

Material & Safety Data Sheet

According to 1907/2006/EC

Document : MBO Lead Free Resin Solder Wires

Created date: 10/07/08 - Updated: 10/03/11 - Update Nr : 06

ISO 11014-1
(1194-F)



Page: 1 / 7

1- IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY:

- Trade name: **MBO Lead Free Resin Solder Wires**
- Available alloys: Sn94Ag - Sn95Ag - Sn95Sb - Sn96Ag – Sn96.7Ag3.3 – Sn95.5Ag3.8Cu0.7 - Sn96.5Ag3Cu0.5 - Sn99.3Cu0.7 – Sn99Ag0.3Cu0.7 - Sn98Cu2 - Sn97Cu3 – Sn100
- Incorporated fluxes: EL - RSNB - S45 - S45V - R45 - RBM2 - CT2 - F45 - CTR – RL - CR - RD - ESM - ESD - R1 – RT 15 - A0 - A5 - A11 - RJ5 - RJ8 - RJ10
- Application of the substance/preparation: Soft soldering
- Manufacturer: M.B.O.
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21806 CHEVIGNY-SAINT-SAUVEUR CEDEX
FRANCE

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- Contact: MBO Technical Management

2- HAZARDS IDENTIFICATION:

- Hazard description:

The product is not classified as dangerous.

- Information concerning particular hazards for human and environment:

The product could cause burns during soldering.

Its use during soldering may produce or release fumes which can be sensitizing to asthmatic workers.

- Prevention:

It is recommended to wear safety glasses, protective gloves, to wash hands after use and to work with a good ventilation of area, and suitable fumes extraction system locally installed.

- GHS label elements:

None

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Created date: 10/07/08 - Updated: 10/03/11 - Update Nr : 06

ISO 11014-1
(1194-F)



Page: 2 / 7

3- COMPOSITION/INFORMATION ON INGREDIENTS:

Product (metal)	Symbol	CAS n°	EC n°	R Phrases	S Phrases	%
Tin	Sn	7440-31-5	231-141-8	-	-	See table below
Copper	Cu	7440-50-8	231-159-6	-	-	
Silver	Ag	7440-22-4	231-131-3	-	-	
Antimony	Sb	7440-36-0	231-146-5	-	-	

Alloys composition	Tin %	Lead %	Copper %	Silver %	Bismuth %	Antimony %
Sn94Ag	94	-	-	6	-	-
Sn95Ag	95	-	-	5	-	-
Sn95Sb	95	-	-	-	-	5
Sn96Ag	96.5	-	-	3.5	-	-
Sn96.7Ag3.3	96.7	-	-	3.3	-	-
Sn95.5Ag3.8Cu0.7	95.5	-	0.7	3.8	-	-
Sn96.5Ag3Cu0.5	96.5	-	0.5	3	-	-
Sn99.3Cu0.7	99.3	-	0.7	-	-	-
Sn99Ag0.3Cu0.7	99	-	0.7	0.3	-	-
Sn98Cu2	98	-	2	-	-	-
Sn97Cu3	97	-	3	-	-	-
Sn100	100	-	-	-	-	-

Incorporated flux composition					
Product	CAS n°	EC n°	R-Phrases	S-Phrases	%
Modified rosin	-	-	-	-	Class 2: 1.6 to 2.6% Other: contact us.
Organic acid	124-04-9	204-673-3	Xi R36	S2	

4- FIRST AID MEASURES:

- General information:

Take affected persons out into the fresh air.

Take affected persons out of danger area and lay down.

- After inhalation:

Take affected persons into fresh air.

If irritation persists, get medical attention.

- After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation persists, get medical attention.

If burns should occur from molten metal, treat for burn and get medical assistance if necessary.

- After eye contact:

Rinse opened eye for several minutes under running water.

Get medical attention if irritation occurs.

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ISO 11014-1
(1194-F)



Page: 3 / 7

- After swallowing:

Call for a doctor immediately.

Do not induce vomiting unless directed to do so by medical personnel.

5- FIRE-FIGHTING MEASURES:

Non-flammable product

- Suitable extinguishing agents:

Dry chemical powder, water spray or foam.

- Extinguishing agents to avoid:

Do not use water jet on fire where molten metal is present.

- Special hazards caused by the substance, its products of combustion or resulting gases:

Molten metal produces fumes or vapours that may be sensitizing to asthmatic persons.

Molten metal reacts violently with oxidising agents.

- Protective equipment:

Wear appropriate self-contained breathing apparatus.

Do not inhale combustion gases.

Wear full body protective clothing.

6- ACCIDENTAL RELEASE MEASURES:

- Person-related safety precautions:

Remove persons from danger area.

Wear protective equipment. Keep unprotected persons away.

Use respiratory protective device against the effects of fumes/dust.

Ensure adequate ventilation.

- Measures for environmental protection:

Do not allow to enter sewers/ surface or ground water.

- Measures for cleaning/collecting:

After cooling, collect the released product and store it in sealed containers.

- Additional information:

Exposure levels indicated in section 8 are relevant to these and other operations.

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7- HANDLING AND STORAGE :

- Handling:

Due to its high density, the product is heavy. Avoid the fall of the product. Wear protective shoes.

S37 = Wear suitable gloves.

