

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

PC 3001 AG-COND. ADHESIVE, 20 G, S1 3120

Version
5.0

Revision Date:
14.02.2023

Date of last issue: 31.08.2021
Date of first issue: 28.11.2019

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

1.1 Product identifier

Trade name : PC 3001 AG-COND. ADHESIVE, 20 G, S1
Product code : 81108143

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

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

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

Emergency telephone num- : +49 6132-84463
ber 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.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

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Hazard pictograms

:



Signal word

:

Warning

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

:

Prevention:

P261 Avoid breathing mist or vapours.
P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ eye protection/ face 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.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

Hazardous components which must be listed on the label:

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)

1,4-Bis[(vinyl)oxy)methyl]cyclohexane

2-ethyl-4-methylimidazole

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: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Chemical nature : inorganic

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Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
silver	7440-22-4 231-131-3 01-2119555669-21-XXXX	Aquatic Acute 1; H400 Aquatic Chronic 1; H410 M-Factor (Acute aquatic toxicity): 10 M-Factor (Chronic aquatic toxicity): 10	>= 70 - < 90
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	25068-38-6 500-033-5 603-074-00-8 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
hexan-6-olide	502-44-3 207-938-1	Eye Irrit. 2; H319	>= 1 - < 10
1,4-Bis[(vinylloxy)methyl]cyclohexane	17351-75-6 413-370-7 603-148-00-X	Skin Irrit. 2; H315 Skin Sens. 1; H317 Aquatic Chronic 2; H411	>= 0,25 - < 1
2-ethyl-4-methylimidazole	931-36-2 213-234-5	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Dam. 1; H318 Skin Sens. 1B; H317 Acute toxicity estimate	>= 0,1 - < 1

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		Acute oral toxicity: 731 mg/kg	
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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.
If breathing is irregular or stopped, administer artificial respiration.
Get medical attention. |
| In case of skin contact | : | Take off all contaminated clothing immediately.
Obtain medical attention.
Wash off with soap and plenty of water. |
| 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. |
|-------|---|---|

4.3 Indication of any immediate medical attention and special treatment needed

- | | | |
|-----------|---|------------------------|
| Treatment | : | Treat symptomatically. |
|-----------|---|------------------------|

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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 fire-fighting : Exposure to decomposition products may be a hazard to health.

Hazardous combustion products : Silver compounds
Carbon 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 equipment 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).

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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
silver	7440-22-4	TWA	0,1 mg/m ³	2000/39/EC
Further information: Indicative				
		GV (powder and dust)	0,01 mg/m ³ (Silver)	DK OEL
Further information: The substance has an EC-limit value				
		TWA	0,01 mg/m ³ (Silver)	2006/15/EC
Further information: Indicative				

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

Substance name	End Use	Exposure routes	Potential health effects	Value
silver	Workers	Inhalation	Long-term systemic effects	0,1 mg/m3
	Consumers	Inhalation	Long-term systemic effects	0,04 mg/m3
	Consumers	Ingestion	Long-term systemic effects	1,2 mg/kg bw/day
Reaction product: bisphenol-A- (epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	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
hexan-6-olide	Workers	Inhalation	Long-term systemic effects	10,4 mg/m3
	Workers	Inhalation	Long-term local effects	14 mg/m3
	Workers	Skin contact	Long-term systemic effects	2,98 mg/kg bw/day
	Consumers	Inhalation	Long-term systemic effects	2,5 mg/m3
	Consumers	Inhalation	Long-term local effects	7 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1,43 mg/kg bw/day
	Consumers	Ingestion	Long-term systemic effects	1,43 mg/kg bw/day
1,4-Bis[(vinylloxy)methyl]cyclohexane	Workers	Skin contact	Long-term systemic effects	1,7 mg/kg bw/day

