

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006 (REACH)

Revision date: 14 Jan 2021

Print date: 14 Jan 2021

Version: 2.2

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proGlass[®]

Conductive Silver Pen

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

1.1 Product identifier

Trade name/designation:

Conductive Silver Pen

Other means of identification:

UFI: C800-POVS-R003-TD3H

Article No.:

LSS-085

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

Use of the substance/mixture:

coating.

Restricted to professional users.

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

ProGlass GmbH

Michael-Becker-Str. 2

73235 Weilheim an der Teck

GERMANY

Telephone: +49 7023 90013-0

Telefax: +49 7023 90013-23

E-mail: info@proglass.de

Website: www.proglass.de

E-mail (competent person): info@proglass.de

1.4 Emergency phone number

24h: +49 551 19240

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

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

Hazard classes and hazard categories	Hazard statements	Classification procedure
STOT-single exposure (<i>STOT SE 3</i>)	H336: May cause drowsiness or dizziness.	Calculation
Hazardous to the aquatic environment (<i>Aquatic Acute 1</i>)	H400: Very toxic to aquatic life.	Calculation
Hazardous to the aquatic environment (<i>Aquatic Chronic 1</i>)	H410: Very toxic to aquatic life with long lasting effects.	Calculation
Flammable liquids (<i>Flam. Liq. 3</i>)	H226: Flammable liquid and vapour.	Test data
Serious eye damage/eye irritation (<i>Eye Irrit. 2</i>)	H319: Causes serious eye irritation.	Calculation

2.2 Label elements

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

Hazard pictograms:



GHS02
Flame



GHS07
Exclamation mark



GHS09
Environment

Signal word: Warning

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Hazard components for labelling:

2-Methylpropan-1-ol; n-butyl acetate

Hazard statements for physical hazards

H226 Flammable liquid and vapour.

Hazard statements for health hazards

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

Hazard statements for environmental hazards

H410 Very toxic to aquatic life with long lasting effects.

Supplemental hazard information: -

Precautionary statements - Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P243 Take action to prevent static discharges.

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

P273 Avoid release to the environment.

2.3 Other hazards

Adverse human health effects and symptoms:

May cause skin irritation.







Adverse environmental effects:

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

SECTION 3: Composition / information on ingredients

3.2 Mixtures

Ingredients:

Product identifiers	Substance name Classification according to Regulation (EC) No. 1272/2008 [CLP]	Content
CAS No.: 123-86-4 EC No.: 204-658-1 REACH No.: 01-2119485493-29	n-butyl acetate Flam. Liq. 3, STOT SE 3   Warning H226-H336-EUH066	40 - 60 weight-%
CAS No.: 7440-22-4 EC No.: 231-131-3 REACH No.: 01-2119555669-21	silver Aquatic Acute 1, Aquatic Chronic 1  Warning H410 M-factor (acute): 10 M-factor (chronic): 10	30 - 40 weight-%
CAS No.: 78-83-1 EC No.: 201-148-0 REACH No.: 01-2119484609-23	2-Methylpropan-1-ol Eye Dam. 1, Flam. Liq. 3, STOT SE 3, Skin Irrit. 2    Danger H226-H315-H318-H335-H336	1 - 4 weight-%

Full text of H- and EUH-phrases: see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information:

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing immediately. If unconscious but breathing normally, place in recovery position and seek medical advice.

Do not leave affected person unattended. Warning First aider: Pay attention to self-protection!

Following inhalation:

Provide fresh air. In case of respiratory tract irritation, consult a physician.

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In case of skin contact:

Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Following ingestion:

Rinse mouth. Get immediate medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. May cause drowsiness or dizziness. May cause skin irritation.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:

Water spray jet, alcohol resistant foam, extinguishing powder, carbon dioxide (CO₂).

5.2 Special hazards arising from the substance or mixture

Flammable liquid and vapour. Vapours can form explosive mixtures with air. Reignition possible over considerable distance. Heating causes rise in pressure with risk of bursting. Move undamaged containers from immediate hazard area if it can be done safely. Use water spray to keep fire-exposed containers cool.

Hazardous combustion products:

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO₂), gases/vapours, toxic.

5.3 Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing.

5.4 Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel

Personal precautions:

Provide adequate ventilation. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with eyes and skin. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges.

Protective equipment:

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

6.1.2 For emergency responders

Personal protection equipment:

Personal protection equipment: see section 8

6.2 Environmental precautions

Do not allow to enter into surface water or drains.

Do not allow to enter into soil/subsoil.

6.3 Methods and material for containment and cleaning up

For containment:

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up:

Clean floors and contaminated objects with: Water with tenside additive

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6.4 Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

6.5 Additional information

Use appropriate container to avoid environmental contamination.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

Advices on safe handling:

Do not breathe gas/fumes/vapour/spray. Use only in well-ventilated areas. Avoid contact with skin, eyes and clothes. Repeated exposure may cause skin dryness or cracking. Wear personal protection equipment (refer to section 8).

Fire prevent measures:

Flammable liquid and vapour. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air.

