

SAFETY DATA SHEET

According to EC Regulation 1907/2006 (REACH), Attachment II

Date of issue: 13/09/1994

Last change: 25/03/2014

Aquarius Pava (Base)

1.1 Product identifier

Product name : Aquarius Pava BASE (Part A)
EC number : 500-033-5
CAS number : 25068-38-6
REACH Registration number : 01-2119456619-26-0002

Product type : Epoxy Resin

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

Industrial use

Identified use	Process Category (PROC)	Sector of Use (SU)	Environmental Release Category (ERC)*
ES BADGE 1.1S			
Industrial manufacturing including synthesis of the substance and blending, or use as an intermediate or monomer in reactions by the manufacturer or DU.	PROC 1 PROC 2 PROC 3	SU 3 SU 8 SU 9 SU 11 SU 12	mERC 1.1 mERC 1.2
ES BADGE 1.2S			
Industrial manufacturing including synthesis of the substance and blending, or use as an intermediate or monomer in reactions by the manufacturer or DU.	PROC 4 PROC 8a PROC 8b PROC 9	SU 3 SU 8 SU 9 SU 11 SU 12	mERC 1.1 mERC 1.2
ES BADGE 2.1S			
Industrial processes for blending or formulation into a mixture, and packaging of the product or mixtures, including transfers of material or mixtures between vessels, containers and/or shipping tanks. This includes dedicated as well as non-dedicated facilities. This ES covers the activities of most or all of our direct customer DU"s.	PROC 5 PROC 8a PROC 8b	SU 3 SU 10	mERC 1.2
ES BADGE 3.1S			

Industrial processes for use and end use in manufacture of an article or finished product, including mixtures and formulations. This includes also blending or formulation into a mixture, and packaging of the product or mixtures as well as packaging into small containers for whole sale or retail sales, including transfers of material or mixtures between vessels, containers and/or shipping tanks for both dedicated and non-dedicated facilities.	PROC 5	SU 1	mERC 1.2
	PROC 6	SU 2a	
	PROC 7	SU 2b	
	PROC 8a	SU 3	
	PROC 8b	SU 5	
	PROC 9	SU 6a	
	PROC 10	SU 6b	
	PROC 13	SU 7	
	PROC 14	SU 8	
	PROC 15	SU 9	
	PROC 16	SU 10	
	PROC 19	SU 11	
		SU 12	
		SU 13	
		SU 15	
		SU 16	
		SU 17	
		SU 18	
		SU 19	
		SU 23	
	SU 24		

Professional use

Identified use	Process Category (PROC)	Sector of Use (SU)	Environmental Release Category (ERC)*
ES BADGE 3.2S			
Professional uses and end uses of an article or product, including mixtures, formulations and transfers of material or mixtures between containers and packaging into containers for whole sale or retail sales.	PROC 5	SU 1	mERC 1.2
	PROC 6	SU 5	
	PROC 8a	SU 6a	
	PROC 8b	SU 6b	
	PROC 9	SU 7	
	PROC 10	SU 8	
	PROC 11	SU 9	
	PROC 13	SU 10	
	PROC 14	SU 11	
	PROC 15	SU 12	
	PROC 16	SU 13	
	PROC 19	SU 15	
	PROC 20	SU 16	
		SU 17	
		SU 18	
		SU 19	
		SU 22	
	SU 24		

The Environmental Release Category also includes mERC (modified ERC) and spERC (specific ERC)

See Section 16 for the full text of the PROCs, SUs and ERCs declared above.

1.3 Details of the supplier of the safety data sheet

Manufacturer, importer, supplier : Pava Resine Srl
Via Dolomiti, 6/1
35018 S. Martino di L. (PD)
ITALY

Contact person info@pavaresine.it

Telephone General Information:
+39 049 5953085

REACH Reg. Legal Entity : Momentive Specialty Chemicals B.V.
Seattleweg 17, Building 4,
3195 ND Pernis - Rotterdam, Netherlands

1.4 Emergency telephone number

Supplier

Telephone number : CARECHEM24
+39 049 5953085

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Skin Corr./Irrit. 2 H315
Eye Dam./Irrit. 2 H319
Skin Sens. 1 H317
Aquatic Chronic 2 H411


Classification according to Directive 67/548/EEC [DSD]

The product is classified as dangerous according to Directive 1999/45/EC and its amendments.

