Heraeus

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

PD 205 A-JET SMT-ADHESIVE, 41 G, S17

3120

Version	Revision Date:	Date of last issue: 01.09.2021
10.1	16.02.2023	Date of first issue: 23.03.2017

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

1.1 Product identifier

Trade name	:	PD 205 A-JET SMT-ADHESIVE, 41 G, S17
Product code	:	89950796

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

Use of the Substance/Mixture	:	Industrial use, Electrical industry and electronics ≤ 5 L

1.3 Details of the supplier of the safety data sheet

Company	:	Heraeus Electronics GmbH & Co. KG Heraeusstrasse 12-14 63450 Hanau
Telephone	:	+496181350
E-mail address of person responsible for the SDS	:	sds@heraeus.com (Heraeus Holding: EHS Chemical Safety)

1.4 Emergency telephone number

Emergency telephone number	:	+49 6132-84463 International Emergency Number This telephone number is available 24 hours per day, 7 days per week.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitisation, Category 1	H317: May cause an allergic skin reaction.
Germ cell mutagenicity, Category 2	H341: Suspected of causing genetic defects.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :

Signal word : Warning

Hazard statements :
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H341 Suspected of causing genetic defects.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements :

Prevention:

P201 Obtain special instructions before use.
P261 Avoid breathing mist or vapours.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

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.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Hazardous components which must be listed on the label:

Bisphenol-F-epichlorhydrin-epoxy resin
2,3-epoxypropyl neodecanoate
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane
4,4'-isopropylidenediphenol
2,3-epoxypropyl phenyl ether

Additional Labelling

EUH205 Contains epoxy constituents. May produce an allergic reaction.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: This substance/mixture contains components considered to have endocrine disrupting properties for environment , according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : organic

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Bisphenol-F-epichlorhydrin-epoxy resin	9003-36-5 500-006-8 01-2119454392-40-XXXX	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 25 - < 30
2,3-epoxypropyl neodecanoate	26761-45-5 247-979-2 01-2119431597-33-XXXX	Skin Sens. 1; H317 Muta. 2; H341 Aquatic Chronic 2; H411	>= 20 - < 25
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymeth-ylene)]bisoxirane	1675-54-3 216-823-5 603-073-00-2 01-2119456619-26-XXXX	Skin Irrit. 2; H315 Eye Irrit. 2; H319 Skin Sens. 1; H317 Aquatic Chronic 2; H411 --- specific concentration limit Eye Irrit. 2; H319 >= 5 % Skin Irrit. 2; H315 >= 5 %	>= 10 - < 20
4,4'-isopropylidenediphenol	80-05-7 201-245-8 604-030-00-0	Eye Dam. 1; H318 Skin Sens. 1; H317 Repr. 1B; H360F STOT SE 3; H335 Aquatic Chronic 2; H411	>= 0,1 - < 0,25
2,3-epoxypropyl phenyl ether	122-60-1 204-557-2 603-067-00-X	Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312	>= 0,0025 - < 0,025

		Skin Irrit. 2; H315 Skin Sens. 1A; H317 Muta. 2; H341 Carc. 1B; H350 STOT SE 3; H335 Aquatic Chronic 3; H412 --- Acute toxicity estimate Acute oral toxicity: 1.400 mg/kg Acute inhalation toxicity (vapour): 11 mg/l Acute dermal toxicity: 1.666 mg/kg	

The registration numbers listed here are valid if the company listed in Chapter 1 is located in the EU. For ingredients without a registration number there is no registration, because due to the annual amount no registration is required or the substance or its use according to Article 2 of the REACh Regulation (EC 1907/2006) is excluded from registration.

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : First aider needs to protect himself.
Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.

If inhaled : Move to fresh air.
Get medical attention.

In case of skin contact : Take off all contaminated clothing immediately.
Wash off with:
Polyethylene glycol 400.
Obtain medical attention.

In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Keep eye wide open while rinsing.
Protect unharmed eye.
Call a physician immediately.

