

LEAD FREE SOLDER WIRE

Product No.: PF604-R

NO.	Item	Spec.	Standard
1	Appearance	Produce bright shiny solder joints.	
2	Alloy	Sn-Cu0.4	JIS-Z-3282 A type
3	Melting Point	About 227□	DSC
4	Flux Content	2.5~3.5%	JIS-Z-3283
5	Halide Content	< 0.1% (ROL1)	IPC J-STD-004
6	SPECIFIC GRAVITY	7.4 g/cm ³	
7	Spread Test	> 75%	JIS-Z-3197
8	Packing Weight	0.5 , 1.0 kg/roll	JIS-Z-3283
9	Shape & Tolerance	0.3~0.6± 0.05 mm/0.8~3.0± 0.1 mm	JIS-Z-3283
10	Flux Type	B Type	IPC J-STD-004
11	Features	Excellent solder joint reliability. Superior joint strength. Excellent thermal & Mechanical fatigue resistance. Low cleaning required after solder joint.	
12	Purpose	For use in applications requiring good activation.	

PHYSICAL PROPERTIES

No.	Test Item	Test Result	Test Method
1	Flux Content	2.5~3.5%	JIS-Z-3291, 6.1
2	Halide Content	<0.1%	JIS-Z-3197, 6.5
3	Spread Test	> 75%	JIS-Z-3197, 6.10
4	Silver Chromate Test	PASS	IPC-TM-650, 2.6.33
5	Copper Mirror Test	PASS	IPC-TM-650, 2.6.32
6	Copper Plate Corrosion Test	PASS	JIS-Z-3197, 6.6.1
7	S.I.R. Test ▲	> 1×10 ¹¹	JIS-Z-3197, 6.8

▲ Test Conditions : 85□ , 85% RH

ALLOY COMPONENT

	Sn	Cu	Pb	Sb	Bi	Zn	Fe	Al	As	Cd
Balance	0.7±0.2	0.1 MAX	0.12 MAX	0.10 MAX	0.002 MAX	0.02 MAX	0.002 MAX	0.03 MAX	0.002 MAX	

wt%

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1、 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

CHEMICAL PRODUCT NAME : PF604-R(R:0.6~3.0mm)
COMPANY INFORMATION :
NAME OF MANUFACTURER : SHENMAO TECHNOLOGY INC.
NAME OF SECTION : QUALITY ASSURANCE DEPARTMENT
ADDRESS : 51-6 Bei Tau Ri, Tanshui 251, Taiwan R.O.C.
TELEPHONE NUMBER: 886-2-26217627
FAX NUMBER: 886-2-2622-7326

2、 COMPOSITION, INFORMATION OR INGREDIENT

Components-Chemical Name	wt. %	CAS No.
Rosin	2-2.5	8050-09-7
Wax	0.1-0.5	(Secret)
Solvent	0.2-0.6	(Secret)
Additive	0.1-0.5	(Secret)
Tin (Sn)	96.32	7440-31-5
Copper (Cu)	0.68	7440-50-8

3、 HAZARDS IDENTIFICATION

ADVERSE HUMAN HEALTH HAZARD : ①Vapors may irritate eyes, respiratory system and skin. ②Harmful by inhalation.
ENVIRONMENTAL EFFECTS : Not available
PHYSICAL AND CHEMICAL HAZARDS : Vapors may catch fire

4、 FIRST AID MEASURES

EYE CONTACT : Gently rinse the affected eyes with clean water for at least 15 minutes. Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.
SKIN CONTACT : Remove all contaminated clothing, shoes and socks from the affected areas as quickly as possible, cutting them off if necessary. Wash the affected area under tepid running water using a mild soap. If irritation persists, arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.
INHALATION : Remove the victim from the contamination immediately to fresh air. If breathing is weak, irregular or has stopped, open his airway, loosen his collar and belt and

administer artificial respiration.

INGESTION :

Give the person one or two glasses of water or solution of salt, try to get the victim to vomit.

Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

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5、 FIRE FIGHTING MEASURES

EXTINGUISH MEDIA : Use alcohol resistant foam, carbon dioxide or dry chemical extinguishing agents.
FIRE-FIGHTING INSTRUCTIONS : Shut off fuel to fire if possible to do so without hazard. Evacuate area and fight fire from a safe distance. Apply water from a safe distance to cool and protect surrounding area. Firefighters should wear proper protective equipment.
FLASH POINT : Not applicable
EXPLOSION LIMIT : Not available

6、 ACCIDENTAL RELEASE MEASURES

Shut out all sources of ignition; No flare, smoking or flames in area.
Wear proper protective equipment.
For spills, wipe and scrape away with cloth or paper, take up and store in a sealed container.

7、 HANDLING AND STORAGE

HANDLING : Do not use fire near storage area. Wear proper protective equipment.
STORAGE : No special requirements.

8、 EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING MEASURES : Use only with adequate ventilation and in closed systems. Make available emergency shower and eye wash in the work area.
EXPOSURE GUIDELINES : ACGIH TLV: 2mg/m ³ (Tin)
PROTECTIVE EQUIPMENT : RESPIRATORY PROTECTION : Industrial canister gas masks.(Heating) EYE PROTECTION : Safety goggles. HAND, SKIN AND BODY PROTECTION : Rubber gloves. Selection of specific items such as boots, apron or full-body suit will depend on operation.

