

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/ EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

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

1.1 Product identifier**Trade name:** ISO-Core "RA" high temperature solder PbSnAg**ISO-Core "RA" Hochtemperaturlot PbSnAg****Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%****Pb88Sn10Ag2, Pb93Sn5Ag2****UFI:**

ISO-Core "RA" Pb88Sn10Ag2: TCP2-P3SJ-6005-WY1X

ISO-Core "RA" Pb93Sn5Ag2: TNJ9-V0J4-W009-8FKR

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***Brazing alloy**Soldering flux***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:**

24-hour emergency information:

Giftnotruf Berlin, counselling in German and English

Phone: (030) 30686 700

Information which should have been included on the identification label.**(Annex I No. 1.3.4 REGULATION (EC) No 1272/2008)***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.**see chapter 2.2***EuPCS:** PC-TEC-24

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture**Classification according to Regulation (EC) No 1272/2008**

GHS08 health hazard

Repr. 1A H360FD-H362 May damage fertility. May damage the unborn child. May cause harm to breast-fed children.

STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008***The product is classified according to the CLP regulation. A label is not required (CLP Annex I, 1.3.4.1.)**The information according to CLP Annex I, 1.3.4.2. is given in section 2.2.*

(Contd. on page 2)

— EU —

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/
EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
ISO-Core "RA" Hochtemperaturlot PbSnAg
Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 1)

Hazard pictograms

GHS08

Signal word *Danger***Hazard-determining components of labelling:***lead***Hazard statements***H360FD-H362 May damage fertility. May damage the unborn child. May cause harm to breast-fed children.**H372 Causes damage to organs through prolonged or repeated exposure.***Precautionary statements***P260 Do not breathe dust/fume/gas/mist/vapours/spray.**P263 Avoid contact during pregnancy and while nursing.**P264 Wash thoroughly after handling.**P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.**P405 Store locked up.**P501 Dispose of contents/container in accordance with local/regional/national/international regulations.***Additional information:***Contains Rosin. May produce an allergic reaction.**Restricted to professional users.***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: 7439-92-1 EINECS: 231-100-4 Index number: 082-014-00-7 Reg.nr.: 01-2119513221-59	lead	⚠ Repr. 1A, H360FD-H362; STOT RE 1, H372	50-100%
CAS: 7440-31-5 EINECS: 231-141-8 Reg.nr.: 01-2119486474-28	tin	substance with a Community workplace exposure limit	<10%
CAS: 7440-22-4 EINECS: 231-131-3 Reg.nr.: 01-2119555669-21	silver	substance with a Community workplace exposure limit	<2%
CAS: 8050-09-7 EINECS: 232-475-7 Index number: 650-015-00-7 Reg.nr.: 01-2119480418-32	Rosin	⚠ Skin Sens. 1, H317	<1%

SVHC

7439-92-1 | lead

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**General information:** *Take affected persons out into the fresh air.***After inhalation:** *Supply fresh air; consult doctor in case of complaints.***After skin contact:***After contact with the molten product, cool rapidly with cold water.**Do not pull solidified product off the skin.*

(Contd. on page 3)

EU

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/
EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
 ISO-Core "RA" Hochtemperaturlot PbSnAg
 Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
 Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 2)

*Seek medical treatment.***After eye contact:** *Rinse opened eye for several minutes under running water.***After swallowing:** *Rinse out mouth and then drink plenty of water.***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:***Use fire extinguishing methods suitable to surrounding conditions.**CO₂, sand, extinguishing powder. Do not use water.***For safety reasons unsuitable extinguishing agents:** *Water***5.2 Special hazards arising from the substance or mixture***During heating or in case of fire poisonous gases are produced.***5.3 Advice for firefighters****Protective equipment:***Do not inhale explosion gases or combustion gases.**Mouth respiratory protective device.*

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.**Wear protective clothing.***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.**Dispose contaminated material as waste according to section 13.**Ensure adequate ventilation.***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.**Ensure good ventilation/exhaustion at the workplace.***Information about fire - and explosion protection:** *Keep respiratory protective device available.***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.***Further information about storage conditions:***Store in dry conditions.**Keep container tightly sealed.***Storage class:** 6.1 C**7.3 Specific end use(s)** *No further relevant information available.*

(Contd. on page 4)

— EU —

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/
EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
ISO-Core "RA" Hochtemperaturlot PbSnAg
Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 3)

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

7439-92-1 lead

AGW (EU)	Long-term value: 0.15 mg/m ³
BOELV (EU)	Long-term value: 0.15 mg/m ³ as Pb
MAK (Germany)	Long-term value: 0.004E mg/m ³ vgl. Abschn. XII
OEL (Ireland)	Long-term value: 0.15 mg/m ³ Repr1A, BOELV

7440-31-5 tin

MAK (Germany)	vgl. Abschn. IIb
OEL (Ireland)	Short-term value: 0.2** mg/m ³ Long-term value: 2* 0.1** mg/m ³ IOELV, *metal, oxide, inorg. compds., **org. compds.

