

Safety data sheet

according to Regulation (EC) No 1907/2006, Annex II, revised on 27.08.2024

Trade name: innovatek High Silver Thermal adhesive (Part A – Binder), Page 2 to 11

innovatek High Silver Thermal adhesive (Part B – Hardener), Page 12 to 21

innovatek



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

1.1 Product identifier

Trade name: innovatek High Silver Thermal adhesive (Part A - Binder)

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

No information on this is available at present.

Application of the substance / the mixture: 2K thermally conductive adhesive for thermal coupling of components

1.3 Details of the supplier providing the safety data sheet

Manufacturer/Supplier: Innovatek OS GmbH
Stadtweg 9
85134 Stammham
Phone +49 8405 9259-0
Fax +49 8405 9259-21
E-mail: info@innovatek.de
Web: <https://www.innovatek.de>

1.4 Emergency number: Phone +49 8405 9259-0

SECTION 2: Potential hazards

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Hazard class	Hazard category	Hazard information
Skin Irrit. 2	H315	Causes skin irritation.
Skin Sens. 1	H317	May cause an allergic skin reaction.
Eye Irrit. 2	H319	Causes severe eye irritation.
Aquatic Chronic 2	H411	Toxic to aquatic organisms, with long lasting effects

2.2 Labeling elements:

Labeling according to Regulation (EC) No. 1272/2008 (CLP).

The product is classified and labeled according to EC Directives/GefStoffV.



Hazard-determining components of labeling: Bisphenol A epichlorohydrin resins, boron nitride

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H319 Causes serious eye irritation.

H411 Toxic to aquatic life with long lasting effects.

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of the reach of children.

P103 Read label before use.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 After contact with skin: Wash with plenty of water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove any contact lenses if possible. Conti-

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nue rinsing.

P501 Dispose of contents / container in accordance with local / regional / national / international regulations.

Chemical characterization: Mixtures

Signal word: Danger

2.3 Other hazards:

n.a.

SECTION 3: Composition / Information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

Description: Adhesive

Bisphenol A epichlorohydrin resins	Substance for which an EU exposure limit value applies.
Registration No.. (REACH)	01-2119456619-26-0002
EINECS, ELINCS, NLP, REACH-IT List-No.	500-033-5
CAS	25068-38-6
% Range	> 90 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	Skin Irrit. 2, H315; Skin Sens. 1, H317; Eye Irrit. 2, H319, Aqu. chron. 2, H411

Silver	
Registration No.. (REACH)	-
EINECS, ELINCS, NLP, REACH-IT List-No.	231-131-3
CAS	7440-22-4
% Range	< 8 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	-

Zinc oxide	
Registration No.. (REACH)	-
EINECS, ELINCS, NLP, REACH-IT List-No.	215-222-5
CAS	1314-13-2
% Range	< 1 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	-

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Boron nitride	
Registration No.. (REACH)	-
EINECS, ELINCS, NLP, REACH-IT List-No.	701-292-9
CAS	10043-11-5
% Range	< 1 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	-

Text of H-phrases and classification abbreviations (GHS/CLP) see section 16.

The substances mentioned in this section are listed with their actual, applicable classification!

This means that for substances listed in Table 3.1 of Annex VI to Regulation (EC) No. 1272/2008 (CLP Regulation), all notes possibly mentioned there have been taken into account for the classification mentioned here.

SECTION 4: First aid measures

4.1 Description of the first aid measures

Symptoms of poisoning may occur after several hours; therefore, medical observation for at least 48 hours after incident.

Inhale: Supply plenty of fresh air and seek medical attention for safety reasons.

In case of unconsciousness, position and transport in stable lateral position.

Skin contact: Wash thoroughly with plenty of soap and water. Consult a doctor if skin irritation persists.

Eye contact: Rinse thoroughly with plenty of water for several minutes, seek medical attention if necessary.

Swallowing: Seek medical attention immediately.

4.2 Important acute and delayed symptoms and effects

No further relevant information available.

4.3 Reference to immediate medical assistance or special treatment

No further relevant information available.

SECTION 5: Fire fighting measures

5.1 Extinguishing agent

Suitable extinguishing agents: Use environmentally friendly firefighting measures.

Unsuitable extinguishing agents: None Known

5.2 Special hazards arising from the substance or mixture

No further relevant information available.

5.3 Advice for fire fighting

Personal protective equipment see section 8.

Do not inhale explosion and fire gases.

Depending on fire size, use full protection if necessary.

Cool endangered containers with water.

Dispose of contaminated extinguishing water according to official regulations.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and procedures to be used in case of emergency

Not required.