If swallowed	:	Immediately give large quantities of water to drink. Do NOT induce vomiting. Get medical attention immediately.

4.2 Most important symptoms and effects, both acute and delayed

Risks	:	Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Suspected of causing genetic defects.

4.3 Indication of any immediate medical attention and special treatment needed

Treatment	:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Exposure to decomposition products may be a hazard to health.
Hazardous combustion products	:	Carbon oxides Silicon oxides Metal oxides

5.3 Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.
Further information	:	Use a water spray to cool fully closed containers. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Follow safe handling advice and personal protective equip-

ment recommendations.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Refer to protective measures listed in sections 7 and 8.

6.2 Environmental precautions

Environmental precautions : Do not allow contact with soil, surface or ground water.
Do not let product enter drains.
If the product contaminates rivers and lakes or drains inform respective authorities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Sweep up or vacuum up spillage and collect in suitable container for disposal.

6.4 Reference to other sections

See sections: 7, 8, 11, 12 and 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Provide sufficient air exchange and/or exhaust in work rooms.
Wear personal protective equipment.
Avoid inhalation, ingestion and contact with skin and eyes.
Smoking, eating and drinking should be prohibited in the application area.

Hygiene measures : Keep away from food and drink. Wash hands before breaks and at the end of workday. Keep working clothes separately. Remove and wash contaminated clothing and gloves, including the inside, before re-use.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep tightly closed in a dry, cool and well-ventilated place.
Keep locked up or in an area accessible only to qualified or authorised persons.

7.3 Specific end use(s)

Specific use(s) : No data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
4,4'-isopropylidenedi-phenol	80-05-7	TWA (inhalable fraction)	2 mg/m3	2017/164/EU
	Further information: Indicative			
		GV (inhalable dust)	2 mg/m3	DK OEL
2,3-epoxypropyl phenyl ether	122-60-1	GV	0,1 ppm 0,6 mg/m3	DK OEL
	Further information: Means that the substance can be absorbed through the skin., Means that the substance is included in the list of substances considered carcinogenic., Guiding list of organic solvents.			

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Bisphenol-F-epichlorhydrin-epoxy resin	Workers	Inhalation	Long-term systemic effects	29,39 mg/m3
	Workers	Skin contact	Long-term systemic effects	104,15 mg/kg bw/day
	Workers	Skin contact	Acute local effects	0,0083 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	8,7 mg/m3
	Consumers	Skin contact	Long-term systemic effects	62,5 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	6,25 mg/kg bw/day
2,3-epoxypropyl neodecanoate	Workers	Inhalation	Long-term systemic effects	2,7 mg/m3
	Workers	Inhalation	Acute systemic effects	10,4 mg/m3
	Workers	Skin contact	Long-term systemic effects	1,9 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1,6 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1,15 mg/kg bw/day

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane	Workers	Inhalation	Long-term systemic effects	12,25 mg/m3
	Workers	Inhalation	Acute systemic effects	12,25 mg/m3
	Workers	Skin contact	Long-term systemic effects	8,33 mg/kg bw/day
	Workers	Skin contact	Acute systemic effects	8,33 mg/kg bw/day
	Consumers	Skin contact	Long-term systemic effects	3,571 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	3,571 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,75 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	0,75 mg/kg bw/day
4,4'-isopropylidenediphenol	Workers	Inhalation	Long-term systemic effects	2 mg/m3
	Workers	Inhalation	Acute systemic effects	2 mg/m3
	Workers	Inhalation	Long-term local effects	2 mg/m3
	Workers	Inhalation	Acute local effects	2 mg/m3
	Workers	Skin contact	Long-term systemic effects	0,031 mg/kg bw/day
	Workers	Skin contact	Acute systemic effects	0,031 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	1 mg/m3
	Consumers	Inhalation	Acute systemic effects	1 mg/m3
	Consumers	Inhalation	Long-term local effects	1 mg/m3
	Consumers	Inhalation	Acute local effects	1 mg/m3
	Consumers	Skin contact	Long-term systemic effects	0,002 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	0,002 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	0,004 mg/kg bw/day
	Consumers	Ingestion	Acute systemic effects	0,004 mg/kg bw/day

