MATERIAL SAFETY DATA SHEET

[In accordance with the criteria of Regulation No 1907/2006 (REACH) and 453/2010]

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

1.1 Product identifier

SOLDER ALLOY S-Pb60Sn40SW26

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

Relevant identified uses: tin-lead solder wire with flux core. Soft soldering manual and automatic.

Uses advised against: not determined.

1.3 Details of the supplier of the safety data sheet

Supplier: **Cynel Unipress Sp z o.o.**

Address: ul. Białołęcka 231B, 03-253 Warszawa, Poland

Telephone/Fax number:+48 22 519 29 48/ 22 519 29 46

E-mail address for a competent person responsible for msds: biuro@theta-doradztwo.pl

1.4 Emergency telephone number

112

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Human health hazards

Not classified as dangerous for the human health.

Environmental effects

Not classified as dangerous for the environment.

Physicochemical adverse effects

None.

2.2 Label elements

Hazard symbols

None.

Substance name for labeling

Not applicable.

Risk phrases

None.

Safety phrases

None.

2.3 Other hazards

Lead in the metallic form is not classified as dangerous. However, there is a danger of lead poisoning in its processing. Fumes and vapours of lead, separating during the processes of soldering are damaging and irritating to the respiratory system. Lead compounds such as oxides and alloys have toxic and mutagenic effects, may accumulate in the body and impair fertility.
No information whether the mixture meets criteria for PBT or vPvB in accordance with Annex XIII of Regulation REACH.

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Section 3: Composition/information on ingredients

3.1 Substances

Not applicable.

3.2 Mixtures

Lead metallic (Pb)

Range of percentages:	42-58%
CAS number:	7439-92-1
EC number:	231-100-4
Registration number:	substance comes under the law of temporary period
Classification acc. to 67/548/EC:	not classified as dangerous
Classification acc. to 1272/2008/EC:	not classified as dangerous

Tin (Sn)

Range of percentages:	38-42%
CAS number:	7440-31-5
EC number:	231-141-8
Registration number:	substance comes under the law of temporary period
Classification acc. to 67/548/EC:	not classified as dangerous
Classification acc. to 1272/2008/EC:	not classified as dangerous

Rosin

Range of percentages:	< 2%
CAS number:	65997-06-0
EC number:	266-041-3
Registration number:	01-2119487113-41-XXXX
Classification acc. to 67/548/EC:	not classified as dangerous
Classification acc. to 1272/2008/EC:	not classified as dangerous

Section 4: First aid measures

4.1 Description of first aid measures

General information: at room temperature (outside of the dangers of a mechanical nature), alloy in metallic form does not pose risk to human health and life. But in the process of soldering the main risks are: high temperature, solder fumes and vapours.

Skin contact:

Wire: wash the affected skin thoroughly with soap and water.

In the process of soldering: possible thermal burn. Damaged skin rinse with cold water. Apply a sterile dressing. Consult with the doctor.

Eye contact:

Wire: exposure not possible. However, if filings get into eyes, immediately wash out with plenty of water with the eyelid hold wide open, for at least 10-15 min. Remove any contact lenses. Obtain medical attention if necessary.

In the process of soldering: splashes of molten metal can cause burns. Apply a sterile dressing. Immediately consult an ophthalmologist.

Ingestion: exposure not possible.

Inhalation:

Wire: exposure not possible.

In the process of soldering: take victim to fresh air and obtain medical attention.

4.2 Most import ant symptoms and effects, both acute and delayed

Eye contact during soldering: may cause irritation, redness, tearing.

Skin contact during soldering: may cause skin irritation, redness, burning, pain.

After inhalation of fumes soldering: fumes and vapours can cause headaches, dizziness, respiratory tract irritation, danger of cumulative effects.

4.3 Indication of any immediate medical attention and special treatment needed

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured.

Section 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media: CO_2, extinguishing powder, foam, water spray. Use extinguishing measures that are appropriate to the environment.

Unsuitable extinguishing media: water jet – risk of the propagation of the flame.

5.2 Special hazards arising from the substance or mixture

During combustion may release toxic gases, vapors, and fumes containing toxic lead compounds. Do not inhale combustion products – it can be dangerous for health.

5.3 Advice for firefighters

Personal protection typical in case of fire. Self-contained breathing apparatus and protective clothing should be worn.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Limit the access for the outsiders into the breakdown area, until the suitable cleaning operations are completed. In case of release of large amounts of the product, it is necessary to take appropriate steps to prevent it from spreading into the environment. Use personal protective equipment.

