Rev 07 (29/11/21)

Safety Data Sheet Humidur® Char Component A

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HUMIDURCHAR.

Let's face fire in one coat.

Section 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Trade name: Humidur® Char Component A

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

Product use: Fireproofing intumescent coating

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

Importer: Matrix Composites & Engineering
150 Quill Way
Henderson WA 6166
Australia
Telephone: +61 8 9412 1200
E-mail address: matrix@matrixengineered.com

Information provided by:
Acotec NV
Industrielaan 8 Zuid III
9320 Aalst (Erembodegem) – Belgium
Telephone: +32 53 83 86 60
E-mail address: info@acotec.be

1.4. Emergency telephone number

Emergency information:

- Matrix Composites & Engineering
  During business hours: +61 8 9412 1200
  After business hours (national call): 1300 729 130
- For Poison Advice in Australia: 131 126
  To provide telephone consultation to medical professionals and the general public in case of acute and chronic poisonings – 24 h a day

Section 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture according to the Regulation (EC) N° 1272/2008 (GHS)

Skin Corrosion / Irritation: Category 2, H315
Skin Sensitization: Category 1A, H317
Serious Eye Damage / Irritation: Category 2, H319
Chronic Aquatic Toxicity: Category 1, H410

2.2. Label elements according to Regulation (EC) N° 1272/2008 (GHS)

Symbol(s):

Signal Word: Warning

Hazard Statements:	H315
	H317
	H319
	H410
Precautionary Statements:	P261
	P263
	P264
	P272
	P273
	P280
	P302 + P352
	P305 + P351 + P338
	P321
	P332 + P313
	P333 + P313
	P337 + P313
	P362
	P363
	P391
Storage:	Not applicable
Disposal:	P501

2.3. Other dangers: none known

See section 16 for the full text of the above mentioned H and P statements

Section 3 COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances: -

3.2. Mixtures

CHEMICAL NAME	CAS N° EC N°	REACH REGISTRATION N°	% [WEIGHT]	CLASSIFICATION [1272/2008/EC]
2,2-Bis(4'-glycidyloxyphenyl) propane	1675-54-3	01-2119456619-26	40 – 50	Skin Irrit. 2, H315 Skin Sens. 1A, H317 Eye Dam./Irrit. 2, H319 Aquatic Chronic 2, H411
Formaldehyde polymer with (chloromethyl) oxirane and phenol	9003-36-5	01-2119454392-40	5 – 15	Skin Irrit. 2, H315 Skin Sens. 1A, H317 Aquatic Chronic 2, H411
Oxirane, mono[(alkyl(C=12-14)oxy)methyl]derivs.	68609-97-2	01-2119485289-22	5 – 15	Skin Irrit. 2, H315 Skin Sens. 1A, H317
Trizincbis (orthophosphate)* 2-4H_2O	7779-90-0 231-944-3		5 – 15	Aquatic Acute 1, H400 (M = 1) Aquatic Chronic 1, H410 (M = 1)
Zinc oxide	1314-13-2 215-222-5		1 – 5	Aquatic Acute 1, H400 (M = 1) Aquatic Chronic 1, H410 (M = 1)
Chlorinated C_{14-17} n-paraffins	85535-85-8 287-477-0		5 – 10	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Lact, H362
Zinc borate	10361-94-1		10 – 20	Aquatic Acute 1, H400 Aquatic Chronic 1, H410

Section 4 FIRST AID MEASURES

4.1. Description of first aid measures

General indications: No general information

Inhalation: When exposed to large amounts of steam and mist, move to fresh air. Perform specific treatment if needed.

Skin contact: Rinse skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Thoroughly wash contaminated clothing before reuse. Go to the hospital immediately if symptoms (flare, irritation) occur. Wash thoroughly after handling.

Eye contact: Do not rub your eyes. Immediately rinse eyes with plenty of water for at least 15 minutes and call a doctor/physician go to the hospital immediately if symptoms (flare, irritation) occur. Remove contact lenses if worn.

Ingestion: Ask the advice of a doctor about whether or not to induce vomiting. Rinse your mouth with water immediately.

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

Not available

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

Notify medical personnel about contaminated situations and have them take appropriate protective measures.

Section 5 FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing agents: Dry chemical, carbon dioxide, regular foam extinguishing agent, spray

Unsuitable extinguishing media: Avoid use of water spray jet for extinguishing

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products: Not available

5.3. Advice for firefighters

Move containers from fire area, if you can do so without any risk.
Cool containers with water until well after the fire is out.
Keep out unauthorized personnel.
Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
Use appropriate extinguishing means suitable for surrounding fire.
Keep containers cool with water spray.
Use fire fighting procedures suitable for surrounding area.
Vapor or gas that is burned at distant ignition sources can be spread rapidly.

