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锡膏产品 Solder paste

我司锡膏产品分为无铅免清洗锡膏、无铅低温锡膏、水洗锡膏三大品种。我司主要锡膏产品如下：

Our Tin solder paste products are divided into three varieties:

1. Lead-free and no-clean solder paste
2. Lead-free and low-temperature solder paste
3. Water-washable solder paste

Our main solder paste products are as follows:

Tin Mate-X100A 无铅免清洗锡膏

Tin Mate-X100A Lead-free
and no-clean solder paste



产品特点 Product Features

- 1、润湿性能好:焊点光亮, 润湿性好, 可适用于OSP, 镍金等多种材质的回流焊接;
- 2、连续印刷稳定:具有较长的使用时间, 可实现连续印刷24小时, 粘度稳定;
- 3、本产品空洞率低;

- 1、Excellent wetting performance: bright solder joints, good wettability. It is suitable for reflow soldering of OSP, nickel gold and other materials.
- 2、Superior printing stability: it has a long service time, can achieve continuous printing for 24 hours, and viscosity is stable.
- 3、This product has a low voiding rate.

应用场景 Applications

应用于常规的电子产业SMT的空气或氮气回流焊接, 可定制制作Sn-Ag-Cu、Sn-Ag等合金满足不同客户需求; 适用于OSP板、镍金板、喷锡板等不同材料焊接; 应用于安防、电脑、通讯、手机、汽车、白色家电等领域。

- 1、Suitable for air or nitrogen reflow soldering for conventional SMT in the electronics industry. Customizable in alloy compositions such as Sn-Ag-Cu, Sn-Ag and other alloys to meet specific customer requirements.
- 2、Compatible with soldering of different materials such as OSP board, nickel gold board, tin spray board, etc.
- 3、Used in applications such as security, computers, communications, mobile phones, automobiles, household appliances.

关键性指标 Key indicators

测试项目 Test items	技术参数 Technical parameters	参照标准/备注 Reference Standards/Remarks
活性等级 Activity Grade	L级 CLASS L	IPC J-STD-004
锡粉粒径 Tin powder particle size	T3\T4\T5\T6	JIS-Z-3284
卤素含量 Halogen content	Br≤900ppm Cl≤900ppm Br+Cl≤1500ppm	EN14582
铜镜试验 Bronze mirror test	L级 Class L	IPC J-STD-004
铜板腐蚀试验 Copper board corrosion test	无腐蚀, L级 Non-corrosive, Class L	IPC J-STD-004
表面绝缘电阻SIR Surface insulation resistance	PASS	IPC J-STD-004
电迁移 Electromigration	PASS	IPC J-STD-004
锡珠实验 Tin bead experiment	PASS	IPC J-STD-005
铺展率 Spreadability	>78%	JIS-Z-3197
坍塌 Collapse	0.3mm可通过 0.3mm pass	JIS-Z-3284

Tin Mate-C17 无铅低温锡膏

Tin Mate-C17 Lead-free and low-temperature solder paste

产品特点 Product Features

- 1、可低温下进行焊接, 满足部分元件低温焊接的要求; 主要适配Sn-Bi系列及Sn-Bi-Ag系列合金;
- 2、可在低温下有较高强度, 不易发生焊点疲劳的断裂; 3、可焊性好、焊点光亮; 4、挤出性能好。



- 1、It can be soldered at low temperature to meet the requirements of low temperature soldering of some components; It is mainly suitable for Sn-Bi series and Sn-Bi-Ag series alloys.
- 2、It maintains high strength at low temperature, and it is not prone to fatigue fracture of solder joints.
- 3、Excellent solderability with bright solder joints.
- 4、Good extrusion performance.

应用场景 Applications

主要应用于散热器、发光二极管 (LED灯具)、电视机等产品。

It is primarily used in radiators, light-emitting diodes (LED lamps), TVs and other products.



