,018 mg/l
	Marine water	0,001 mg/l
	Freshwater sediment	0,341 mg/kg
	Marine sediment	0,034 mg/kg
	Secondary poisoning	11 mg/kg
	Micro-organisms in sewage treatment plants (STP)	10 mg/l
	Soil	0,065 mg/kg
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane	
	Freshwater	0,024 mg/l
	Freshwater (intermittent releases)	0,24 mg/l
	Marine water	0,002 mg/l
	Freshwater sediment	0,084 mg/kg
	Marine sediment	0,008 mg/kg
	Secondary poisoning	0,028 mg/kg
	Micro-organisms in sewage treatment plants (STP)	100 mg/l
	Soil	0,003 mg/kg
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled	
	Freshwater	0,0114 mg/l
	Freshwater (intermittent releases)	0,0141 mg/l
	Marine water	0,00114 mg/l
	Freshwater sediment	5 mg/kg
	Marine sediment	0,5 mg/kg
	Secondary poisoning	33,3 mg/kg
	Micro-organisms in sewage treatment plants (STP)	100 mg/l

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Soil	171,41 mg/kg
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8.2. Exposure controls

Appropriate engineering controls

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

Provide adequate ventilation. If handled uncovered, arrangements with local exhaust ventilation should be used if possible.

Individual protection measures, such as personal protective equipment

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),

Wearing time with permanent contact: Thickness of the glove material: $\geq 0,4$ mm, Breakthrough time: >480 min

Wearing time with occasional contact (splashes): Thickness of the glove material: $\geq 0,1$ mm, Breakthrough time: > 30 min

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.

Breakthrough times and swelling properties of the material must be taken into consideration.

Skin protection

For the protection against direct skin contact, body protective clothing is essential (in addition to the usual working clothes).

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Combination filtering device ABEK-P2

Self-contained respirator (breathing apparatus)

Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Paste
Colour:	blue
Odour:	characteristic

Test method

Changes in the physical state

Melting point/freezing point: No data available

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Boiling point or initial boiling point and boiling range:	No data available
Flash point:	> 185 °C
Flammability	
Solid/liquid:	No data available
Gas:	No data available
Explosive properties	
No information available.	
Lower explosion limits:	No data available
Upper explosion limits:	not applicable
Auto-ignition temperature:	No data available
Self-ignition temperature	
Solid:	No data available
Gas:	No data available
Decomposition temperature:	≥ 120 °C
pH-Value:	No data available
Viscosity / dynamic: (at 25 °C)	4 Mio mPa·s
Water solubility:	Immiscible
Solubility in other solvents	
No information available.	
Partition coefficient n-octanol/water:	No data available
Vapour pressure:	No data available
Density:	2,3 g/cm ³
Relative vapour density:	>1 (air = 1)

9.2. Other information

Information with regard to physical hazard classes

Oxidizing properties
No information available.

Other safety characteristics

Solvent content: <1
Evaporation rate: <1 (Ether = 1)

Further 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.

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10.3. Possibility of hazardous reactions

Exothermic reaction with: Acid, Oxidising agent

10.4. Conditions to avoid

Temperature > 120 °C

10.5. Incompatible materials

Acid, Oxidising agent

10.6. Hazardous decomposition products

Hazardous decomposition products

- Carbon monoxide,
- aldehydes,
- Acids,
- Gases/vapours, toxic

SECTION 11: Toxicological information

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

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
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane				
	oral	LD50 > 5000 mg/kg	Rat	Study report (1988)	OECD Guideline 401
	dermal	LD50 > 2000 mg/kg	Rat	Study report (1988)	OECD Guideline 402
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran				
	oral	LD50 19800 mg/kg	Rabbit	Publication (1958)	Rabbits were orally gavaged with test ma
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2007)	OECD Guideline 402
	inhalation (4 h) vapour	LC50 ca. 24,6 mg/l	Rat	AMA Arch. Ind. Hyg. Occ. Med. 10: 61-68	Rats were exposed to 8000 ppm of the tes
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane				
	oral	LD50 1163 mg/kg	Rat	Study report (1988)	OECD Guideline 401
	dermal	LD50 > 2150 mg/kg	Rat	Study report (1972)	OECD Guideline 402
	inhalation vapour	ATE 11 mg/l			
	inhalation dust/mist	ATE 1,5 mg/l			
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled				
	oral	LD50 5000 mg/kg	Rat	Study report (2015)	OECD Guideline 423
	dermal	LD50 > 2000 mg/kg	Rat	Study report (2010)	OECD Guideline 402

Irritation and corrosivity

Causes skin irritation.

Causes serious eye irritation.

Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced. Vapors or mist can irritate the respiratory tract causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction).

Persons with a pre-existing, nonspecific bronchial hyperreactivity can respond to lower concentrations with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure to higher concentrations may lead to bronchitis, bronchial spasm and pulmonary oedema. Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Sensitising effects

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Contains isocyanates. May produce an allergic reaction. May cause an allergic skin reaction. (Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane; 2,2'-[(1-Methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxiran; 1,4-bis(2,3 epoxypropoxy)butane; Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled)

May cause skin sensitization as evidenced by rashes or hives. Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced. Repeated overexposure or a single large dose by inhalation (including breathing offgases generated during heat curing) can cause respiratory sensitization as evidenced by chest tightness, wheezing, shortness of breath or asthmatic attack. These symptoms can be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Once sensitized, symptoms can occur upon exposure to dust, cold air or other irritants. Sensitization can be permanent. Generation of free diisocyanate and blocking agent vapors is expected during any heating of this product above its unblocking temperature. The inhalation hazards in this section apply to the free diisocyanate and blocking agent vapors thus produced.