Classification : Xi, R36/38
R43
N, R51/53

See Section 16 for the full text of the R phrases or H statements declared above.

2.2 Label elements

Hazard pictograms : 

Signal word : Warning

Hazard statements : Causes serious eye irritation.
Causes skin irritation.
May cause an allergic skin reaction.
Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : Wear protective gloves.
Wear eye or face protection.
Avoid release to the environment.

Response : **IF IN EYES:**
Rinse cautiously with water for several minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.

Storage : Not applicable.

- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazardous ingredients** : reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)
- Supplemental label elements** : Not applicable.

2.3 Other hazards

- Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII** : No.
- Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII** : Not available
- Other hazards which do not result in classification** : None known.

SECTION 3: Composition/information on ingredients

Substance/mixture : Mono-constituent substance

Product/ingredient name	Identifiers	% by weight	Classification		Type
			67/548/EEC	Regulation (EC) No. 1272/2008 [CLP]	
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	RRN : 01-2119456619-26 EC:500-033-5 CAS : 25068-38-6 Index:603-074-00-8	<80	Xi; R36/38 R43 N; R51 R53	Skin Corr./Irrit. 2, H315 Eye Dam./Irrit. 2, H319 Skin Sens. 1, H317 Aquatic Chronic 2, H411	[A]

Type

- [A] Constituent
[B] Impurity
[C] Stabilizing additive

Type

- [1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

See Section 16 for the full text of the R phrases or H statements declared above.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Protection of first aid personnel** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : Causes skin irritation. May cause an allergic skin reaction.
- Ingestion** : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation	:	No specific data. No specific data.
Skin contact	:	Adverse symptoms may include the following: irritation redness Adverse symptoms may include the following: irritation redness
Ingestion	:	No specific data. No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use water spray, fog or foam. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	Do not use water jet. None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	:	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	:	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds

5.3 Advice for firefighters

Special protective actions for fire-fighters	:	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	:	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Additional information	:	

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:	No action shall be taken involving any personal risk or without
------------------------------------	---	---

- suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
- 6.2 Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
- 6.3 Methods and materials for containment and cleaning up**
- Small spill** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product.
- 6.4 Reference to other sections** : See Section 1 for emergency contact information.
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

- Protective measures** : Put on appropriate personal protective equipment (see section 8 of SDS). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry,

cool and well-ventilated area, away from incompatible materials (see section 10 of SDS) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Not available
Industrial sector specific solutions : Not available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, 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. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Short term Dermal	8.3 mg/kg bw/day	Workers	Systemic
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Short term Inhalation	12.3 mg/m ³	Workers	Systemic
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Long term Dermal	8.3 mg/kg bw/day	Workers	Systemic

≤ 700)					
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Long term Inhalation	12.3 mg/m ³	Workers	Systemic
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Short term Dermal	3.6 mg/kg bw/day	General	Systemic
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Short term Inhalation	0.75 mg/m ³	General	Systemic
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Short term Oral	0.75 mg/kg bw/day	General	Systemic
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Long term Dermal	3.6 mg/kg bw/day	General	Systemic
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Long term Inhalation	0.75 mg/m ³	General	Systemic
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	DNEL	Long term Oral	0.75 mg/kg bw/day	General	Systemic

DNEL/DMEL Summary : Not available

PNECs

Product/ingredient name	Type	Compartment Detail	Value	Method Detail
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Fresh water	3 µg/l	

reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Marine	0.3 $\mu\text{g/l}$	
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Sewage Treatment Plant	10 mg/l	
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Fresh water sediment	0.5 mg/kg dwt	
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Marine water sediment	0.5 mg/kg dwt	
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Sediment	0.05 mg/kg dwt	
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	PNEC	Intermittent Releases	0.013 mg/l	

PNEC Summary : Not available

Derived No-Effect Levels' (DNEL's) and Predicted No-Effect Concentrations' (PNEC's)

Explanatory note:

REACH requires manufacturers and importers to establish and report „Derived No-Effect Levels“ (DNEL“s) for humans by inhalation, ingestion and dermal routes of exposure and „Predicted No-Effect Concentrations“ (PNEC“s) for environmental exposure. DNEL's and PNEC's are established by the registrant without an official consultation process, and are not intended to be directly used for setting workplace or general population exposure limits. They are primarily used as input values in running Quantitative Risk Assessment models (like the ECETOC-TRA model).