6.2 Environmental protection measures

Do not allow to enter drains.

Avoid penetration into surface and ground water as well as into the soil.

6.3 Methods and material for retention and cleaning

Absorb with liquid-binding material (sand, diatomaceous earth, acid binders, universal binders, sawdust). Ensure adequate ventilation. Dispose of in suitable containers for recovery or disposal.

6.4 Reference to other section

See section 7, 13 and personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1 Protective measures for safe handling

7.1.1 General recommendations

Ensure sufficient ventilation.

Avoid contact with eyes and skin.

Do not eat, drink, smoke or store food in the work area.

Observe the information on the label and the instructions for use.

Use working procedures according to the operating instructions.

Avoid formation of aerosols.

7.1.2 Notes on general hygiene measures at the workplace

The general hygiene measures for handling chemicals must be applied.

Wash hands before breaks and at the end of work.

Keep away from food, beverages and feed.

Remove contaminated clothing and protective equipment before entering areas where food is consumed.

7.2 Conditions for safe storage taking into account incompatibilities

Store out of reach of unauthorized persons.

Store product only in original and closed packaging.

Store at room temperature.

Avoid exposure to humidity and water.

Keep container tightly closed.

Store in a dry place.

7.3 Specific end uses

No further relevant information available.

SECTION 8: Exposure controls / Personal protective equipment

8.1 Parameters to be monitored

The product does not contain any relevant quantities of substances with limit values that require monitoring at the workplace.

8.2 Exposure controls and monitoring

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8.2.1 Suitable technical control equipment

Ensure good ventilation. This can be achieved by local exhaust ventilation or general exhaust air.

If this is not sufficient to keep the concentration below the occupational exposure limits (OEL), suitable respiratory protection must be worn.

Applies only if exposure limits are listed here.

Appropriate assessment methods for verifying the effectiveness of the protective measures taken include metrological and non-measured methods of determination.

Such are described by e.g. EN 14042, TRGS 402 (Germany).

EN 14042 „Workplace atmospheres. Guidance for the application and use of methods and equipment for the determination of chemical and biological agents“.

TRGS 402 „Determination and assessment of hazards associated with activities involving hazardous substances - Inhalation exposure“.

8.2.2 Individual protective measures, for example personal protective equipment

The general hygiene measures for handling chemicals must be applied.

Wash hands before breaks and at the end of work.

Keep away from food, beverages and feed.

Remove contaminated clothing and protective equipment before entering areas where food will be eaten.

Eye/face protection:

Safety glasses tight fitting with side shields (EN 166).

Skin protection - Hand protection:

Chemical resistant protective gloves (EN ISO 374).

Recommended: Protective gloves made of nitrile (EN ISO 374).

Minimum layer thickness in mm: 0.4

Permeation time (breakthrough time) in minutes: ≥ 480

The determined breakthrough times according to EN 16523-1 were not carried out under practical conditions.

A maximum wearing time corresponding to 50% of the breakthrough time is recommended. Hand protection cream recommended.

Skin protection - Other protective measures: Not required.

Respiratory protection: Not required.

Thermal Hazards: Not applicable.

Additional information on hand protection - No tests have been carried out.

Selection was made for mixtures to the best of our knowledge and based on ingredient information.

For substances, the selection was derived from the glove manufacturer's information.

The final selection of glove material must be made considering the breakthrough times. Permeation rates and degradation.

The selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.

In the case of mixtures, the resistance of glove materials cannot be calculated in advance and must therefore be checked before use.

The exact breakthrough time of the glove material must be obtained from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls and monitoring

No further relevant information available.

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SECTION 9: Physical and chemical properties

9.1 Information on the basic physical and chemical properties

Physical state:	Viscous
Color:	Silver gray
Odor:	Slight epoxy odor
Melting point/Freezing point:	Not determined.
Boiling point or initial boiling point and boiling range:	Not determined.
Flammability:	Not applicable.
Lower explosion limit:	Not determined.
Upper explosion limit:	Not determined.
Flash point:	210 °C
Ignition temperature:	Not determined.
Decomposition temperature:	> 250 °C
pH value:	6 (20°C)
Kinematic viscosity:	Not determined.
Miscibility with water:	Not miscible or difficult to mix.
Partition coefficient n-octanol/water (log value):	Not determined.
Vapour pressure:	> 0.15 mmHg
Density and/or specific gravity:	2.17 g/cm ³ (20°C)
Relative vapor density:	Not determined.
Particulate Properties:	Not determined.