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	Workers	Skin contact	Acute systemic effects	200 mg/kg bw/day
	Workers	Skin contact	Long-term local effects	0,166 mg/cm2
	Consumers	Skin contact	Long-term systemic effects	0,8 mg/kg bw/day
	Consumers	Skin contact	Acute systemic effects	100 mg/kg bw/day
	Consumers	Skin contact	Long-term local effects	0,166 mg/cm2
	Consumers	Ingestion	Long-term systemic effects	0,8 mg/kg bw/day
2-ethyl-4-methylimidazole	Workers	Inhalation	Long-term systemic effects	4,41 mg/m3
	Workers	Skin contact	Long-term systemic effects	2,5 mg/kg
	Workers	Skin contact	Long-term local effects	0,289 mg/cm2
	Consumers	Inhalation	Long-term systemic effects	1,09 mg/m3
	Consumers	Skin contact	Long-term systemic effects	1,25 mg/kg bw/day
	Consumers	Skin contact	Long-term local effects	0,289 mg/cm2
	Consumers	Ingestion	Long-term systemic effects	0,62 mg/kg bw/day

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

Substance name	Environmental Compartment	Value
silver	Fresh water	0,04 µg/l
	Sewage treatment plant	0,025 mg/l
	Marine water	0,86 µg/l
	Fresh water sediment	438,13 mg/kg
	Marine sediment	438,13 mg/kg
	Soil	1,41 mg/kg
	Fresh water	0,006 mg/l
Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700)	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

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		weight (d.w.)
	Soil	0,196 mg/kg dry weight (d.w.)
	Secondary Poisoning	11 mg/kg food
hexan-6-olide	Fresh water	0,204 mg/l
	Marine water	0,0204 mg/l
	Intermittent use/release	2,04 mg/l
	Sewage treatment plant	32 mg/l
1,4-Bis[(vinylloxy)methyl]cyclohexane	Fresh water	0,00141 mg/l
	Marine water	0,000141 mg/l
	Intermittent use/release	0,0141 mg/l
	Sewage treatment plant	10 mg/l
	Fresh water sediment	0,00729 mg/kg
	Soil	0,00175 mg/kg
2-ethyl-4-methylimidazole	Fresh water	0,0681 mg/l
	Marine water	0,00681 mg/l
	Intermittent use/release	0,681 mg/l
	Sewage treatment plant	65 mg/l
	Fresh water sediment	34,9 mg/kg
	Marine sediment	3,49 mg/kg
	Soil	6,91 mg/kg

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:

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Filter type ABEK-P

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	: paste
Colour	: Silver to dull gray
Odour	: mild
Odour Threshold	: No data available
Melting point/range	: No data available
Boiling point/boiling range	: > 100 °C (1.013 hPa)
Flammability	: Not applicable
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
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 mm ² /s (23 °C) > 20,5 mm ² /s (40 °C)
Solubility(ies)	
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Vapour pressure	: <= 1.100 hPa (50 °C)

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Relative density : No data available

Density : 4,582 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 : No data available

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

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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:

silver:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
Method: OECD Test Guideline 401
Remarks: Based on data from similar materials

Reaction product: bisphenol-A(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Acute oral toxicity : LD50 (Rat): 4.290 mg/kg
Acute dermal toxicity : LD50 (Rabbit): 6.400 mg/kg

1,4-Bis[(vinylloxy)methyl]cyclohexane:

Acute oral toxicity : LD50 (Rat): > 5.000 mg/kg
Acute dermal toxicity : LD50 (Rabbit): > 2.000 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity

2-ethyl-4-methylimidazole:

Acute oral toxicity : LD50 (Rat): 731 mg/kg

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Acute toxicity estimate: 731 mg/kg
Method: Calculation method

Acute inhalation toxicity : LC50 (Rat): > 0,03 mg/l
Exposure time: 8 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): > 400 mg/kg

Skin corrosion/irritation

Causes skin irritation.

Components:

silver:

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

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

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

1,4-Bis[(vinylloxy)methyl]cyclohexane:

Species : Rabbit
Result : Skin irritation

2-ethyl-4-methylimidazole:

Species : Rabbit
Result : Skin irritation

Serious eye damage/eye irritation

Causes serious eye irritation.