Due to differences in calculation methodology the DNEL will tend to be lower (sometimes significantly) than any corresponding health-based OEL for that chemical substance. Further although DNEL“s (and PNEC“s) are an indication for setting risk reduction measures, it should be recognized that these limits do not have the same regulatory application as officially endorsed governmental OEL“s.

8.2 Exposure controls

Appropriate engineering controls : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to

- remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Liquid
- Color** : Not available
- Odor** : Not available
- Odor threshold** : Not determined
- pH** : 7
- Melting point/freezing point** : Not determined
- Initial boiling point and boiling range** : Not available
- Flash point** : 150 °C

Evaporation rate	:	Not determined
Upper/lower flammability or explosive limits	:	Lower: Not determined Upper: Not determined
Vapor pressure	:	0.01 Pa @ 20 °C
Vapor density	:	Not determined
Relative density	:	1.160 @ 25 °C
Solubility(ies)	:	Not available
Solubility in water	:	0.009 kg/m ³ @ 23 °C
Partition coefficient: n-octanol/water	:	3
Auto-ignition temperature	:	300 °C
Decomposition temperature	:	Not available
Viscosity	:	Dynamic: 10 - 12 Pa·s @ 25 °C (ASTM D-445) Kinematic: Not available
Explosive properties	:	Not available
Oxidizing properties	:	Not determined

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	Stable under normal conditions.
10.2 Chemical stability	:	The product is stable.
10.3 Possibility of hazardous reactions	:	Hazardous reactions or instability may occur under certain conditions of storage or use.
10.4 Conditions to avoid	:	No specific data. Caustic soda (sodium hydroxide) can induce vigorous polymerisation at temperatures around 200 °C.
10.5 Incompatible materials	:	No specific data. Reactive or incompatible with the following materials: strong oxidizing agents, sodium hydroxide,
10.6 Hazardous decomposition products	:	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
-------------------------	--------	---------	------	----------

reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight \leq 700)				
	LD50 Oral	Rat	11,400 mg/kg	-
Remarks - Oral:	Not acutely toxic in multiple mouse and rat studies, LD50 > 2000 mg/kg of body weight.			
Remarks - Inhalation:	Due to the very low vapor pressure, saturated atmosphere = 0.008 ppb, meaningful acute inhalation studies could not be conducted.			
Remarks - Dermal:	In a rat OECD no. 402 study the dermal LD50 was > 2000 mg/kg. In multiple rabbit acute dermal studies the LD50 was > 2000 mg/kg. One rabbit study reported an LD50 value of 23 grams/kg.			

Conclusion/Summary : Not available

Acute toxicity estimates

Not available

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight \leq 700)	Skin - Erythema/Eschar 404 Acute Dermal Irritation/Corrosion	Rabbit	1.5 - 2		-
	Skin - Edema 404 Acute Dermal Irritation/Corrosion	Rabbit	1.0 - 1.5		-
	eyes - - 405 Acute Eye Irritation/Corrosion	Rabbit	0		-
	eyes - Redness of the conjunctivae	Rabbit	0.7		-
	Skin - Moderate irritant	Rabbit		24 hrs	-
	Skin - Severe irritant	Rabbit		24 hrs	-
	eyes - Mild irritant	Rabbit			-

Conclusion/Summary

Skin : Not available
eyes : Not available
Respiratory : Not available

Sensitization

Product/ingredient name	Route of exposure	Species	Result
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight \leq 700)	Skin	-	-
Remarks:	In an OECD No. 429 mouse LLNA study the estimated EC3 was a concentration of 5.7% suggesting that BADGE is a moderate skin sensitizer in this test system. In an OECD No. 406 guinea pig Maximization study BADGE induced positive dermal reaction in 100% of the test animals at a 50% concentration challenge dose. Therefore, BADGE is an "Extreme" skin sensitizer under the conditions of this study. BADGE was also positive for skin sensitization in an OECD No. 406 guinea pig Buehler method study.		

