YIK SHING TAT
Industrial Co.,Ltd
Solder Manufacturer Ltd

Product Specification

（Version number: LB-02）

Category：Sn60-Pb40 Lead-Contained Solder Wire

Type ：Sn60-Pb40

1. Technical Data Sheet
2. Material Safety Data Sheet

Yik Shing Tat Industrial Co., Ltd

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Technical Data Sheet

✯ Description

The product is suitable for iron soldering with a good ratio of performance to price. It is made from high-purity raw material by precise technological control. Its good spreading ability, can obviously reduce the soldering defects, such as bridge. This product could be widely used in electronic assembly.

✯ Characteristics

1. Physical property of solder alloy

Sort	Sn60-Pb40
Melting Point ℃	183-190
Spec. Gravity g/cm^3	8.5
Tensile Strength MPa	44.1
Hardness（HV）	16
Elongation （%）	40
Resistivity 10^{-9} ohm · m	140

2. Chemical composition of solder alloy

Sort	Chemical composition (wt.%)											
	Sn	Pb	Sb	In	Cu	Bi	Ag	Fe	Zn	Ni	Al	Cd
Sn60-Pb40	Bal.	40.0±1.0	<0.10	<0.05	<0.05	<0.10	<0.10	<0.02	<0.001	<0.01	<0.001	<0.002

3. Solder wire property

a.

Flux content (%)	Flux Classification	Halogen Test Method	Numbers of cores	Preservability
1.5~2.5	ROL1	IPC-TM-650	Single core	Two years

* Percent of flux can according as the requirement of client.

b.

Test Items	Test Method	Test Result
Copper plate corrosion test	IPC-TM-650-2.6.15	Pass
Insulation resistance（Ω）	IPC-TM-650-2.6.3.3	＞1.0×10^8
Solution resistance（Ωm）	JIS-Z-3197	≥500
Spreading rate（%）	JIS-Z-3197（1999）	≥75
Dryness test	JIS-Z-3197	Pass

4 · Recommended parameters for iron soldering using Sn60-Pb40 solder wire

a. Using iron with a power of 25-60W;

b. Recommended iron tip temperature: 310-330℃

5 · Appearance

a. The surface shall be smooth and glossy uniformly .Extremely poor gloss , and adhesion of foreign matters and dirt shall not be found.

b. Significant scratches , cracks, tears, and surface oxidization shall not be found.

c. Noticeable coiling collapse shall not be found.

✯ Packaging . Marking

1. Packaging

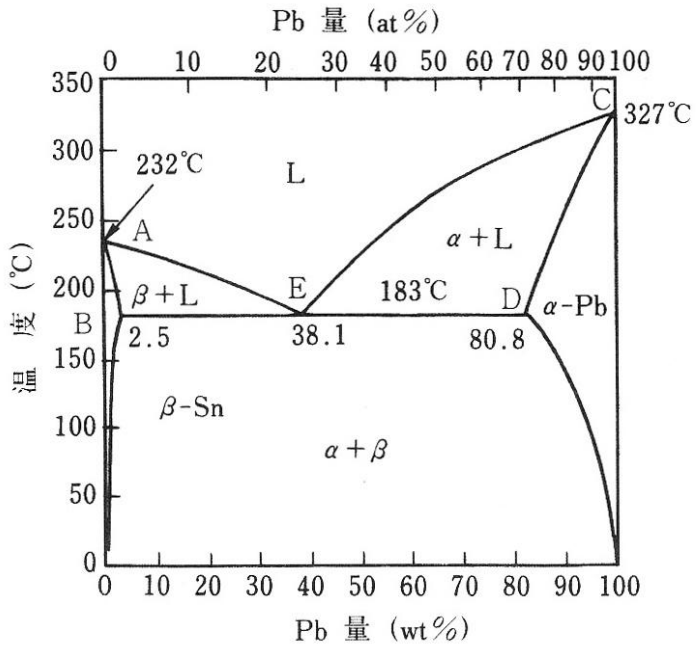
Items / Sort	Weight / Case	Quantity / Case	Weight / Roll
Solder Wire	12KG/15KG	15 Roll	0.8KG/1KG

* Choice of packaging can according as the requirement of client.

2. Marking

① Product name ②Product code of our company ③Manufacture's name ④Manufacture's Web ⑤Net mass ⑥Type ⑦Wire diameter ⑧Alloy composition ⑨Flux content

✯ Sn-Pb Phase Diagram



Eutectic composition: Sn60-Pb40 with melting point of 183-190℃

✯ Residue Removal

Based upon the using flux, the left residue around the soldering joint should be cleaned or not. If necessary, please select the matching cleaner. The operation is easily and convenient.

