

Silver Alloy [Ag, Cu, Zn]

Version 3.0

DE

SDS Number: 300000002696

Revision Date: 03.06.2020

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

Product identifier : Silver Alloy [Ag, Cu, Zn]

Trade name : Ag 925/50/25; Ag 935/60/5; Ag 935/49/16; AgCu5Zn5; 750 AgL1; 750/753 Lot cdf; 700 Lot cdf; 675 AgL1; 600 AgL2; 4404 cdf; L-Ag60; L-Ag67; L-Ag70; L-Ag75; AgCu4,9Zn1,6; AgCu26Zn14; AgCu23,5Zn9; AgCu17,4Zn12,6; AgCu23Zn2

Product code : 300000002696

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

Use of the Substance/Mixture : wires, sheets metal, tubes

1.3 Details of the supplier of the safety data sheet

Company : Allgemeine Gold- und Silberscheideanstalt AG
Kanzlerstrasse 17
75175 Pforzheim
Germany

E-mail address of person responsible for the SDS : info.ipds@umicore.com

1.4 Emergency telephone number

Poison Center

Telephone : +49 30 192 40

Hours of operation : 24HRS

Supplier

Emergency telephone number : For transport in Europe, Central- and South America, Israel and Africa (Non-Arabic speaking countries): (+32) 3 213 15 70
For transport in the Middle East (Israel excluded) & Arabic speaking Africa: (+32) 3 213 33 79
For transport in the USA and Canada: (+1)-877 986 4267
For transport in Asian and the Pacific (China excluded): (+65) 62 64 78 36
For transport in China: (+86) 400 88 71 190

Hours of operation : This telephone number is available 24 hours per day, 7 days per week.

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Not a hazardous substance or mixture.

Additional Labelling

EUH210 Safety data sheet available on request.

The following percentage of the mixture consists of ingredient(s) with unknown hazards to the aquatic environment: 70 %

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Components

Chemical name	CAS-No. EC-No. Index-No. Registration number	Classification	Concentration (% w/w)
Substances with a workplace exposure limit :			
silver	7440-22-4 231-131-3 01-2119555669-21		<= 100

For explanation of abbreviations see section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice : Do not leave the victim unattended.

If inhaled : Move to fresh air in case of accidental inhalation of dust or fumes from overheating or combustion.

In case of skin contact : Cover wound with sterile dressing.

In case of eye contact : Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.

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If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.

4.2 Most important symptoms and effects, both acute and delayed

None known.

4.3 Indication of any immediate medical attention and special treatment needed

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Water mist
Water spray jet
Foam
Carbon dioxide (CO₂)
Dry chemical

Unsuitable extinguishing media : High volume water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products : Metal oxides

5.3 Advice for firefighters

Special protective equipment for firefighters : No special protective equipment required.

Further information : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

6.2 Environmental precautions

Environmental precautions : No special environmental precautions required.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Sweep up and shovel.
Pick up and transfer to properly labelled containers.

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6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Hygiene measures : General industrial hygiene practice. Wash hands before breaks and at the end of workday.

7.2 Conditions for safe storage, including any incompatibilities

- Storage class (TRGS 510) : 13, Non Combustible Solids
- Further information on storage stability : Keep in a dry place. No decomposition if stored and applied as directed.

7.3 Specific end use(s)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure Limits

Components	CAS-No.	Value type (Form of exposure)	Control parameters	Basis
silver	7440-22-4	TWA	0,01 mg/m ³ (Silver)	2006/15/EC
	Further information: Indicative			
		TWA	0,1 mg/m ³	2000/39/EC
		AGW (Inhalable fraction)	0,1 mg/m ³	DE TRGS 900
	Peak-limit: excursion factor (category): 8;(II)			
	Further information: Senate commission for the review of compounds at the work place dangerous for the health (MAK-commission)., European Union (The EU has established a limit value: deviations in value and peak limit are possible)			
		TWA (Dust and fume)	0,1 mg/m ³	ACGIH

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
silver	Workers	Inhalation	Long-term systemic effects	0,1 mg/m ³
	Consumers	Inhalation	Long-term systemic effects	0,04 mg/m ³

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	Consumers	Ingestion	Long-term systemic effects	1,2 mg/kg
Copper	Workers	Dermal	Acute systemic effects	273 mg/kg
	Workers	Inhalation	Acute systemic effects	18,2 mg/m3
	Consumers	Dermal	Long-term systemic effects	137 mg/kg
	Consumers	Dermal	Acute systemic effects	273 mg/kg
	Consumers	Inhalation	Acute systemic effects	18,2 mg/m3
	Consumers	Oral	Acute systemic effects	0,16 mg/kg
	Consumers	Oral	Long-term systemic effects	0,16 mg/kg
zinc	Workers	Inhalation	Long-term systemic effects	5 mg/m3
	Workers	Skin contact	Long-term systemic effects	83 mg/kg
	Consumers	Inhalation	Long-term systemic effects	2,5 mg/m3
	Consumers	Ingestion	Long-term systemic effects	0,83 mg/kg
	Consumers	Skin contact	Long-term systemic effects	83 mg/kg

Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
silver	Fresh water	0,00004 mg/l
Remarks:	Assessment Factors	
	Marine water	0,00086 mg/l
	Assessment Factors	
	Fresh water sediment	438 mg/kg dry weight (d.w.)
	Assessment Factors	
	Marine sediment	438 mg/kg dry weight (d.w.)
	Assessment Factors	
	Soil	1,41 mg/kg dry weight (d.w.)
	Sewage treatment plant	0,025 mg/l
	Assessment Factors	
Copper	Fresh water	0,0078 mg/l
Remarks:	Sensitivity Distribution	
	Marine water	0,0052 mg/l
	Sensitivity Distribution	
	Fresh water sediment	87 mg/kg dry weight (d.w.)
	Sensitivity Distribution	
	Soil	65,5 mg/kg dry weight (d.w.)
	Sensitivity Distribution	
	Sewage treatment plant	0,23 mg/l

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Assessment Factors			
zinc	Fresh water		0,0206 mg/l
	Marine water		0,0061 mg/l
	Sewage treatment plant		0,052 mg/l
	Fresh water sediment		117,8
	Marine sediment		56,5
	Soil		35,6

8.2 Exposure controls

Personal protective equipment

Eye protection : Wear safety glasses with side shields or goggles.

Hand protection
Material : Leather gloves

Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance : massive form

Colour : white

Odour : odourless

Melting point/range : 720 - 900 °C

Flash point : Not applicable

Flammability (solid, gas) : May be combustible at high temperature.

Relative density : 9,1 - 10,3

Density : 9,1 - 10,3 g/cm³

Solubility(ies)
Water solubility : insoluble

9.2 Other information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

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Hazardous reactions : Stable under recommended storage conditions.

10.4 Conditions to avoid

10.5 Incompatible materials

10.6 Hazardous decomposition products

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product:

Acute dermal toxicity : Remarks: No data available

Components:

silver:

Acute oral toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 401
Assessment: The substance or mixture has no acute oral toxicity

LD50 (Rat, female): > 2.000 mg/kg
Method: OECD Test Guideline 423

LD50 (Mouse): > 5.000 mg/kg
Method: OECD Test Guideline 425

Acute inhalation toxicity : LC50 (Rat): > 5,16 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 436
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rat): > 2.000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Skin corrosion/irritation

Product:

Remarks : No data available

Components:

silver:

Species : Rabbit
Exposure time : 72 h

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Method : OECD Test Guideline 404
Result : No skin irritation

Serious eye damage/eye irritation

Product:

Remarks : No data available

Components:

silver:

Species : Guinea pig
Exposure time : 72 h
Method : OECD Test Guideline 405
Result : No eye irritation

Respiratory or skin sensitisation

Product:

Remarks : No data available

Components:

silver:

Exposure routes : Skin contact
Species : Guinea pig
Method : OPPTS 870.2600
Result : Does not cause skin sensitisation.
Remarks : Based on read across from structural related substance

Exposure routes : Skin contact
Species : Guinea pig
Method : OECD Test Guideline 406
Result : Does not cause skin sensitisation.
Remarks : Based on read across from structural related substance

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Remarks: No data available

Components:

silver:

Genotoxicity in vitro : Test Type: Ames test
Test system: Bacteria
Method: OECD Test Guideline 471
Result: negative

Test system: mammalian cells
Method: OECD Test Guideline 476
Result: positive

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Remarks: Based on read across from structural related substance

Test Type: Micronucleus test
Test system: mammalian cells
Method: OECD Test Guideline 487
Result: negative
Remarks: Based on read across from structural related substance

Genotoxicity in vivo : Test Type: Micronucleus test
Species: Mammalian-Animal
Method: OECD Test Guideline 474
Result: negative

Germ cell mutagenicity- Assessment : Overall, there is no consistent evidence of induction of genetic toxicity with relevance to humans.

Carcinogenicity

Product:

Remarks : No data available

Reproductive toxicity

Product:

Effects on fertility : Remarks: No data available

Components:

silver:

Effects on fertility : Species: Rat, male and female
Application Route: Oral
Dose: 62,5; 125, 250 milligram per kilogram
Duration of Single Treatment: 28 days
General Toxicity - Parent: NOAEL: > 250 mg/kg body weight
General Toxicity F1: NOAEL: > 250 mg/kg body weight
Method: OECD Test Guideline 422
Result: No effects on fertility and early embryonic development were detected.
GLP: yes

Effects on foetal development : Species: Rat
Strain: Sprague-Dawley
Application Route: Oral
Dose: 6,5; 19,4; 64,6 milligram per kilogram
General Toxicity Maternal: LOAEL: 19,4 mg/kg body weight
Developmental Toxicity: NOAEL: > 64,6 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects, Maternal toxicity
GLP: yes
Remarks: unit expressed as mg metal/kg
Based on read across from structural related substance