6.2 Environmental precautions

In case of release of large amounts of the product, it is necessary to take appropriate steps to prevent it from spreading into the environment. Notify the appropriate emergency services.

6.3 Methods and material for containment and cleaning up

Pick it up mechanically. Treat collected material like a waste or reuse it.

6.4 Reference to other sections

Appropriate conduct with waste product – section 13.
Appropriate personal protective equipment – section 8.

Section 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good occupational hygiene and safety practices. Ensure adequate ventilation during the soldering process. Before break and after work wash carefully hands. Avoid contact with eyes and skin. Do not breathe fumes in the process of soldering. Unused containers keep tightly closed.

7.2 Conditions for safe storage, including any incompabilities

Keep only in original, tightly closed containers in dry and well-ventilated place. Keep away from strong oxidants, acids and bases. Store at temp. 5-20^{o}C. An acceptable level of humidity 20-80%. Keep away from food and beverages.

7.3 Specific end use(s)

Tin-lead solder wire with flux core. Soft soldering manual and automatic.

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Section 8: Exposure controls/personal protection

8.1 Control parameters

Airborne Exposure Limits:

For lead, elemental and inorganic compounds, as Pb:
-ACGIH Threshold Limit Value (TLV): 0,05 mg/m^3 (TWA)
For lead, metal and inorganic dusts and fumes, as Pb:
-OSHA Permissible Exposure Limit (PEL): 0,05 mg/m^3 (TWA)

For tin:
-ACGIH Threshold Limit Value (TLV): 2 mg/m^3 (TWA)
For tin:
-OSHA Permissible Exposure Limit (PEL): 2 mg/m^3 (TWA)

8.2. Exposure controls

Use the product in accordance with good occupational hygiene and safety practices. Ensure locally ventilation of every working place (the sucker over the releasing fumes place) and general ventilation. When handlings do not eat, drink or smoke. Before break and after work carefully wash hands.

Wire

Hand and body protection – not required.

Eye protection – not required.

Respiratory protection – not required.

Soldering process

Hand and body protection - wear protective gloves and protective clothing that can prevent injuries associated with the high temperature of molten solder.

It is recommended to regularly change gloves and replace them immediately if appear any signs of damage or change in appearance (colour, elasticity, shape).

Eye/face protection - in case of risk of the eyes contamination or at high concentrations of fumes wear eye protection.

Respiratory protection - use respiratory protection in case of exceeding the limit values or inadequate ventilation.

Personal protective equipment must meet requirements of directive 89/686/CE. Employer is obliged to ensure equipment adequate to activities carried out, with quality demands, cleaning and maintenance.

Environmental exposure controls

Do not allow the product to contaminate ground water, sewage, waste water or soil.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

physical state:	solid
colour:	grey, metallic
odour:	odourless
odour threshold:	not determined
pH:	not applicable
melting point/freezing point:	190÷220^{o}C
initial boiling point and boiling range:	not determined
flash point:	not applicable
evaporation rate:	not determined
flammability (solid, gas):	not flammable
upper/lower flammability or explosive limits:	not applicable
vapour pressure (20^{o}C):	not applicable
relative vapour density:	not determined
vapour density:	not determined
density (20^{o}C):	8,8 g/cm^3
solubility(ies):	not soluble in water

partition coefficient: n-octanol/water:	not determined
auto-ignition temperature:	not self-ignition
decomposition temperature:	not determined
explosive properties:	not display
oxidising properties:	not display
viscosity (20^{o}C):	not applicable

9.2 Other information

No additional data.

Section 10: Stability and reactivity

10.1 Reactivity

Product is reactive; reacts with oxidants, peroxides, acids and bases.

10.2 Chemical stability

The product is stable under normal conditions.

10.3 Possibility of hazardous reactions

In contact with incompatible materials reacts violently with emission of heat. In contact with acids and bases reacts with liberation of hydrogen.

10.4 Conditions to avoid

Moisture.

10.5 Incompatible materials

Strong oxidants, bromine, chlorine trifluoride, copper nitrate, ammonium nitrate, sodium and potassium peroxide, hydrogen peroxide, sodium nitride, chlorine, acids, bases.

10.6 Hazardous decomposition products

Not known.

Section 11: Toxicological information

11.1 Information on toxicological effects

Information on the acute and / or delayed effects of exposure have been identified on the basis of information on product classification and / or toxicological studies.

