

SAFETY DATA SHEET

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

Revision date: 6 Apr 2021

Print date: 26 Jan 2022

Version: 5.1



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

1.1. Product identifier

Trade name/designation:

FK1071

Other means of identification:

AgPt thick film paste for AIN FK1071

Article No.:

10103

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

Use of the substance/mixture:

thick film ink

Relevant identified uses:

Life cycle stage [LCS]

IS: Use at industrial sites

Sector of uses [SU]

SU 7: Printing and reproduction of recorded media

Product Categories [PC]

PC 9a: Coatings and paints, thinners, paint removers

Process categories [PROC]

PROC 10: Roller application or brushing

Environmental release categories [ERC]

ERC 5: Use at industrial site leading to inclusion into/onto article

Article categories [AC]

AC 0: Other

1.3. Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/only representative/downstream user/distributor):

Fraunhofer IKTS-DD, TFC, RS

Dickschichttechnik und funktioneller Druck | Thick-Film Technology and Functional Printing

Winterbergstraße 28

01277 Dresden

Germany

Telephone: +49-351-2553-7916

Telefax: +49-351-2554-236

E-mail: service@ikts-tfc.de

Website: www.ikts.fraunhofer.de

E-mail (competent person): service@ikts-tfc.de

1.4. Emergency telephone number

Richard Schmidt, +49-351-2553-7916/-7900 (Only available during office hours.)

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
Skin corrosion/irritation (<i>Skin Irrit. 2</i>)	H315: Causes skin irritation.	Calculation method.
Serious eye damage/eye irritation (<i>Eye Irrit. 2</i>)	H319: Causes serious eye irritation.	Calculation method.
Reproductive toxicity (<i>Repr. 2</i>)	H361d: Suspected of damaging the unborn child.	Calculation method.

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Hazard classes and hazard categories	Hazard statements	Classification procedure
Hazardous to the aquatic environment (<i>Aquatic Acute 1</i>)	H400: Very toxic to aquatic life.	Calculation method.
Hazardous to the aquatic environment (<i>Aquatic Chronic 1</i>)	H410: Very toxic to aquatic life with long lasting effects.	Calculation method.

* 2.2. Label elements

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

Hazard pictograms:



GHS07

Exclamation mark



GHS08

Health hazard



GHS09

Environment

Signal word: Warning

Hazard statements for health hazards	
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H361d	Suspected of damaging the unborn child.

Hazard statements for environmental hazards	
H410	Very toxic to aquatic life with long lasting effects.

Supplemental hazard information: —

Precautionary statements Prevention	
P261	Avoid breathing dust/mist.
P280	Wear protective gloves/protective clothing and eye/face protection.

Precautionary statements Response	
P302 + P352	IF ON SKIN: Wash with plenty of water/Soap.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Precautionary statements Disposal	
P501	Dispose of contents/container to Dispose of waste according to applicable legislation..

Special rules for supplemental label elements for certain mixtures:

2,6 % percent of the mixture consists of ingredient(s) of unknown acute toxicity (oral).

76,3 % percent of the mixture consists of ingredient(s) of unknown acute toxicity (dermal).

80,9 % percent of the mixture consists of ingredient(s) of unknown acute toxicity (inhalative).

Additional information:

Avoid dust formation. If material is reatomized (this is NO intended use!), the hazard category Acute tox. 4, inhalative (H332) also applies..

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Description:

Precious metals, glass and inorganic additives embedded in an organic vehicle.

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Hazardous ingredients / Hazardous impurities / Stabilisers:

Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 7440-22-4 EC No.: 231-131-3	silver Substance with a community workplace exposure limit.	42 - ≤ 72 weight-%
CAS No.: 8000-41-7 EC No.: 232-268-1	Terpineol Eye Irrit. 2 (H319), Skin Irrit. 2 (H315)  Warning	8 - < 14 weight-%
CAS No.: 1332-07-6 EC No.: 215-566-6 REACH No.: 01-2120773328-46-XXXX	Zinc borate Acute Tox. 4 (H332), Aquatic Acute 1 (H400), Aquatic Chronic 2 (H411), Eye Irrit. 2 (H319), Repr. 2 (H361d)    Warning	2 - ≤ 4 weight-%
CAS No.: 1317-39-1 EC No.: 215-270-7	dicopper oxide Acute Tox. 4 (H332, H302), Aquatic Acute 1 (H400), Aquatic Chronic 1 (H410), Eye Dam. 1 (H318)    Danger M-factor (acute): 100 M-factor (chronic): 10 Acute Toxicity Estimate ATE (oral): 500 mg/kg ATE (inhalation, dust/mist): 3.34 mg/l	0 - ≤ 2 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. If unconscious but breathing normally, place in recovery position and seek medical advice. Do not leave affected person unattended.