9.2 Other information

Explosive substances/mixtures and articles containing explosives: Product is not explosive.

SECTION 10: Stability and reactivity

10.1 Reactivity

No further relevant information available.

10.2 Chemical stability

Stable when properly stored and handled.

10.3 Possibility of hazardous reactions

No dangerous reactions known.

10.4 Conditions to avoid

Sources of heat, flame and ignition.

10.5 Incompatible materials

Avoid contact with strong oxidizing agents and strong reducing agents.

10.6 Hazardous decomposition products

Vapors generated during heating to decomposition may include carbon monoxide, carbon dioxide, ammonia, and aldehydes.

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SECTION 11: Toxicological data

11.1 Information on hazard classes according to Regulation (EC) No 1272/2008

For possible further information on health effects, see section 2.1 (Classification).

innovatek High Silver Thermal adhesive (Part A - Binder)						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Remark
Acute toxicity, oral:						k.D.v.
Acute toxicity, dermal:						k.D.v.
Acute toxicity, inhalation:						k.D.v.
Skin corrosion/irritation:						Irritating to skin and mucous membranes.
Serious eye damage/irritation:						Strong irritant with risk of serious eye damage.
Respiratory sensitization/skin:						May cause sensitization by skin contact.
Germ cell mutagenicity:						k.D.v.
Carcinogenicity:						k.D.v.
Reproductive toxicity:						k.D.v.
Specific target organ toxicity - single exposure (STOT-SE):						k.D.v.
Specific Target Organ Toxicity - Repeated Exposure (STOT-RE):						k.D.v.
Aspiration hazard:						k.D.v.
Symptoms:						k.D.v.

The product has the following hazards based on the calculation procedure of the General EC Classification Guidelines for Preparations as issued in the latest version: Harmful, irritant.

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SECTION 12: Environmental information

For possible further information on environmental effects see section 2.1 (Classification).

innovatek High Silver Thermal adhesive (Part A - Binder)							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Remark
12.1 Toxicity, fish:							k.D.v.
12.1 Toxicity, Daphnia:							k.D.v.
12.1 Toxicity, Algae:							k.D.v.
12.2 Persistence and degradability:							k.D.v.
12.3 Bioaccumulative potential:							k.D.v.
12.4 Mobility in soil:							k.D.v.
12.5 Results of PBT and vPvB assessment:							Not applicable.
12.6 Endocrine disrupting properties:							k.D.v.
12.7 Other adverse effects:							k.D.v.

SECTION 13: Notes on disposal

13.1 Waste treatment process

For the substance / mixture / residual quantities

Waste code no. EC:

The waste codes given are recommendations based on the expected use of this product.

Due to the specific use and disposal conditions at the user's site, other waste codes may be assigned under certain circumstances. [2014/955/EU]

08 4 09 Waste adhesives and sealants containing organic solvents or other dangerous substances.

Recommendation:

Must not be disposed of together with household waste. Do not allow to enter drains. Dispose of in accordance with official regulations.

For contaminated packaging material

The take-back of packaging materials is regulated by the Dual System Germany (green dot).

Recommendation: Packaging that cannot be cleaned should be disposed of in the same way as the substance.

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SECTION 14: Transport details

General data

14.1 UN number or ID number:

3082

14.2 UN proper shipping name:

Environmentally hazardous substance, liquid, N.O.S
(Reaction product: Bisphenol A epichlorohydrin resins with average molecular weight ≤ 700)

Road / rail transport (GGVSEB/ADR/RID)

14.3. transport hazard classes:

9 Various hazardous substances and objects

14.4. packing group:

III

Classification code:

n.a.

LQ:

7

14.5 Environmental hazards:

Yes

Tunnel Restriction Code:

E

Transport by sea vessels (GGVSee/IMDG-Code)

14.3. transport hazard classes:

9 Various hazardous substances and objects

14.4. packing group:

III

Marine Pollutant:

Yes

14.5 Environmental hazards:

Yes

Beförderung mit Flugzeugen (IATA)

14.3 transport hazard classes:

9 Various hazardous substances and objects

14.4 packing group:

III

Marine Pollutant:

Yes

14.5 Environmental hazards:

Yes

14.6 Special precautions for the user

Unless otherwise specified, the general measures for carrying out safe transport must be observed.

14.7. Carriage of bulk cargoes by sea in accordance with IMO instruments

Not a hazardous material according to the regulations listed above.

SECTION 15: Legislation

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

Directive 2012/18/EU

Hazardous substances listed by name - ANNEX I:

None of the ingredients are included.

National regulations:

Water hazard class (Germany):

2 (self-classification): hazardous to water.