Section 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

- Protective equipment: wear proper protective equipment.
- Emergency procedures: not applicable
- If required, notify relevant authorities according to all applicable regulations.

For emergency responders

- Do not touch spilled material. Stop leak if you can do so without any risk.
- Move container from the leak area to safe area. Remove all sources of ignition.
- Do not direct water at spill or source of leak.
- Avoid skin contact and inhalation.

6.2. Environmental precautions

Prevent runoff and contact with waterways, drains or sewers. If large amounts have been spilled, inform the relevant authorities. Avoid dispersal of spilt material and runoff and contact with waterways, drains and sewers.
In case of large spills, advise emergency services.

6.3. Methods and material for containment and cleaning up

Containment: Don't use a brush or compressed air for cleaning surfaces or clothing. Clean area of personnel and move up wind. Prevent, by any means available, spillage from entering drains or water course.
No smoking, naked lights or ignition sources.

Cleaning up:

- Large spill: Stay upwind and keep out of low areas. Dike for later disposal. Notification to central government, local government, in case of emissions of at least the standard amount. Dispose of waste in accordance with local regulation. Appropriate container for disposal of spilled material collected.
- Small leak: sand or other non-combustible material, please use absorption material. Wipe off the solvent. Dike for later disposal. Prevent spillage into waterways, sewers, basements or confined spaces.

Other information: Slippery when spilt

6.4. Reference to other sections

See section 7 for information on safe handling
See section 8 for information on appropriate personal protective equipment
See section 13 for additional information on disposal

Section 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Since emptied containers retain product residue (vapor, liquid, solid), follow all MSDS and label warnings even after container is emptied. Refer to engineering controls and personal protective equipment.
Handle only in well ventilated places. Operators should wear antistatic footwear and clothing.
Do not inhale the steam prolonged or repeatedly.

7.2. Conditions for safe storage, including any incompatibilities

Check regularly for leaks. Do not use damaged containers.
No open fire. Prevent static electricity and keep away from combustible materials or heat sources.
Collect in sealed containers. Store away from water and sewer.

7.3. Specific end use(s):

See section 1 for information on Relevant identified uses (1.2).

Section 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits:

- European Union (EU) Commission Directive 2006/15/EC (IOEL Vs): Not available
- European Union (EU) Commission Directive 2006/15/EC (IOEL Vs) – Skin: Not available

Recommended monitoring procedures: Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

DNEL/DMEL values:

Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol – Type DNEL

EXPOSURE	VALUE	POPULATION	EFFECTS
Dermal	8,3 µg/cm^2	Employees	Short term, local
Dermal	104,15 mg/kg bw/day	Employees	Long term, systemic
Inhalation	29,39 mg/m^3	Employees	Long term, systemic
Dermal	62,5 mg/kg bw/day	General	Long term, systemic
Inhalation	8,7 mg/m^3	General	Long term, systemic
Oral	6,25 mg/kg bw/day	General	Long term, systemic

Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane – Type DNEL

EXPOSURE	VALUE	POPULATION	EFFECTS
Dermal	8,3 mg/kg bw/day	Employees	Short term, systemic
Inhalation	12,3 mg/m^3	Employees	Short term, systemic
Dermal	8,3 mg/kg bw/day	Employees	Long term, systemic
Inhalation	12,3 mg/m^3	Employees	Long term, systemic
Dermal	3,6 mg/kg bw/day	General	Short term, systemic
Inhalation	0,75 mg/m^3	General	Short term, systemic
Oral	0,75 mg/kg bw/day	General	Short term, systemic
Dermal	3,6 mg/kg bw/day	General	Long term, systemic
Inhalation	0,75 mg/m^3	General	Long term, systemic
Oral	0,75 mg/kg bw/day	General	Long term, systemic

Reaction product: Chlorinated C_{14-17} n-paraffins – Type DNEL

EXPOSURE	VALUE	POPULATION	EFFECTS
Dermal	47,9 mg/kg bw/day	Employees	Long term, systemic
Inhalation	6,7 mg/m^3	Employees	Long term, systemic
Dermal	5,75 mg/kg bw/day	General	Long term, systemic
Inhalation	0,4 mg/m^3	General	Long term, systemic
Oral	0,115 mg/kg bw/day	General	Long term, systemic

Summary DNEL/DMEL: Not available

PNEC values:

NAME OF THE PRODUCT / INGREDIENT	DETAIL COMPARTMENT	VALUE
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	Fresh water	0,003 mg/l
	Marine water	0,0003 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0,294 mg/kg dwt
	Seawater sediment	0,294 mg/kg dwt
	Soil	0,237 mg/kg dwt
	Intermittent emissions	0,0254 mg/l
2,2-Bis(4'-glycidyloxyphenyl) propane	Fresh water	3 µg/l
	Marine water	0,3 µg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0,5 mg/kg dwt
	Seawater sediment	0,5 mg/kg dwt
	Sediment	0,05 mg/kg dwt
	Intermittent emissions	0,013 mg/l
Chlorinated C_{14-17} n-paraffins	Aqua – Fresh water	1 µg/l
	Aqua – Marine water	0,2 µg/l
	STP	80 mg/l
	Sediment (fresh water)	13 mg/kg sediment dw
	Marine water	2,6 mg/kg sediment dw
	Soil	11,9 mg/kg dw
	Oral	10 mg/kg food

