

SHENZHEN FITECH CO., LTD.

助焊胶 FEF-240—规格书

Epoxy Flux FEF-240 TDS

FEF-240

技术部

Technical Department

Technical Data Sheet

助焊胶 Epoxy Flux

一、简介 Introduction

FEF-240 是一款零卤环氧型助焊胶，不含松香焊后免清洗，不飞溅，焊接残渣成为热固胶，附在焊点周围，加强焊点强度，起到防腐蚀、绝缘的作用，免清洗，具有自组装和自纠正功能，为焊接的理想材料，尤其适用于高精度、高可靠性微电子封装。

FEF-240 is a zero-halogen epoxy flux. It does not contain rosin and is free of cleaning after soldering. It does not spatter. The welding residue becomes a thermosetting glue, which is attached around the solder joints to strengthen the solder joints to prevent corrosion and insulation. It has self-assembly and self-correction functions. It is an ideal material for welding, especially suitable for high-precision and high-reliability microelectronic packaging.

二、产品特性及优势: Features and Advantages

1. 焊接后无需清洗、残留物热固成胶，电绝缘性好。

No clean, residual thermosetting glue, good electrical insulation, after welding.

2. 化学活性好，无锡珠，热固胶附在周围边角，焊点可靠性高。

Good chemical activity, no solder ball, good wetting.

3. 操作简单，可选择回流焊炉、电热板、烘箱等。

Simple operation, able to choose from reflow oven, heating plate, oven.

4. 触变性好，粘度合适，稳定性好，不分层，工作寿命长。

Good thixotropy, suitable viscosity, good stability, no delamination, long working life.

三、技术特性: Technical feature

1. 未固化特性: Before reflow

产品性能 Feature	指标 Result	备注 Note
外观 Appearance	膏状 Paste	
应用的工艺方式 Applied process	印刷、点胶、喷涂等 Printing, Dispensing, Spraying,	可进行调整 Adjustable
结晶度 Crystallinity	<30 μ m	
酸值 acid value	120~140	
粘度 Viscosity	50 \pm 20 Pa.s	根据客户要求可调整 Malcolm (10rpm)
卤素含量 Halogen Cl+Br	< 900ppm	
ICP 分类	ROLO	
比重 Solder density	1.15	比重瓶
触变指数 Ti	0.5 \pm 0.2	Lg(3rpm/30rpm)
保质期 Shelf life	6 month@ -20 $^{\circ}$ C	密封 Sealed storage

2. 腐蚀性 with 电气可靠性测试: Corrosion and electrical reliability testing

性能 Feature	指标 Result	备注 Note
铜镜测试 Bronze mirror test	合格 PASS	IPC-TM-650 2.3.32
铜板腐蚀 Copper corrosion	合格 PASS	JIS Z3197-2012
铬酸银试纸测试 Silver chromate test paper test	合格 PASS	JIS Z3197-2012
表面绝缘电阻 Surface insulation resistance	合格 PASS	JIS Z3197-2012

3. 固化后特性: After curing

性能 Feature	指标 Result	备注 Note
热膨胀系数 Thermal expansion coefficient	44~66 ppm/K	ASTM-E831-14
玻璃化温度 Glass transition temperature	98.9 $^{\circ}$ C	GB/T19466.2-2004
硬度/邵氏硬度 Hardness/Shore hardness	14.1HV	GB/T2411-2008