15.2 Chemical Safety Assessment

A chemical safety assessment has not been carried out.

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SECTION 16: Other information

Revised sections: 1 - 16

This information refers to the product as delivered.

Instruction / training of employees required for handling hazardous substances.

Classification and methods used to derive the classification of the mixture according to Regulation (EC) 1272/2008 (CLP)

Classification according to Regulation (EC) No 1272/2008 (CLP)	Valuation method used
Skin Irrit. 2, H315	Classification based on toxicological studies
Skin Sens. 1, H317	Classification based on toxicological studies
Eye Irrit. 2, H319	Classification based on toxicological studies
Aquatic Chronic 2, H411	Classification based on toxicological studies

The following sentences represent the H-phrases, hazard class code (GHS/CLP) of the ingredients (named in section 2 and 3) written out.

H315 Causes skin irritation.

H317 May cause allergic skin reaction.

H319 Causes severe eye irritation.

H411 Toxic to aquatic life with long lasting effects.

Skin Irrit. 2 - Skin corrosion/irritation, Hazard Category 2

Skin Sens. 1 - Sensitisation - Skin, Hazard Category 1

Eye Irrit. 2 - Serious eye damage/eye irritation, Hazard Category 2

Aquatic Chronic 2 - Hazardous to the aquatic environment - Chronic Hazard, Category 2

Important literature and data sources:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.

Guidance on the compilation of safety data sheets as amended (ECHA).

Guidance on labeling and packaging according to Regulation (EC) No. 1272/2008 (CLP) as amended (ECHA).

Safety data sheets of the ingredients.

ECHA-homepage - Information on chemicals.

GESTIS substance database (Germany).

Federal Environment Agency „Rigoletto“ information page on water-polluting substances (Germany).

EU occupational exposure limit values Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831 as amended.

National occupational exposure limit lists of the respective countries in the respective valid version.

Regulations on the transport of dangerous goods by road, rail. Sea and air transport (ADR. RID. IMDG. IATA) in the respective valid version.

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

1.1 Product identifier

Trade name: innovatek High Silver Thermal adhesive (Part B - Hardener)

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

No information on this is available at present.

Application of the substance / the mixture: 2K thermally conductive adhesive for thermal coupling of components

1.3 Details of the supplier providing the safety data sheet

Manufacturer/Supplier: Innovatek OS GmbH
Stadtweg 9
85134 Stammham
Phone +49 8405 9259-0
Fax +49 8405 9259-21
E-mail: info@innovatek.de
Web: <https://www.innovatek.de>

1.4 Emergency number: Phone +49 8405 9259-0

SECTION 2: Potential hazards

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Hazard class	Hazard category	Hazard information
Acute Tox. 4	H302	Harmful if swallowed.
Skin Irrit. 2	H315	Causes skin irritation.
Eye Irrit. 2	H319	Causes severe eye irritation.

2.2 Labeling elements:

Labeling according to Regulation (EC) No. 1272/2008 (CLP).

The product is classified and labeled according to EC Directives/GefStoffV.



Hazard-determining components of labeling: Epoxy resin, boron nitride

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes serious eye irritation.

P101 If medical advice is needed, have product container or label at hand.

P102 Keep out of the reach of children.

P103 Read label before use.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 After contact with skin: Wash with plenty of water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove any contact lenses if possible. Continue rinsing.

P501 Dispose of contents / container in accordance with local / regional / national / international regulations.

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Chemical characterization: Mixtures

Signal word: Caution

2.3 Other hazards:

n.a.

SECTION 3: Composition / Information on ingredients

3.1 Substances

n.a.

3.2 Mixtures

Description: Adhesive

2,4,6-Tri-(dimethylaminomethyl)phenol	Substance for which an EU exposure limit applies.
Registration No. (REACH)	01-2119560597-27-0000
EINECS, ELINCS, NLP, REACH-IT List-No.	202-013-9
CAS	90-72-2
% Range	5 - < 10 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319

Silver	
Registration No. (REACH)	-
EINECS, ELINCS, NLP, REACH-IT List-No.	231-131-3
CAS	7440-22-4
% Range	< 8 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	-

Zinc oxide	
Registration No. (REACH)	-
EINECS, ELINCS, NLP, REACH-IT List-No.	215-222-5
CAS	1314-13-2
% Range	< 1 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	-

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Boron nitride	
Registration No. (REACH)	-
EINECS, ELINCS, NLP, REACH-IT List-No.	701-292-9
CAS	10043-11-5
% Range	< 1 Vol.-%
Classification according to Regulation (EC) No 1272/2008 (CLP), M-Factors	-

Text of H-phrases and classification abbreviations (GHS/CLP) see section 16.