Summary PNEC: Not available

Derived no-effect levels or DNEL and predicted no-effect concentrations or PNEC
Explanation: REACH obliges manufacturers and importers to determine and report DNELs and PNECs for exposure to the environment. DNELs and PNECs are determined by the registrant without an official consultation and are not meant to be used directly for the determination of the exposure limit on the workplace or of the population. They are mainly used as input values in models for quantitative risk assessment models (such as the ECETOC-TRA-model). Due to differences in calculation methods the DNEL will usually be lower (sometimes significantly lower) than a health limit value for that chemical substance. Although DNELs (and PNECs) are an indication for the determination of risk restricting measures, it should be said that these restrictions do not have the same legal application as health limit values officially confirmed by the authorities.

Measures for exposure control

Appropriate technical measures:

No special requirements as far as ventilation is concerned. A good general ventilation should be sufficient in order to control exposure to air pollution on the work place. If this product contains substances with exposure limits, than use a confined room to work with it, provide a local exhaust installation or any other technical measures to keep the exposure of the employee to contaminations in the air below all recommended or prescribed limits.

Individual protective measures:

- Hygienic measures: After handling chemical products, wash your hands, forearms and face thoroughly before you eat, drink or go to the toilet, as well as at the end of the working day. Use applicable techniques to remove the possibly soiled clothing. Soiled clothing should not leave the workplace. Wash soiled clothing before using it again. Make sure an eye wash station and safety showers are available close to the workplace.
- Protection of eyes / face: If a risk analysis indicates that this is necessary to avoid exposure to splatters, vapour or dust, safety protection for the eyes should be worn that meets an approved standard. If contact is possible, the following protective equipment should be worn, unless the assessment shows that a higher level of protection is necessary: safety glasses.
- Protection of the hands: When a risk analysis shows that this is necessary, when handling chemical products, impermeable gloves should be worn which are resistant to chemicals and meet an approved standard. During use, one should verify whether the gloves still have their protective qualities, taking into account the parameters specified by the supplier. Note that, depending on the manufacturer, each type of glove material may be different as far as the duration of resistance is concerned. In case of mixed materials, consisting of different fabrics, the duration of protection by the gloves cannot be assessed accurately.
- Protection of the body: Equipment for personal protection of the body should be chosen taking into account the type of work that needs to be done and the accompanying risk and should be approved by a specialist before the product is used.

- Further protection of the skin: Appropriate shoes and if necessary additional skin protective equipment should be selected based on the work that will be performed and the accompanying risk and should be approved by a specialist before the product is used.
- Respiratory protection: When a risk analysis indicates that this is necessary, use a well fitting air cleaning or air supplying respiratory device that meets an approved standard. The choice of a mask should be based on the exposure limits that are to be expected, the hazards of the product and the limits for safe working with the type of mask.
- Control of environmental exposure: Exhaust through ventilation or processing machinery should be controlled, in order to make sure it meets the requirements of the environmental protection legislation. In some cases gas washers, filters or technical modifications of the processing machinery are necessary to reduce the emission level to an acceptable level.

8.2. Exposure controls

Appropriate engineering controls: A system of local and/or general exhaust is recommended to keep employee exposures below the exposure limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
The use of local exhaust ventilation is recommended to control emissions near the source.

Individual protection measures, such as personal protective equipment:

- Hand protection: Wear appropriate gloves.
- Eye protection: Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield. Provide an emergency eye wash station and quick drench shower in the immediate work area.
- Respiratory protection: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum.
  Consider warning properties before use.
  Any chemical cartridge respirator with organic vapour cartridge(s).
  Any chemical cartridge respirator with a full facepiece and organic vapour cartridge(s).
  Any air-purifying respirator with a full facepiece and an organic vapor canister.
  For unknown concentration or immediately dangerous to life or health: any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.
  In solid or dust form (e.g. sanding cured product), workers must wear a Class P1 Particulate filter mask in accordance with AS/NZS1716.
- Skin protection: Wear appropriate clothing.
- Others: It is necessary to wear protective clothes and other protection equipment. Cover your face, head and neck.
  Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.

Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely.

- Thermal hazards: Not available

Environmental exposure controls:
Do not let the product enter drains. For ecological information, refer to section 12.