Conclusion/Summary

Skin : Not available
Respiratory : Not available

Mutagenicity

Product/ingredient name	Test	Experiment	Result
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	-	; -	-
Remarks:	BADGE induced gene-mutation in Ames/Salmonella tester strains TA1535 and TA100 in multiple studies. Generally, mutagenic activity was greater without liver S9 metabolic activation. Induced gene-mutation in L5178Y mouse lymphoma cells. Induced gene-mutation and chromosome damage in Chinese hamster V79 cells. Induced cell transformation in Syrian hamster BHK cells based on clonal growth in soft agar. Did not induce evidence of chromosome damage in a mouse dominant lethal oral gavage study conducted up to a high dose level of 10 grams/kg and in a mouse micronucleus test conducted up to a high dose of 5000 mg/kg. Negative in a male mouse spermatocyte cytogenetic assay with treatment for 5 days by oral gavage up to a high dose of 3000 mg/kg. Did not induce an increase in the frequency of chromosome damage in a Chinese hamster bone marrow cytogenetic test by oral gavage up to a high dose of 3300 mg/kg. Failed to induce an increase of DNA strand breaks in rat liver cells following oral gavage treatment with 500 mg/kg as measured by alkaline elution.		

Conclusion/Summary : Not available

Carcinogenicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	- - - - -	-		
Remarks:	In a rat oral gavage OECD no. 453 study there was no evidence of carcinogenicity up to the high dose level of 100 mg/kg/day. OECD Test Guideline no. 453 dermal exposure studies were conducted on male mice and female rats. No evidence of carcinogenicity was observed in male mice treated up to the high dose of 100 mg/kg/day and female rats exposed up to a high dose level of 1000 mg/kg/day.			

Conclusion/Summary : Not available

Reproductive toxicity

Conclusion/Summary : Not available

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	- - -	-	-	-
Remarks:	BADGE did not induce any evidence of development toxicity in rats and rabbits exposed by oral gavage or in rabbits treated by the dermal route in OECD Test Guideline no. 414 GLP studies. The oral gavage studies were conducted up to a high dose level of 180 mg/kg/day that produced maternal toxicity base on decreased body weight gain. The rabbit dermal study was conducted up to a high dose of 300 mg/kg/day that induced maternal toxicity based on reduced body weight gain.			

Conclusion/Summary : Not available

Specific target organ toxicity (single exposure)

Not available

Specific target organ toxicity (repeated exposure)

Not available

Aspiration hazard

Not available

Information on the likely routes of exposure : Not available

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : Causes skin irritation. May cause an allergic skin reaction.
Ingestion : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
 Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
Inhalation : No specific data.No specific data.
Skin contact : Adverse symptoms may include the following:
 irritation
 redness
 Adverse symptoms may include the following:
 irritation
 redness
Ingestion : No specific data.No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

Potential immediate effects : Not available
Potential delayed effects : Not available

Long term exposure

Potential immediate effects : Not available
Potential delayed effects : Not available

Potential chronic health effects

Conclusion/Summary : Not available

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight \leq 700)			
	Acute LC50 1.3 mg/l - 203 Fish, Acute Toxicity Test	Fish - Fish	96 h
	Acute EC50 2.1 mg/l - 202 Daphnia sp. Acute Immobilization Test and Reproduction Test	Aquatic invertebrates. Water flea	48 h
	Acute NOEC 0.3 mg/l - 211 Daphnia Magna Reproduction Test	Aquatic invertebrates. Water flea	21 d
	Acute LC50 > 11 mg/l -	Aquatic plants - Algae	72 h

Conclusion/Summary : Not available

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight \leq 700)		-		
Remarks:	The level of biodegradation in an "enhanced" OECD 301F study was 5% within the 28 day contact period. Biodegradation reached 6 - 12 % after 28 days of contact in an OECD test guideline no. 301B study. Therefore, BADGE is not readily biodegradable under the conditions of the studies.			