The substances mentioned in this section are listed with their actual, applicable classification!

This means that for substances listed in Table 3.1 of Annex VI to Regulation (EC) No. 1272/2008 (CLP Regulation), all notes possibly mentioned there have been taken into account for the classification mentioned here.

SECTION 4: First aid measures

4.1 Description of the first aid measures

Symptoms of poisoning may occur after several hours; therefore, medical observation for at least 48 hours after incident.

Inhale: Supply plenty of fresh air and seek medical attention for safety reasons.

In case of unconsciousness, position and transport in stable lateral position.

Skin contact: Wash thoroughly with plenty of soap and water. Consult a doctor if skin irritation persists.

Eye contact: Rinse thoroughly with plenty of water for several minutes, seek medical attention if necessary.

Swallowing: Seek medical attention immediately.

4.2 Important acute and delayed symptoms and effects

No further relevant information available.

4.3 Reference to immediate medical assistance or special treatment

No further relevant information available.

SECTION 5: Fire fighting measures

5.1 Extinguishing agent

Suitable extinguishing agents: Water spray jet, carbon dioxide, foam, extinguishing powder

Unsuitable extinguishing agents: None Known

5.2 Special hazards arising from the substance or mixture

No further relevant information available.

5.3 Advice for fire fighting

Personal protective equipment see section 8.

Do not inhale explosion and fire gases.

Depending on fire size, use full protection if necessary.

Cool endangered containers with water.

Dispose of contaminated extinguishing water according to official regulations.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and procedures to be used in case of emergency

Not required.

6.2 Environmental protection measures

Do not allow to enter drains.
Avoid penetration into surface and ground water as well as into soil.

Methods and material for retention and cleaning

Absorb with liquid-binding material (sand, diatomaceous earth, acid binders, universal binders, sawdust). Ensure adequate ventilation. Dispose of in suitable containers for recovery or disposal.

6.4 Reference to other section

See section 7, 13 and personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1 Protective measures for safe handling

7.1.1 General recommendations

Ensure sufficient ventilation.
Avoid contact with eyes and skin.
Do not eat, drink, smoke or store food in the work area.
Observe the information on the label and the instructions for use.
Use working procedures according to operating instructions.
Avoid aerosol formation.

7.1.2 Notes on general hygiene measures at the workplace

The general hygiene measures for handling chemicals must be applied.
Wash hands before breaks and at the end of work.
Keep away from food, beverages and feed.
Remove contaminated clothing and protective equipment before entering areas where food is consumed.

7.2 Conditions for safe storage taking into account incompatibilities

Store out of reach of unauthorized persons.
Store product only in original and closed packaging.
Store at room temperature.
Avoid exposure to humidity and water.
Keep container tightly closed.
Store in a dry place.

7.3 Specific end uses

No information on this is available at present.

SECTION 8: Exposure controls / Personal protective equipment

8.1 Parameters to be monitored

The product does not contain any relevant quantities of substances with limit values that require monitoring at the workplace.

8.2 Exposure controls and monitoring

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8.2.1 Suitable technical control equipment

Ensure good ventilation. This can be achieved by local exhaust ventilation or general exhaust air.

If this is not sufficient to keep the concentration below the occupational exposure limits (OEL), suitable respiratory protection must be worn.

Applies only if exposure limits are listed here.

Appropriate assessment methods for verifying the effectiveness of the protective measures taken include metrological and non-measured methods of determination.

Such methods are described by e.g. EN 14042, TRGS 402 (Germany).

EN 14042 „Workplace atmospheres. Guidance for the application and use of methods and equipment for the determination of chemical and biological agents“.

TRGS 402 „Determination and assessment of hazards associated with activities involving hazardous substances - Inhalation exposure“.

8.2.2 Individual protective measures, for example personal protective equipment

The general hygiene measures for handling chemicals must be applied.

Wash hands before breaks and at the end of work.

Keep away from food, beverages and feed.

Remove contaminated clothing and protective equipment before entering areas where food will be eaten.

Eye/face protection:

Safety glasses tight fitting with side shields (EN 166).

Skin protection - Hand protection:

Chemical resistant protective gloves (EN ISO 374).

Recommended: Protective gloves made of nitrile (EN ISO 374).

Minimum layer thickness in mm: 0.4

Permeation time (breakthrough time) in minutes: ≥ 480

The determined breakthrough times according to EN 16523-1 were not carried out under practical conditions.