✯ Safety

The temperature of the soldering pot and soldering effect should be noticed while operation. Good ventilation is necessary for the safe of operator.

Material Safety Data Sheet

2016-04-01

SECTION 1 - CHEMICAL PRODUCT AND COMPANY INFORMATION

Product Identifier: Sn60-Pb40 SOLDER CORED WIRE
MSDS number: MSDS –Alloy : Sn60-Pb40
Product Use: Solder alloy

Manufacturer:
Yik Shing Tat Industrial Co., Ltd
Qianjin second Rd, 75 Zone, 76 Section
Xixiang, Baoan District, Shenzhen, P.R. China
Information: 86-755-2747 3328

In Case Of Emergency
CHEMTREC 24-Hour
86-755-2747 3136

SECTION 2 - HAZARDS IDENTIFICATION

Physical State and Appearance	Solid. (Cored metal wire)
Emergency Overview	Risk of cancer depends on duration and level of exposure. Avoid contact with eyes, skin and clothing. DO NOT ingest. Avoid breathing dust. Avoid prolonged or repeated contact with skin. Keep container closed. Use only with adequate ventilation. Avoid exposure during pregnancy. Wash thoroughly after handling.
Primary Routes of Entry	○ Skin ○ Eyes ⊙ Inhalation ⊙ Ingestion
Target Organs	Eyes, mucous membranes and respiratory system.

GHS classification:

Acute Toxicity: orall - Category 4
Skin Sensitization Effect - Category 1
Specific Target Organ Toxicity [Respiratory tract] -Category 2
Specific Target Organ Toxicity(Repeated Exposure) [Lung] - Category 1
Specific Target Organ Toxicity(Repeated Exposure) [Eye] - Category 2
Specific Target Organ Toxicity(Repeated Exposure): Skin [Skin] - Category 4
Specific Target Organ Toxicity(Repeated Exposure):Inhalation [Respiratory tract] - Category 2
aquatic toxicity (Acute) - Category 1

GHS label elements:

Pictogram:

Signal word: Danger

Hazard statement:

Swallowing harmful.
May cause skin allergic reaction.
Long-term or repeated exposure to the organs damage. (lung)
Long-term or repeated exposure may cause damage to organs. (eyes)
Prolonged or repeated inhalation may cause damage to organs. (respiratory tract)
Prolonged or repeated skin contact may cause damage to organs. (skin)
Great toxicity to aquatic organisms

Preventive measures：

Before knowing all the security measures, and do not operate。
Completely clean hands after work.
To avoid emissions to the environment.
In ventilated operation.
Avoid inhalation of vapors (or fog).
Wear protective gloves and protective glasses.
Avoid contact during pregnancy and lactation.
Workplaces shall not eat, drink, smoke.

Potential Health Effects of ACUTE (severe short–term) Exposure

Inhalation	Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system.
Eye Contact	Irritation from contact with smoke from soldering.
Skin Contact	This product may be hazardous in case of skin contact (irritant, sensitizer). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Ingestion	Fumes and/or dusts produced by this product may be hazardous in case of ingestion.
Skin Absorption	None.

Potential Health Effects of CHRONIC (prolonged) Exposure

Fumes may cause irritation of eyes and mucous membranes, headache, and/or respiratory system irritation or damage.

Medical Conditions Aggravated by Overexposure

Chemical hypersensitivity, asthma and other respiratory conditions, existing eye and skin disorders.

Overexposure /Signs/Symptoms

Not available.

See Toxicological Information (section 11)

Notes: The YIKST SOLDER MANUFACTURER does not recommend, manufacture market or endorse any of its products for human consumption.

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Name	CAS #	Weight percent (wt%)		OSHA PEL mg/m³	TLV-TWA mg/m³	TLV-STEL mg/m³
Tin（Sn）	7440-31-5	>96.5	60.0	2.0	2	N.E
Lead（Pb）	7439-92-1		40.0	0.05	0.15	N.E
Rosin	65997-05-9	<3.5	1-3	N.E	N.E	N.E
Proprietary	-------		1-2	N.E	N.E	N.E

SECTION 4 - FIRST AID MEASURES

Seek medical assistance for further treatment, observation and support if needed.

EYE CONTACT

In case of contact, immediately flush eyes with a copious amount of water for at least 15

minutes. Obtain medical attention. For fume irritation use eye drops and remove from exposure.

SKIN CONTACT

For burns flush immediately with cool water. If a rash develops from flux fumes, remove person from exposure and wash skin with soap and water. Obtain medical attention.

INHALATION

Remove person from exposure to fumes.If breathing is difficult, give oxygen. Obtain medical attention.