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Species: Rat
Strain: Sprague-Dawley
Application Route: Oral
Dose: 6,5; 19,4; 64,6 milligram per kilogram
General Toxicity Maternal: NOAEL: 6,5 mg/kg body weight
Method: OECD Test Guideline 414
Result: No teratogenic effects
GLP: yes
Remarks: unit expressed as mg metal/kg
Based on read across from structural related substance

STOT - single exposure

Product:

Remarks : No data available

STOT - repeated exposure

Product:

Remarks : No data available

Repeated dose toxicity

Components:

silver:

Species : Rat
NOAEL : 30 mg/kg
LOAEL : 300 mg/kg
Application Route : Oral
Exposure time : 28 d
Dose : 30; 300; 1000
Method : OECD Test Guideline 407

Species : Rat
NOAEL : 30 mg/kg
LOAEL : 125 mg/kg
Application Route : Oral
Exposure time : 90 d
Number of exposures : 1/d
Dose : 30; 125; 500
Method : OECD Test Guideline 408

Species : Rat, male and female
NOAEL : 133 µg/m³
LOAEL : 515 µg/m³
Application Route : inhalation (dust/mist/fume)
Exposure time : 6 h/d 90 d
Number of exposures : 5/7 d
Method : OECD Test Guideline 413

Species : Rat
NOAEL : 9 mg/kg

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Application Route : Oral
Exposure time : 28 d
Dose : 2,25; 4,5; 9

Further information

Product:

Remarks : No data available

SECTION 12: Ecological information

12.1 Toxicity

Components:

silver:

Toxicity to fish : Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates : Remarks: No toxicity at the limit of solubility

Toxicity to fish (Chronic toxicity) : Remarks: No toxicity at the limit of solubility

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Remarks: No toxicity at the limit of solubility

Toxicity to soil dwelling organisms : EC10: 5,3 mg/kg
Exposure time: 28 d
Species: Eisenia fetida (earthworms)

NOEC: 22,5 mg/kg
Exposure time: 28 d
Species: Eisenia fetida (earthworms)

Plant toxicity : 0,13 mg/kg
Test period: 17 d
Species: Lactuca sativa (lettuce)

Sediment toxicity : NOEC: 12 mg/kg
Duration: 10 d
Species: Hyalella azteca
Remarks: Fresh water

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

Components:

silver:

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Bioaccumulation : Bioconcentration factor (BCF): 70

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Other adverse effects

Product:

Additional ecological information : No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of in accordance with the European Directives on waste and hazardous waste.
According to the European Waste Catalogue, Waste Codes are not product specific, but application specific.
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Contaminated packaging : Dispose of contaminated packaging as if unused product.

SECTION 14: Transport information

14.1 UN number

Not regulated as a dangerous good

14.2 UN proper shipping name

Not regulated as a dangerous good

14.3 Transport hazard class(es)

Not regulated as a dangerous good

14.4 Packing group

Not regulated as a dangerous good

14.5 Environmental hazards

Not regulated as a dangerous good

14.6 Special precautions for user

Not applicable

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

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII) : Not applicable

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

Regulation (EC) No 649/2012 of the European Parliament and the Council concerning the export and import of dangerous chemicals : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.
Not applicable

Water contaminating class (Germany) : WGK 3 highly hazardous to water
Code Number: 1.031
Classification according to AwSV, Annex 1 (4)

TA Luft List (Germany) : Total dust:
Not applicable
Inorganic substances in powdered form:
portion Class 3: 40 %

Inorganic substances in vapour or gaseous form:
Not applicable
Organic Substances:
Not applicable
Carcinogenic substances:
Not applicable
Mutagenic:
Not applicable
Toxic to reproduction:
Not applicable

Volatile organic compounds : Directive 2010/75/EU of 24 November 2010 on industrial

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emissions (integrated pollution prevention and control)
Not applicable

The components of this product are reported in the following inventories:

TCSI	: On the inventory, or in compliance with the inventory
TSCA	: All substances listed as active on the TSCA inventory
AICS	: On the inventory, or in compliance with the inventory
DSL	: All components of this product are on the Canadian DSL
ENCS	: Not in compliance with the inventory
ISHL	: Not in compliance with the inventory
KECI	: On the inventory, or in compliance with the inventory
PICCS	: On the inventory, or in compliance with the inventory
IECSC	: On the inventory, or in compliance with the inventory
NZIoC	: On the inventory, or in compliance with the inventory
CH INV	: On the inventory, or in compliance with the inventory

15.2 Chemical safety assessment

SECTION 16: Other information

Full text of other abbreviations

2000/39/EC	: Europe. Commission Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values
2006/15/EC	: Europe. Indicative occupational exposure limit values
ACGIH	: USA. ACGIH Threshold Limit Values (TLV)
DE TRGS 900	: Germany. TRGS 900 - Occupational exposure limit values.
2000/39/EC / TWA	: Limit Value - eight hours
2006/15/EC / TWA	: Limit Value - eight hours
ACGIH / TWA	: 8-hour, time-weighted average
DE TRGS 900 / AGW	: Time Weighted Average

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - In-

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ternational Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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