Following inhalation:

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

In case of skin contact:

After contact with skin, wash immediately with plenty of water and soap. If skin irritation or rash occurs: Get medical advice/attention.

After eye contact:

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. In case of eye irritation consult an ophthalmologist.

Following ingestion:

Rinse mouth. Get medical advice/attention if you feel unwell.

Self-protection of the first aider:

Use personal protection equipment. No direct artificial respiration to be given by first aider.

4.2. Most important symptoms and effects, both acute and delayed

Skin corrosion/irritation. Serious eye damage/eye 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). Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media:

Full water jet

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* 5.2. Special hazards arising from the substance or mixture

Hazardous combustion products:

Gases/vapours, toxic (CO, CO₂)

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:

Remove persons to safety.

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.

* 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:

Wipe up with absorbent material (eg. cloth, fleece).

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:

Wear personal protection equipment (refer to section 8).

Fire prevent measures:

The formation of combustible vapours is possible at temperatures above: 88 °C

Measures to prevent aerosol and dust generation:

Dust should be exhausted directly at the point of origin.

Environmental precautions:

Do not allow to enter into surface water or drains.

Advices on general occupational hygiene

When using do not eat, drink or smoke. Avoid contact with eyes and skin.

* 7.2. Conditions for safe storage, including any incompatibilities

Technical measures and storage conditions:

Store in a well-ventilated place.

Packaging materials:

Keep/Store only in original container.

Requirements for storage rooms and vessels:

Keep container tightly closed.

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Hints on storage assembly:

Prohibition on mixed storage has to be followed

Storage class (TRGS 510, Germany): 10 - Combustible liquids that cannot be assigned to any of the above storage classes

7.3. Specific end use(s)

Recommendation:

Observe technical data sheet.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1. Occupational exposure limit values

Limit value type (country of origin)	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
CZ	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ② 0.3 mg/m ³
PL	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.05 mg/m ³ ⑤ (wdychalna frakcja)
IOELV (EU)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ (silver compounds, soluble, calculated as Ag)
WEL (GB)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ (compounds, soluble; calculated as Ag)
NL	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ (verbindingen, oplosbaar, berekend als Ag)
NIOSH (US)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ compounds, soluble; calculated as Ag
IOELV (EU)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metal)
WEL (GB)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metal)
NL	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metaal)
PL	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.05 mg/m ³ ⑤ (związki srebra, nierozpuszczalny, obliczono jako Ag)
PL	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ (związki srebra, rozpuszczalny, obliczono jako Ag)
BG	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ съединения, разтворим; Изчисление Ag
BG	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³

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CZ	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ② 0.03 mg/m ³ ⑤ (stříbrné sloučeniny, rozpustný, vypočtený jako Ag, vdechovatelná frakce)
ACGIH (US)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ compounds, soluble
OSHA (US)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³
RO	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metal)
RO	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ compușii solubil calculat ca Ag
Alberta (CA)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metal)
Alberta (CA)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ compounds, soluble
BC (CA)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ② 0.03 mg/m ³
JP	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³
Québec (CA)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ compounds, soluble; calculated as Ag
SI	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ② 0.02 mg/m ³ ⑤ (frakcija ki jo je mogoče vdihniti)
TW	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³
RU	silver CAS No.: 7440-22-4 EC No.: 231-131-3	③ 1 mg/m ³
RU	silver CAS No.: 7440-22-4 EC No.: 231-131-3	③ 0.5 mg/m ³
TW	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ (##)
MY	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ sebatian boleh larut dikira sebagai Ag
MY	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (logam)