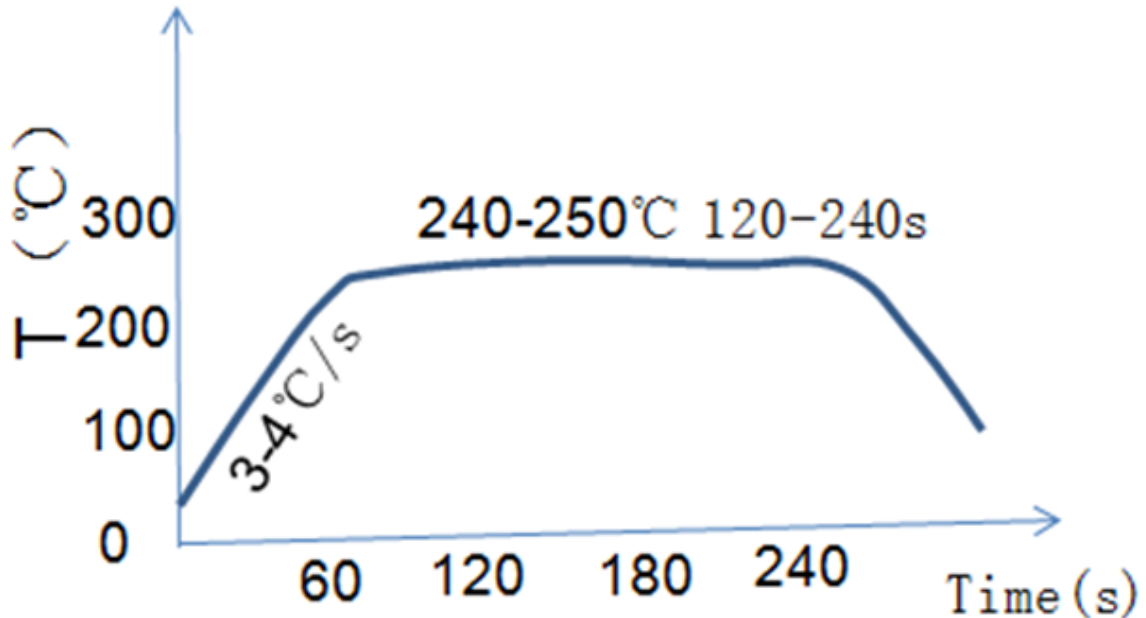
四、焊接固化工艺: 焊盘合金或焊料以 SAC305 合金为例 Soldering & curing process (PAD/alloy SAC305)

- 电热板梯度加热: A、100 $^{\circ}$ C@30~60 s ; B、+240 $^{\circ}$ C@120~240s。

Gradient heating of electric heating plate: A, 100°C @ 30~60 s ; B, +240°C @ 120~240s.

- 回流焊接固化:按下图回流曲线加热固化,以 SAC305 合金为例,根据焊料金属调整。

Reflow oven : Heat cure according to the reflow curve as shown below.



五、包装储存 Package and storage

1. 包装 Package

- 罐装: 50g/罐, 宽口型塑胶 (PE) 瓶包装, 并盖上内盖密封封装, 送货时可用泡沫箱盛装。

Canned: 50g/bottle, wide-mouth plastic (PE) bottle, sealed with inner lid and packaged in foam box.

- 针管装: EFD 针筒 20g/30cc 包装, 可按客户要求包装, 运输时采用冰袋、泡沫箱+纸箱包装。

Needle tube: The dispensing syringes are packed in 20g/30cc according to customer's requirements. They are packed in ice bags, foam boxes and cartons during transportation.

2. 运输储存 Transport storage

- 运输条件: 冰袋冷藏运输 Transport: Ice pack refrigerated transportation.

- 储存条件: 收到后应尽快将其放进冰箱储存, 建议储存温度为 $-20 \pm 5^\circ\text{C}$ 。温度过高会相应缩短其使用寿命, 影响其特性。

Storage: It should be stored in the refrigerator as soon as possible after receipt. The recommended storage temperature is $-20 \pm 5^\circ\text{C}$. If the temperature is too high, it will shorten its service life and affect its characteristics.

- 有效期限: 在 $-20 \pm 5^\circ\text{C}$ 正常密封储存条件下, 有效期为6个月。

Shelf life: 6 months under normal sealed storage conditions of $-20 \pm 5^\circ\text{C}$.

- 工作时间：建议回温后24小时内使用完毕。
Work time: Used within 24 hours after returning to temperature.