Components:

silver:

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Species : Rabbit
Method : OECD Test Guideline 405
Result : No eye irritation

Reaction product: bisphenol-A(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Species : Rabbit
Method : OECD Test Guideline 405
Result : Irritation to eyes, reversing within 7 days

1,4-Bis[(vinyloxy)methyl]cyclohexane:

Species : Rabbit
Result : No eye irritation

2-ethyl-4-methylimidazole:

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:

silver:

Test Type : Maximisation Test
Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : negative
Remarks : Based on data from similar materials

Reaction product: bisphenol-A(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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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

hexan-6-olide:

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

1,4-Bis[(vinylloxy)methyl]cyclohexane:

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-ethyl-4-methylimidazole:

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 low to moderate skin sensitisation rate in humans

Germ cell mutagenicity

Not classified based on available information.

Components:

silver:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative
Remarks: Based on data from similar materials

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo)

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cytogenetic assay)
Species: Rat
Application Route: Ingestion
Result: negative

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative

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

Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

1,4-Bis[(vinylloxy)methyl]cyclohexane:

Genotoxicity in vitro : Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)

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Result: negative

Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)
Species: Mouse
Application Route: Ingestion
Method: OECD Test Guideline 475
Result: negative

2-ethyl-4-methylimidazole:

Genotoxicity in vitro : Test Type: in vitro micronucleus test
Method: OECD Test Guideline 487
Result: negative

Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

Carcinogenicity

Not classified based on available information.

Components:

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

Reproductive toxicity

Not classified based on available information.

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Components:

silver:

Effects on foetal development : Test Type: Embryo-foetal development
Species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Effects on foetal development : Test Type: Fertility/early embryonic development
Species: Rabbit
Application Route: Ingestion
Result: negative
Remarks: Based on data from similar materials

1,4-Bis[(vinylloxy)methyl]cyclohexane:

Effects on fertility : Test Type: Reproduction/Developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 421
Result: negative

2-ethyl-4-methylimidazole:

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

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Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test
Species: Rat
Application Route: Ingestion
Method: OECD Test Guideline 422
Result: negative

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Components:

silver:

Exposure routes : inhalation (dust/mist/fume)
Assessment : No significant health effects observed in animals at concentrations of 0.2 mg/l/6h/d or less.

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

Repeated dose toxicity

Components:

silver:

Species : Rat
NOAEL : 30 mg/kg
LOAEL : 125 mg/kg
Application Route : Ingestion
Exposure time : 13 Weeks
Method : OECD Test Guideline 408

Species : Rat
NOAEL : 0,133 mg/m³
Application Route : inhalation (dust/mist/fume)
Exposure time : 13 Weeks
Method : OECD Test Guideline 413

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Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Species	: Rat, male
NOAEL	: $\geq 0,21$ mg/l
Application Route	: inhalation (vapour)

1,4-Bis[(vinylloxy)methyl]cyclohexane:

Species	: Rat
NOAEL	: 200 mg/kg
LOAEL	: 1.000 mg/kg
Application Route	: Ingestion
Exposure time	: 28 Days

2-ethyl-4-methylimidazole:

Species	: Rat
NOAEL	: ≥ 150 mg/kg
Application Route	: Ingestion
Exposure time	: 29 - 56 Days
Method	: OECD Test Guideline 422

Aspiration toxicity

Not classified based on available information.

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11.2 Information on other hazards

SECTION 12: Ecological information

12.1 Toxicity

Components:

silver:

- | | | |
|---|---|---|
| Toxicity to fish | : | LL50 (Pimephales promelas (fathead minnow)): > 0,1 - 1 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials
Based on transformation/dissolution testing and data from soluble metal compounds |
| Toxicity to daphnia and other aquatic invertebrates | : | EL50 (Daphnia magna (Water flea)): > 0,01 - 0,1 mg/l
Exposure time: 48 h
Remarks: Based on data from similar materials
Based on transformation/dissolution testing and data from soluble metal compounds |
| Toxicity to algae/aquatic plants | : | EL50 (Pseudokirchneriella subcapitata (green algae)): > 1 - 10 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials
Based on transformation/dissolution testing and data from soluble metal compounds

NOELR (Pseudokirchneriella subcapitata (green algae)): > 0,01 - 0,1 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials
Based on transformation/dissolution testing and data from soluble metal compounds |
| M-Factor (Acute aquatic toxicity) | : | 10 |
| Toxicity to fish (Chronic toxicity) | : | NOELR: > 0,0001 - 0,001 mg/l
Exposure time: 60 d
Species: Oncorhynchus mykiss (rainbow trout)
Remarks: Based on data from similar materials
Based on transformation/dissolution testing and data from soluble metal compounds |
| Toxicity to daphnia and other aquatic invertebrates (Chronic) | : | EC10: 0,00214 mg/l
Exposure time: 21 d |

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ic toxicity)

Species: *Daphnia magna* (Water flea)
Remarks: Based on data from similar materials

M-Factor (Chronic aquatic toxicity) : 10

Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Toxicity to fish : LC50 (*Poecilia reticulata* (guppy)): 280 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (*Daphnia magna* (Water flea)): 204 mg/l
Exposure time: 48 h

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Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : ErC50 (Desmodesmus subspicatus (green algae)): 2.616 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Desmodesmus subspicatus (green algae)): 256 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : NOEC (Pseudomonas putida): 32 mg/l
Exposure time: 16 h

1,4-Bis[(vinylloxy)methyl]cyclohexane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 1,54 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1,41 mg/l
Exposure time: 48 h
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic plants : ErC50 (Pseudokirchneriella subcapitata (green algae)): 2,3 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

NOEC (Pseudokirchneriella subcapitata (green algae)): 0,8 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to microorganisms : EC50 : > 1.000 mg/l
Exposure time: 30 min
Method: OECD Test Guideline 209

2-ethyl-4-methylimidazole:

Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 68,1 mg/l
Exposure time: 96 h
Method: DIN 38412

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 297,3 mg/l
Exposure time: 48 h
Method: Directive 67/548/EEC, Annex V, C.2.

Toxicity to algae/aquatic : ErC50 (Desmodesmus subspicatus (green algae)): 124,8 mg/l

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Reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700):

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

hexan-6-olide:

Partition coefficient: n-
octanol/water : log Pow: 0,32

1,4-Bis[(vinylxy)methyl]cyclohexane:

Partition coefficient: n-
octanol/water : Pow: 3,65

2-ethyl-4-methylimidazole:

Partition coefficient: n-
octanol/water : log Pow: 1,13

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 : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

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

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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

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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
REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59).	:	Not applicable
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. E1 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.

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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.
H315	: Causes skin irritation.
H317	: May cause an allergic skin reaction.
H318	: Causes serious eye damage.
H319	: Causes serious eye irritation.
H400	: Very toxic to aquatic life.
H410	: Very toxic to aquatic life with long lasting effects.
H411	: Toxic to aquatic life with long lasting effects.

Full text of other abbreviations

Acute Tox.	: Acute toxicity
Aquatic Acute	: Short-term (acute) aquatic hazard
Aquatic Chronic	: Long-term (chronic) aquatic hazard
Eye Dam.	: Serious eye damage
Eye Irrit.	: Eye irritation
Skin Irrit.	: Skin irritation
Skin Sens.	: Skin sensitisation
2000/39/EC	: Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2006/15/EC	: Europe. Indicative occupational exposure limit values
DK OEL	: Denmark. Occupational Exposure Limits
2000/39/EC / TWA	: Limit Value - eight hours
2006/15/EC / 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

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- 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; TECL - 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:

Skin Irrit. 2	H315
Eye Irrit. 2	H319
Skin Sens. 1	H317
Aquatic Acute 1	H400
Aquatic Chronic 1	H410

Classification procedure:

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

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