Section 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state:	liquid
Colour:	grey
Odour:	weak
Odour threshold:	not available
pH:	not available
Melting point/freezing point:	not available
Initial boiling point and boiling range:	not available
Flash point:	> 100 °C (c.c.)
Evaporation rate:	not available
Flammability (solid, gas):	not available
Upper/lower flammability or explosive limits:	not available
Vapour pressure:	not available
Vapour density:	not available
Relative density:	1,57
Solubility:	not available
Partition coefficient: n-octanol/water (Log K_{ow}):	not available
Auto-ignition temperature:	not available
Decomposition temperature:	not available
Viscosity:	not available
Explosive properties:	not available
Oxidising properties:	not available

9.2. Other information:

Not available

Section 10 STABILITY AND REACTIVITY

10.1. Reactivity

Not available

10.2. Chemical stability

This material is stable under recommended storage and handling conditions.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.
When Part A is mixed with B until curing occurs, it does not form any new chemical compounds that are more hazardous than those present in either Part A or Part B before mixing occurs.

10.4. Conditions/Circumstances to avoid:

Avoid contact with incompatible materials and conditions.
Avoid accumulation of electrostatic charges, heating, flames and hot surfaces.

10.5. Incompatible materials:

Not available

10.6. Hazardous decomposition products:

May emit flammable vapour if involved in fire.

Section 11 TOXICOLOGICAL INFORMATION

11.1. Acute toxicity

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	DOSE	EXPOSURE
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	LD 50 oral	Rat	> 2 000 mg/kg	-
Remarks - oral: the acute oral median lethal dose (LD 50) for a rat of the Fischer 344-race, appeared to be more than 2 000 mg/kg body weight				
Remarks – inhalation: In accordance with REACH Annex VII, the acute inhalation test should not be performed, because oral and dermal studies on this substance are available.				
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	LD 50 dermal	Rabbit	> 2 000 mg/kg	-
Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane	LD 50 oral	Rat	11 400 mg/kg	-
Remarks - oral: no acute toxicity found during several studies with a mouse and a rat, LD 50 > 2 000 mg/kg body weight				

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	DOSE	EXPOSURE
Remarks – inhalation: Due to the very low vapour pressure, saturated atmosphere = 0,008 ppb, no meaningful acute inhalation studies could be performed.				
Remarks – dermal: During a study with a rat in accordance with OECD N° 402, the dermal LD 50 > 2 000 mg/kg. During several acute dermal studies with a rabbit the LD50 was > 2 000 mg/kg. One of the studies with a rabbit showed an LD50-value of 23 g/kg.				
Reaction product: Oxirane, mono[(alkyl(C=12-14)oxy)methyl]derivs.	LD 50 oral	Rat-female	> 2 000 mg/kg	-
Chlorinated C_{14-17} n-paraffins	LD 50 oral	Rat	> 4 000 mg/kg bw	-
	LD 50 oral	Rat	> 2 g/kg bw (rat)	-
	NOAEL	Rat	23 mg/kg bw/day (rat)	-
	LD50 dermal	Rat	4 000 mg/kg	-
	LC50 (1 h) inhalation	Rat	> 48 170 mg/m^2	-
Trizincbis(orthophosphate)	Oral, LD50	Rat	> 5 000 mg/kg	

Conclusion / Summary: Not available
Estimations of acute toxicity: Not available

11.2. Irritation / Corrosion

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	SCORE	EXPOSURE	OBSERVATION
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	Skin – erythema/scabs 404 Acute dermal irritation/corrosion	Rabbit	0,7	4 hours	72 hours
	Skin – oedema 404 Acute dermal irritation/corrosion	Rabbit	0	4 hours	4 – 504 hours

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	SCORE	EXPOSURE	OBSERVATION
	Eyes – blurry cornea 405 Acute eye irritation/corrosion	Rabbit	0		1 – 168 hours
	Eyes – lesion in the iris 405 Acute eye irritation/corrosion	Rabbit	0		1 – 168 hours
	Eyes – redness of the conjunctiva 405 Acute eye irritation/corrosion	Rabbit	0		1 – 168 hours
	Eyes – oedema of the conjunctiva 405 Acute eye irritation/corrosion	Rabbit	0		1 – 168 hours
	Skin – slightly irritating	Rabbit		24 hours	-
Reaction product: 2,2-Bis(4'-glycidyloxy-phenyl)propane	Skin – erythema/scabs 404 Acute dermal irritation/corrosion	Rabbit	1,5 – 2		-
	Skin-oedema 404 Acute dermal irritation/corrosion	Rabbit	1,0 – 1,5		-
	Eyes – 405 Acute eye irritation/corrosion	Rabbit	0		-
	Eyes – Redness of the conjunctiva	Rabbit	0,7		-
	Skin – moderately irritating	Rabbit		24 hours	-
	Skin – severely irritating	Rabbit		24 hours	-
	Eyes – slightly irritating	Rabbit			-
	Skin – irritating	Rabbit		24 hours	