Conclusion/Summary : Not available

12.3 Bioaccumulative potential

Product/ingredient name	LogPow	BCF	Potential
reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight \leq 700)	2.64 - 3.78	3 - 31 31.00	high
EPIKOTE™ Resin 828 LEVEL	3	-	high

12.4 Mobility in soil

Soil/water partition coefficient (KOC) : Not available

Mobility : Not available

12.5 Results of PBT and vPvB assessment

PBT : P: Not available
B: Not available
T: No.

vPvB : vP: Not available
vB: Not available

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
- Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

Packaging

- Methods of disposal** : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
- Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Regulatory information	14.1. UN number	14.2. UN proper shipping name	14.3. Transport hazard class(es)	14.4. Packing group
ADR	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LIQUID EPOXY RESIN)	9	III
RID	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LIQUID EPOXY RESIN)	9	III
ICAO/IATA	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LIQUID EPOXY RESIN)	9	III
IMO/IMDG	3082	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (LIQUID EPOXY RESIN)	9	III

14.5. Environmental hazards

Environmentally hazardous and/or Marine Pollutant : Yes.



- 14.6 Special precautions for user** : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage."

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Substances of very high concern

Carcinogen: Not listed

Mutagen: Not listed

Toxic to reproduction: Not listed

PBT: Not listed

vPvB: Not listed

Other EU regulations

- REACH Status** : The substance(s) in this product has (have) been Pre-Registered and/or Registered, or are exempted from registration, according to Regulation (EC) No. 1907/2006 (REACH).
- Aerosol dispensers** : Not applicable.
- Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : Not applicable.
- EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part 1)** : Not listed
- EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part 2)** : Not listed
- EU - Prior Informed Consent. List of chemicals subject to the international PIC procedure (Annex I - Part 3)** : Not listed

Seveso II Directive

This product is controlled under the Seveso II Directive.

Danger criteria

Category
E2: Hazardous to the aquatic environment - Chronic 2 C9ii: Toxic for the environment

National regulations**International regulations**

- International lists** :
- Australia inventory (AICS) All components are listed or exempted.
 - Canada inventory All components are listed or exempted.
 - Japan inventory All components are listed or exempted.
 - China inventory (IECSC) All components are listed or exempted.
 - Korea inventory All components are listed or exempted.
 - New Zealand Inventory (NZIoC) All components are listed or exempted.
 - Philippines inventory (PICCS) All components are listed or exempted.
 - United States inventory (TSCA 8b) All components are listed or exempted.
 - Taiwan inventory (CSNN) Not determined.

**Chemical Weapons Convention
List Schedule I Chemicals** : Not listed

: Not listed

**Chemical Weapons Convention
List Schedule II Chemicals** : Not listed

: Not listed

**Chemical Weapons Convention
List Schedule III Chemicals** : Not listed

: Not listed

- 15.2 Chemical Safety Assessment** : This product contains substances for which Chemical Safety Assessments are still required.

SECTION 16: Other information

- Abbreviations and acronyms** :
- ATE = Acute Toxicity Estimate
 - CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 - DNEL = Derived No Effect Level
 - DMEL = Derived Minimal Effect Level
 - EUH statement = CLP-specific Hazard statement
 - PNEC = Predicted No Effect Concentration
 - RRN = REACH Registration Number
 - PBT = Persistent, Bioaccumulative and Toxic
 - vPvB = Very Persistent and Very Bioaccumulative

Process Category

- PROC 1 Use in closed process, no likelihood of exposure
- PROC 2 Use in closed, continuous process with occasional controlled exposure
- PROC 3 Use in closed batch process (synthesis or formulation)
- PROC 4 Use in batch and other process (synthesis) where opportunity for exposure arises
- PROC 5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)
- PROC 6 Calendering operations
- PROC 7 Industrial spraying
- PROC 8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC 8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC 9 Transfer of substance or preparation into small containers (dedicated filling line, including

	weighing)
PROC 10	Roller application or brushing
PROC 11	Non industrial spraying
PROC 12	Use of blowing agents in manufacture of foam
PROC 13	Treatment of articles by dipping and pouring
PROC 14	Production of preparations or articles by tableting, compression, extrusion, pelletisation
PROC 15	Use as laboratory reagent
PROC 16	Using material as fuel sources, limited exposure to unburned product to be expected
PROC 19	Hand-mixing with intimate contact and only PPE available.
PROC 20	Heat and pressure transfer fluids in dispersive, professional use but closed systems.
PROC 21	Low energy manipulation of substances bound in materials and/or articles
PROC 22	Potentially closed processing operations with minerals/metals at elevated temperature. Industrial setting
PROC 23	Open processing and transfer operations with minerals/metals at elevated temperature
PROC 24	High (mechanical) energy work-up of substances bound in materials and/or articles
PROC 24c	High (mechanical) energy work-up of substances bound in materials and/or articles - pt > mp - High Fugacity
PROC 25	Other hot work operations with metals