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BG	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ метал, Изчисление Ag
TR	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³ ⑤ (gümüş bileşikleri, çözünür, Hesaplanırken Ag)
TR	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metal)
Québec (CA)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³ ⑤ (metal)
NIOSH (US)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.01 mg/m ³
ACGIH (US)	silver CAS No.: 7440-22-4 EC No.: 231-131-3	① 0.1 mg/m ³
WEL (GB)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 5 mg/m ³
IOELV (EU)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
CZ	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 0.5 mg/m ³ ② 1 mg/m ³
PL	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
NL	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
BG	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
Ontario (CA)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³ ⑤ (metal)
RO	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
Alberta (CA)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³ ⑤ (metal)
BC (CA)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
JP	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 0.001 mg/m ³
SI	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³ ⑤ (frakcija ki jo je mogoče vdihniti)

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Limit value type (country of origin)	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
TW	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
MY	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³ ⑤ (Platinum metal)
TR	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
NIOSH (US)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
ACGIH (US)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³
Québec (CA)	platinum CAS No.: 7440-06-4 EC No.: 231-116-1	① 1 mg/m ³ ⑤ (Métal)
WEL (GB)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (Smoke)
WEL (GB)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ② 2 mg/m ³ ⑤ (Dusts and mist calculated as Cu)
CZ	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ② 2 mg/m ³ ⑤ (Prach, vdechovatelná frakce)
CZ	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.1 mg/m ³ ② 0.2 mg/m ³ ⑤ (pára, alveolární frakce)
PL	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³
MY	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (Debu-debu dan kabus dikira sebagai Cu)
MY	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (Asap)
Québec (CA)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (Dusts and mist calculated as Cu)
NL	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.1 mg/m ³ ② 0.03 mg/m ³ ⑤ (inadembare fractie)
BG	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.1 mg/m ³ ⑤ (съединения, разтворим Изчисление Ва)
BG	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (съединения, разтворим Изчисление Ва), (неорганичен)

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OSHA (US)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.1 mg/m ³ ⑤ (Smoke; calculated as Cu)
RO	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	② 0.2 mg/m ³ ⑤ (Fum, calculat ca Cu)
RO	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.5 mg/m ³ ② 1.5 mg/m ³ ⑤ (Pulbere)
ACGIH (US)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (Smoke)
Alberta (CA)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (Smoke)
Alberta (CA)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (Dusts and mist)
BC (CA)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (Smoke)
BC (CA)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³
TW	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (##)
TW	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (## # #)
RU	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.5 mg/m ³ ③ 1 mg/m ³
OSHA (US)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (Dusts and mist calculated as Cu)
NIOSH (US)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³
ACGIH (US)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 1 mg/m ³ ⑤ (Dusts and mist calculated as Cu)
Québec (CA)	dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	① 0.2 mg/m ³ ⑤ (Smoke, calculated as Cu)

8.1.2. Biological limit values

No data available

8.1.3. DNEL-/PNEC-values

No data available

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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.

8.2.2. Personal protection equipment



Eye/face protection:

Eye glasses with side protection (EN 166)

Skin protection:

Tested protective gloves must be worn (EN ISO 374). Suitable material: NBR (Nitrile rubber) 0,4 mm. Breakthrough time: 480 min.

Respiratory protection:

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

8.2.3. Environmental exposure controls

See section 7. No additional measures necessary.

SECTION 9: Physical and chemical properties

* 9.1. Information on basic physical and chemical properties

Appearance

Physical state: Liquid

Colour: dark grey

Odour: not determined

Safety relevant basis data

Parameter	Value	at °C	① Method ② Remark
pH	<i>not determined</i>		
Melting point	$\geq 15 - \leq 35$ °C		② Overtaken from SDS of the organic solvent of the paste (CAS#8000-41-7)
Freezing point	<i>not determined</i>		
Initial boiling point and boiling range	$\geq 217 - \leq 218$ °C		② Overtaken from SDS of the organic solvent of the paste (CAS#8000-41-7)
Decomposition temperature	<i>not determined</i>		
Flash point	≈ 88 °C		② GESTIS material database of German "IFA", accessed on 20.08.21
Evaporation rate	<i>not determined</i>		
Auto-ignition temperature	≈ 264 °C		② Overtaken from SDS of the organic solvent of the paste (CAS#8000-41-7)
Upper/lower flammability or explosive limits	<i>not determined</i>		
Vapour pressure	= 3 hPa	20 °C	① OECD 104 ② Overtaken from SDS of the organic solvent of the paste (CAS#8000-41-7)
Vapour density	<i>not determined</i>		
Density	= 3.4 g/cm ³	25 °C	② calculated from ingredients
Relative density	<i>not determined</i>		
Bulk density	<i>not determined</i>		
Water solubility	= 2.54 g/l	20 °C	① OECD 105 ② Overtaken from SDS of the organic solvent of the paste (CAS#8000-41-7)

