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MATERIAL SAFETY DATA SHEET

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[In accordance with COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (Official Journal of the European Union No L.132 of 29.05.2015]

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

1.1 Product identifiers

Trade name: TIN-SILVER SOFT SOLDER ALLOY WITH FLUX
(Sn96,3Ag3,7 , Sn97Ag3, Sn96,5Ag3,5 , Sn95Ag5 with flux CF48, 1.1.3, 1.2.3)

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

RELEVANT IDENTIFIED USES:
Product used for soft, manual and automatic soldering.

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:
marketing@cynel.com.pl

1.4 Emergency telephone number

Emergency Phone in Poland (open: 8.00 a.m.-4.00 p.m.)
+48 22 519 29 48 or +48 22 519 29 49

Section 2: Hazards identification

2.1 Classification of the substance or mixture

Not classified as hazardous to human health and life and the environment.

2.2 Label elements

HAZARD SYMBOLS:
None

SUBSTANCE NAME FOR LABELING:
Not applicable

RISK PHRASES:
None

SAFETY PHRASES:
None

2.3 Other hazards

No information whether the mixture meets the criteria for PBT or vPvB in accordance with Annex XIII of Regulation REACH. No relevant research has been conducted.

Section 3: Composition/Information on ingredients

3.1 Substances

Not applicable

3.2 Mixtures:

TIN (Sn):

Range of percentages:	91,96 – 94,29%
CAS number:	7440-31-5
EC number:	231-141-8
Registration number:	01-2119486474-28-XXXX
Classification acc. to 1272/2008/EC:	not classified

Substance with defined value of the permissible concentration in the working environment at Community level.

SILVER (Ag):

Range of percentages:	2,71 – 5, 04%
CAS number:	7440-22-4
EC number:	231-131-3
Registration number:	01-2119555669-21-0029
Classification acc. to 1272/2008/EC:	not classified

Substance with defined value of the permissible concentration in the working environment at Community level.

HYDROGENATED ROSIN:

Range of percentages:	≤ 3%
CAS number:	65997-06-0
EC number:	266-041-3
Registration number:	01-2119487113-41-0000
Classification acc. to 1272/2008/EC:	not classified

Section 4: First aid measures

4.1 Description of first aid measures

GENERAL INFORMATION:

At room temperature solder alloy does pose risk to human health and life. The main risks in the process of soldering are solder fumes and vapours.

SKIN CONTACT:

Solder alloy: exposure does not occur.
In the process of soldering: possible thermal burn. Rinse damaged skin with cold water. Apply a sterile dressing. Consult with the doctor.

EYE CONTACT:

Solder alloy: exposure does not occur.
In the process of soldering: 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 the affected person to fresh air and obtain medical ensure help.

4.2 Most important symptoms and effects, both acute and delayed

Inhalation of fumes or dusts of silver may be irritating to mucous membranes and upper respiratory system. Exposure to high concentrations of fumes and dust can cause lung damage and pulmonary edema.
Long-term exposure to fumes and dusts of silver can causes silver metallic taste in the mouth, loss of appetite, headache, and general weakness. It can cause a bluish or grayish discoloration of the skin, eyes and mucous membranes (argyria). There appear slowly. It takes several years before they are developing. These stains are irreversible.

EYE CONTACT:

may cause irritation, redness, tearing.

SKIN CONTACT:

may cause redness, burning sensation, bums (during soldering)

INHALATION:

irritation of respiratory tract, cough, headaches and dizziness

4.3 Indication of any immediate medical attention and special treatment needed

A decision regarding further medical treatment by a physician should be made after thorough 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

Toxic gases, vapors, and fumes may release during combustion. Do not inhale combustion products – it can be dangerous to 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 to the breakdown area for the outsiders, until the suitable cleaning operations are completed. Use personal protective equipment. Ensure that the consequences of failure are removed by trained personnel only. Do not inhale dust.

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 clothing – section 8

Section 7: Handling and storage

7.1 Precautions for safe handling

Handle in accordance with good occupational hygiene and safety practices Before break and after work wash hands carefully. Avoid contact with eyes and skin. Do not breathe fumes in the process of soldering.

7.2 Including any incompatibilities

Keep only in original, tightly closed containers in dry and well-ventilated place. Keep away from strong acids and oxidants. Store at temp. 5-20˚C. The recommended humidity level of 20-80%. Keep away from food and beverages.

7.3 Specific end uses

Applications are listed in section 1.2.

