

Safety Data Sheet



GS1 - SOLDERING POWDER FOR SILVER

Safety Data Sheet dated 5/3/2022 version 2

Compliant with regulation (CE) n. 1907/2006 REACH, Annex II, and subsequent amendments introduced by Commission Regulation (EU) no. 2015/830

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

1.1. Product identifier

Mixture identification:

Trade name: GS1 - SOLDERING POWDER FOR SILVER

Trade code: GS1

Product type and use: SL

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

Recommended use: Soldering products

Uses advised against: N.A.

1.3. Details of the supplier of the safety data sheet

Company: LEGOR GROUP S.p.A.

Via del Lavoro, 1

36050 Bressanvido (VI)

Italy

Tel.: +39.0444.467911

Fax.: +39.0444. 660677

Competent person responsible for the safety data sheet: info@legor.com

1.4. Emergency telephone number

CENTRO ANTIVELENI OSPEDALE NIGUARDA CA' GRANDA

P.ZZA OSPEDALE MAGGIORE, 3 MILANO

Tel 02 66101029 Fax 02 64442768

AZIENDA OSPEDALIERA PAPA GIOVANNI XXIII PIAZZA OMS, 1 24127 BERGAMO

Tel 800 883300

CENTRO ANTIVELENI AZIENDA OSPEDALIERA S.G.BATTISTA - MOLINETTE DI TORINO

CORSO A.M. DOGLIOTTI, 14 TORINO

Tel 011 6637637 Fax 011 6672149

CEN.NAZ.INFORM.TOSSIC.FOND. S.MAUGERI CLINICA DEL LAVORO E DELLA RIABILITAZIONE

VIA A.FERRATA, 8 PAVIA

Tel A 0382 24444 Fax 02 64442769

SERV. ANTIV. - CEN.INTERDIPARTIMENTALE DI RICERCA SULLE INTOSSICAZIONI ACUTE DIP.DI FARMAC. E.MENEGHETTI UNIVERSITÀ DEGLI STUDI DI PADOVA

LARGO E.MENEGHETTI, 2 PADOVA

Tel 049 8275078 Fax 049 8270593

SERVIZIO ANTIVELENI SERV.PR.SOCC., ACCETT. E OSS. ISTITUTO SCIENTIFICO G. GASLINI

LARGO G. GASLINI, 5 GENOVA

Tel 010 5636245 Fax 010 3760873

CENTRO ANTIVELENI - U.O. TOSSICOLOGIA MEDICA AZIENDA OSPEDALIERA CAREGGI

VIALE G.B. MORGAGNI, 65 FIRENZE

Tel 055 4277238 Fax 055 4277925

CENTRO ANTIVELENI POLICLINICO A.GEMELLI - UNIVERSITA' CATTOLICA DEL SACRO CUORE
LARGO F.VITO, 1 ROMA
Tel 06 3054343 Fax 06 3051343

CENTRO ANTIVELENI - ISTITUTO DI ANESTESIOLOGIA E RIANIMAZIONE UNIVERSITÀ DEGLI STUDI DI ROMA LA SAPIENZA
VIALE DEL POLICLINICO, 155 ROMA
Tel 06 49970698 Fax 06 4461967

AZ. OSP. UNIV. FOGGIA
V.LE LUIGI PINTO, 1 71122 FOGGIA
Tel 0881 732326

CENTRO ANTIVELENI AZIENDA OSPEDALIERA A. CARDARELLI
VIA CARDARELLI, 9 NAPOLI
Tel 081 7472870 Fax 081 7472880

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

Regulation (EC) n. 1272/2008 (CLP)

Repr. 1A May damage fertility or the unborn child.
Aquatic Chronic 1 Very toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Regulation (EC) No 1272/2008 (CLP):

Hazard pictograms and Signal Word



Danger

Hazard statements

H360 May damage fertility or the unborn child.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P308+P313 IF exposed or concerned: Get medical advice/attention.
P391 Collect spillage.
P405 Store locked up.
P501 Dispose of contents/container to ...