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Bisphenol-F-epichlorhydrin-epoxy resin	Fresh water	0,003 mg/l
	Marine water	0,0003 mg/l
	Intermittent use/release	0,0254 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0,294 mg/kg
	Marine sediment	0,0294 mg/kg
	Soil	0,237 mg/kg
2,3-epoxypropyl neodecanoate	Fresh water	0,001 mg/l
	Marine sediment	0,00012 mg/l
	Intermittent use/release	0,012 mg/l
	Sewage treatment plant	50 mg/l
	Fresh water sediment	0,012 mg/kg
	Marine sediment	0,0002 mg/kg
2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymeth-ylene)]bisoxirane	Fresh water	0,006 mg/l
	Freshwater - intermittent	0,018 mg/l
	Marine water	0,001 mg/l
	Marine water - intermittent	0,002 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0,996 mg/kg dry weight (d.w.)
	Marine sediment	0,1 mg/kg dry weight (d.w.)
	Soil	0,196 mg/kg dry weight (d.w.)
	Secondary Poisoning	11 mg/kg food
4,4'-isopropylidenediphenol	Fresh water	0,018 mg/l
	Marine water	0,018 mg/l
	Intermittent use/release	0,011 mg/l
	Sewage treatment plant	320 mg/l
	Fresh water sediment	1,2 mg/kg
	Marine sediment	0,24 mg/kg
	Soil	3,7 mg/kg
2,3-epoxypropyl phenyl ether	Fresh water	0,043 mg/l
	Freshwater - intermittent	0,43 mg/l
	Marine water	0,004 mg/l
	Fresh water sediment	0,331 mg/kg dry weight (d.w.)
	Marine sediment	0,033 mg/kg dry weight (d.w.)
	Soil	0,041 mg/kg dry

		weight (d.w.)

8.2 Exposure controls

Personal protective equipment

Eye/face protection	:	Safety glasses with side-shields
Hand protection		
Remarks	:	Before removing gloves clean them with soap and water. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. As the product is a mixture of several substances, the durability of the glove materials cannot be calculated in advance and has to be tested before use.
Skin and body protection	:	Impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Respiratory protection	:	Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.
Filter type	:	Recommended Filter type: Filter type ABEK-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	:	paste
Colour	:	red
Odour	:	mild
Odour Threshold	:	No data available
Melting point/range	:	No data available
Boiling point/boiling range	:	> 200 °C (1.013 hPa)
Flammability	:	Not applicable
Upper explosion limit / Upper flammability limit	:	No data available
Lower explosion limit / Lower	:	No data available

flammability limit		
Flash point	:	> 100 °C(1.013 hPa)
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
pH	:	Not applicable
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	> 40 mm2/s (23 °C)
		> 20,5 mm2/s (40 °C)
Solubility(ies)		
Water solubility	:	(20 °C, 1.013 hPa) insoluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Vapour pressure	:	<= 1.100 hPa (50 °C)
Relative density	:	No data available
Density	:	1,17 g/cm3 (23 °C, 1.013 hPa)
Relative vapour density	:	No data available
Particle characteristics		
Particle size	:	Not applicable

9.2 Other information

Explosives	:	Not applicable
Oxidizing properties	:	Not applicable
Self-ignition	:	Not applicable
Evaporation rate	:	No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reaction known under conditions of normal use.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4 Conditions to avoid

Conditions to avoid : No data available

10.5 Incompatible materials

Materials to avoid : No data available

10.6 Hazardous decomposition products

No data available

SECTION 11: Toxicological information

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

Acute toxicity

Not classified based on available information.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

2,3-epoxypropyl neodecanoate:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity

Acute inhalation toxicity : LC50 (Rat): > 0,24 mg/l

Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 420
Assessment: The substance or mixture has no acute oral toxicity
Remarks: Based on data from similar materials

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Based on data from similar materials

4,4'-isopropylidenediphenol:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 0,17 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 2.230 mg/kg

2,3-epoxypropyl phenyl ether:

Acute oral toxicity : LD50 (Mouse, male): 1.400 mg/kg

Acute toxicity estimate: 1.400 mg/kg
Method: Calculation method

Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Method: Expert judgement
Remarks: Based on national or regional regulation.

