

Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

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

1.1 Product identifier

Trade name: **Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)**UFI: *not applicable.*

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

*No further relevant information available.***Application of the substance / the mixture** *Hard solder*

1.3 Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Felder GmbH

Im Lipperfeld 11

D-46047 Oberhausen

Tel.: +49 (0)208/ 85035-0

Fax.: +49 (0)208/ 26080

<http://www.felder.de>e-mail: info@felder.de

Further information obtainable from:

*lab**(mo-thu. 8:00 a.m. - 4:00 p.m./ fr. 8:00 a.m. - 1:00 p.m.)*email: mprobst@felder.de

1.4 Emergency telephone number: tel: +49(0)208/85035-29

Information which should have been included on the identification label.**(Annex I No. 1.3.4 REGULATION (EC) No 1272/2008)**

1.3.4.1

Metals in massive form, alloys, mixtures containing polymers and mixtures containing elastomers do not require a label according to this Annex, if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the criteria of this Annex.

*Otherwise, it would be labeled as follows to:**see chapter 16.***EuPCS:** PC-TEC-24

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008*The product is not classified, according to the CLP regulation.*

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 *Void***Hazard pictograms** *Void***Signal word** *Void***Hazard statements** *Void*

Additional information:

Contains nickel (massive). May produce an allergic reaction.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: *Not applicable.***vPvB:** *Not applicable.*

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Description: *Mixture: consisting of the following components.*

Dangerous components:

CAS: 7440-22-4 EINECS: 231-131-3 Reg.nr.: 01-2119555669-21	silver substance with a Community workplace exposure limit	48.0-50.0%
CAS: 7440-66-6 EINECS: 231-175-3 Index number: 030-001-01-9 Reg.nr.: 01-2119467174-37	zinc substance with a Community workplace exposure limit	21.0-25.0%

(Contd. on page 2)

— EU —

Safety data sheet




according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

Trade name: Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)

CAS: 7440-50-8 EINECS: 231-159-6 Index number: 029-024-00-X Reg.nr.: 01-2119480154-42	copper  Aquatic Chronic 2, H411	(Contd. of page 1) 15.0-17.0%
CAS: 7439-96-5 EINECS: 231-105-1	manganese	7.0-8.0%
CAS: 7440-02-0 EINECS: 231-111-4 Index number: 028-002-00-7 Reg.nr.: 01-2119438727-29	nickel (massive)  Carc. 2, H351; STOT RE 1, H372;  Skin Sens. 1, H317	4.0-5.0%

Additional information: For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

After inhalation:

Supply fresh air and to be sure call for a doctor.

In case of unconsciousness place patient stably in side position for transportation.

After skin contact:

After contact with the molten product, cool rapidly with cold water.

Do not pull solidified product off the skin.

Seek medical treatment.

Immediately wash with water and soap and rinse thoroughly.

After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing: If symptoms persist consult doctor.

4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture

Formation of toxic gases is possible during heating or in case of fire.

5.3 Advice for firefighters

Protective equipment:

Wear self-contained respiratory protective device.

Do not inhale explosion gases or combustion gases.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Use respiratory protective device against the effects of fumes/dust/aerosol.

6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up: Allow to solidify. Pick up mechanically.

6.4 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.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Extractors are required on all machines used for thermal processing or splinter removal processes.

Any unavoidable deposit of dust must be regularly removed.

Use appropriate industrial vacuum cleaners or central vacuum systems for dust removal.

Information about fire - and explosion protection: No special measures required.

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility: Store away from foodstuffs.

(Contd. on page 3)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

Trade name: Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)

(Contd. of page 2)

Further information about storage conditions: Store in dry conditions.