Contains

Disodium octoborate

Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

2.3. Other hazards

No PBT Ingredients are present

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: GS1 - SOLDERING POWDER FOR SILVER

Hazardous components within the meaning of the CLP regulation and related classification:

Qty	Name	Ident. Numb.	Classification	Registration Number	Material Properties
≥ 75%	zinc powder-zinc dust (stabilized)	CAS:7440-66-6 EC:231-175-3 Index:030-002-00-7	Aquatic Chronic 1, H410		
5-10 %	Boric acid	CAS:10043-35-3 EC:233-139-2 Index:005-007-00-2	Repr. 1B, H360	01-2119486683-25-0006	SVHC
< 5%	Copper	CAS:7440-50-8 EC:231-159-6 Index:029-024-00-X	Substance with a Union workplace exposure limit.		
< 5%	red phosphorus	CAS:7723-14-0 EC:231-768-7 Index:015-002-00-7	Flam. Liq. 2, H225; Pyr. Liq. 1, H250; Aquatic Acute 1, H400		
< 5%	Disodium octoborate	CAS:12280-03-4	Repr. 1A, H360		

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

In case of eyes contact:

Wash immediately with water.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

N.A.

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

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Water.

Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

5.3. Advice for firefighters

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- Wear personal protection equipment.
- Remove persons to safety.
- See protective measures under point 7 and 8.

For emergency responders:

- Wear personal protection equipment.

6.2. Environmental precautions

- Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
- Retain contaminated washing water and dispose it.
- In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
- Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

- Suitable material for taking up: absorbing material, organic, sand
- Wash with plenty of water.

6.4. Reference to other sections

- See also section 8 and 13
-

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Avoid contact with skin and eyes, inhalation of vapours and mists.
- Exercise the greatest care when handling or opening the container.
- Don't use empty container before they have been cleaned.
- Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
- Contaminated clothing should be changed before entering eating areas.
- Do not eat or drink while working.
- See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

- None in particular.

Instructions as regards storage premises:

- Adequately ventilated premises.

7.3. Specific end use(s)

Recommendation(s)

- None in particular

Industrial sector specific solutions:

- None in particular
-

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

	OEL Type	Occupational Exposure Limit
Boric acid CAS: 10043-35-3	ACGIH	Long Term: 2 mg/m ³ ; Short Term: 6 mg/m ³ (I), A4 - URT irr
Copper CAS: 7440-50-8	ACGIH	Long Term: 0.2 mg/m ³ Fume, as Cu. Irr, GI, metal fume fever
	ACGIH	Long Term: 1 mg/m ³ Dusts and mists, as Cu. Irr, GI, metal fume fever

Predicted No Effect Concentration (PNEC) values

Boric acid CAS: 10043-35-3	Exposure Route: Marine water; PNEC Limit: 2.9 mg/l
	Exposure Route: Fresh Water; PNEC Limit: 2.9 mg/l
	Exposure Route: Terrestrial compartment; PNEC Limit: 5.7 mg/kg
	Exposure Route: STP; PNEC Limit: 10 ng/l

Derived No Effect Level (DNEL) values

Boric acid
CAS: 10043-35-3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Professional: 8.3 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Professional: 392 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Consumer: 4.15 mg/m³

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Consumer: 196 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Consumer: 0.98 mg/kg

Copper
CAS: 7440-50-8

Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects
Worker Industry: 0.041 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects
Worker Industry: 0.041 mg/kg

Exposure Route: Human Dermal; Exposure Frequency: Short Term, systemic effects
Worker Industry: 0.082 mg/kg

Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects
Worker Industry: 0.082 mg/kg

8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

N.A.

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

Hygienic and Technical measures

N.A.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State: Solid

Appearance and colour: Powder

Odour: Typical

Odour threshold: N.A.

pH: N.A.

Melting point / freezing point: N.A.

Initial boiling point and boiling range: N.A.

Flash point: > 93°C

Evaporation rate: N.A.