六、使用方法：Instructions

- ✓ 回温方式：不开启盖子的前提下，于室温中自然回温；回温次数不超过两次；
Recovery method: don't open the bottle cap until the solder is close to room temperature, No more than two times of temperature return;
- ✓ 回温时间：室温下回温2~3小时。达到热均衡所需要的实际时间因容器大小而异。
Recovery time : Generally, paste should be removed from refrigeration 2~3 hours before use. Actual time to reach thermal equilibrium will vary with container size.
- ✓ 注 意：未经充足“回温”，不要打开瓶盖，不可用加热的方式缩短“回温”时间；
Note: without enough "recovery", DO NOT open the bottle caps. DO NOT try to heat the paste to lower recovery time.
- ✓ 使用环境：助焊胶最佳使用环境温度为20~25℃，相对湿度40~60%RH。建议在氮气保护环境下进行回流焊。
Using environment: The best temperature for using the epoxy flux is 20 to 25 °C, relative humidity 40-60% RH. Suggestions reflow soldering under nitrogen protection.
- ✓ 钢网清洗溶剂：醚类，优选丙二醇甲醚（PM）等。
Stencil cleaning solvent: ethers, preferably propylene glycol methyl ether (PM), etc.

七、健康与安全方面应注意事项 Health and safety considerations

注意！Note!

以下资料仅提供给使用者作参考，用户在使用前应了解清楚。详细内容请查阅本品物料安全数据表(MSDS)。
The following information is provided for users' reference only. Users should know clearly before using it. For details, please refer to the material safety data sheet (MSDS) of this product.

本制品不含受管制的特定化学物质，也不含有机溶剂中毒预防规则中所规制的有机溶剂，但仍需作必要的防范措施，以确保人体健康及安全。

This product does not contain specific chemical substances that are regulated, nor does it contain organic solvents that are regulated in the Organic Solvent Toxicity Prevention Regulations. However, necessary precautions must be taken to ensure human health and safety. For products containing lead, the operation should be carried out in accordance with the Labor Safety and Health Act and lead poisoning prevention rules.

- 助焊胶是一种化学产品，混合了多种化学成份，应切记避免近距离嗅闻其气味，更不可食用。

Epoxy Flux is a chemical product that is mixed with a variety of chemical ingredients. should remember to avoid close smell of its smell, not to be edible.

- ii. 在焊接固化过程中，助焊胶中产生的部分烟雾会对人体的呼吸系统产生刺激，长时间或一再暴露在其废气中可能会产生不适，因此应确保作业现场通风良好，焊接设备必须安装充足的排气装置，将废气排走。

In the welding process, part of the smoke generated by the epoxy flux will stimulate the respiratory system of the human body, which may cause discomfort if exposed to the exhaust gas for a long time or repeatedly. Therefore, it is necessary to ensure good ventilation in the operation site.

- iii. 应有必要的防范措施避免助焊胶接触皮肤和眼睛。若不慎接触到皮肤，则应立即用肥皂和清水彻底清洗干净。若不慎让锡胶接触眼睛，则需立即用清水冲洗 10 分钟以上，并尽快送医院医治。

Necessary precautions should be taken to prevent the epoxy flux from touching the skin and eyes. In case of contact with the skin inadvertently, the place should be immediately cleaned with soap and water. If the epoxy flux contact the eyes carelessly, it shall be immediately washed with water for more than 10 minutes and sent to the hospital as soon as possible.

- iv. 作业过程中不允许饮食、抽烟，作业后须先用肥皂或温水洗手后才能进食。

No eating or smoking is allowed in the course of homework. After homework, you must wash your hands with soap or warm water before eating.

- v. 虽然本品之溶剂系统闪点较高，但仍然易燃，应避免接近火源。若不慎着火，可用二氧化碳或化学干粉、泡沫灭火器进行灭火，不可用水灭火。

Although the solvent system of this product has a very high flash point, it is still flammable and should be avoided. If you accidentally catch fire, use carbon dioxide or chemical dry powder fire extinguisher to extinguish the fire. Do not use water to extinguish the fire.

- vi. 废弃的助焊胶和清理后沾有助焊胶污渍的清洁布不能随意掉弃，应将其装入密封容器中，并按国家和地方的相关法规处置。

The waste epoxy flux and the cleaning cloth with epoxy flux stains after cleaning shall not be discarded at will. It shall be put into a sealed container and disposed of in accordance with relevant national and local regulations.