Sector of Use

SU 1	Agriculture, forestry, fishery
SU 2a	Mining, (without offshore industries)
SU 2b	Offshore industries
SU 3	Uses of substances as such or in preparations at industrial sites
SU 5	Manufacture of textiles, leather, fur
SU 6a	Manufacture of wood and wood products
SU 6b	Manufacture of pulp, paper and paper products
SU 7	Printing and reproduction of recorded media
SU 8	Manufacture of bulk, large scale chemicals (including petroleum products)
SU 9	Manufacture of fine chemicals
SU 10	Formulation [mixing] of preparations and/or re-packaging (excluding alloys)
SU 11	Manufacture of rubber products
SU 12	Manufacture of plastics products, including compounding and conversion
SU 13	Manufacture of other non-metallic mineral products, e.g. plasters, cement
SU 14	Manufacture of basic metals, including alloys
SU 15	Manufacture of fabricated metal products, except machinery and equipment
SU 16	Manufacture of computer, electronic and optical products, electrical equipment
SU 17	General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment.
SU 18	Manufacture of furniture
SU 19	Building and construction work
SU 21	Consumer uses: Private households (= general public = consumers)
SU 22	Professional uses: Public domain (administration, education, entertainment, services, craftsmen)
SU 23	Electricity, steam, gas water supply and sewage treatment
SU 24	Scientific research and development

Environmental Release Category

ACEA1	Automotive vehicles - Solids
ACEA2	Automotive vehicles - Volatiles/Solvents
BFL/ZKF1	Acabado de vehículos - Sólidos
BFL/ZKF2	Vehicle Refinishing - Volatiles/Solvents
CEPE1	Formulation of Organic Solvent Borne Coatings and Inks - Large Scale (>100 tpa solvent use) - VOC
CEPE2	Formulation of Organic Solvent Borne Coatings and Inks - Small Scale (<100 tpa solvent use) - VOC
CEPE3	Formulation of Organic Solvent Borne Coatings and Inks - Solids
CEPE4	Formulation of Water Borne Coatings and Inks - Large Scale (>100 tpa solvent use) - VOC