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	SCORE	EXPOSURE	OBSERVATION
Reaction product: Oxirane, mono [(alkyl(C=12-14)oxy) methyl] derivs.	Eyes – mild irritation	Rabbit			
Chlorinated C_{14-17} n-paraffins	Skin – slightly irritating				
	Eyes – slightly irritating				
	Respiratory system – not irritating				

Skin: Not available
Eyes: Not available
Respiration: Not available

11.3. Sensitization

PRODUCT/SUBSTANCE NAME	TYPE OF EXPOSURE	SPECIES	RESULT
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	Skin	-	-

Remarks: The Buehler method was used for the evaluation of the potential of liquid BPFDGE-epoxy resin as far as sensitization of the skin is concerned. 0,4 ml of the test substance were administered locally to ten male guinea pigs once a week for three weeks. A positive control of liquid BPFDGE-epoxy resin was used on ten extra animals. The challenge phase started two weeks later with another five animals who were exposed to 0,4 ml liquid BPFDGE-epoxy resin. The negative control had 0 positive reactions, 8 out of 10 positive controls showed a positive reaction. Under the conditions of this test, the test material caused a late oversensitive-ness on guinea pigs.

Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane	Skin	-	-

Remarks: A local lymph node test (LLNA) on mice in accordance with OECD N° 429, the estimated EC3 was a concentration of 5,7 %, which seems to indicate that BADGE is an average skin sensitizer in this test system. During a maximizing test on guinea pigs, in accordance with OECD N° 406, BADGE caused a positive skin reaction on 100 % of the test animals, at a challenge dose with a concentration of 50 %. Therefore BADGE is an "extremely" skin sensitizing substance, under the conditions of this test. BADGE also showed to be positive for skin sensitization during a test on a guinea pig with the Buehler-method, in accordance with OECD N° 406.

Reaction product : Oxirane, mono[(alkyl(C=12-14) oxy) methyl] derivs.	Skin	Guinea pig	May cause sensitisation by skin contact
Remarks: Buehler test			
Chlorinated C_{14-17} n-paraffins	No known sensitization effect		

Conclusion / Summary: Not available
Skin: Not available
Respiration: Not available

11.4. Mutagenicity

PRODUCT/SUBSTANCE NAME	TEST	EXPERIMENT	RESULT
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	-	-	-
Remarks: Bisphenol-F-diglycidylether caused gene mutation during the Ames/Salmonella mutation test and chromosome aberrations in human lymphocytes, during multiple independent test directive studies in conformity with GLP. Moreover, the analogue structure, Bisphenol-A-diglycidylether (BPADGE) caused a significant increase of the mutation frequency in cultivated L5178Y-lymphoma cells of mice, which confirms the other results. BPFDGE is therefore genotoxic in vitro. When the potential of genotoxicity of Bisfenol-F-diglycidylether was evaluated during multiple in vivo-tests in conformity with GLP, including the mice micronucleus, in vivo/in vitro UDS with rats and MutaMouse-tests, no signs of genotoxicity were found. Moreover, the results of the other in vivo-tests on genotoxicity confirmed these negative conclusions for BPFDGE. Therefore, Bisphenol-F-diglycidylether is not genotoxic in vivo.			
Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane	-	-	-
Remarks: On the Ames/Salmonella test strains TA1535 and TA100, BADGE caused gene mutation during multiple studies. In general, the mutagenic activity was larger, without liver-S9 metabolic activation. Caused gene mutation in L5178Y-lymphoma cells of mice. Caused gene mutation and chromosome damage in V79-cells of the Chinese dwarf hamster.			

PRODUCT/SUBSTANCE NAME	TEST	EXPERIMENT	RESULT
Caused cell transformation in BHK-cells of the Syrian hamster, based on clone growth in soft agar. There were no indications of chromosome damage during a dominant lethal test with oral catheter feeding of a mouse, performed up to a high dose level of 10 g/kg nor during a micronucleus test on a mouse, performed up to a high dose level of 5 000 mg/kg. Negative on a cytogenetic test of spermatocytes on the male mouse, with a treatment of 5 days through oral catheter feeding up to a high dose level of 3 000 mg/kg. Did not give rise to a more frequent appearance of chromosome damage during a cytogenetic test on the bone marrow of the Chinese hamster, with oral catheter feeding up to a high dose level of 3 300 mg/kg. Did not cause increase of the appearance of breaches in the DNA chain in rat liver cells, after treatment through oral catheter feeding with 500 mg/kg, measured by means of alkaline elution.			
Reaction product: Oxirane, mono[(alkyl(C=12-14)-oxy)methyl]derivs.	-	-	-
Remarks: Germ cell mutagenicity. Hamster. Ovary. Result: negative. Mutagenicity (micronucleus test). Mouse – male and female. Result: negative.			
Chlorinated C_{14-17} n-paraffins	Further information (for experimental toxicology): Ames-test negative Subacute to chronic toxicity: no long-term negative effects to human beings proven to be due to the product CMR-effects (carcinogenicity, mutagenicity and toxicity for reproduction)		