9、 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Gray wire with flux
BOILING POINT	>200°C (Flux)
VAPOR PRESSURE	<0.01mmHg(20°C)
MELTING POINT	227°C (Solder)
SPECIFIC GRAVITY	7.4g/cm ³ (Solder, 20°C)
SOLUBILITY (IN WATER)	Almost Insoluble

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10、 STABILITY AND REACTIVITY

CHEMICAL STABILITY :	Stable, hazardous polymerization will not occur.
INCOMPATIBILITY WITH OTHER MATERIALS :	Strong oxidizing agents, strong bases and strong acids.
HAZARDOUS DECOMPOSITION PRODUCTS :	Carbon oxide on burning.
HAZARDOUS POLYMERIZATION :	Will not occur.

11、 TOXICOLOGICAL INFORMATION

CORROSIVE AND IRRITANT PROPERTIES :	Not available
ALLERGENIC AND SENSITIZING EFFECTS :	Not available
ACUTE TOXICITY :	Not available
SUB-ACUTE TOXICITY :	Not available
CHRONIC TOXICITY :	Animal drink water containing 0.18mg/L of lead may get lead poisoning. Rats ingested the 0.005mg/Kg of lead showed evidence of CMS disturbances.
CARCINOGENIC EFFECTS :	Not available
MUTAGENIC EFFECTS :	Not available
EFFECTS ON THE REPRODUCTIVE SYSTEM :	Not available
TERATOGENIC EFFECTS :	Not available

12、 ECOLOGICAL INFORMATION

BIODEGRADABILITY :	Not available
BIOACCULATION :	Not available
FISH TOXICITY :	Not available
OTHER INFORMATION :	Not available

13、 DISPOSAL CONSIDERATIONS

Dispose in compliance with local regulations.

Do not discharge into the environment.
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14、 TRANSPORT INFORMATION

UN CLASS : Not applicable

UN NUMBER : Not applicable

No special requirements.

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15、 REGULATORY INFORMATION

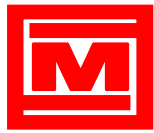
JAPAN STATUS EXISTING CHEMICAL SUBSTANCES(MITI) : Listed
US STATUS TSCA INVENTORY : Not Listed
EU STATUS EINECS : Not Listed (Polymer exemption)
LABELING ACCORDING TO EEC DIRECTIVES : HAZARD SYMBOL : T-Toxic RISK PHRASES : R 61-62-20/22-33 SAFETY ADVICES : S 53-45

Regulatory information with regard to this substance in your country or in your region should be examined by your own responsibility.

16、 OTHER INFORMATION

REFERENCE: AIR PRODUCTS MSDS、 INTERNATIONAL MARITIME DANGEROUS GOODS CODE			
HAZARDOUS	NFPA	HMIS	LEVEL : 0~4 : From least to serious NFPA : National Fire protection Association rating identifies hazards during a fire emergency. HMIS : Hazardous Materials Identification System rating applies to process as packaged.
HEALTH	1	1	
FLAMMABILITY	1	1	
REACTIVITY	0	0	

The information herein is given in good faith, but no warranty, express or implied, is made. Please consult the SHENMAO TECHNOLOGY INC. for further information.



LEAD FREE SOLDER WIRE

Product No.: PF610-R

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2	Alloy	Sn-Ag3-Cu0.5-Ni0.06-Ge0.01	JIS-Z-3282 A type
3	Melting Point	About 219□	DSC
4	Flux Content	2.5~3.5%	JIS-Z-3283
5	Halide Content	< 0.1%(ROL1)	IPC J-STD-004
6	SPECIFIC GRAVITY	7.4 g/cm ³	
7	Spread Test	> 75%	JIS-Z-3197
8	Packing Weight	0.5 , 1.0 kg/roll	JIS-Z-3283
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10	Flux Type	B Type	IPC J-STD-004
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ALLOY COMPONENT

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wt%													
REM		2.7 ~ 3.3	0.3 ~ 0.7	0.04~ 0.08	0.005 ~0.02	0.1 MAX	0.12 MAX	0.1 MAX	0.002 MAX	0.02 MAX	0.002 MAX	0.03 MAX	0.002 MAX

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Additive	0.1-0.5	(Secret)
Tin (Sn)	93.54	7440-31-5
Silver (Ag)	2.91	7440-22-4
Copper (Cu)	0.49	7440-50-8
Nickel (Ni)	0.06	-----
Germanium (Ge)	0.01	-----
PS. Sn/Ag/Cu/Ni/Ge : 96.43%/3.0%/0.5%0.06%/0.01%		

3、HAZARDS IDENTIFICATION

ADVERSE HUMAN HEALTH HAZARD : ①Vapors may irritate eyes, respiratory system and skin. ②Harmful by inhalation.
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FLASH POINT : Not applicable
EXPLOSION LIMIT : Not available

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