Upper/lower flammability or explosive limits: N.A.

Vapour density: N.A.

Vapour pressure: N.A.

Relative density: N.A.

Solubility in water: N.A.

Solubility in oil: N.A.

Partition coefficient (n-octanol/water): N.A.

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Viscosity: N.A.

Explosive properties: N.A.

Oxidizing properties: N.A.

Solid/gas flammability: N.A.

9.2. Other information

VOC N.A.
Substance Groups relevant properties N.A.
Miscibility: N.A.
Conductivity: N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

None.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information of the Preparation

a) acute toxicity	Not classified
	Based on available data, the classification criteria are not met
b) skin corrosion/irritation	Not classified
	Based on available data, the classification criteria are not met
c) serious eye damage/irritation	Not classified
	Based on available data, the classification criteria are not met
d) respiratory or skin sensitisation	Not classified
	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified
	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified
	Based on available data, the classification criteria are not met
g) reproductive toxicity	The product is classified: Repr. 1A(H360)
h) STOT-single exposure	Not classified
	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified
	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified
	Based on available data, the classification criteria are not met

Toxicological information on main components of the mixture:

Boric acid	a) acute toxicity	LD50 Oral Rat = 3450 mg/kg	OECD
		LD50 Oral Rat = 4080 mg/kg	OECD
		LC50 Inhalation Rat > 2.03 mg/l	OECD
		LD50 Skin Rabbit > 2000 mg/kg	

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

Very toxic to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 1(H410)

List of Eco-Toxicological properties of the components

Component	Ident. Numb.	Ecotox Data
Boric acid	CAS: 10043-35-3 - EINECS: 233-139-2 - INDEX: 005-007-00-2	a) Aquatic acute toxicity : LC50 Shellfish 45 mg/l 48 - Current water a) Aquatic acute toxicity : LC50 Daphnia magna 133000 ug/l 48 - Current water a) Aquatic acute toxicity : LC50 Fish 75 mg/l 48 - Sea water b) Aquatic chronic toxicity : NOEC Daphnia magna 6000 ug/l 1008 - Current water b) Aquatic chronic toxicity : NOEC Oncorhynchus mykiss 2100 ul/kg 2088

12.2. Persistence and degradability

Component	Persistence/Degradability	Notes:
Boric acid	Persistent and Biodegradable	> 10000 mg/l

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Value	Notes:
Boric acid	Bioaccumulative BCF	Kow - Partition coefficient	-1.09 0.700	LogPow

12.4. Mobility in soil

N.A.

12.5. Results of PBT and vPvB assessment

No PBT Ingredients are present

12.6. Other adverse effects

N.A.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

SECTION 14: Transport information



14.1. UN number

3077

14.2. UN proper shipping name

ADR-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc powder-zinc dust (stabilized) - red phosphorus)

IATA-Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc powder- zinc dust(stabilized)); red phosphorous)

IMDG-Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc powder- zinc dust(stabilized)); red phosphorous)

14.3. Transport hazard class(es)

ADR-Class: 9

IATA-Class: 9

IMDG-Class: 9

14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III
IMDG-Packing group: III

14.5. Environmental hazards

Yes

Environmental Pollutant: Yes

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 9
ADR - Hazard identification number: 90
ADR-Special Provisions: 274 335 375 601
ADR-Transport category (Tunnel restriction code): 3 (-)

Air (IATA):

IATA-Passenger Aircraft: 956
IATA-Cargo Aircraft: 956
IATA-Label: 9
IATA-Subsidiary hazards: -
IATA-Erg: 9L
IATA-Special Provisions: A97 A158 A179 A197

Sea (IMDG):

IMDG-Stowage Code: Category A SW23
IMDG-Stowage Note: -
IMDG-Subsidiary hazards: -
IMDG-Special Provisions: 274 335 966 967 969
IMDG-EMS: F-A, S-F

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

N.A.