Acute dermal toxicity : LD50 (Rabbit, male): 1.666 mg/kg

Acute toxicity estimate: 1.666 mg/kg
Method: Calculation method

Skin corrosion/irritation

Causes skin irritation.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Species	:	Rabbit
Result	:	Skin irritation

2,3-epoxypropyl neodecanoate:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Result	:	Skin irritation
Remarks	:	Based on national or regional regulation.

4,4'-isopropylidenediphenol:

Species	:	Rabbit
Method	:	OECD Test Guideline 404
Result	:	No skin irritation

2,3-epoxypropyl phenyl ether:

Result	:	Skin irritation
Remarks	:	Based on national or regional regulation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Species	:	Rabbit
Result	:	No eye irritation

2,3-epoxypropyl neodecanoate:

Species	:	Rabbit
Method	:	OECD Test Guideline 405

Result : No eye irritation

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Result : Irritation to eyes, reversing within 21 days
Remarks : Based on national or regional regulation.

4,4'-isopropylidenediphenol:

Species : Rabbit
Method : OECD Test Guideline 405
Result : Irreversible effects on the eye

Respiratory or skin sensitisation

Skin sensitisation

May cause an allergic skin reaction.

Respiratory sensitisation

Not classified based on available information.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Test Type : Local lymph node assay (LLNA)
Exposure routes : Skin contact
Species : Mouse
Method : OECD Test Guideline 429
Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

2,3-epoxypropyl neodecanoate:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : positive

Assessment : Probability or evidence of skin sensitisation in humans

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406

Result	:	positive
Assessment	:	Probability or evidence of skin sensitisation in humans

4,4'-isopropylidenediphenol:

Assessment	:	Probability or evidence of skin sensitisation in humans
Remarks	:	Based on national or regional regulation.

2,3-epoxypropyl phenyl ether:

Test Type	:	Human repeat insult patch test (HRIPT)
Exposure routes	:	Skin contact
Species	:	Humans
Result	:	positive
Assessment	:	Probability or evidence of high skin sensitisation rate in humans

Germ cell mutagenicity

Suspected of causing genetic defects.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Result: positive Test Type: Chromosome aberration test in vitro Method: OECD Test Guideline 473 Result: positive
Genotoxicity in vivo	:	Test Type: Mammalian spermatogonial chromosome aberration test (in vivo) Species: Hamster Application Route: Ingestion Result: negative
Germ cell mutagenicity- Assessment	:	Weight of evidence does not support classification as a germ cell mutagen.

2,3-epoxypropyl neodecanoate:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Method: OECD Test Guideline 471 Result: positive

Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: negative

Genotoxicity in vivo : Test Type: Transgenic rodent somatic cell gene mutation assay
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 488
Result: positive

Test Type: Unscheduled DNA synthesis (UDS) test with mammalian liver cells in vivo
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 486
Result: negative

Germ cell mutagenicity- Assessment : Positive result(s) from in vivo mammalian somatic cell mutagenicity tests.