Environmental precautions:

Discharge into the environment must be avoided.

Advices on general occupational hygiene

Wash hands before breaks and after work. When using do not eat, drink or smoke. Take off contaminated clothing and wash it before reuse. Apply skin care products after work. Draw up and observe skin protection programme.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Keep container tightly closed. Store in a cool dry place. Keep away from heat.

Requirements for storage rooms and vessels:

Floors should be impervious, resistant to liquids and easy to clean. Keep/Store only in original container.

Hints on storage assembly:

Keep away from food, drink and animal feedingstuffs.

Further information on storage conditions:

Protect from sunlight.

7.3 Specific end use(s)

Recommendation:

coating.

SECTION 8: Exposure controls / Personal protection

8.1 Control parameters

8.1.1 Occupational exposure limit values

Limit value type (country)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
MEL/OES (GB)	n-butyl acetate CAS No.: 123-86-4	① 150 ppm (724 mg/m ³) ② 200 ppm (966 mg/m ³)
IOELV (EU)	n-butyl acetate CAS No.: 123-86-4	① 50 ppm (241 mg/m ³) ② 150 ppm (723 mg/m ³)
IOELV (EU)	silver CAS No.: 7440-22-4	① 0.01 mg/m ³ ⑤ (silver compounds, soluble, calculated as Ag)

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Limit value type (country)	Substance name	① Long-term occupational exposure limit value ② Short-term occupational exposure limit value ③ Instantaneous value ④ Monitoring and observation processes ⑤ Remark
WEL (GB)	silver CAS No.: 7440-22-4	① 0.01 mg/m ³ ⑤ (compounds, soluble; calculated as Ag)
IOELV (EU)	silver CAS No.: 7440-22-4	① 0.1 mg/m ³ ⑤ (metal)
WEL (GB)	silver CAS No.: 7440-22-4	① 0.1 mg/m ³ ⑤ (metal)
WEL (GB)	2-Methylpropan-1-ol CAS No.: 78-83-1	① 50 ppm (154 mg/m ³) ② 75 ppm (231 mg/m ³)

8.1.2 Biological limit values

No data available.

8.1.3 DNEL-/PNEC-values

No data available.

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. Generation/formation of aerosols: Technical ventilation of workplace

8.2.2 Personal protection equipment



Eye/face protection:

Eye glasses with side protection (EN 166).

Skin protection:

Wear suitable gloves (EN ISO 374).

Suitable material: NBR (Nitrile rubber)

Material thickness: 0,11 mm

Breakthrough time: ≤ 60 min

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Check leak tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. Recommendation: Draw up and observe skin protection programme.

Respiratory protection:

Usually no personal respiratory protection necessary. Provide adequate ventilation. If workplace limits are exceeded, a respiratory protection approved for this particular job must be worn. Suitable respiratory protection apparatus: Filter type A.

Other protection measures:

Wear anti-static footwear and clothing

8.2.3 Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state: liquid

Colour: silver

Odour: after n-Butyl acetate

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Safety relevant basic data

Parameter		at	Method	Remark
pH	<i>not applicable</i>			
Melting point	<i>not determined</i>			
Freezing point	<i>not determined</i>			
Initial boiling point and boiling range	<i>not determined</i>			
Decomposition temperature	<i>not determined</i>			
Flash point	> 35 °C			
Evaporation rate	<i>not determined</i>			
Auto-ignition temperature	<i>not determined</i>			
Upper/lower flammability or explosive limits	<i>not determined</i>			
Vapour pressure	<i>not determined</i>			
Vapour density	<i>not determined</i>			
Density	<i>not determined</i>			
Bulk density	<i>not applicable</i>			
Water solubility	insoluble	20 °C		
Partition coefficient: n-octanol/water	<i>not determined</i>			
Dynamic viscosity	<i>not determined</i>			
Kinematic viscosity	<i>not determined</i>			

9.2 Other information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity

Flammable liquid and vapour.

10.2 Chemical stability

The product is chemically stable under recommended conditions of storage, use and temperature.

10.3 Possibility of hazardous reactions

No hazardous reaction when handled and stored according to provisions.

10.4 Conditions to avoid

Keep away from heat. Remove all sources of ignition.

10.5 Incompatible materials

Oxidising agent, strong

10.6 Hazardous decomposition products

No known hazardous decomposition products.

In case of fire may be liberated: carbon monoxide (CO), carbon dioxide (CO₂), gases/vapours, toxic.

Further information

No data available.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity:

Based on available data, the classification criteria are not met.

Acute dermal toxicity:

Based on available data, the classification criteria are not met.

Acute inhalation toxicity:

Based on available data, the classification criteria are not met.

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Skin corrosion/irritation:

Based on available data, the classification criteria are not met.
May cause skin irritation.

Serious eye damage/irritation:

Causes serious eye irritation.

Respiratory or skin sensitisation:

Based on available data, the classification criteria are not met.

Germ cell mutagenicity:

Based on available data, the classification criteria are not met.

Carcinogenicity:

Based on available data, the classification criteria are not met.