Conclusion / Summary: Not available

11.5. Carcinogenicity

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	DOSE	EXPOSURE
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	- - - - -	-		
Remarks: Bisphenol-F-diglycidylether (BPFDGE) was evaluated for its potential to induce local and systemic tumours during a skin paint study of 24 months on a mouse. A dermal treatment on mice, twice a week with a solution of max. 10 % Bisphenol-F-diglycidylether (BPFDGE) showed no tumours nor any other harmful local skin effects. BPFDGE is therefore, under the conditions of this test, not carcinogenic to mice. The NOAEL was estimated on about 800 mg/kg/day.				
Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane	- - - - -	-		

Remarks: During a test with oral catheter feeding in accordance with OECD N° 453, there were no indications of carcinogenicity up to the high dose level of 100 mg/kg/day. Tests with skin exposure were performed on male mice and female rats, in accordance with OECD test directive N° 453. No signs of carcinogenicity were observed with male mice who were treated up to the high dose level of 100 mg/kg/day nor with female rats who were exposed to a high dose level of 1000 mg/kg/day.

Reaction product: Oxirane, mono[(alkyl(C=12-14) oxy) methyl] derivs.	IARC: No component of this product present at levels greater than or equal to 0,1 % is identified as probable, possible, possible or confirmed human carcinogen by IARC.

Conclusion / Summary: Not available

11.6. Reproductive toxicity

No data available

11.7. Specific target organ toxicity – single exposure

No data available

11.8. Specific target organ toxicity – repeated exposure

No data available

11.9. Aspiration hazard

No data available

Additional information: RTECS: RR0562500

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated, dermatitis.

11.10. Teratogenicity

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	DOSE	EXPOSURE
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	- - - - -	-		

Remarks: Diglycidylether of Bisphenol A (DGEBPA) was tested on its embryo/foetus toxicity and teratogenicity on pregnant rabbits. DGEBPA was applied daily on the (clean shaven) back of New Zealand White rabbits, with a dosage level of 0 (polyethylene glycol, the carrier medium control), 30, 100 or 300 mg/kg body weight/day, with a dosage volume of 1 ml/kg body weight/day on days 6 to 18 of the gestation. 26 inseminated rabbits per dosage group were used, which lead to a minimum of 20 bearing rabbits per exposure level. An occlusive bandage of absorbent gauze and non-absorbent cotton was put on the dosage spot on the back of each rabbit. The bandage was kept in its place for at least 6 hours per day with a covering of lycra/spandex. At the end of the occlusion period, the bandage as well as the covering were removed.
In the dosage group of 300 mg/kg, pregnancy toxicity was found with the bearing rabbits, which revealed itself in moderate or severe erythema, chaps, bleedings or a minor oedema on the exposure spot. Comparable but less severe skin lesions were found on the bearing rabbits in the exposure group of 100 mg/kg/day. Skin effects (minor erythema) found on bearing rabbits in the dosage group of 30 mg/kg/day were not considered to be toxicologically significant. There were no signs of toxicity to the embryo nor the foetus nor any teratogenicity at whichever dosage level, leading up to a level where no toxicity to the embryo/foetus is found at a dosage level of 300 mg/kg body weight/day.

Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane	- - -	-	-	-

Remarks: BADGE showed no indication of development toxicity with rats and rabbits that where exposed through catheter feeding, nor with rabbits that were treated in a dermal way during studies in conformity with GLP in accordance with OECD-test directive N° 414. The studies with oral catheter feeding were performed at a high dosage level of 180 mg/kg/day, during which pregnancy toxicity occurred, based on a decreased gain of the body weight. The dermal study on the rabbit was performed at a high dosage level of 300 mg/kg/day, which lead to pregnancy toxicity, based on a decreased gain of body weight.

Conclusion / Summary: Not available

11.11. STOT for single exposure

No data available

11.12. STOT for repeated exposure

No data available

11.13. Danger for aspiration

No data available

Information on the most probable exposure routes: No data available

Possible acute consequences for health

Eye contact: Irritating to the eyes
Inhalation: Causes irritation to mouth, throat and stomach
Skin contact: Irritating to the skin. May cause sensitization through skin contact.
Swallowing: No significant effects nor critical hazards are known

Symptoms relating to the physical, chemical and toxicological characteristics

Eye contact: Unwanted symptoms may be the following: irritation, tears running, redness
Inhalation: No specific data
Skin contact: Unwanted symptoms may be the following: irritation, redness
Swallowing: No specific data

Delayed and immediate effects as well as chronic effects of short term and long term exposure

Short term exposure

- Possible direct effects: Not available
- Possible delayed effects: Not available