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: equivocal

Test Type: Chromosome aberration test in vitro
Result: positive

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Ingestion
Result: negative

4,4'-isopropylidenediphenol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

Genotoxicity in vivo : Test Type: Chromosome aberration test in vitro
Species: Mouse
Application Route: Ingestion
Result: negative

2,3-epoxypropyl phenyl ether:

Genotoxicity in vitro	:	Test Type: Bacterial reverse mutation assay (AMES) Result: positive Test Type: In vitro mammalian cell gene mutation test Result: positive Test Type: Chromosome aberration test in vitro Result: negative
Genotoxicity in vivo	:	Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay) Species: Mouse Application Route: Ingestion Result: negative
Germ cell mutagenicity- Assessment	:	Positive results from in vitro mammalian mutagenicity assays, chemical structure activity relationship to known germ cell mutagens

Carcinogenicity

Not classified based on available information.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	104 weeks
Result	:	negative

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	24 Months
Method	:	OECD Test Guideline 453
Result	:	negative

Species	:	Mouse
Application Route	:	Skin contact
Exposure time	:	24 Months
Method	:	OECD Test Guideline 453
Result	:	negative

4,4'-isopropylidenediphenol:

Species	:	Rat
Application Route	:	Ingestion
Exposure time	:	103 weeks
Result	:	negative

2,3-epoxypropyl phenyl ether:

Species	:	Rat
Application Route	:	inhalation (vapour)
Exposure time	:	2 Years
Result	:	positive

Carcinogenicity - Assessment	:	Sufficient evidence of carcinogenicity in animal experiments

Reproductive toxicity

Not classified based on available information.

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 416 Result: negative Remarks: Based on data from similar materials
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: Ingestion Result: negative Remarks: Based on data from similar materials

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: Ingestion Method: OECD Test Guideline 416 Result: negative
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rabbit Application Route: Skin contact Result: negative

4,4'-isopropylidenediphenol:

Effects on fertility	:	Test Type: Three-generation reproduction toxicity study Species: Rat Application Route: Ingestion Result: positive
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: Ingestion Result: negative
Reproductive toxicity - Assessment	:	Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

2,3-epoxypropyl phenyl ether:

Effects on fertility	:	Test Type: Two-generation reproduction toxicity study Species: Rat Application Route: inhalation (vapour) Result: negative
Effects on foetal development	:	Test Type: Embryo-foetal development Species: Rat Application Route: inhalation (vapour) Result: negative

STOT - single exposure

Not classified based on available information.

Components:

4,4'-isopropylidenediphenol:

Assessment	:	May cause respiratory irritation.

2,3-epoxypropyl phenyl ether:

Assessment	:	May cause respiratory irritation.

STOT - repeated exposure

Not classified based on available information.

Components:

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Assessment	:	No significant health effects observed in animals at concentrations of 200 mg/kg bw or less.

Repeated dose toxicity

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Species	:	Rat
NOAEL	:	250 mg/kg
Application Route	:	Ingestion
Exposure time	:	13 Weeks
Method	:	OECD Test Guideline 408

2,3-epoxypropyl neodecanoate:

Species	:	Rat
NOAEL	:	5000 ppm
Application Route	:	Ingestion
Exposure time	:	5 Weeks

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Species	:	Rat
NOAEL	:	50 mg/kg
LOAEL	:	250 mg/kg
Application Route	:	Ingestion
Exposure time	:	90 Days
Method	:	OECD Test Guideline 408

Species	:	Mouse
NOAEL	:	>= 100 mg/kg
Application Route	:	Skin contact
Exposure time	:	13 Weeks
Method	:	OECD Test Guideline 411

4,4'-isopropylidenediphenol:

Species	:	Rat
LOAEL	:	120 mg/kg
Application Route	:	Ingestion
Exposure time	:	2 yr

Aspiration toxicity

Not classified based on available information.

11.2 Information on other hazards

Endocrine disrupting properties

Components:

4,4'-isopropylidenediphenol:

Assessment : The substance is considered to have endocrine disrupting properties according to REACH Article 57(f) for human health.