Reproductive toxicity:

Based on available data, the classification criteria are not met.

STOT-single exposure:

May cause drowsiness or dizziness.

STOT-repeated exposure:

Based on available data, the classification criteria are not met.

Aspiration hazard:

Based on available data, the classification criteria are not met.

Additional information:

No data available.

SECTION 12: Ecological information

12.1 Toxicity

CAS No.	Substance name	Toxicological information
7440-22-4	silver	LC₅₀: 0.016 mg/L 4 d (fish, Pimephales promelas (fathead minnow))

Aquatic toxicity:

Very toxic to aquatic life with long lasting effects.

Additional ecotoxicological information:

No data available.

12.2 Persistence and degradability

Biodegradation:

No data available.

12.3 Bioaccumulative potential

Accumulation / Evaluation:

No indication of bioaccumulation potential.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

CAS No.	Substance name	Results of PBT and vPvB assessment
7440-22-4	silver	—

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6 Other adverse effects

No data available.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment options

Appropriate disposal / Product:

Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal.

Appropriate disposal / Package:

Dispose of waste according to applicable legislation. Completely emptied packages can be recycled.









Other disposal recommendations:

The allocation of waste code numbers / waste names must be carried out in accordance with the European Waste Catalogue (EWC). Collect in closed and suitable containers for disposal. Do not allow to enter into surface water or drains.

13.2 Additional information

Waste for disposal is to be classified and labelled.

SECTION 14: Transport information

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI-/IATA-DGR)
14.1 UN-No.			
1993	1993	1993	1993
14.2 UN proper shipping name			
FLAMMABLE LIQUID, N.O.S. (n-Butyl acetate)	FLAMMABLE LIQUID, N.O.S. (n-Butyl acetate)	FLAMMABLE LIQUID, N.O.S. (n-Butyl acetate)	FLAMMABLE LIQUID, N.O.S. (n-Butyl acetate)
14.3 Transport hazard class(es)			
 3	 3	 3	 3
14.4 Packing group			
III	III	III	III
14.5 Environmental hazards			
		 MARINE POLLUTANT	
14.6 Special precautions for user			
No data available.			

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

not relevant

Additional information:

Transport as "Limited Quantity" according to chapter 3.4 ADR/RID

Transport as "Excepted Quantity" according to chapter 3.5 ADR/RID

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SECTION 15: Regulatory information

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

15.1.1 EU legislation

Other EU regulations:

Directive 98/24/EC of 7 April 1998 on the protection of the health and safety of workers from the risks related to chemical agents at work Observe restrictions to employment for juvenils according to the 'juvenile work protection guideline' (94/33/EC).

15.1.2 National regulations

No data available.

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

16.1 Indication of changes

Changes executed in version 2.0:

Section 2, 3, 11, 14: classification/Label elements

General revision

Changes executed in version 2.1:

Section 2, 3, 11, 14, 15: classification/Label elements

Section 9: Physical and chemical properties

General revision

Changes executed in version 2.2:

Section 1: UFI

General revision

16.2 Abbreviations and acronyms

See overview table at www.euphrac.eu

16.3 Key literature references and sources for data

European Chemicals Agency (ECHA): <http://www.echa.europa.eu>

ECHA, C&L Inventory: <http://echa.europa.eu/information-on-chemicals/cl-inventory-database>

ECHA, Registered substances: <http://echa.europa.eu/information-on-chemicals/registered-substances>

GESTIS (Gefahrstoffinformationssystem der DGUV): <http://www.dguv.de/ifa/GESTIS/index.jsp>

Hörath Gefährliche Stoffe und Gemische, 8. Auflage, Dr. Angela Schulz

Safety data sheets of the manufacturers

16.4 Classification for mixtures and used evaluation method according to regulation (EC) No. 1272/2008 [CLP]

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

Hazard classes and hazard categories	Hazard statements	Classification procedure
STOT-single exposure (<i>STOT SE 3</i>)	H336: May cause drowsiness or dizziness.	Calculation
Hazardous to the aquatic environment (<i>Aquatic Acute 1</i>)	H400: Very toxic to aquatic life.	Calculation
Hazardous to the aquatic environment (<i>Aquatic Chronic 1</i>)	H410: Very toxic to aquatic life with long lasting effects.	Calculation
Flammable liquids (<i>Flam. Liq. 3</i>)	H226: Flammable liquid and vapour.	Test data
Serious eye damage/eye irritation (<i>Eye Irrit. 2</i>)	H319: Causes serious eye irritation.	Calculation

16.5 Relevant H- and EUH-phrases

Hazard statements	
H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H318	Causes serious eye damage.

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Hazard statements

H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H410	Very toxic to aquatic life with long lasting effects.

Supplemental hazard information

EUH066	Repeated exposure may cause skin dryness or cracking.
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16.6 Training advice

No data available.

16.7 Additional information

The information in this safety data sheet has been established to our best knowledge and was up-to-date at time of revision. The information is intended to give you advice about the safe handling of the product for storage, processing, transport and disposal. It does not represent a guarantee for the properties of the product described in terms of the legal warranty regulations.