Long term exposure

- Possible direct effects: Not available
- Possible delayed effects: Not available

Possible chronic effects on health

- Conclusion / summary: Not available
- General: Persons who were once sensitive, may afterwards have severe allergic reactions after exposure to very low concentrations
- Carcinogenicity: No known significant effects nor critical hazards
- Mutagenicity: No known significant effects nor critical hazards
- Teratogenicity: No known significant effects nor critical hazards
- Effects on the development: No known significant effects nor critical hazards
- Effects on fertility: No known significant effects nor critical hazards

Section 12 ECOLOGICAL INFORMATION

12.1. Toxicity

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	EXPOSURE
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	Acute LC50 2,54 mg/l	Fish – fish	96 hours
	Acute EC50 2,55 mg/l – 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Invertebrate aquatic animals Daphnia	48 hours
	Acute EC50 > 1,000 mg/l – 20l Alga, Growth Inhibition test	Water plants – alga	72 hours

PRODUCT/SUBSTANCE NAME	RESULT	SPECIES	EXPOSURE
Reaction product: 2,2-Bis(4'-glycidyloxyphenyl)propane	Acute LC50 1,3 mg/l – 203 Fish, Acute Toxicity Test	Fish – Fish	96 hours
	Acute EC50 2,1 mg/l – 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Invertebrate aquatic animals Daphnia	48 hours
	Acute NOEC 0,3 mg/l – 211 Daphnia Magna Reproduction Test	Invertebrate aquatic animals Daphnia	21 days
	Acute LC50 > 11 mg/l	Water plants – Alga	72 hours
Reaction product: Oxirane, mono[(alkyl(C=12-14)oxy) methyl]derivs.	Toxicity to fish: static test LC50 – Oncorhynchus mykiss (rainbow trout) > 5 000 mg/l – 96 h (OECD Test Guideline 203) Toxicity to daphnia and other aquatic invertebrates: immobilization EC50 – Daphnia magna (water flea) – 7,2 mg/l – 48 h (OECD Test Guideline 202) Toxicity to algae: Growth inhibition IC50-Pseudokirchneriella subcapitata (algae) – 843,75 mg/l – 72 h (OECD Test Guideline 201)		
Chlorinated C_{14-17} n-paraffins	Aquatic toxicity: EC50 5,9 µg/l (Daphnia Magna) EC50 (96 h) > 3,2 mg/l (algae) LC50 (96 h) > 5 000 mg/L (Alburnus alburnus (brackish water) NOEC 0,01 mg/l (Daphnia magna) 50 mg/l (Lumbricus terrestris) NOEC (14 d) > 125 µg/l (Alburnus alburns (brackish water) NOEC (28 d) 130 mg/kg dry wet (wrm) NOEC (56 d) 280 mg/kg soil dw (ewr)		

Conclusion / Summary: Not available

12.2. Persistence and degradability

PRODUCT/ SUBSTANCE NAME	TEST	RESULT	DOSAGE	INOCULUM
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol		-		
Remarks: Bisphenol-F-diglycidylether was not easily biologically degradable under the circumstances of the screening studies in accordance with OECD 301 B and 301 D. The maximum percentage of biologic degradation observed during one of the studies in accordance with OECD 301 B was 16 % for 10 mg/l, 28 days after contact.				
Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane		-		
Remarks: The level of biodegradation during a "reinforced" study in accordance with OECD-directive N° 301F was 5 % within the contact period of 28 days. The biodegradation reached a level of 6-12 % after 28 days of contact during a study in accordance with OECD-test directive N° 301B. Therefore the BADGE is not easily biologically degradable under the circumstances of the studies.				
Reaction product: Oxirane, mono[(alkyl(C=12-14)oxy) methyl] derivs.	Biodegradability: aerobic – exposure time 28 d Result: 34,7 % – not biodegradable (OECD Test Guideline 301D)			

Conclusion / Summary: Not available

12.3. Bio-accumulative potential

PRODUCT/ SUBSTANCE NAME	$LOGP_{ow}$	BCF	POTENTIAL
Reaction product: Formaldehyde polymer with (chloromethyl) oxirane and phenol	3,3	150 150,00	high
Reaction product: 2,2-Bis(4'-glycidyloxyphenyl) propane	2,64 – 3,78	3 – 3 131,00	high
Reaction product: Oxirane, mono[(alkyl(C=12-14)oxy) methyl] derivs.	No data available		

12.4. Mobility in soil

Separation coefficient soil/water (K_{OC}): Not available
Mobility: Not available

12.5. Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bio-accumulative and toxic (PBT), or very persistent and very bio-accumulative (vPvB) at levels of 0,1 % or higher.

PBT:	P: not available
	B: not available
	T: not available
vPvB:	vP: not available
	vB: not available

12.6. Other adverse effects

No known significant effects nor critical hazards.