Acute component toxicity

Lead

TCL_0 (inhalation, man)	0,01 mg/m^3
TDL_0 (oral, rat)	790-1140 mg/kg

Lead compounds damage the peripheral and central nervous system and cause anemia, mainly due to inhibition of synthesis of hemoglobin red blood cells. Lead accumulates in the body, mainly in the bones, as well as in the kidney and other tissues. Acute symptoms of poisoning may occur after a few days of exposure to high concentrations of dust or fumes in excess of the airborne limit values. Symptoms of exposure include abdominal pain, diarrhea followed by constipation, loss of appetite, metallic taste in the mouth, nausea, vomiting, fatigue, insomnia, muscle weakness, joint pain, irritability, headache, dizziness, increased blood pressure. May occur anemia, kidney damage, liver and female gonads and central nervous system. Lead compounds cause severe irritation and hypersensitivity of respiratory tract, shortness of breath, short breath and asthma symptoms. There is a danger of cumulative effects.

Tin

In the form of dust or fumes is irritating. May cause shortness of breath, fever, general weakness, sweating, resolving without treatment (so-called smoke-induced fever metals). Dusts may cause mechanical irritation of the conjunctiva with tearing, pain, congestion.

Toxicity of product

Eye contact during soldering: may cause irritation, redness, tearing.

Skin contact during soldering: may cause skin irritation, redness, burning, pain.

After inhalation of fumes soldering: fumes and vapours can cause headaches, dizziness, respiratory tract irritation, danger of cumulative effects.

Persons with asthma, chronic respiratory diseases and pregnant women should not work with the product.

Section 12: Ecological information

12.1 Toxicity

No specific toxicity test results. This product is not classified as dangerous for the environment. However, lead compounds such as oxides and salts are toxic for aquatic organisms. Maximum concentrations of lead in sewage for industrial heating is 0,1 mg/dm^3; for other types of wastewater is 0,5 mg/dm^3. The permissible level of lead in ambient air is 0,5 $\mu g/m^3$ when averaged over a calendar year.

12.2 Persistence and degradability

Not biodegradable.

12.3 Bioaccumulative potential

Danger of cumulative effects in aquatic organisms.

12.4 Mobility in soil

Poorly mobile in soil and aquatic environment. Heavier than water, sinks to the bottom and stays there. The risk of lead absorption by aquatic organisms.

12.5 Results of PBT and vPvB assessment

Not determinate.

12.6 Other adverse effects

This product has no influence on the global warming or the ozone layer depletion.

Section 13: Disposal considerations

13.1 Waste treatment methods

Disposal methods for the product: disposed of in accordance with applicable regulations. Do not remove with household waste. Residues stored in their original containers. Recycle or re-processed. Recommended way of disposing of waste: thermal transformation.

Disposal methods for used packing: recovery / recycling / elimination of packaging waste carried out in accordance with applicable regulations. Only completely emptied packaging can be recycled.

Legal basis: Directive 2008/98/EC, European Parliament and Council Directive 94/62/EC.

Section 14: Transport information

14.1 UN number

Not applicable, product is not classified as hazardous during transport.

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 classified as dangerous for the environment.

14.6 Special precautions for user

Not necessary.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable.

Section 15: Regulatory information

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.
Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (Text with EEA relevance).
Council Directive 67/548/EEC of 27 June 1967 on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labeling of dangerous substances.
Directive 1999/45/EC of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations.
Commission Regulation (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (Text with EEA relevance).
Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Text with EEA relevance).
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.
European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

15.2 Chemical safety assessment

A Chemical Safety Assessment (CSA) for one substance contained in the mixture has been completed.

Section 16: Other information

Full text of indicated R- and H- phrases mentioned in section 3

R36/37/38	Irritating to eyes, respiratory and skin.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H315	Causes skin irritation.

Trainings

Before commencing working with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo proper workplace training.

Explanation of abbreviations and acronyms

Eye Irrit. 2	Eye irritation category 2
STOT SE. 3	Specific Target Organ Toxicity – single exposure, category 3
Skin Irrit. 2	Skin irritation category 2

Other data

Date of issue:	18.04.2012
Version:	1.0/EN
Composed by:	Joanna Puchalska-Gad (on the basis of producer's data).
Safety Data Sheet made by:	**„THETA"** Doradztwo Techniczne

The information above is based on a current available data concerning the product, but also on the experience and knowledge in this field of the producer. They are neither a quality description of the product nor a guarantee of particular features. They are to be treated as aid to safety in transport, storage and usage of the product. That does not free the user from the responsibility of improper usage of the information above and also of improper compliance with the law norms in the field.