A maximum wearing time corresponding to 50% of the breakthrough time is recommended. Hand protection cream recommended.

Skin protection - Other protective measures: Not required.

Respiratory protection: Not required.

Thermal Hazards: Not applicable.

Additional information on hand protection - No tests have been carried out.

Selection was made for mixtures to the best of our knowledge and based on ingredient information.

For substances, the selection was derived from the glove manufacturer's information.

The final selection of glove material must be made considering the breakthrough times. Permeation rates and degradation.

The selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.

In the case of mixtures, the resistance of glove materials cannot be calculated in advance and must therefore be checked before use.

The exact breakthrough time of the glove material must be obtained from the protective glove manufacturer and must be observed.

8.2.3 Environmental exposure controls and monitoring

No information on this is available at present.

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SECTION 9: Physical and chemical properties

9.1 Information on the basic physical and chemical properties

Physical state:	Viscous
Color:	Silver gray
Odor:	Mercaptan-sulfur odor
Melting point/Freezing point:	Not determined.
Boiling point or initial boiling point and boiling range:	Not determined.
Flammability:	Not applicable.
Lower explosion limit:	Not determined.
Upper explosion limit:	Not determined.
Flash point:	110 °C
Ignition temperature:	Not determined.
Decomposition temperature:	> 250 °C
pH value:	6 [20°C]
Kinematic viscosity:	Not determined.
Miscibility with water:	Not miscible or difficult to mix.
Partition coefficient n-octanol/water (log value):	Not determined.
Vapour pressure:	> 0.15 mmHg
Density and/or specific gravity:	2.28 g/cm ³ (20°C)
Relative vapor density:	Not determined.
Particulate Properties:	Not determined.

9.2 Other information

Explosive substances/mixtures and articles containing explosives: Product is not explosive.

SECTION 10: Stability and reactivity

10.1 Reactivity

No further relevant information available.

10.2 Chemical stability

Stable when properly stored and handled.

10.3 Possibility of hazardous reactions

No dangerous reactions known.

10.4 Conditions to avoid

Sources of heat, flame and ignition.

10.5 Incompatible materials

Avoid contact with strong oxidizing agents and strong reducing agents.

10.6 Hazardous decomposition products

Vapors generated during heating to decomposition may include carbon monoxide, carbon dioxide, ammonia, and aldehydes.

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SECTION 11: Toxicological data

11.1 Information on hazard classes according to Regulation (EC) No 1272/2008

For possible further information on health effects see section 2.1 (Classification).

innovatek High Silver Thermal adhesive (Part B - Hardener)						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test Method	Comment
Acute toxicity, oral:						k.D.v.
Acute toxicity, dermal:						k.D.v.
Acute toxicity, inhalation:						k.D.v.
Skin corrosion/irritation:						Irritates the skin and mucous membranes.
Serious eye damage/irritation:						Strong irritant with risk of serious eye damage.
Respiratory sensitization/skin:						May cause sensitization by skin contact.
Germ cell mutagenicity:						k.D.v.
Carcinogenicity:						k.D.v.
Reproductive toxicity:						k.D.v.
Specific target organ toxicity - single exposure (STOT-SE):						k.D.v.
Specific Target Organ Toxicity - Repeated Exposure (STOT-RE):						k.D.v.
Aspiration hazard:						k.D.v.
Symptoms:						k.D.v.

2,4,6-Tri-(dimethylaminomethyl)phenol						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test Method	Comment
Acute toxicity, oral:	LD50	1.200	mg/kg	Rat		k.D.v.
Acute toxicity, dermal:						k.D.v.
Skin corrosion/irritation:						Not irritant. Irritant effect. No sensitising effect known.
Serious eye damage/irritation:						Reizwirkung.
Sensitisation of the respiratory tract/skin:						No sensitising effect known.

The product has the following hazards based on the calculation procedure of the General EC Classification Guidelines for Preparations as issued in the latest version: Harmful, irritant.

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SECTION 12: Environmental information

For possible further information on environmental effects, see section 2.1 (Classification)..

innovatek High Silver Thermal adhesive (Part B - Hardener)							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test Method	Comment
12.1 Toxicity, fish:							k.D.v.
12.1 Toxicity, Daphnia:							k.D.v.
12.1 Toxicity, Algae:							k.D.v.
12.2 Persistence and degradability:							k.D.v.
12.3 Bioaccumulative potential:							k.D.v.
12.4 Mobility in soil:							k.D.v.
12.5 Results of PBT and vPvB assessment:							Not applicable.
12.6 Endocrine disrupting properties:							k.D.v.
12.7 Other adverse effects:							k.D.v.