SECTION 15: Regulatory information

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

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)

Regulation (EU) n. 944/2013 (ATP 5 CLP)

Regulation (EU) n. 605/2014 (ATP 6 CLP)

Regulation (EU) n. 2015/1221 (ATP 7 CLP)

Regulation (EU) n. 2016/918 (ATP 8 CLP)

Regulation (EU) n. 2016/1179 (ATP 9 CLP)

Regulation (EU) n. 2017/776 (ATP 10 CLP)

Regulation (EU) n. 2018/669 (ATP 11 CLP)

Regulation (EU) n. 2018/1480 (ATP 13 CLP)

Regulation (EU) n. 2019/521 (ATP 12 CLP)

Regulation (EU) n. 2020/217 (ATP 14 CLP)

Regulation (EU) n. 2020/1182 (ATP 15 CLP)

Regulation (EU) n. 2021/643 (ATP 16 CLP)

Regulation (EU) 2015/830

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: None.

Restrictions related to the substances contained: 40, 75

Provisions related to directive EU 2012/18 (Seveso III):

N.A.

Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

Class 3: extremely hazardous.

SVHC Substances:

Substances in candidate list (Art. 59 Reg. 1907/2006, REACH):

Component	Ident. Numb.	Quantity	Material Properties
Boric acid	CAS: 10043-35-3 EINECS: 233-139-2 Index: 005-007-00-2	5-10 %	SVHC Repr. Cat. 3.7/1B;

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

SECTION 16: Other information

Code	Description
H225	Highly flammable liquid and vapour.
H250	Catches fire spontaneously if exposed to air.
H360	May damage fertility or the unborn child.
H360	May damage fertility or the unborn child if inhaled and in contact with skin.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.6/2	Flam. Liq. 2	Flammable liquid, Category 2
2.9/1	Pyr. Liq. 1	Pyrophoric liquid, Category 1
3.7/1A	Repr. 1A	Reproductive toxicity, Category 1A
3.7/1B	Repr. 1B	Reproductive toxicity, Category 1B
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
3.7/1A	Calculation method
4.1/C1	Calculation method

This document was prepared by a competent person who has received appropriate training.

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.
DPD: Dangerous Preparations Directive
DSD: Dangerous Substances Directive
EC50: Half Maximal Effective Concentration
ECHA: European Chemicals Agency
EINECS: European Inventory of Existing Commercial Chemical Substances.
ES: Exposure Scenario
GefStoffVO: Ordinance on Hazardous Substances, Germany.
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association.
IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
IC50: half maximal inhibitory concentration
ICAO: International Civil Aviation Organization.
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG: International Maritime Code for Dangerous Goods.
INCI: International Nomenclature of Cosmetic Ingredients.
IRCCS: Scientific Institute for Research, Hospitalization and Health Care
KAFH: KAFH
KSt: Explosion coefficient.
LC50: Lethal concentration, for 50 percent of test population.
LD50: Lethal dose, for 50 percent of test population.
LDLo: Leathal Dose Low
N.A.: Not Applicable
N/A: Not Applicable
N/D: Not defined/ Not available
NA: Not available
NIOSH: National Institute for Occupational Safety and Health
NOAEL: No Observed Adverse Effect Level
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic
PGK: Packaging Instruction
PNEC: Predicted No Effect Concentration.
PSG: Passengers
RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.
STEL: Short Term Exposure limit.
STOT: Specific Target Organ Toxicity.
TLV: Threshold Limiting Value.
TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
vPvB: Very Persistent, Very Bioaccumulative.
WGK: German Water Hazard Class.

Paragraphs modified from the previous revision:

- 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
- 2. HAZARDS IDENTIFICATION
- 3. COMPOSITION/INFORMATION ON INGREDIENTS
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 9. PHYSICAL AND CHEMICAL PROPERTIES
- 11. TOXICOLOGICAL INFORMATION
- 12. ECOLOGICAL INFORMATION
- 14. TRANSPORT INFORMATION
- 15. REGULATORY INFORMATION
- 16. OTHER INFORMATION