Storage class: 13

7.3 Specific end use(s) No further relevant information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

7440-22-4 silver

IOELV (EU)	Long-term value: 0.1 mg/m ³
AGW (Germany)	Long-term value: 0.1 E mg/m ³ 8(II);DFG, EU
WEL (Great Britain)	Long-term value: 0.1 mg/m ³
OEL (Ireland)	Long-term value: 0.1 mg/m ³ IOELV

7440-66-6 zinc

MAK (Germany)	Long-term value: 0.1A* 2E** mg/m ³ *alveolengängig; **einaatembar
---------------	---

7440-50-8 copper

MAK (Germany)	Long-term value: 0.01 A mg/m ³ als Cu
WEL (Great Britain)	Short-term value: 2** mg/m ³ Long-term value: 0.2* 1** mg/m ³ *fume **dusts and mists (as Cu)
OEL (Ireland)	Long-term value: 0.2* 1** mg/m ³ *fume **dusts and mists

Regulatory information

IOELV (EU): (EU) 2019/1831

AGW (Germany): TRGS 900

WEL (Great Britain): EH40/2020

OEL (Ireland): 2021 CoP for the Safety, Health and Welfare at Work

MAK (Germany): MAK- und BAT-Liste

recommended monitoring procedures in accordance with 2020/878/EU no. 8.1.2:

7440-22-4 silver: ISO 15202(F, E), BIA 8600(D), NIOSH 7301(E)

7440-50-8 copper: BIA 7755 (D), NIOSH 7301(E), MétroPol Fiche 003(F), MTA/MA-025/A92(ESP)

7440-66-6 zinc: OSHA ID121(E), NIOSH 7300, 7301, 7303(E)

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

8.2 Exposure controls

Appropriate engineering controls No further data; see item 7.

Appropriate engineering controls:

Ensure adequate ventilation.

Remove the fumes by means of suitable suction devices.

Individual protection measures, such as personal protective equipment

General protective and hygienic measures:

Pregnant women should strictly avoid inhalation or skin contact.

Do not eat, drink, smoke or sniff while working.

Wash hands before breaks and at the end of work.

Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.

Filter P2

Hand protection



Protective gloves

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves Leather gloves.

Penetration time of glove material Value for the permeation: Level ≤ -

Eye/face protection in cases of application: protective goggles

Body protection: Protective work clothing

(Contd. on page 4)

EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

Trade name: Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)

(Contd. of page 3)

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Colour:	Gold coloured
Odour:	Odourless
Odour threshold:	Not determined.
Melting point/freezing point:	680-705 °C
Boiling point or initial boiling point and boiling range	Undetermined.
Flammability	Not determined.
Lower and upper explosion limit	
Lower:	Not determined.
Upper:	Not determined.
Flash point:	Not applicable.
Auto-ignition temperature:	Product is not selfigniting.
Decomposition temperature:	Not determined.
pH	Not applicable.
Viscosity:	
Kinematic viscosity	Not applicable.
Dynamic:	Not applicable.
Solubility	
water:	Insoluble.
Partition coefficient n-octanol/water (log value)	Not determined.
Vapour pressure:	Not applicable.
Density and/or relative density	
Density at 20 °C:	8.9 g/cm ³
Relative density	Not determined.
Vapour density	Not applicable.
Particle characteristics	See item 3.

9.2 Other information

Appearance:	
Form:	Solid
Important information on protection of health and environment, and on safety.	
Explosive properties:	Product does not present an explosion hazard.
Solvent content:	
Organic solvents:	0.0 %
VOC (EC)	0,00 %
Solids content:	100.0 %
Change in condition	
Evaporation rate	Not applicable.

Information with regard to physical hazard classes

Explosives	Void
Flammable gases	Void
Aerosols	Void
Oxidising gases	Void
Gases under pressure	Void
Flammable liquids	Void
Flammable solids	Void
Self-reactive substances and mixtures	Void
Pyrophoric liquids	Void
Pyrophoric solids	Void
Self-heating substances and mixtures	Void
Substances and mixtures, which emit flammable gases in contact with water	Void
Oxidising liquids	Void
Oxidising solids	Void
Organic peroxides	Void
Corrosive to metals	Void
Desensitised explosives	Void

(Contd. on page 5)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

Trade name: Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)

(Contd. of page 4)

SECTION 10: Stability and reactivity

10.1 Reactivity No further relevant information available.**10.2 Chemical stability****Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.**10.3 Possibility of hazardous reactions**

Toxic fumes may be released if heated above the decomposition point.

Reacts with strong acids and oxidising agents.

Reacts with strong alkali.

10.4 Conditions to avoid No further relevant information available.**10.5 Incompatible materials:** No further relevant information available.**10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**Acute toxicity** Based on available data, the classification criteria are not met.**Skin corrosion/irritation** Based on available data, the classification criteria are not met.**Serious eye damage/irritation** Based on available data, the classification criteria are not met.**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** 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.**11.2 Information on other hazards****Endocrine disrupting properties**

None of the ingredients is listed.

