Safety Data Sheet

According to 1907/2006/EC, Article 31

Revision: 07/10/2023

1. Identification of the substance/mixture and of the company/undertaking

- **Product Identifier** – Conducting Silver Paint
- **Article Number** - 60805, 60805T, 60805-500, 60805P, 60805-1000, 60805Q
  Relevant identified uses of the substances or mixture and uses advised against.
  Mounting and grounding of specimens for scanning electron microscopy and other applications calling for physical and electrical connections.
- **Details of the supplier of the safety data sheet**

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2. Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**


GHS02 flammable

Flam. Liquid 3	H226	Flammable liquid and vapor


GHS07 irritant

STOT 3	H336	Narcotic effects (single exposure)


GHS09 harmful to the environment

Haz to Aquatic Env Chronic 2	H411	Toxic with long lasting effects

Label elements

Labelling according to Regulation (EC) No 1272/2008

The product has been classified and labelled according to the CLP regulation.

Hazard Pictograms


GHS02 flammable


GHS07 irritant


GHS09 harmful to the environment

Signal Word: Warning

Hazard Statements:

H226	Flammable Liquid and vapor
H336	May cause drowsiness or dizziness
H411	Toxic to aquatic life with long lasting effects

Precautionary Statements:

P233	Keep container tightly closed
P235	Keep cool
P240	Ground and/or bond container and receiving equipment
P241	Use explosion-proof electrical/ventilating/lighting/equipment
P242	Use only non-sparking tools
P243	Take precautionary measures against static discharge
P261	Avoid breathing fumes, mist, vapors and/or spray
P271	Use only outdoors or in a well-ventilated area
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing/eye protection/face protection
P370+P378	**In case of fire**: Use appropriate media for extinction.
P304+P340	**If Inhaled**: Remove victim to fresh air and keep at rest in a position comfortable for breathing
P312	Call a poison center or doctor/physician if you feel unwell
P303+P361+P353	**If on skin:** Immediately remove all contaminated clothing. Rinse skin with water/shower
P391	Collect spillage
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P235	Keep cool
P405	Store locked up
P501	Dispose of contents and/or container in accordance with local, regional, national, and/or international regulations

Other Hazards

Heating above the melting point releases metallic oxides which may cause metal fume fever by inhalation. The symptoms are shivering, fever, malaise and muscular pain. Repeated exposure to silver can cause argyria/argyrosis, a grey-blue discoloration of the eyes, nose, throat, skin and internal organs.

3. Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture of substances listed below with nonhazardous additions.

Dangerous components:

Chemical Name	Identifiers	Percentage	LD50/LC50	Classifications
Silver	CAS: 7440-22-4 EC: 231-131-3	35% to 65%	NDA	**EU CLP**: Aquatic Chronic 2, H411
n-Butyl acetate	CAS: 123-86-4 EC: 204-658-1	10% to 30%	**Ingestion** (oral rat) LD50:	**EU CLP:** Annex VI, Table 3.1: Flam. Liq. 3,

			10768 mg/kg **Skin** (rabbit) LD50: 17,600 mg/kg	H226; STOT SE 3: Narc., H336; EUH066
1-methoxy-2-propanol acetate	CAS: 108-65-6 EC: 203-603-9	10% to 30%	**Ingestion** (oral rat) LD50: 8532 mg/kg **Skin** (rabbit) LD50: >5g/kg	**EU CLP**: Annex VI, Table 3.1: Flam. Liq. 3, H226
Acrylic resin (Proprietary)	NDA	5% to 10%	NDA	**EU CLP:** Not classified

4. First aid measures

Description of first aid measures

After inhalation:

Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Obtain medical attention immediately.

After skin contact: Immediately wash with water and soap and rinse thoroughly. Remove and isolate contaminated clothing. If irritation develops and persists, obtain medical attention.

After eye contact:

Rinse opened eye for at least 20 minutes under running water. Then consult a doctor.

After swallowing:

Do not induce vomiting; call for medical help immediately.

Drink plenty of water and provide fresh air. Call for a doctor immediately.

Information for doctor:

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

5. Firefighting measures

Extinguishing media

Suitable extinguishing agents:

Dry chemical, CO2, water foam, “alcohol” foam, water spray to cool fire-exposed containers and to disperse vapor. . Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture. Toxic decomposition products may form under fire conditions.

Advice for firefighters

Protective equipment: Structural firefighters’ protective clothing will only provide limited protection. Wear positive pressure self-contained breathing apparatus (SCBA). Move containers from fire area if you can do it without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

CAUTION: Victim may be a source of contamination. Do not walk through spilled material. Use appropriate Personal Protective Equipment (PPE).

Environmental precautions:

Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up:

Stop leak if you can do it without risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Use clean non-sparking tools to collect absorbed material. A vapor suppressing foam may be used to reduce vapors. All equipment used when handling the product must be grounded. Waste product may be refined to recover previous metal content.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7. Handling and storage

Handling:

Precautions for safe handling

Use only in well ventilated areas. Keep away from heat, sparks, and flame. Do not use sparking tools. Take precautionary measures against static charges. All equipment used when handling the product must be grounded. Wear appropriate personal protective equipment, and avoid direct contact. Avoid breathing fume, mist, vapors and/or spray. Avoid contact with skin, eyes and clothing. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco. Empty product containers, contaminated clothing and cleaning materials, etc. should be considered hazardous until decontaminated or properly disposed of according to federal, state and local laws and regulations.

Information about fire and explosion protection: Keep respiratory protective device available.

Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: Store in a tightly closed container. Store in a cool/low-temperature, well-ventilated place away from heat and ignition sources.

Information about storage in one common storage facility: Not required.

Further information about storage conditions: No further relevant information available.

Special end use(s): This item is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption.

8. Exposure controls/personal protection

Additional information about design of technical facilities: No further data; see item 7.

Control parameters

Ingredients with limit values that require monitoring at the workplace:

123-86-4 n-Butyl acetate

WEL Short-term value: 950 mg/m^3, 200 ppm
Long-term value: 710 mg/m^3, 150 ppm

7440-22-4 Silver

WEL 0.01 mg/m^3 (dust): 0.1mg/ m^3 (dust and fume)

Additional information: The lists valid during the making were used as basis.

Exposure controls:

Personal protective equipment:

General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

Respiratory protection:

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation or other engineering controls to maintain airborne levels below recommended exposure limits.

Protection of hands:

Protective gloves
The glove material has to be impermeable and resistant to the product, the substance, the preparation.
Due to missing tests no recommendation to the glove material can be given for the product, the preparation, the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection

Tightly sealed goggles

Additional protection measures: An eyewash station and emergency shower must be available to the work station.

9. Physical and chemical properties

Information on basic physical and chemical properties

General information

Appearance:

Form:	Fluid
Color:	Gray
Odor:	Mild fruity odor
Odor threshold:	Not determined
pH value:	Not determined

Change in condition	
Melting point/Melting range:	Undetermined
Boiling point/Boiling range:	126°C to 140°C
Flash point:	24.4°C
Flammability:	Undetermined
Ignition temperature:	
Decomposition temperature:	Undetermined
Self-igniting:	Product is not self-igniting
Danger of explosion:	Undetermined
Explosion limits:	
Lower:	1.5%
Upper:	10%
Vapor pressure at 20°C:	23 hPa
Density at 20°C:	1.129 g/cm^3
Relative density:	1.8 to 2 g/ml (Water = 1)
Vapor density:	>1 (air = 1)
Evaporation rate:	<1 (n-Butyl acetate = 1)
Solubility in/	
Miscibility with water:	Appreciable (>10%)
Partition coefficient:	Not determined
Viscosity:	
Dynamic:	Not determined
Kinematic:	Not determined
Solvent content:	
Organic solvents:	40.0%
Water:	< 0.1%
VOC (EC):	30% to 40%
Other information:	No further relevant information available

10. Stability and reactivity

Reactivity

Chemical stability

Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid: Keep away from heat, sparks and flame.

Incompatible materials: Oxidizing agents, acids, potassium tert-butoxide, reducing agents.

Hazardous decomposition products: At high temperature may include oxides of carbon and nitrogen, ethyl methacrylate, methyl acrylate.

11. Toxicological information

Information on toxicological effects

Acute toxicity:

LD/LC50 values relevant for classification:

103-65-6 1-Methoxy-2-propanol acetate

Oral	LD50	8532 mg/kg (rat)
Dermal	LD50	>5 g/kg (rabbit)

Primary irritant effect:
on the skin: Mild skin irritation.
on the eye: Moderate eye irritation.
Sensitization:
Data lacking

123-86-4 n-Butyl acetate

Oral	LD50	10768 mg/kg (rat)
Dermal	LD50	17600 mg/kg (rabbit)

Primary irritant effect:
on the skin: Mild skin irritation.
on the eye: Moderate eye irritation.
Sensitization:
Data lacking

Additional toxicological information:
The product shows the following dangers according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
Data lacking

12. Ecological information

Toxicity
Silver:
Aquatic toxicity: 96 Hour(s) LC50 (Fathead Minnow) 0.00213 mg/L
14 Day(s) NOEC (Japanese Medaka) 0.05 mg/l
Silver nanoparticles cause oxidative damage and histological changes after 14 days of exposure
Persistence and degradability: No further relevant information available
Behavior in environmental systems:
Bioaccumulative potential: No further relevant information available
Mobility in soil: No further relevant information available
Ecotoxical effects:
Remark: Very toxic for fish

n-Butyl acetate
Aquatic toxicity: 96 Hour(s) LC50 (Fathead Minnow) 18 mg/L
Persistence and degradability: No further relevant information available
Behavior in environmental systems:
Bioaccumulative potential: No further relevant information available
Mobility in soil: No further relevant information available

Results of PBT and vPvB assessment
PBT: Not applicable

vPvB: Not applicable.
Other adverse effects: No further relevant information available.

13. Disposal considerations

Waste treatment methods
Recommendation
Dispose of contents and/or container in accordance with local, regional, national and/or international regulations
Uncleaned packaging:
Recommendation: Disposal must be made according to official regulations.

14. Transport information

UN-Number	
ADR, IMDG, IATA	UN1263
UN proper shipping name	
ADR	Paint or Paint related material
IMDG	Paint or Paint related material
IATA	Paint or Paint related material
Transport hazard class(es)	
ADR, IMDG	
Class	3 Flammable liquid
IATA	
Class	3 Flammable liquid
Packing group	
ADR, IMDG, IATA	III
Environmental hazards:	No further relevant information available
Marine pollutant:	No
Special marking (ADR):	None
Special precautions for user:	None specified
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:	No further relevant information available
UN "Model Regulation":	UN1263, Paint, 3, III

15. Regulatory information

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16. Other Information

This information is based on our present knowledge and should assist the user with the safe handling of this material when properly applied. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

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Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the international Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent