



This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008, ISO 11014-1 and ANSI Z400.1

All-State Silflo 5

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

1.1. Product identifier

Trade name All-State Silflo 5

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

Use Phos-Copper Brazing Alloys

1.3. Details of the supplier of the safety data sheet

SDS created by TDST

Supplier THE ESAB GROUP, INC

Street address 801 Wilson Avenue
PA 17331 Hanover
USA

Telephone 1-717-637-8911, 1-800-933-7070

Web site www.esabna.com

1.4. Emergency telephone number

Emergency phone number 1-800-424-9300 (Chemtrec)

Available outside office hours No

Other

AWS Classification: None

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

The product is not classified

2.2. Label elements

The product does not require labelling

2.3. Other hazards

Emergency Overview: Metal rods in varying color.

This product is normally not considered hazardous as shipped. Gloves should be worn when handling to prevent cuts and abrasions. Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.

When this product is used in a brazing process, the most important hazards are heat, radiation, electric shock and brazing fumes.

Heat: Spatter and melting metal can cause burn injuries and start fires.

Radiation: Arc rays can severely damage eyes or skin.

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Electricity: Electric shock can kill.

Fumes: Overexposure to brazing fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat, and eyes. Chronic overexposure to brazing fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No.	Concentration	Classification	R-phrase H-phrase
Copper	7440-50-8 231-159-6 01-2119480154 - 42	87 - 91%	- -	- -
Red Phosphorus	7723-14-0 231-768-7 -	5 - 7%	- Aquatic Chronic 3, Flam. Sol. 1	- H228, H412
Silver	7440-22-4 213-131-3 -	4 - 6%	- -	- -

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.
Skin contact	For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water.
Eye contact	For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

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

Not applicable

4.3. Indication of any immediate medical attention and special treatment needed

Not applicable

Other

Electric shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin CPR Call a physician immediately.

General: Move to fresh air and call for medical aid.



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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

No specific recommendations for brazing consumables. Brazing sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. Wear self-contained breathing apparatus as fumes or vapors may be harmful.

5.2. Special hazards arising from the substance or mixture

Not applicable

5.3. Advice for firefighters

Not applicable

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see Section 8.

6.2. Environmental precautions

Refer to Section 13.

6.3. Methods and material for containment and cleaning up

Not applicable

6.4. Reference to other sections

Not applicable

Other

Solid objects may be picked up and placed into a container. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest. Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.

7.2. Conditions for safe storage, including any incompatibilities

Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions. Store in cool/well-



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ventilated place.

7.3. Specific end use(s)

Not applicable

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure limits

Ingredient	CAS no.	EC No.	Exposure limit mg/m ³ -ppm	Short-term exposure limit mg/m ³ -ppm	Remark	Source	Year
Copper	7440-50-8	231-159-6	0,1 -	-	- as Cu(fume)	OSHA	2016
Copper	7440-50-8	231-159-6	1 -	-	- as Cu(dust, mist)	OSHA	2016
Red Phosphorus	7723-14-0	231-768-7	-	-	- No PEL	OSHA	2016
Silver	7440-22-4	213-131-3	0,01 -	-	- as Ag	OSHA	2016

8.2. Exposure controls

Technical precaution measures

Ensure sufficient ventilation, local exhaust, or both. Keep working place and protective clothing clean and dry. Check condition of protective clothing and equipment on a regular basis. Train welders to avoid contact with live electrical parts and insulate conductive parts.

Other

Avoid exposure to brazing and welding fumes, radiation, spatter, electric shock, heated materials and dust.

Personal protective equipment

Use respirator or air supplied respirator when brazing in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits. Use special care when brazing painted or coated steels since hazardous substances from the coating may be emitted. Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.

Limitation of exposure

Metallic rod Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. Unless noted, all values are for 8 hour time weighted averages (TWA). When used with brazing and welding products, refer to the brazing or welding product SDS, Section 10, for information on brazing and welding fumes. Blue (No. 1 Flux), red (No. 5 Flux) or white (Brazo Flux) powder with no odor.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance

Metallic rod

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Appearance, colour	Not applicable
Appearance, physical state	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Evaporation rate	Not applicable
Explosive properties	Not applicable
Flammability (solid, gas)	Not applicable
Flash point	Not applicable
Initial boiling point and boiling range	Not applicable
Melting point	637-710°C/1178-1310°F
Melting point / freezing point	Not applicable
Odour	Not applicable
Odour threshold	Not applicable
Oxidising properties	Not applicable
Partition coefficient: n-octanol / water	Not applicable
pH value	Not applicable
Relative density	Not applicable
Solubility	Not applicable
Specific Gravity	7.4-8.54 (H ₂ O = 1)
Upper / lower flammability or explosive limits	Not applicable
Vapour density	Not applicable
Vapour pressure	Not applicable
Viscosity	Not applicable

9.2. Other information

Not applicable

SECTION 10: Stability and reactivity**10.1. Reactivity**

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Reactivity Contact with chemical substances like acids or strong bases could cause generation of gas.

10.2. Chemical stability

Chemical stability This product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Not applicable

10.4. Conditions to avoid

Not applicable

10.5. Incompatible materials

Not applicable

10.6. Hazardous decomposition products

Not applicable

Other

This products is only intended for normal brazing and welding purposes

When these products are used in a brazing and welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in Section 3 and those from the brazing and welding consumables, the base metal and coating.

Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in Section 8. Manganese and nickel also have low exposure limits, in some countries, that may be easily exceeded.

Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

Fumes from these products may contain compounds of the following chemical elements: Ag, Cu, P. The rest is not analyzed, according to available standards.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Information on toxicological effects Inhalation of brazing and welding fumes and gases can be dangerous to your health. Classification of brazing and welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

acute toxicity Overexposure to brazing and welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

skin corrosion/irritation Not applicable

serious eye damage/irritation Not applicable

Respiratory/skin sensitization Not applicable

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germ cell mutagenicity	Not applicable
Genotoxicity	Not applicable
carcinogenicity	Not applicable
reproductive toxicity	Not applicable
STOT-single exposure	Not applicable
STOT-repeated exposure	Not applicable
Aspiration hazard	Not applicable

Other

Long term effect Overexposure to brazing fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat, and eyes. Chronic overexposure to brazing fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait
Some individuals may develop a blue-grey skin pigmentation from exposure to silver (argyria).

SECTION 12: Ecological information

12.1. Toxicity

Toxicity	Brazing and welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the brazing and welding processes. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.
Aquatic	Contains zinc which may be toxic to aquatic species and is regulated as an environmental hazard in the European Union. This hazard is not anticipated from the handling of brazing consumables but is relevant if consumables enter natural waterways.

12.2. Persistence and degradability

Not applicable

12.3. Bioaccumulative potential

Not applicable

12.4. Mobility in soil

Not applicable

12.5. Results of PBT and vPvB assessment

Not applicable

12.6. Other adverse effects

Not applicable



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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available. USA RCRA: This product is not considered hazardous waste if discarded. Residues from brazing and welding consumables and processes could degrade and accumulate in soils and groundwater. Brazing residues from these products typically contain mainly the following components: B, Cu, Fe, O, Mn, Si, Sn, and Zn.

SECTION 14: Transport information

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Transport hazard class(es)

Not applicable

14.4. Packing group

Not applicable

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

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

Not applicable

Other

U.S. Department of Transportation Ground (49CFR): Not dangerous goods
 International Air Transportation (ICAO/IATA): Not dangerous goods
 International Maritime Organization (IMO/IMDG): Not dangerous goods

SECTION 15: Regulatory information

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

Other regulations, limitations and

Canada: WHMIS classification: Class D; Division 2, Subdivision A Canadian Environmental



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legal regulations

Protection Act (CEPA): All constituents of this product are on the Domestic Substance List (DSL).
 USA: Under the OSHA Hazard Communication Standard, this product is considered hazardous.
 USA: This product contains or produces a chemical known to the state of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5 et seq.)
 United States EPA Toxic Substance Control Act: All constituents of this product are on the TSCA inventory list or are excluded from listing.
 CERCLA/SARA Title III
 Reportable Quantities (RQs) and/or Threshold Planning Quantities (TPQs):
 Product is a solid solution in the form of a solid article.
 - Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center and to your Local Emergency Planning Committee.
 Section 311 Hazard Class
 ; As shipped: Immediate
 In Use: Immediate delayed
 The following metallic components are listed as SARA 313 "Toxic Chemicals" and potential subject to annual SARA 313 reporting. See Section 3 for weight percent.
 Ingredient name/ Disclosure threshold
 Copper / 1.0% de minimis concentration
 Silver: 1.0% de minimis concentration

15.2. Chemical safety assessment

Chemical safety assessment No

Other

Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.
 WARNING: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.
 ELECTRIC SHOCK can kill. ARC RAYS and SPARKS can injure eyes and burn skin.
 Wear correct hand, head, eye and body protection.

SECTION 16: Other information

Changes to previous revision

This Safety Data Sheet has been revised due to modification(s) to section(s) 1-16

References to key literature and data sources

Refer to ESAB "Welding and Cutting - Risks and Measures", F52-529 "Precautions and Safe Practices for Electric Welding and Cutting" and F2035 "Precautions and Safe Practices for Gas Welding, Cutting and Heating" available from ESAB, and to: www.esab.com

Phrase meaning

Aquatic Chronic 3 - Hazardous to the aquatic environment — Chronic hazard category 3
 Flam. Sol. 1 - Flammable solids, hazard category 1
 H228 - Flammable solid.
 H412 - Harmful to aquatic life with long lasting effects.

Other

Additional information

USA: Contact ESAB at www.esabna.com or 1-800 ESAB-123 if you have any questions about this SDS. American National Standard Z49.1 "Safety in Welding and Cutting", ANSI/AWS F1.5 "Methods for Sampling and Analyzing Gases from Welding and Allied Processes", American National Standard Z49.1 "Safety in Welding and Cutting", ANSI/AWS F1.5 "Methods for Sampling and Analyzing Gases from Welding and Allied Processes", ANSI/AWS F1.1 "Method for Sampling

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Airborne Particles Generated by Welding and Allied Processes", AWSF3.2M/F3.2 "Ventilation Guide for Weld Fume", American Welding Society, 550 North Le Jeune Road, Miami Florida 33135. Safety and Health Fact Sheets available from AWS at www.aws.org.

OSHA Publication 2206 (29 C.F.R. 1910), U.S. Government Printing Office, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954

American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 6500 Glenway Ave., Cincinnati, Ohio 45211, USA. American Conference of Governmental Hygienists (ACGIH), Threshold Limit Values and Biological Exposure Indices, 6500 Glenway Ave., Cincinnati, Ohio 45211, USA.

NFPA 51B "Standard for Fire Prevention During Welding, Cutting, and Other Hot Work" published by the National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169.

UK: WMA Publication 236 and 237, "Hazards from Welding Fume", "The arc welder at work, some general aspects of health and safety".

Germany: Accident prevention regulation BGV D1, "Welding, cutting and related procedures".

Canada: CSA Standard CAN/CSA-W117.2-01 "Safety in Welding, Cutting, and Allied Processes". This product has been classified according to the hazard criteria of the CPR and the SDS contains all the information required by the CPR.

ESAB requests the users of this product to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of this product a user should:

notify its employees, agents and contractors of the information on this SDS and any product hazards/safety information.

furnish this same information to each of its customers for the product.

request such customers to notify employees and customers for the same product hazards and safety information.

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