Carcinogenic/mutagenic/toxic effects for reproduction

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

The International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) have classified inhaled silica as a human carcinogen. The silica in this product does not separate from the mixture or in of itself become air-borne, therefore it does not present a hazard in normal use. Epoxy resin: based on available data, the classification criteria are not met. Butanedioldiglycidyl ether: data lacking.

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.

Chronic overexposure to diisocyanates has been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent. Repeated inhalation of respirable free silica may cause scarring of the lungs with cough and shortness of breath. Silicosis, a delayed lung injury that is a disabling, progressive and sometimes fatal pulmonary fibrosis, may result. The silica in this product does not separate from the mixture or in of itself become air-borne, therefore it does not present a hazard in normal use.

Aspiration hazard

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

11.2. Information on other hazards

Endocrine disrupting properties

No data available

SECTION 12: Ecological information

12.1. Toxicity

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
409-21-2	Silicon carbide					
	Crustacea toxicity	NOEC >= 100 mg/l	22 d	Daphnia magna	Study report (2008)	EU Method C.20
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane					
	Acute fish toxicity	LC50 > 1000 mg/l	96 h	Oncorhynchus mykiss	Study report (1998)	OECD Guideline 203
	Acute algae toxicity	ErC50 > 1,8 mg/l	72 h	Raphidocelis subcapitata	Study report (1993)	OECD Guideline 201
	Acute crustacea toxicity	EL50 > 1000 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
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran					
	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	Raphidocelis subcapitata	Study report (2007)	OECD Guideline 201
	Acute crustacea toxicity	EC50 2,8 mg/l	48 h	Daphnia magna	REACH Registration Dossier	OECD Guideline 202
	Crustacea toxicity	NOEC 0,3 mg/l	21 d	Daphnia magna	REACH Registration Dossier	OECD Guideline 211
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane					
	Acute algae toxicity	ErC50 > 160 mg/l	72 h	Raphidocelis subcapitata	Study report (2010)	OECD Guideline 201
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled					
	Acute fish toxicity	LC50 > 0,08 - < 0,2 mg/l	96 h	Danio rerio	REACH Registration Dossier	OECD Guideline 203
	Acute algae toxicity	ErC50 1,4 mg/l	72 h	Chlorella vulgaris	REACH Registration Dossier	OECD Guideline 201
	Acute crustacea toxicity	EC50 > 5 mg/l	48 h	other aquatic mollusc: Biomphalaria glabrata	Planta medica 1982, Vol, 44, pp, 175-177	The short term toxicity of test material
	Fish toxicity	NOEC 0 mg/l	28 d		REACH Registration Dossier	other: Modelling database
	Crustacea toxicity	NOEC 10 mg/l	21 d	Daphnia magna	REACH Registration Dossier	OECD Guideline 211
	Acute bacteria toxicity	(EC50 > 1000 mg/l)	3 h	Activated sludge	Study report (2010)	OECD Guideline 209

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12.2. Persistence and degradability

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran			
	OECD 302B	12%	28	
	Not readily biodegradable (according to OECD criteria)			

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	2,7
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran	>= 2,64
2425-79-8	1,4-bis(2,3 epoxypropoxy)butane	-0,269
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled	> 60900

BCF

CAS No	Chemical name	BCF	Species	Source
	Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane	150		Other company data (
1675-54-3	2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran	31		Study report (2010)
8007-24-7	Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled	< 100	Cyprinus carpio	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. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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Disposal recommendations

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)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

Air transport (ICAO-TI/IATA-DGR)

<u>14.1. UN number or ID number:</u>	No dangerous good in sense of this transport regulation.
<u>14.2. UN proper shipping name:</u>	No dangerous good in sense of this transport regulation.
<u>14.3. Transport hazard class(es):</u>	No dangerous good in sense of this transport regulation.
<u>14.4. Packing group:</u>	No dangerous good in sense of this transport regulation.

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS:	Yes
Danger releasing substance:	epoxy resin

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

No information available.

SECTION 15: Regulatory information

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

EU regulatory information

Restrictions on use (REACH, annex XVII):
Entry 3

National regulatory information

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

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15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:

Silicon carbide

Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-

[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-

(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl)oxirane

2,2'-[(1-Methylethyliden)bis(4,1-phenyleneoxymethylen)]bisoxiran

1,4-bis(2,3 epoxypropoxy)butane

Cashew (Anacardium occidentale) Nutshell Extract, Decarboxylated, Distilled

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1,2,5,6,7,8,9,10,11,12,15.

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)

CAS: Chemical Abstracts Service (division of the American Chemical Society)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CLP: Regulation on Classification, Labelling and Packaging of Substances and Mixtures,

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

EC50: Effectice concentration, 50 percent

DNEL: Derived No Effect Level

PNEC: Predicted No Effect Concentration

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

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 3; H412	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

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H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH204	Contains isocyanates. May produce an allergic reaction.

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