SECTION 12: Ecological information

12.1 Toxicity

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 62,5 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): > 100 mg/l Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): > 100 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	IC50 : > 100 mg/l Exposure time: 3 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,3 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea)

2,3-epoxypropyl neodecanoate:

Toxicity to fish	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 5 mg/l Exposure time: 96 h Method: OECD Test Guideline 203
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 4,8 mg/l Exposure time: 48 h Method: OECD Test Guideline 202
Toxicity to algae/aquatic	:	ErC50 (Pseudokirchneriella subcapitata (green algae)): 2,9

plants		mg/l Exposure time: 72 h Method: OECD Test Guideline 201
Toxicity to microorganisms	:	NOEC : 500 mg/l Exposure time: 3 h Method: OECD Test Guideline 209

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Toxicity to fish	:	LL50 (Oncorhynchus mykiss (rainbow trout)): > 1 - 10 mg/l Exposure time: 96 h Test substance: Water Accommodated Fraction Method: OECD Test Guideline 203 Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates	:	EL50 (Daphnia magna (Water flea)): > 1 - 10 mg/l Exposure time: 48 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to algae/aquatic plants	:	EL50 (Scenedesmus capricornutum (fresh water algae)): > 10 - 100 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials NOELR (Scenedesmus capricornutum (fresh water algae)): > 1 mg/l Exposure time: 72 h Test substance: Water Accommodated Fraction Remarks: Based on data from similar materials
Toxicity to microorganisms	:	IC50 : > 100 mg/l Exposure time: 3 h Remarks: Based on data from similar materials
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: > 0,1 - 1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Remarks: Based on data from similar materials

4,4'-isopropylidenediphenol:

Toxicity to fish	:	LC50 (Pimephales promelas (fathead minnow)): 4,6 mg/l Exposure time: 96 h
Toxicity to daphnia and other	:	EC50 (Daphnia magna (Water flea)): 10,2 mg/l

aquatic invertebrates		Exposure time: 48 h
Toxicity to algae/aquatic plants	:	EC50 (Pseudokirchneriella subcapitata (green algae)): 2,73 mg/l Exposure time: 96 h EC10 (Pseudokirchneriella subcapitata (green algae)): 1,36 mg/l Exposure time: 96 h
Toxicity to microorganisms	:	EC10 (Pseudomonas putida): > 320 mg/l Exposure time: 18 h
Toxicity to fish (Chronic toxicity)	:	NOEC: 100 µg/l Exposure time: 49 d Species: Cyprinus carpio (Carp)
Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)	:	NOEC: 0,37 mg/l Exposure time: 28 d Species: Mysidopsis bahia (opossum shrimp) Method: OPPTS 850.1350

2,3-epoxypropyl phenyl ether:

Toxicity to fish	:	LC50 (Carassius auratus (goldfish)): 43 mg/l Exposure time: 96 h

12.2 Persistence and degradability

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 0 % Exposure time: 28 d Method: Regulation (EC) No. 440/2008, Annex, C.4-E

2,3-epoxypropyl neodecanoate:

Biodegradability	:	Result: Not readily biodegradable. Biodegradation: 7 % Exposure time: 28 d Method: OECD Test Guideline 301D

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Biodegradability	:	Result: Not readily biodegradable.

Biodegradation: 5 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

4,4'-isopropylidenediphenol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 89 %
Exposure time: 28 d
Method: OECD Test Guideline 301F

2,3-epoxypropyl phenyl ether:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 51 %
Exposure time: 28 d

12.3 Bioaccumulative potential

Components:

Bisphenol-F-epichlorhydrin-epoxy resin:

Partition coefficient: n-octanol/water : log Pow: 3,6

2,3-epoxypropyl neodecanoate:

Partition coefficient: n-octanol/water : log Pow: 4,4

2,2'-[(1-methylethylidene)bis(4,1-phenyleneoxymethylene)]bisoxirane:

Partition coefficient: n-octanol/water : log Pow: 3,5

4,4'-isopropylidenediphenol:

Bioaccumulation : Species: Cyprinus carpio (Carp)
Bioconcentration factor (BCF): 5,1 - 67

Partition coefficient: n-octanol/water : log Pow: 3,4

2,3-epoxypropyl phenyl ether:

Partition coefficient: n-octanol/water : log Pow: 1,61
Remarks: Calculation

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Endocrine disrupting properties

Product:

Assessment : This substance/mixture contains components considered to have endocrine disrupting properties for environment , according to REACH Article 57(f), Commission Regulation (EU) 2018/605 or Commission Delegated Regulation (EU) 2017/2100.