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

8050-09-7 Rosin

MAK (Germany)	vgl. Abschn. IV
WEL (Great Britain)	Short-term value: 0.15 mg/m ³ Long-term value: 0.05 mg/m ³ Sen

Regulatory information

BOELV (EU): EU 2022/431
MAK (Germany): MAK- und BAT-Liste
OEL (Ireland): 2024 CoP for the Safety, Health and Welfare at Work
IOELV (EU): (EU) 2019/1831
AGW (Germany): TRGS 900
WEL (Great Britain): EH40/2020

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

7439-92-1 lead: NIOSH 7702(E) "lead"
7440-22-4 silver: ISO 15202(F, E), BIA 8600(D), NIOSH 7301(E)
7440-31-5 tin: NIOSH 7300, 7301, 7303(E), OSHA ID-121, ISO15202(E,F), MTA/MA-025/A92(ESP)

Ingredients with biological limit values:

7439-92-1 lead

BAT (EU)	70 µg/dl blood lead
BGW (Germany)	150 µg/l Untersuchungsmaterial: Vollblut Probennahmezeitpunkt: keine Beschränkung Parameter: Blei

Regulatory information BGW (Germany): TRGS 903

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

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation.
Remove the fumes by means of suitable suction devices.

(Contd. on page 5)

— EU —

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/
EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
ISO-Core "RA" Hochtemperaturlot PbSnAg
Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 4)

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.

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Respiratory protection:

Use suitable respiratory protective device in case of insufficient ventilation.

Filter P3

Hand protection

Leather gloves



Protective gloves

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

Material of gloves

Heat-resistant glove with nitrile palm

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Recommended thickness of the material: ≥ 0.2 mm

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

The determined penetration times according to EN 16523-1:2015 are not performed under practical conditions.

Therefore a maximum wearing time, which corresponds to 50% of the penetration time, is recommended.

Value for the permeation: Level ≤ 6

Eye/face protection in cases of application: protective goggles

Body protection: Protective work clothing

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

General Information

Colour:	Dark grey
Odour:	Odourless
Odour threshold:	Not determined.
Boiling point or initial boiling point and boiling range	2,180 °C
Flammability	Not determined.
Lower and upper explosion limit	
Lower:	Not determined.
Upper:	Not determined.
Flash point:	Not applicable.
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:	Not determined.
Relative density	Not determined.
Vapour density	Not applicable.
Particle characteristics	
See section 3.	

(Contd. on page 6)

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/
EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
ISO-Core "RA" Hochtemperaturlot PbSnAg
Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 5)

9.2 Other information**Appearance:****Form:**

Solid

Important information on protection of health and environment, and on safety.**Ignition temperature:**

Product is not selfigniting.

Explosive properties:

Product does not present an explosion hazard.

Solvent content:**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

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 and stored according to specifications.

10.3 Possibility of hazardous reactions

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

Reacts with acids, alkalis and oxidising agents.

Develops toxic gases/fumes.

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

Toxic metal oxide smoke

Leadoxide vapour

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**

May damage fertility. May damage the unborn child. May cause harm to breast-fed children.

(Contd. on page 7)

— EU —

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/
EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
ISO-Core "RA" Hochtemperaturlot PbSnAg
Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 6)

STOT-single exposure Based on available data, the classification criteria are not met.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

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:

The product contains heavy metals. Avoid transfer into the environment. Specific preliminary treatments are necessary

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.

Must not be disposed together with household garbage. Do not allow product to reach sewage system.

European waste catalogue

17 04 09*: metal waste contaminated with hazardous substances

HP 5: Specific Target Organ Toxicity (STOT)/Aspiration Toxicity

HP 10: Toxic for reproduction

spool:

15 01 02: plastic packaging

packaging:

15 01 01: paper and cardboard packaging

Uncleaned packaging: void.

Recommendation: Disposal must be made according to official regulations.

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

(Contd. on page 8)

— EU —

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/ EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
 ISO-Core "RA" Hochtemperaturlot PbSnAg
 Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
 Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 7)

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 included.*

REGULATION (EC) No 1907/2006 ANNEX XVII *Conditions of restriction: 63, 30*

DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

7439-92-1 | *lead*

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.*

Other regulations, limitations and prohibitive regulations

Substances of very high concern (SVHC) according to REACH, Article 57

7439-92-1 | *lead*

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:

03.09.2018: Section 3, 15 SVHC, Abschnitt 8.1

09.04.2020: Section 1, 8.2

30.04.2021: Section 15, 16

26.02.2022: Section 8.1, 15

08.07.2024: Section 8.1

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

Relevant phrases

H317 *May cause an allergic skin reaction.*

H360FD *May damage fertility. May damage the unborn child.*

H362 *May cause harm to breast-fed children.*

(Contd. on page 9)

— EU —

Safety data sheet

according to Regulation (EC) No 1907/2006, Article 31 and 2020/878/ EU

Printing date 08.07.2024

Version number 6 (replaces version 5)

Revision: 08.07.2024

Trade name: ISO-Core "RA" high temperature solder PbSnAg
ISO-Core "RA" Hochtemperaturlot PbSnAg
Pb 83,0-97,0%, Sn 0,0-10,0%, Ag 0,0-5,0%
Pb88Sn10Ag2, Pb93Sn5Ag2

(Contd. of page 8)

H372 Causes damage to organs through prolonged or repeated exposure.

Recommended restriction of use For commercial users only

Contact: Dr. M. Probst

Version number of previous version: 5

Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

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)

PBT: Persistent, Bioaccumulative and Toxic

SVHC: Substances of Very High Concern

vPvB: very Persistent and very Bioaccumulative

Skin Sens. 1: Skin sensitisation – Category 1

Repr. 1A: Reproductive toxicity – Category 1A

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

Safety data sheet SD3455

— EU —