INGESTION

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if necessary.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability ○ Yes ⊙ No

Conditions to avoid Not established.

Flash Point (T.O.C) NA

Auto-Ignition Temperature NA

Flammability Limits percent by volume in air
The greatest known range is LOWER: NA UPPER: NA

Extinguishing Means ○ Water ○ Carbon Dioxide ○ Alcohol Foam ○ Dry Chemical

Hazardous Combustion Products
Carbon monoxide, carbon dioxide.

Explosion Sensitivity
Impact - None Identified.

Static Discharge Sensitivity ○ No ⊙ Yes

Special Firefighting Procedures
Avoid breathing smoke. Fire fighters should wear self-contained positive pressure breathing apparatus and full turnout gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures
Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

SECTION 7 - HANDLING AND STORAGE

Storage Precautions
Keep container dry and tightly closed. Keep in a cool, well-ventilated place. Highly toxic or infectious materials should be stored in a separate locked safety storage cabinet or room.

Handling Precautions
Wear suitable protective clothing. Use in a well ventilated area. When using do not eat, drink or smoke. Avoid contact with skin and eyes. After handling, always wash hands thoroughly with soap and water.

Personal Precautions
Avoid breathing smoke / fumes generated during soldering. Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. **Personal Protection***	
Eyes	Safety glasses should be used.
Body	Lab coat.
Respiratory	When ventilation is not sufficient to remove fumes from the breathing zone, a safety approved respirator or self-contained breathing apparatus should be worn.
Hands	Wear rubber gloves to avoid skin contact.
Hygienic Work Practices Wear protective equipment and wash thoroughly after handling.	

*** Note: Suggested protective clothing may not be adequate for a specific process. Consult a specialist before using.**

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES			
Physical State at 20 °C	Solid.(Cored wire)	**Specific Gravity (water = 1 at 25 °C)**	8.5
Boiling Point (760 mm Hg)	NA	**Melting Point（°C）**	183-190
Vapor Pressure (mm Hg at 20 °C)	N.D.	**Evaporation Rate (butyl acetate = 1)**	0 %
Vapor Density (air = 1)	N.A.	**Percent Volatile (by volume)**	0 %
Solubility in Water (% by weight)	0	**Volatile Organic Compound (VOC)**	N.A.
PH	N.A.	**Odor Threshold**	N.E.
Freezing Point (760 mm Hg)	N.E.	**Coefficient of Water / Oil Distribution**	N.E.
Viscosity (mPa·s)	N.A.		
Appearance and Odor	Silver-gray metal in wire, ribbon shapes with a core of flux, no odor.		

SECTION 10 - STABILITY AND REACTIVITY			
Stability and Reactivity	⊙ Stable ○ Unstable	**Conditions to avoid**	N.E.
Incompatibility with Various Substances	Strong acid, strong oxidizers		
Hazardous Decomposition Products	Not Applicable.		
Hazardous Polymerization	Will not occur.		

SECTION 11 - TOXICOLOGICAL INFORMATION
EXPOSURE LIMITS: Not determined for the product. See Section 2 for ingredients. **Toxic and Chronic Effects on Humans** Fumes and/or dusts produced by this product may be hazardous in case of ingestion, of inhalation. This product may be hazardous in case of skin contact (irritant, sensitizer), of eye

contact (irritant).
CARCINOGENIC EFFECTS: **[LEAD]** - Classified A3 (Proven for animal) by ACGIH, 2B (Possible for human) by IARC.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: **[LEAD]** - Classified 1 by European Union.
DEVELOPMENTAL TOXICITY: **[LEAD]** - Classified Reproductive system/toxin/female, Reproductive system/toxin/male [PROVEN].

SECTION 12 - ECOLOGICAL INFORMATION

This section is subject to future development.
Biodegradability Data not established.
Aquatic Toxicity Data not established.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal Methods
Waste must be disposed of in accordance with federal, state and local environmental control regulations.
CAUTION: Empty containers may contain product residue. Observe all label precautions.

SECTION 14 - TRANSPORT INFORMATION

DOT Classification
Not Regulated (United States).
ADR/RID Classification
Not Regulated (Europe).
TDG Classification
Not Regulated (Canada).

SECTION 15 – REGULATORY INFORMATION

U.S.A.
All Chemical substances in this product are listed in the EPA (Environmental Protection Agency) TSCA (Toxic Substances Control Act) Inventory.
B2 D2B
Europe
European Council Directive 67/548/EEC

SECTION 16 - OTHER INFORMATION

HMIS (Hazardous Material Information System) Rating
Health: 1 Flammability: 0 Reactivity: 0

NOTES To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.