Section 13 DISPOSAL CONSIDERATIONS

Waste treatment methods: Since more than two kinds of designated waste are mixed, it is difficult to treat separately, there can be reduction or stabilization by incineration of similar process. If water separation is possible, pre-process with water separation process.
Dispose by incineration.
The user of this product must dispose of it himself or entrust this to a waste disposer or person who recycles and disposes other's waste, a person who establishes and operates waste disposal facilities.
Dispose of waste in accordance with all applicable laws and regulations.

Section 14 TRANSPORT INFORMATION

Conform Australian Dangerous Goods Code, 2018, Edition 7.6.

14.1. UN number

ADR/RID:	UN3082
IMDG:	UN3082
ICAO/IATA:	UN3082

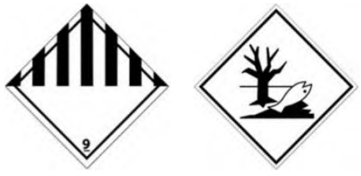
14.2. 14.2. UN proper shipping name

Environmentally hazardous substances, liquid, N.O.S. (Diglycidyl ether of Bisphenol A)

14.3. Transport hazard class(es)

ADR/RID:	9 (miscellaneous dangerous substances and articles)
IMDG:	9
ICAO/IATA:	9

Transport labels:



14.4. Packing group

ADR/RID: III
IMDG: III
IATA: III

14.5. Environmental hazards

Applicable

14.6. Special precautions for user

Local transport:	In accordance with Dangerous Goods Safety Management Law
Package and transport:	In accordance with Department of Transportation (DOT) and other regulatory agency requirements
EmS fire schedule:	F-A (general fire schedule)
EmS spillage schedule:	S-F (water soluble marine pollutants)
Emergency action code:	13Z
Hazard N° ADR:	90
Tunnel restriction code:	3 (E)

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code

No data available

Section 15 REGULATORY INFORMATION

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

Europe Regulatory
REACH restricted substance under REACH: Not applicable
REACH substances subject to authorization under REACH: Not applicable
REACH SVHC: Not applicable
EUROPE PBT: Not applicable
European Union (EU) Transport of Dangerous Goods by road – Dangerous Goods List: Not applicable

Australia inventory (AICS): All components are listed or exempted

15.2. Chemical safety assessment

Cas N°	1675-54-3	68609-97-2	9003-36-5
Korea (KECL)	KE-03162	KE-23982	KE-17106
USA (TSCA)	Listed	Listed	Listed
EU	216-823-5	271-846-8	500-006-8

Japan (MITI/ENCS)	4-209	2-2426	7-1285
China (IECSC)	Listed	Listed	Listed
Canada (DSL/NDSL)	DSL	DSL	DSL
Australia (AICS)	Listed	Listed	Listed

Section 16 OTHER INFORMATION

16.1. Indications of changes

The safety data sheet has been reviewed and the data therein were revised and laid out according to the requirements of the Commission Regulation (EU) N° 453/2010.

16.2. Abbreviations and acronyms

1272/2008 CLP: Classification, Labelling and Packaging Regulation
REACH: Registration, evaluation and authorization of chemical substances
DNEL: Derived No Effect Level
PNEC: Predicted No Effect Concentration

16.3. Key literature references and sources for data

This safety data sheet was compiled with data and information from the following sources: RTECS, ECOSAR, HSDB, SIDS SIAP, ChemWATCH, CESAR, Chemical DB.

16.4. Classification procedure

The mixture classification has been derived based on the classification of the individual components in accordance with the rules set out in Regulation (EC) N° 1272/2008 (CLP) as well as the translation tables in Annex VII to the same regulation.

16.5. Training Advice

Not applicable

16.6. Further information

The MSDS is a hazard communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported hazards are risks in the workplace or other settings. Risks may be determined by reference to exposures scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.
This information is based on our current knowledge and is intended to describe the product for the purposed of health, safety and environmental requirements only. It should therefore not be construed as guaranteeing any specific property of the product.

Hazard Statements:

H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H410	Very toxic to aquatic life with long-lasting effects

Precautionary Statements:

P261	Avoid breathing dust/fumes/gas/mist/vapours/spray
P263	Avoid contact with during pregnancy/while nursing
P264	Wash thoroughly after handling
P272	Contaminated work clothing should not be allowed out of the workplace
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
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P321	Specific treatment (see label)
P332+P313	If skin irritation occurs: Get medical advice/attention
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention
P337+P313	If eye irritation persists get medical advice/attention
P362	Take off contaminated clothing and wash before reuse
P363	Wash contaminated clothing before reuse
P391	Collect spillage
P501	Dispose of contents/container in accordance with local/regional/national/ international regulation

This information is based on our present state of knowledge. It should not therefore be construed as guaranteeing specific properties of the products described or their suitability for a particular application.

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