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Parameter	Value	at °C	① Method ② Remark
Partition coefficient: n-octanol/water	= 2.6		② GESTIS material database of German "IFA", accessed on 20.08.21
Dynamic viscosity	≥ 180 - ≤ 350 Pa*s	25 °C	① Brookfield SC4-14/-6R // n=10 U/min
Kinematic viscosity	<i>not determined</i>	40 °C	

9.2. Other information

No data available

SECTION 10: Stability and reactivity

* 10.1. Reactivity

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

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

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

Do not store at temperatures above 30°C

10.5. Incompatible materials

Acid, Alkali (lye), Oxidising agent, strong

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

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

Substance name	Toxicological information
silver CAS No.: 7440-22-4 EC No.: 231-131-3	LD₅₀ oral: >5,000 mg/kg (Rat) OECD Prüfrichtlinie 401
Terpineol CAS No.: 8000-41-7 EC No.: 232-268-1	LD₅₀ oral: =4,300 mg/kg (Ratte) OECD 401 LD₅₀ dermal: >2,000 mg/kg (Rat) OECD 402
platinum CAS No.: 7440-06-4 EC No.: 231-116-1	LD₅₀ oral: >5,000 mg/kg (Rat)
dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	ATE (oral)¹: 500 mg/kg ATE (inhalation, dust/mist)¹: 3.34 mg/l LD₅₀ oral: 470 mg/kg (Rat) LD₅₀ dermal: >2,000 mg/kg (Rat)

¹: Acute Toxicity Estimate. Harmonised (legal) classification.

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:

Harmful if inhaled.

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Skin corrosion/irritation:

Causes 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:

Suspected of damaging the unborn child.

STOT-single exposure:

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

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

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

Substance name	Toxicological information
silver CAS No.: 7440-22-4 EC No.: 231-131-3	LC₅₀ : =0.0102 mg/l 4 d (fish, anguilla anguilla) Partikelgröße < 1 µm LC₅₀ : 0.0102 mg/l 4 d (fish, Oncorhynchus mykiss (Rainbow trout)) EC₅₀ : 0.0184 mg/l 4 d (Algae/water plant, Pseudokirchneriella subcapitata (Grünalge)) NOEC : 0.0059 mg/l (Algae/water plant, Danio rerio (zebrafish))
Terpineol CAS No.: 8000-41-7 EC No.: 232-268-1	LC₅₀ : =70 mg/l 4 d (fish, Danio rerio (zebrafish)) OECD 203 LC₅₀ : ≈68 mg/l 3 d (Algae/water plant, Pseudokirchneriella subcapitata) OECD 201 LC₅₀ : =73 mg/l 2 d (crustaceans, Daphnia magna (Big water flea)) OECD 202
Zinc borate CAS No.: 1332-07-6 EC No.: 215-566-6	LC₅₀ : 0.82 mg/l 4 d (fish) EC₅₀ : 0.22 mg/l 1 d (crustaceans, wirbellose Wasserlebewesen) LC₅₀ : 0.33 mg/l (fish) EC₅₀ : >1,000 mg/l (Algae/water plant, Mikroorganismen) EC₅₀ : 0.22 mg/l 1 d (wirbellose Wasserlebewesen)
dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	LC₅₀ : 0.17 mg/l 4 d (fish, Cyprinodon variegatus) EC₅₀ : 0.5 mg/l 2 d (crustaceans, Daphnia Magna)

Aquatic toxicity:

Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

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12.2. Persistence and degradability

Substance name	Biodegradation	Remark
Terpineol CAS No.: 8000-41-7 EC No.: 232-268-1	—	SDB Terpineol Version 6.4 von Sigma Aldrich (englisch), überarbeitet am 23.03.2021; WGK laut Kenn-Nummer 3.477 nach AwSV, Anlage 1 (4)
Zinc borate CAS No.: 1332-07-6 EC No.: 215-566-6	not determined	WGK: SDB Zinkborat V1.0 von Chemos vom 02.12.2020
platinum CAS No.: 7440-06-4 EC No.: 231-116-1	not determined	WGK: SDB für Platin von HPM, Version 11, überarbeitet am 06.10.2014
dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	not determined	WGK: Einstufung nach der Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS)