SECTION 13: Notes on disposal

13.1 Waste treatment process

For the substance / mixture / residual quantities

Waste code no. EC:

The waste codes given are recommendations based on the expected use of this product.

Due to the specific use and disposal conditions at the user's site, other waste codes may be assigned under certain circumstances. [2014/955/EU]

08 4 09 Waste adhesives and sealants containing organic solvents or other dangerous substances.

Recommendation:

Must not be disposed of together with household waste. Do not allow to enter drains. Dispose of in accordance with official regulations.

For contaminated packaging material

The take-back of packaging materials is regulated by the Dual System Germany (green dot).

Recommendation: Packaging that cannot be cleaned should be disposed of in the same way as the substance.

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SECTION 14: Transport details

General data

14.1 UN number or ID number: Not applicable

Road / rail transport (GGVSEB/ADR/RID)

14.2. UN proper shipping name:

14.3. transport hazard classes: Not applicable / No dangerous goods

14.4. packing group: Not applicable

Classification code: Not applicable

LQ: Not applicable

14.5 Environmental hazards: Not applicable

Tunnel Restriction Code:

Transportation by sea vessels (GGVSee/IMDG-Code)

14.2. UN proper shipping name:

14.3. transport hazard classes: Not applicable / No dangerous goods

14.4. packing group: Not applicable

Marine Pollutant: Not applicable

14.5 Environmental hazards: Not applicable

Carriage by aircraft (IATA)

14.2. UN proper shipping name:

14.3. transport hazard classes: Not applicable / No dangerous goods

14.4. packing group: Not applicable

Marine Pollutant: Not applicable

14.5 Environmental hazards: Not applicable

14.6. Special precautions for the user

Unless otherwise specified, the general measures for carrying out safe transport must be observed.

14.7. Carriage of bulk cargoes by sea in accordance with IMO instruments

Not a hazardous material according to the regulations listed above.

SECTION 15: Legislation

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

Directive 2012/18/EU

Hazardous substances listed by name - ANNEX I: None of the ingredients are included.

National regulations:

Water hazard class (Germany): 2 (self-classification): hazardous to water.

15.2 Chemical Safety Assessment

A chemical safety assessment was not performed.

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SECTION 16: Other information

Revised sections: 1 - 16

This information refers to the product as delivered.

Instruction / training of employees required for handling hazardous substances.

Classification and methods used to derive the classification of the mixture according to Regulation (EC) 1272/2008 (CLP)

Classification according to Regulation (EC) No 1272/2008 (CLP)	Valuation method used
Acute Tox. 4, H302	Classification based on toxicological studies
Skin Irrit. 2, H315	Classification based on toxicological studies
Eye Irrit. 2, H319	Classification based on toxicological studies

The following sentences represent the H-phrases, hazard class code (GHS/CLP) of the ingredients (named in section 2 and 3) written out.

H302 Harmful if swallowed.

H315 Causes skin irritation.

H319 Causes severe eye irritation.

Acute Tox. 4 - Acute toxicity, Hazard Category 4

Skin Irrit. 2 - Skin corrosion/irritation, Hazard Category 2

Eye Irrit. 2 - Serious eye damage/eye irritation, Hazard Category 2

Important literature and data sources:

Regulation (EC) No 1907/2006 (REACH) and Regulation (EC) No 1272/2008 (CLP) as amended.

Guidance on the compilation of safety data sheets as amended (ECHA).

Guidance on labeling and packaging according to Regulation (EC) No. 1272/2008 (CLP) as amended (ECHA).

Safety data sheets of the ingredients.

ECHA-homepage - Information on chemicals.

GESTIS substance database (Germany).

Federal Environment Agency „Rigoletto“ information page on water-polluting substances (Germany).

EU occupational exposure limit values Directives 91/322/EEC, 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164, (EU) 2019/1831 as amended.

National occupational exposure limit lists of the respective countries in the respective valid version.

Regulations on the transport of dangerous goods by road, rail. Sea and air transport (ADR. RID. IMDG. IATA) in the respective valid version.