SECTION 12: Ecological information

12.1 Toxicity**Aquatic toxicity:** No further relevant information available.**12.2 Persistence and degradability** No further relevant information available.**12.3 Bioaccumulative potential** No further relevant information available.**12.4 Mobility in soil** No further relevant information available.**12.5 Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**12.6 Endocrine disrupting properties** For information on endocrine disrupting properties see section 11.**12.7 Other adverse effects****Additional ecological information:****General notes:**

Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13: Disposal considerations

13.1 Waste treatment methods**Recommendation** Contact manufacturer for recycling information.**European waste catalogue**

17 04 07: mixed metals

overpack:

15 01 01: paper and cardboard packaging

Uncleaned packaging:**Recommendation:** Disposal must be made according to official regulations.

(Contd. on page 6)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

Trade name: Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)

(Contd. of page 5)

SECTION 14: Transport information

14.1 UN number or ID number	
ADR, ADN, IMDG, IATA	Void
14.2 UN proper shipping name	
ADR, ADN, IMDG, IATA	Void
14.3 Transport hazard class(es)	
ADR, ADN, IMDG, IATA	
Class	Void
14.4 Packing group	
ADR, IMDG, IATA	Void
14.5 Environmental hazards:	
Marine pollutant:	No
14.6 Special precautions for user	Not applicable.
14.7 Maritime transport in bulk according to IMO instruments	Not applicable.
UN "Model Regulation":	Void

SECTION 15: Regulatory information

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

Directive 2012/18/EU

Named dangerous substances - ANNEX I *None of the ingredients is listed.*REGULATION (EU) 2019/1021 on persistent organic pollutants (POP) *None of the ingredients are listed.*REGULATION (EC) No 1907/2006 ANNEX XVII *Conditions of restriction: 27*

REGULATION (EU) 2019/1148

Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))

None of the ingredients is listed.

Annex II - REPORTABLE EXPLOSIVES PRECURSORS

None of the ingredients is listed.

Regulation (EC) No 273/2004 on drug precursors

None of the ingredients is listed.

Regulation (EC) No 111/2005 laying down rules for the monitoring of trade between the Community and third countries in drug precursors

None of the ingredients is listed.

National regulations:

Additional classification according to Decree on Hazardous Materials, Annex II:

Can cause cancer if present as respirable dust.

Information about limitation of use:

*Employment restrictions concerning pregnant and lactating women must be observed.**Employment restrictions concerning women of child-bearing age must be observed.**Employment restrictions concerning juveniles must be observed.*Waterhazard class: Water hazard class 1 (Self-assessment): *slightly hazardous for water.*15.2 Chemical safety assessment: *A Chemical Safety Assessment has not been carried out.*

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Reasons for changes:

25.08.2015: adaption to Regulation 453/2010/EC, 830/2015/EU, 2012/18/EU

03.02.2017: chapter 8.2

22.12.2021: chapter 1, 3, 13, 15, 16

Information referred to in Annex I, point 1.3.4.2 of Regulation 1272/2008/EC:

GHS08, GHS07

danger

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

(Contd. on page 7)

— EU —

Safety data sheet

according to 1907/2006/EC, Article 31 and 2020/878/EU

Printing date 22.12.2021

Version number 4 (replaces version 3)

Revision: 22.12.2021

Trade name: **Ag 449, B-Ag49ZnCuMnNi-680/705 (L-Ag49, AG 502)**

(Contd. of page 6)

*H372 Causes damage to organs through .***Relevant phrases***H317 May cause an allergic skin reaction.**H351 Suspected of causing cancer.**H372 Causes damage to organs through prolonged or repeated exposure.**H411 Toxic to aquatic life with long lasting effects.***Contact:** Dr. M. Probst**Version number of previous version:** 3**Abbreviations and acronyms:***ADR: Accord relatif au transport international 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 Harmonised 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)**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**Skin Sens. 1: Skin sensitisation – Category 1**Carc. 2: Carcinogenicity – Category 2**STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1**Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2***Safety data sheet SD3107**

— EU —