关键性指标 Key indicators

测试项目 Test items	技术参数 Technical parameters	参照标准/备注 Reference Standards/Remarks
活性等级 Activity Grade	L级 CLASS L	IPC J-STD-004
锡粉粒径 Tin powder particle size	T3\T4\T5	JIS-Z-3284
印刷时粘度保持时间 Viscosity retention time during printing	>8h	@50%RH,22°C
铺展率 Spreadability	>78%	JIS-Z-3197
坍塌 Collapse	0.3mm可通过 0.3mm pass	JIS-Z-3284
表面绝缘电阻SIR Surface insulation resistance	PASS	IPC J-STD-004
电迁移 Electromigration	PASS	IPC J-STD-004

Tin Mate-W35 水洗锡膏

Tin Mate-W35 Water-washable solder paste



产品特点 Product Features

- 1、Tin Mate-W35是一款水溶性锡膏，焊接后可进行水洗；用于无铅或锡铅共晶球的BGA或CSP组件焊，以及在锡球在晶圆WLCSP上的应用；
- 2、对于Cu-OSP、Ni-Au、ENEPIG-Pad等镀层具有较佳的焊接活性；
- 3、具有较宽的工艺窗口，在空气和氮气环境中均能有良好的焊接稳定性；
- 4、具有较佳的印刷和PIN针转移稳定性。

- 1、Tin Mate-W35 is a water-soluble solder paste that can be washed with water after soldering; Used for soldering BGA or CSP components with lead-free or tin-lead eutectic balls, as well as for the application of solder balls on wafer WLCSP.
- 2、It has better soldering activity on a variety of surface finishes including Cu-OSP, Ni-Au, ENEPIG-Pad.
- 3、It has a wide process window and can have good soldering stability in both air and nitrogen environments.
- 4、It has better printing and PIN transfer stability.

应用场景 Applications

应用于有水洗需求的SMT制程；适用于散热器、热水器、壁挂炉、电子电器行业零件、铜管及黄铜部件的钎焊。

It is used in SMT process with water washing requirements; It is commonly used for soldering of radiators, water heaters, wall-hung boilers, parts of the electronic and electrical industry, copper tubes and brass parts.

关键性指标 Key indicators

测试项目 Test items	技术参数 Technical parameters	参照标准/备注 Reference Standards/Remarks
锡粉粒径 Tin powder particle size	T3\T4\T5\T6	JIS-Z-3284
锡珠实验 Solder Ball Test	PASS	IPC J-STD-005
铺展率 Spreadability	>78%	JIS-Z-3197
坍塌 collapse	0.3mm可通过 0.3mm pass	JIS-Z-3284

锡条产品

Tin solder bar product



我司锡条产品分为高抗氧化锡条和高温锡条两大品种。采用了高纯的金属原料及先进的冶炼工艺，严格的质量监控；因此，品质优良、抗氧化性能强，深受广大用户欢迎。可供各种锡合金产品。我司主要锡条产品如下：

HUA GUANG offers two primary categories of solder rod products: high oxidation-resistant solder bars and high-temperature solder bars. They are manufactured using high-purity metal raw materials and advanced smelting processes, with strict quality control. As a result, our products boast excellent quality and strong oxidation resistance, making them highly popular among a wide range of users. Various tin alloy products are available. The main solder bar products of our company are as follows:

高抗氧化锡条

High antioxidant tin solder bar

在 $270 \pm 20^\circ\text{C}$ 范围内使用，其液态表面呈银色镜面光亮。广泛适用于采用波峰焊的焊接工艺。在生产过程中经过特殊工艺，该产品在连续作业中保持极低出渣率（ $< 1.2\%$ ）和卓越抗氧化性，显著提升焊接效率。

Suitable for use at $270 \pm 20^\circ\text{C}$, this solder bar exhibits a silver mirror-like bright surface in molten form. It is applicable for wave soldering processes. Through specialized manufacturing techniques, this product maintains an extremely low slag yield ($< 1.2\%$) and outstanding oxidation resistance during continuous operation, significantly improving soldering efficiency.