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Abbreviations and acronyms that may be used in this document:

ADR	Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)
AOX	Adsorbable organic halogen compounds
ASTM	ASTM International (American Society for Testing and Materials)
ATE	Acute Toxicity Estimate
BAFU	Federal Office for the Environment (Switzerland)
BAM	Federal Institute for Materials Research and Testing
BAUA	Federal Institute for Occupational Safety and Health
BCF	Bioconcentration factor
BG	Professional association
BG BAU	Employer's Liability Insurance Association for the Construction Industry (Germany)
BSEF	The International Bromine Council
bw	body weight
CAS	Chemical Abstracts Service
ChemRRV	Chemicals Risk Reduction Ordinance (Switzerland)
CLP	Classification, Labelling and Packaging (REGULATION (EC) No. 1272/2008 on classification, labelling and packaging of substances and mixtures)
CMR	carcinogenic, mutagenic, toxic for reproduction (carcinogenic, mutagenic, toxic for reproduction)
DMEL	Derived Minimum Effect Level
DNEL	Derived No Effect Level
DOC	Dissolved organic carbon
dw	dry weight
EbCx, EyCx, EbLx	(x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)
ECHA	European Chemicals Agency
ECx, ELX	(x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect
EC	European Community
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EN	European norms
EPA	United States Environmental Protection Agency (United States of America)
ErCx, EuCx, ErLx	(x = 10, 50) Effect concentration/Level of x % on inhibition of the growth rate (algae, plants)
EU	European Union
EVAL	Ethylen-Vinylalkohol-Copolymer
EWG	European Economic Community
Fax	Fax number
GGVSEB	Dangerous Goods Ordinance for Road, Rail and Inland Navigation (Germany)
GGVSee	Gefahrgutverordnung See (Ordinance on the Transport of Dangerous Goods by Sea Vessels, Germany)
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GISBAU	Hazardous substances information system of BG Bau - Employer's Liability Insurance Association for the Construction Industry (Germany)
GisChem	Hazardous substances information system chemicals of BG RCI - Berufsgenossenschaft Rohstoffe und chemische Industrie (Germany) and BGHM - Employer's Liability Insurance Association for Wood and Metal (Germany)
GWP	Global warming potential
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC (Code)	International Bulk Chemical (Code)
IMDG-Code	International Maritime Code for Dangerous Goods
incl.	inclusive, including
IUCLID	International Uniform Chemical Information Database
IUPAC	International Union for Pure Applied Chemistry

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k.D.v.	No data available
Koc	Adsorption coefficient of organic carbon in soil
Konc.	Concentration
Kow	Octanol/water partition coefficient
LC50	Lethal Concentration to 50 % of a test population
LD50	Lethal Dose to 50% of a test population (Median Lethal Dose)
LGK	Storage class
LOEC, LOEL	Lowest Observed Effect Concentration/Level
Log Koc	Logarithm of the adsorption coefficient of organic carbon in soil
Log Kow, Log Pow	Logarithm of the octanol/water partition coefficient
LQ	Limited Quantities
LRV	Air Pollution Control Ordinance (Switzerland)
LVA	Listen über den Verkehr mit Abfällen (Schweiz)
MARPOL	International Convention for the Prevention of Pollution from Ships
Min., min.	Minute(s) or minimum
n.a.	not applicable
n.g.	not tested
n.v.	not available
NIOSH	National Institute for Occupational Safety and Health
NLP	No-longer-Polymer
NOEC, NOEL	No Observed Effect Concentration/Level
OECD	Organisation for Economic Co-operation and Development
org.	organic
OSHA	Occupational Safety and Health Administration
PBT	persistent, bioaccumulative and toxic
PE	Polyethylene
PNEC	PredictedNo Effect Concentration
Pt.	Point
PVC	Polyvinyl chloride
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Regulation (EC) No. 1907/2006)
REACH-IT List-No.	9XX-XXX-X No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.
resp.	respectively
RID	Règlement concernant le transport International ferroviaire de marchandises Dangereuses
SVHC	Substances of Very High Concern
TOC	Total organic carbon
TRGS	Technical rules for hazardous substances
UEVK	Federal Department of the Environment, Transport, Energy and Communications (Switzerland)
UN RTDG	United Nations Recommendations on the Transport of Dangerous Goods
UV	Ultraviolet
VbF	Ordinance on Flammable Liquids (Austrian Ordinance)
VeVA	Ordinance on the movement of waste (Switzerland)
VOC	Volatile organic compounds
VPVB	very persistent and very bioaccumulative
WBF	Federal Department of Economic Affairs, Education and Research (Switzerland)
WGK	Ordinance on Installations for the Handling of Substances Hazardous to Water - AWSV (German Ordinance)
WGK1	slightly hazardous to water
WGK2	clearly hazardous to water
WGK3	Highly water polluting
wwt	wet weight

The information given here is intended to describe the product with regard to the necessary safety precautions; it is not

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intended to guarantee specific properties and is based on our current knowledge. Liability excluded.

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