Wash hands after handling.

- Storage:

On spool, in original cardboard, at room temperature, keep away from inclemency.

S2 = Keep out of the reach of children.

S13 = Keep away from food, drink and animal feedingsstuffs.

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Document : MBO Lead Free Resin Solder Wires

Created date: 10/07/08 - Updated: 10/03/11 - Update Nr : 06

ISO 11014-1
(1194-F)



Page: 4 / 7

8- EXPOSURE CONTROLS/PERSONAL PROTECTION:

- Exposure control:

Permissible air concentration (mg/m³)

Product	PEL	REL	TLV
Tin	2.0	2.0	2.0
Silver	0.01	0.01	0.1
Copper	1 0.1 (fume)	1 0.1 (fume)	1 0.2 (fume)
Antimony	0.5	0.5	/

Additional information:

PEL = Permissible exposure limit (OSHA)

REL = Recommended exposure limit (NIOSH)

TLV = threshold Limit value (ACGIH)

OSHA= Occupational Safety and Health Administration

ACGIH= American Conference of Governmental Industrial Hygienists

NIOSH= National Institute for Occupational Safety and Health

- Personal protective equipment:

- General protective and hygienic measures:

The usual precautionary measures are to be adhered to when handling chemicals: do not smoke and eat at work place.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes.

Avoid contact with the eyes and skin.

- Respiratory protection:

Suitable fumes extraction system must be locally installed.

- Protection of hands:

Cotton gloves are recommended.

- Eye protection:

Safety glasses are recommended.

- Body protection:

Protective work clothing is recommended : cotton blouse.

9- PHYSICAL AND CHEMICAL PROPERTIES:

- Form: Wire
- State: Solid
- Colour: Silver
- Application: For soft soldering

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ISO 11014-1
(1194-F)



Page: 5 / 7

Properties	T° solidus	T° Liquidus	Density
	(°C)	(°C)	(g/cm ³)
Sn94Ag	221 °C	250 °C	7.42
Sn95Ag	221	240	7.4
Sn95Sb	232	240	7.25
Sn96Ag	E 221		7.3
Sn96.7Ag3.3	221		7.3
Sn95.5Ag3.8Cu0.7	E 217		7.4
Sn96.5Ag3Cu0.5	E 217		7.4
Sn99.3Cu0.7	E 227		7.30
Sn99Ag0.3Cu0.7	217	228	7.3
Sn98Cu2	227	280	7.32
Sn97Cu3	227	320	7.33
Sn100	232		7.3

Properties of fluxes	Acid number (mg/g)	Chloride content (%)
EL	245 à 275	No chlorine
RSNB	240 à 280	No chlorine
S45 -S45V	215 à 245	No chlorine
R45	290 à 330	No chlorine
RBM2	235 à 265	0.22 à 0.28
CT2	185 à 215	0.35 à 0.45
F45	190 à 210	0.25 à 0.35
CTR	215 à 245	0.55 à 0.65
RL	170 à 190	0.65 à 0.85
CR	205 à 235	0.9 à 1.1
RD	165 à 185	1.15 à 1.45
ESM	200 à 260	1 à 1.5
ESD	200 à 260	1.8 à 2.2
R1	195 à 225	No chlorine
RT 15	371 à 401	No chlorine
A0	235 à 265	No chlorine
A5	115 à 155	0.4 à 0.6
A11	110 à 150	1 à 1.2
RJ5	145 à 175	0.4 à 0.6
RJ8	140 à 170	0.7 à 0.9
RJ10	140 à 170	0.9 à 1.1

10- STABILITY AND REACTIVITY:

- Stability:

Stable under normal conditions of use and storage.

- Conditions to avoid:

Strong oxidisers may cause violent reaction.

- Hazardous decomposition products:

No hazardous decomposition under normal conditions of use.

11- TOXICOLOGICAL INFORMATION:

- Eye contact :

May cause eye irritation due to the fumes during soldering.

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Created date: 10/07/08 - Updated: 10/03/11 - Update Nr : 06

ISO 11014-1
(1194-F)



Page: 6 / 7

- Skin contact :

May cause skin irritation in case of flux projections or fumes during soldering . It is recommended to wear cotton gloves to prevent burns by projections.

- Inhalation:

Use of product during soldering may produce or release fumes due to heated rosin, which can be sensitizing to asthmatic workers.

- Acute toxicity:

No adverse health effect is expected under normal conditions of use.

12- ECOLOGICAL INFORMATION:

- General notes:

Do not allow product to reach ground water, water course or sewage system.

13- DISPOSAL CONSIDERATIONS:

Disposal must be made according to official regulations.

14- TRANSPORT INFORMATION:

- DOT regulations:

Hazard class: -Not regulated.

- Land transport ADR/RID (cross-border):

ADR/RID class: -Not regulated.

- Maritime transport IMDG:

IMDG Class: -Not regulated.

- Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: -Not regulated.

15- REGULATORY INFORMATION:

The product does not require any hazard warning label in accordance with EC directives/French regulations on dangerous substances.

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ISO 11014-1
(1194-F)



Page: 7 / 7

16- OTHER INFORMATION:

This material safety data sheet is entirely written in accordance with regulations in force.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises Dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Reglement internationale concernent le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

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

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