高温锡条

High-temperature solder bar

在400°C±40°C范围内使用，Sn合金液态呈银白色的光洁表面。适用于热浸焊工艺，特别适用于变压器制造时的自熔漆包线的浸焊搪锡。具有焊点优良、工艺简便、节约成本等优点。

Suitable for use at 400°C±40°C, Sn alloy maintains a smooth silver-white molten surface. It is ideal for hot-dip soldering process, especially for self-fusing enameled wire immersion soldering and tin plating in transformer manufacturing. It has the advantages of excellent solder joints, simple process and cost-effectiveness.

可选择的合金如下：(可提供特殊合金定制化服务)

The available alloys are as follows: (Customized services for special alloys are available)

合金类型 Alloy type	合金种类 Alloy categories	熔点/°C Melting point	特点 Key features
中熔点合金 Medium-melting-point alloy	Sn	232	成本相对较低、焊点亮度好、可用于一般要求焊接场合 Relatively low cost, good solder joint brightness, suitable for general-purpose soldering
	Sn99.7Cu0.3	227-235	
	Sn99.3Cu0.7	227	
	Sn99.3Cu0.7 (Ni)	227	润湿效果较Sn/Cu好、焊点强度有一定提高 The wettability is better than that of Sn/Cu, with a certain improvement in solder joint strength.
	Sn99Ag0.3Cu0.7	217-227	
	Sn99.7Ag0.3	231	
	Sn96.5Ag3Cu0.5	217-221	
	高熔点合金 High-melting-point alloy	Sn96.5Ag3.5	221
Sn97Ag3.0		221-224	
Sn97Cu3		227-310	
低熔点合金 Low-melting-point alloy	Sn95Sb5	235-240	特殊的高熔点场合使用 Suitable for special high melting point
	Sn95Ag1Cu4	217-353	
	Sn42Bi58	138	

锡丝产品

Tin wire product



华光生产的环保锡丝完全通过SGS检测, 在无尘、环保专用车间采用高纯度环保锡锭、独特助焊剂配方、严格执行ISO质量管理体系, 引进德国直读光谱仪检控品质, 生产出符合RoHS标准的无铅焊锡丝。可供线径: Φ 0.5mm-6.0mm(特细线径:0.1mm-0.5mm也可定做)。我司主要锡丝产品如下:

HUA GUANG's environmentally friendly tin wires are SGS-tested. Manufactured in clean and eco-controlled workshops using high-purity tin ingots and unique flux formulas, the production process adheres strictly to ISO-certified quality management systems. German direct-reading spectrometers are introduced to control quality to produce lead-free tin wire that meets RoHS standards. Available wire diameter: Φ 0.5mm-6.0mm (ultra-fine wire diameter: 0.1mm-0.5mm can also be customized). Our main tin wire products are as follows:

高活性锡丝

High- activity tin wire

自主研发的创新型产品适配激光焊接工艺, 广泛适用于铜、铝、不锈钢等母材的精密焊接需求。常用于电机端子、加热板传热接口、铜材质零件之间补焊等。

The innovative product independently developed is suitable for laser soldering process and is widely used for precision soldering of copper, aluminum, stainless steel and other base materials. It is often used in motor terminals, heat transfer interface of heating plate, and touch-up soldering between copper parts.

常规锡丝

Conventional tin wire

适用于各种电路板焊接及元器件的焊接及返修使用。具有焊接烟尘少、飞溅少、上锡好、焊点饱满光亮的特点。可适配手工焊、自动焊接机使用。

Suitable for soldering and reworking various circuit boards and components. It has the characteristics of less soldering dust, low spatter, good tin wetting, and full and bright solder joints. Compatible with both manual soldering and automatic soldering machines.



电容器专用锡丝

Capacitor-specific tin wire

自主研发电容器专用的锡丝, 适用于电容器和线束的焊接, 具有焊点光亮饱满、焊接强度高优点。

Independently developed tin wire specifically designed for capacitors, suitable for soldering capacitors and wire harnesses, featuring advantages such as bright and plump solder joints as well as high soldering strength.