Section 8: Exposure controls/personal protection

8.1 Control parameters

Airborne Exposure Limits:

FOR SILVER:

- Occupational exposure limit value in European Community: 0,1 mg/m3/eight hours
- ACGIH Threshold Limit Value (TLV): 0,1 mg/m3 TWA (metal)
- OSHA Permissible Exposure Limit (PEL): 0,01 mg/m3 (TWA)

FOR TIN:

- ACGIH Threshold Limit Value (TLV): 2 mg/m3 (TWA)
- OSHA Permissible Exposure Limit (PEL): 2 mg/m3 (TWA)

DNEL OF SILVER (AG), OBTAINED FROM PROVIDER'S CARD

DNELs (derivatives not affecting the organism - by inhalation, long and severe exposure):	
Worker	
soluble silver compounds	0,01* mg Ag/m³
low / insoluble silver compounds	0,1** mg Ag/m³
Society	
soluble silver compounds	0,004* mg Ag/m³
low / insoluble silver compounds	0,04** mg Ag/m³
DNELs (derivatives not affecting the organism - by inhalation, long exposure):	
Socjety	
soluble silver compounds	0,02* mg Ag/kg body weight/day
low / insoluble silver compounds	1,2** mg Ag/kg body weight/day
Children	
soluble silver compounds	0,002* mg Ag/kg body weight/day
low / insoluble silver compounds	0,12** mg Ag/kg body weight/day

** value for calculation only*
*** the adequate value for metallic silver*

REGULATION OF THE MINISTER OF LABOUR AND SOCIAL POLICY OF 6 JUNE 2014. ON MAXIMUM PERMISSIBLE CONCENTRATION AND INTENSITY OF HARMFUL FACTORS IN THE WORK ENVIRONMENT (DZ.U. 2014 POZ. 817)

Specification	NDS [mg/m^3]	NDSCh [mg/m^3]	NDSP [mg/m^3]
Tin [CAS 7440-31-5] and its inorganic compounds - fume and dust	2	—	—
Silver (Ag) [CAS 7440-22-4] – fume and dust	0,05	—	—

ROYAL DECREE OF 11 MARCH 2002 ON THE PROTECTION OF THE HEALTH AND SAFETY OF WORKERS AGAINST THE RISKS RELATED TO CHEMICAL AGENTS AT WORK (MB 14.3.2002, ED 2;. ERRATUM MB 26.6.2002, 2 ED.)

Specification	Value limit [ppm]	Value limit [mg/m3]	Value short [ppm]	Short value duration [mg/m3]	classification additional
Silver (Ag) [CAS 7440-22-4]	-	0,1	-	-	-
Tin [CAS 7440-31-5]	-	0,1	-	0,2	D [1)]

1) D means that the absorption of the agent through the skin, mucous membranes or eyes, is an important part of the exhibition total. This reduction can be done both by direct contact and by the presence of the agent in the air.

LIST OF MAK AND BAT VALUES 2014 COMMISSION FOR THE INVESTIGATION OF HEALTH HAZARDS OF CHEMICAL COMPOUNDS IN THE WORK AREA

Specification	MAK [ppm]	MAK [mg/m^3]	Peak limitation	Pregnancy risk group
Silver (Ag) [CAS 7440-22-4]	—	0,1	II (8)	Group D
Tin [CAS 7440-31-5]	—	0,1	—	0,2

Group D: Either there are no data for an assessment of damage to the embryo or foetus or the currently available data are not sufficient for classification in one of the groups A–C.
Group C: C: There is no reason to fear damage to the embryo or foetus when MAK and BAT values are observed

Please check also any national occupational exposure limit values in your country.

8.2 Exposure controls

Use the product in accordance with good occupational hygiene and safety practices.
Ensure adequate general and local ventilation. When handling do not eat, drink, take medicine and smoke. Before break and after work carefully wash hands. Avoid dusting. do not allow the excess of normative concentrations of hazardous ingredients in the workplace. Avoid contact with skin, eyes and inhalation of dust, fumes and vapors produced during processing of the product.

SOLDER ALLOY:

Hand and body protection -do not required
Eye protection - do not required
respiratory tract protection - do not required

IN THE SOLDERING PROCESS

Hand and body protection – use protective gloves protecting from hot metal.
Eye protection - use protective goggles protecting from droplets and hot metal.
Respiratory protection - use respiratory protection if the limits are exceeded NDS or insufficient ventilation.
Properly fitted respirator, equipped with a canister or air filter, consistent with an approved standard should be used when a risk assessment indicates it is. Respirator selection must be

based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Personal protective equipment must meet requirements of directive 89/686/WE.
Employer is obliged to ensure equipment adequate to activities carried out, with quality demands, cleaning and maintenance.

Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

physical state:	solid
colour:	grey, metallic
odour:	odorless (perceptible smell of rosin smoke during soldering)
threshold:	not determined
pH:	not applicable
melting point/freezing point:	221 - 240˚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˚C):	not applicable
relative vapour density:	not determined
vapour density:	not determined
density (20˚C):	7,35 – 7,40 g/cm^3
solubility(ies):	not soluble in water
partition coefficient: n-octanol/water:	not determined
auto-ignition temperature:	no self-ignition
decomposition temperature:	not determined
explosive properties:	not displayed
oxidising properties:	not displayed
viscosity (20˚C):	not applicable

9.2 Other safety information

No data

Section 10: Stability and reactivity

10.1 Reactivity

Product is reactive: reacts with oxidants and strong acids.

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.

10.4 Conditions to avoid

Extreme temperature and humidity.

10.5 Incompatible materials

Strong oxidizing agents, bases and acids (nitric acid, hot sulfuric acid, hydrogen sulfide), halogens.

10.6 Hazardous decomposition products

Not known.

Section 11: Toxicological information

11.1 Information on toxicological effects

Toxicity of compounds:

TIN

LD50 (oral, rat) > 2 000 mg/kg
LD50 (skin, rat) > 2 000 mg/kg
LC50 (inhalation, rat) > 4,75 mg/l/4h
In the form of dust or fumes is irritating. May cause shortness of breath, fever, general weakness, sweating, remitting without treatment (so-called smoke-induced fever metals). Dusts may cause mechanical irritation of the conjunctiva with tearing, pain, congestion.

SILVER

LD50 (oral, rat) > 2 000 mg/kg (Ag)
LD50 (oral, rat): 3702 mg/kg (Ag_2O)

TOXICITY OF MIXTURE

Based on available data, the classification criteria are not met.

Section 12: Ecological information

12.1 Toxicity

No specific toxicity test results. This product is not classified as dangerous for the environment.

12.2 Persistence and degradability

Not biodegradable.

12.3 Bioaccumulative potential

Risk of accumulation of heavy metals in aquatic organisms.

12.4 Mobility in soil

Poorly mobile in soil and aquatic environment. Heavier than water, sinks to the bottom and remains here

12.5 Results of PBT and vPvB assessment

Not determined.

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

The one introducing hazardous agents in packages is obliged to organize the collection system and ensure recycling including the recycling of hazardous agents packaging. The one introducing hazardous agents performs above duties on their own or by agreement with local government.

SPECIAL PRECAUTIONS:

Dispose of this material and its container safely. Be careful when handling emptied containers that have not been cleaned thoroughly. Prevent the penetration of the product into the soil and watercourses.

DISPOSAL METHODS FOR THE PRODUCT:

Do not dispose of the product together with domestic waste,do not release to sewage system. Do not allow contamination of groundwater and surface water. Recommended way of disposing of waste: thermal transformation.

DISPOSAL METHODS FOR USED PACKAGING:

Contaminated packaging (after a thorough emptying) and unused product to pass to the designated recipient of waste.

Section 14: Transport information

14.1 UN number

Not applicable, product is not classified as hazardous in transportation.

14.2 UN proper shipping name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4 Packaging group

Not applicable.

14.5 Environmental hazards

Not classified as dangerous for the environment.

14.6 Special precautions for user

Not necessary.

Section 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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.
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).
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 with later changes (adaptation to technical and scientific progress 1-10 ATP)
Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
Proposal for harmonised classification and labelling, based on regulation (EC) No 1272/2008 (CLP Regulation), Annex VI, Part 2, 20 September 2012
Regulation of the Minister of Labour and Social Policy of 6 June 2014. On maximum permissible concentration and intensity of harmful factors in the work environment (Dz.U. 2014 poz. 817)
Royal Decree of 11 March 2002 on the protection of the health and safety of workers against the risks related to chemical agents at work (MB 14.3.2002, Ed 2;. Erratum MB 26.6.2002, 2 Ed.)
List of MAK and BAT Values 2014 Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area
Council Directive 91/689/EEC of 12 December 1991 on hazardous waste
Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Text with EEA relevance)
European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste
European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), concluded in Geneva on 30 September 1957 (Dz. U. Nr 110, poz. 641).

15.2 Chemical Safety Assessment

There is no data on the safety assessment for chemical substances contained in the mixture.

Section 16: Other information

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

PBT	Persistent, Bioaccumulative and Toxic substance
vPvB	very Persistent, very Bioaccumulative substance
TWA	Time Weighted Average
TLV	Threshold Limit Value
PEL	Permissible Exposure Limit

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

Other data Classification of the substances based on the information information from ECHA. Classification of mixture was prepared based on the data concerning the contents of dangerous components using calculation method based on the Regulation (EC) No 1272/2008 (CLP).

The information contained in the SDS is to describe the product only in terms of safety requirements. The user is the one responsible for creating conditions for the safe use of the product, and assumes the responsibility for the consequences resulting from improper use of this product.