CEPE5	Formulation of Water Borne Coatings and Inks - Small Scale (<100 tpa solvent use) - VOC
CEPE6	Formulation of Water Borne Coatings and Inks - Solids
CEPE7	Formulation of Powder Coatings and Inks - Solids
CEPE8	Formulation of Liquid Coatings and Inks (where specific use not known) - Large Scale(>100 tpa solvent use) - VOC
CEPE9	Formulation of Liquid Coatings and Inks (where specific use not known) - Small Scale (<100 tpa solvent use) - VOC
CEPE10	Formulation of Liquid Coatings and Inks (where specific use not known) - Solids
CEPE11	Wide Dispersive Application of Decorative Coatings - Consumer and Professionals - indoor use - Solvents and volatiles
CEPE12	Wide Dispersive Application of Decorative Coatings - Consumer and Professionals - indoor use - Solids
CEPE13	Wide Dispersive Application of Decorative Coatings - Consumer and Professionals - outdoor use - Solvents and Volatiles
CEPE14	Wide Dispersive Application of Decorative Coatings - Consumer and Professionals - outdoor use - Solids
CEPE15	Other spray coating - Volatiles / Abatement
CEPE16a	Other spray coating, indoor use - point sources - Volatiles
CEPE16b	Other spray coating, indoor use - wide dispersive - Volatiles
CEPE17a	Other spray coating, indoor use - point sources - Solids
CEPE17b	Other spray coating, indoor use - wide dispersive - Solids
CEPE18	Powder spraying
COLIPA 12	Formulation of cosmetic products involving cleaning with Organic Solvents (Varnish / Removers, Decorative Cosmetics, Spray, Lacquer, Fine Fragrance, Solar oil, solid products - (medium scale)
COLIPA19	Wide Dispersive Use of Aerosol products for hair and skin care (Non-Propellants)
ECCA1	Industrial Coil Coating - Solids
ECCA2	Industrial Coil Coating - Volatiles
EMPAC1	Industrial Use of Paint, Coatings in metal packaging - Non-Solvents
EMPAC2	Industrial Use of Paint, Coatings in metal packaging - Solvents
ERC 1	Manufacture of substances
ERC 2	Formulation of preparations
ERC 3	Formulation in materials
ERC 4	Industrial use of processing aids in processes and products, not becoming part of articles
ERC 5	Industrial use resulting in inclusion into or onto a matrix
ERC 6a	Industrial use resulting in manufacture of another sub-stance (use of intermediates)
ERC 6b	Industrial use of reactive processing aids
ERC 6c	Industrial use of monomers for manufacture of thermoplastics
ERC 6d	Industrial use of process regu-lators for polymerisation proc-esses in production of resins, rubbers, polymers
ERC 7	Industrial use of substances in closed systems
ERC 8a	Wide dispersive indoor use of processing aids in open systems
ERC 8b	Wide dispersive indoor use of reactive substances in open systems
ERC 8c	Wide dispersive indoor use resulting in inclusion into or onto a matrix
ERC 8d	Wide dispersive outdoor use of processing aids in open systems
ERC 8f	Wide dispersive outdoor use resulting in inclusion into or a matrix
ERC 10a	Wide dispersive outdoor use of long-life articles and materials with low release
ERC 11a	Wide dispersive indoor use of long-life articles and materials with low release
ESVOC1	Manufacture of the substance and subsequent recycling/recovery, including material transfers, storage, and maintenance
ESVOC2	Use as a isolated intermediate not under stricltly controlled conditions
ESVOC4	Formulation & packing of mixtures in batch or continuous operations, including storage, materials transfers, large and small scale packing, and maintenance
FEICA1	Formulation of Solventless/ Solvent Borne Adhesives - Solids
FEICA2	Formulation of Solvent Borne adhesives - Volatiles (Large Scale)
FEICA3	Formulation of Solvent Borne adhesives - Volatiles (Small Scale)
FEICA4	Formulation of Water Borne adhesives - Volatiles
FEICA5	Formulation of Water Borne adhesives - Solids
FEICA6	Industrial Use of Substances other than Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives

FEICA7	Industrial Use of Substances other than Solvents in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives
FEICA8	Industrial Use of Solvents in Paper, Board and related Products / Woodworking and joinery / Footwear and Leather, Textile, Others Adhesives
FEICA9	Industrial Use of Solvents in Transportation (Automotive/aircraft/rail vehicles) / industrial Building Construction Adhesives
FEICA10	Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for indoor application
FEICA11	Wide dispersive Use of Substances other than Solvents in Professional and DIY Adhesives
FEICA12	Wide dispersive Use of Solvents in Building Construction Adhesives for indoor application
FEICA13	Wide dispersive Use of Solvents in Professional and DIY Adhesives
FEICA14	Wide dispersive Use of Substances other than Solvents in Building Construction Adhesives for outdoor application
FEICA15	Wide dispersive Use of Solvents in Building Construction Adhesives for outdoor application
mERC 1.1	Environmental releases related to manufacture and use of the substance by the Registrant.
mERC 1.2	Environmental releases related to use of the substance as a reactant, monomer or blending in a mixture by a DU.

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Skin Corr./Irrit. 2, H315	Calculation method
Eye Dam./Irrit. 2, H319	Calculation method
Skin Sens. 1, H317	Calculation method
Aquatic Chronic 2, H411	Calculation method

Full text of abbreviated H statements	: H411 Toxic to aquatic life with long lasting effects. H319 Causes serious eye irritation. H315 Causes skin irritation. H317 May cause an allergic skin reaction.
Full text of classifications [CLP/GHS]	: Aquatic Chronic 2, H411: AQUATIC HAZARD (LONG-TERM) - Category 2 Eye Dam./Irrit. 2, H319: SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2 Skin Corr./Irrit. 2, H315: SKIN CORROSION/IRRITATION - Category 2 Skin Sens. 1, H317: SKIN SENSITIZATION - Category 1
Full text of abbreviated R phrases	: R36/38- Irritating to eyes and skin. R43- May cause sensitization by skin contact. R51/53- Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Full text of classifications [DSD/DPD]	: Xi - Irritant N - Dangerous for the environment.