* 12.3. Bioaccumulative potential

Substance name	Log K _{ow}	Bioconcentration factor (BCF)
silver CAS No.: 7440-22-4 EC No.: 231-131-3		70

Partition coefficient: n-octanol/water:

= 2.6; Remark: GESTIS material database of German "IFA", accessed on 20.08.21

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

Substance name	Results of PBT and vPvB assessment
silver CAS No.: 7440-22-4 EC No.: 231-131-3	—
Terpineol CAS No.: 8000-41-7 EC No.: 232-268-1	—
Zinc borate CAS No.: 1332-07-6 EC No.: 215-566-6	—
platinum CAS No.: 7440-06-4 EC No.: 231-116-1	—
dicopper oxide CAS No.: 1317-39-1 EC No.: 215-270-7	—

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Handle contaminated packages in the same way as the substance itself.

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13.1.1. Product/Packaging disposal

Waste codes/waste designations according to EWC/AVV

Waste code product

16 05 06 *	laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals
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*: Evidence for disposal must be provided.

Waste treatment options


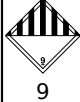
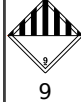
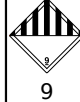




Appropriate disposal / Product:

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

Appropriate disposal / Package:

Completely emptied packages can be recycled.

SECTION 14: Transport information

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1. UN number or ID number			
UN 3082	UN 3082	UN 3082	UN 3082
14.2. UN proper shipping name			
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver)
14.3. Transport hazard class(es)			
 9	 9	 9	 9
14.4. Packing group			
III	III	III	III
14.5. Environmental hazards			
		 MARINE POLLUTANT	
14.6. Special precautions for user			
Special provisions: 274 335 375 601 Limited quantity (LQ): 5 L Excepted Quantities (EQ): E1 Hazard identification number (Kemler No.): 90 Classification code: M6 Tunnel restriction code: (-)	Special provisions: 274 335 375 601 Limited quantity (LQ): 5 L Excepted Quantities (EQ): E1 Classification code: M6	Special provisions: 274 335 969 Limited quantity (LQ): 5 L Excepted Quantities (EQ): E1 EmS-No.: F-A, S-F	Special provisions: A97 A158 A197 A215 Limited quantity (LQ): Y964 Excepted Quantities (EQ): E1

14.7. Maritime transport in bulk according to IMO instruments

No data available

SECTION 15: Regulatory information

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

No data available

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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

1.2.	Relevant identified uses of the substance or mixture and uses advised against
2.2.	Label elements
4.1.	Description of first aid measures
5.2.	Special hazards arising from the substance or mixture
6.3.	Methods and material for containment and cleaning up
7.1.	Precautions for safe handling
7.2.	Conditions for safe storage, including any incompatibilities
9.1.	Information on basic physical and chemical properties
10.1.	Reactivity
12.3.	Bioaccumulative potential
14.1.	UN number or ID number
14.2.	UN proper shipping name
14.3.	Transport hazard class(es)
14.4.	Packing group
14.5.	Environmental hazards
14.6.	Special precautions for user

16.2. Abbreviations and acronyms

No data available

16.3. Key literature references and sources for data

overtaken from SDS of supplier, GESTIS material database of German "IFA", accessed on 20.08.2021

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

Hazard classes and hazard categories	Hazard statements	Classification procedure
Skin corrosion/irritation (<i>Skin Irrit. 2</i>)	H315: Causes skin irritation.	Calculation method.
Serious eye damage/eye irritation (<i>Eye Irrit. 2</i>)	H319: Causes serious eye irritation.	Calculation method.
Reproductive toxicity (<i>Repr. 2</i>)	H361d: Suspected of damaging the unborn child.	Calculation method.
Hazardous to the aquatic environment (<i>Aquatic Acute 1</i>)	H400: Very toxic to aquatic life.	Calculation method.
Hazardous to the aquatic environment (<i>Aquatic Chronic 1</i>)	H410: Very toxic to aquatic life with long lasting effects.	Calculation method.

16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements	
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H361d	Suspected of damaging the unborn child.
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.

16.6. Training advice

No data available

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16.7. Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

* Data changed compared with the previous version