Components:

4,4'-isopropylidenediphenol:

Assessment : The substance is considered to have endocrine disrupting properties according to REACH Article 57(f) for the environment.

12.7 Other adverse effects

Global warming potential

Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) of the United Nations Framework Convention on Climate Change (UNFCCC)

Components:

decamethylcyclopentasiloxane:

20-year global warming potential: 1,04
100-year global warming potential: 0,289
500-year global warming potential: 0,082
Atmospheric lifetime: 0,016 yr
Radiative efficiency: 0,098 Wm2ppb
Further information: Miscellaneous compounds

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : If recycling is not practicable, dispose of in compliance with

local regulations.

Contaminated packaging : Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number or ID number

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA : Not regulated as a dangerous good

14.2 UN proper shipping name

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA : Not regulated as a dangerous good

14.3 Transport hazard class(es)

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA : Not regulated as a dangerous good

14.4 Packing group

ADN : Not regulated as a dangerous good

ADR : Not regulated as a dangerous good

RID : Not regulated as a dangerous good

IMDG : Not regulated as a dangerous good

IATA (Cargo) : Not regulated as a dangerous good

IATA (Passenger) : Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Remarks : When carried in single packaging or inner packaging of 5kg/ 5L or less, this material is not subject to the transport regulations, the single packaging or inner packaging must not be UN-approved but must be a good quality packaging and suitable for the medium.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)	:	Conditions of restriction for the following entries should be considered: Number on list 3 4,4'-isopropylidenediphenol (Number on list 66, 30)
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	4,4'-isopropylidenediphenol
Regulation (EC) No 1005/2009 on substances that deplete the ozone layer	:	Not applicable
Regulation (EU) 2019/1021 on persistent organic pollutants (recast)	:	Not applicable
Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals	:	Not applicable
REACH - List of substances subject to authorisation (Annex XIV)	:	Not applicable
Storage class (TRGS 510)	:	10: Combustible liquids

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.	E2	ENVIRONMENTAL HAZARDS

Other regulations:

Take note of Directive 94/33/EC on the protection of young people at work or stricter national

regulations, where applicable.
Take note of Directive 92/85/EEC regarding maternity protection or stricter national regulations, where applicable.
Users must have undergone approved training to work with epoxy components and isocyanates.
Persons who have eczema or recorded epoxy allergy must not work with the material.
Persons with excessive perspiration (hyperhidrosis manuum) must not work with the material.

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Full text of H-Statements

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.
H332	:	Harmful if inhaled.
H335	:	May cause respiratory irritation.
H341	:	Suspected of causing genetic defects.
H350	:	May cause cancer.
H360F	:	May damage fertility.
H411	:	Toxic to aquatic life with long lasting effects.
H412	:	Harmful to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	:	Acute toxicity
Aquatic Chronic	:	Long-term (chronic) aquatic hazard
Carc.	:	Carcinogenicity
Eye Dam.	:	Serious eye damage
Eye Irrit.	:	Eye irritation
Muta.	:	Germ cell mutagenicity
Repr.	:	Reproductive toxicity
Skin Irrit.	:	Skin irritation
Skin Sens.	:	Skin sensitisation
STOT SE	:	Specific target organ toxicity - single exposure
2017/164/EU	:	Europe. Commission Directive 2017/164/EU establishing a fourth list of indicative occupational exposure limit values
DK OEL	:	Denmark. Occupational Exposure Limits
2017/164/EU / TWA	:	Limit Value - eight hours
DK OEL / GV	:	Long term exposure limit

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

Classification of the mixture:		**Classification procedure:**
Skin Irrit. 2	H315	Calculation method
Eye Irrit. 2	H319	Calculation method
Skin Sens. 1	H317	Calculation method
Muta. 2	H341	Calculation method
Aquatic Chronic 2	H411	Calculation method

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