锡丝产品矩阵 Tin wire product matrix

特性 Characteristics			无铅合金/熔点 Lead-free alloy/melting point						可焊接母材 Weldable base metal				丝径范围 Wire diameter range		可供形式 Available forms		卤素 Halogen	
高活性锡丝 High activity tin wire	常规锡丝 Conventional tin wire	电容器专用锡丝 Special tin wire for capacitors	Sn99.3 Cu0.7	Sn99 Ag0.3 Cu0.7	Sn96.5 Ag3 Cu0.5	Sn99.7 Cu0.3	Sn99.7 Ag0.3	Sn42 Bi58	Cu	Al	不锈钢 Stainless steel	电容器 Capacitor	0.5-1.0	1.0-6.0	药芯锡丝 Flux-cored solder wire	实心锡丝 Solid tin wire	无卤 Halogen-free	有卤 With brine
			227°C	217-227°C	217-221°C	227-235°C	231°C	138°C										
●			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓				✓
	●		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓
		●	✓	✓	✓	✓	✓				✓	✓	✓	✓				✓

其他产品系列

Other product series



我司其他产品系列包括锡环、预成型片、半球纯锡球，可主要应用于汽车、造船、电力、电容、建筑密封材料等领域，并已取得良好的使用效果。带材规格厚度可以做0.01mm以上，2mm、3mm、4mm，宽度1mm-150mm（规格及形状可订做）。

HUA GUANG also offers tin rings, preformed strip, and hemisphere pure tin balls, which are primarily applicable in industries such as automotive, shipbuilding, power generation, capacitors, and construction sealing materials, and have achieved excellent performance results. The strip specifications can be produced with thicknesses ranging from 0.01mm and above, including 2mm, 3mm, and 4mm, with widths from 1mm to 150mm (customizable specifications and shapes).

型号 Specification	特点 Key features	主要应用 Main applications
锡环 Tin ring	<p>根据客户需求可以提供各种合金成分、形状、尺寸、丝径的锡环，致力于解决客户焊接困难问题。</p> <p>Various alloy compositions, shapes, sizes, and wire diameters of tin rings can be provided according to customer requirements, dedicated to solving customers' soldering difficulties.</p>	<p>特别适用于铜管的焊接，用于温控器等产品自动化焊接。</p> <p>Especially suitable for copper pipe soldering, used in temperature controller and other products automation soldering.</p>
预成型片 Preformed strip	<p>我司预成型片产品助焊剂的涂覆创新性采用表面涂覆与混合方法双工艺路径，焊后空洞率较传统产品降低40%以上，助焊剂残留量减少30%、飞溅少、润湿效果好。</p> <p>The coating of flux for preformed sheet products of our company innovatively adopts the dual process path of surface coating and mixing, which reduces the post-weld voiding rate by more than 40% compared with traditional products, reduces the residual amount of flux by 30%, reduces splattering, and has good wettability.</p>	<p>大功率器件、变频模块、二极管、空洞率较高的电路板焊接。</p> <p>High power devices, frequency conversion modules, diodes, circuit boards with high voiding rate are welded.</p>
半球纯锡球 Hemispherical pure tin ball	<p>采用云南纯锡锭作为生产的原材料，同时严格执行ISO9001质量管理体系，保证每粒锡球大小均匀、不受氧化呈完美的半球状，且无杂质、绝缘性好、色泽光亮。</p> <p>This product is made from Yunnan-origin tin ingots, while the strict implementation of ISO9001 quality management system, to ensure that each tin ball size uniformity, not oxidized in a perfect hemispherical shape, with the surface oil-free, no impurities, good insulation, bright color.</p>	<p>同时广泛应用于马口铁、助熔剂、有机合成、化工生产、合金制造，以及电子行业中多组集成电路的装配，还可用于测定砷、磷酸盐的试剂、还原剂、镀锡制品等。半球纯锡球直径：13mm、22mm、25mm等（最常用尺寸：25mm）</p> <p>At the same time, it is widely used in tinplate, flux, organic synthesis, chemical production, alloy manufacturing, as well as the assembly of multiple integrated circuits in the electronics industry and can also be used as a reagent, reducing agent, tin plated products, etc. for determining arsenic and phosphate.</p> <p>Semi-spherical pure tin balls: 13mm, 22mm, 25mm, etc. (most commonly used size: 25mm)</p>