



ISO9001/ISO14001/JIS 认可 工厂

# SOLDER COAT 株式会社

SOLDER COAT CO., LTD.

ISO9001/ISO14001/JIS authorized factory  
www.soldercoat.co.jp E-mail:scmain@soldercoat.co.jp

## ■公司概况

创 业 1952年10月  
资 本 5,000万日元  
代 表 代表取締役社长 成田雄彦  
业 务 各种焊锡制造, 焊锡周边机器的销售,  
机器的维修保养及分析

## ■Company profile

Establishment : October, 1952  
Capital : 50 million yen  
Representative director : Takahiko Narita  
Business : Manufacture of solder product,  
Sales of equipment related to soldering,  
maintenance/inspection  
and analysis/diagnosis of the equipment

## ■总公司·总公司工厂

458-8508 名古屋市绿区鸣海町字长田75-1  
TEL 052-891-8451 FAX 052-891-3324

## ■Head Office and Main plant

75-1 Choda, Narumi-Cho, Midori-ku, Nagoya-City, Aichi, Japan  
Phone 81-52-891-8451 FAX 81-52-891-3324

## ■东京营业所

189-0001 東京都东村山市秋津町3-55-13  
TEL 042-392-3271 FAX 042-392-2735

## ■Tokyo Sales Office

3-55-13 Akitsu-Cho, Higashi-Murayama-City, Tokyo, Japan  
Phone 81-42-392-3271 FAX 81-42-392-2735

## ■大阪营业所

572-0075 大阪府寝屋川市葛原1-35-10  
TEL 072-839-5021 FAX 072-839-5023

## ■Osaka Sales Office

1-35-10 Kuzuhara, Neyagawa-City, Osaka, Japan  
Phone 81-72-839-5021 FAX 81-72-839-5023

## ■饭田工厂

395-0243 长野县饭田市箱川8-11  
TEL 0265-25-1281 FAX 0265-25-1483

## ■Iida Factory

8-11 Hakogawa, Iida-City, Nagano, Japan  
Phone 81-265-25-1281 FAX 81-265-25-1483

## ■TRIANGLE SC CO., LTD.

香港新界沙田火炭山尾街43-47號  
環球工業中心 1樓 110室  
TEL 852-2947-7533 FAX 852-2947-7566

## ■TRIANGLE SC CO., LTD.

Flat 10, 1/F., World-Wide Industrial Centre43-47  
Shan Mei Street, Ho Tan, Shatin, N.T. Hong Kong  
Phone 852-2947-7533 FAX 852-2947-7566

## ■TAYA-SOLDER COAT CO., LTD.

中国江苏省昆山市陆家镇赵田路9号  
TEL 0512-57078680 FAX 0512-57078690

## ■TAYA-SOLDER COAT CO., LTD.

No.9, Zhao Tian Road, Lu Jia Town, Kunshan City,  
Jiang Su Province, China215331  
Phone 0512-57078680 FAX 0512-57078690

## ■SOLDER COAT (THAILAND) CO., LTD.

19/63 Moo 10, Khlong Neung, Khlong uang,  
Pathumthani 12120 Thailand

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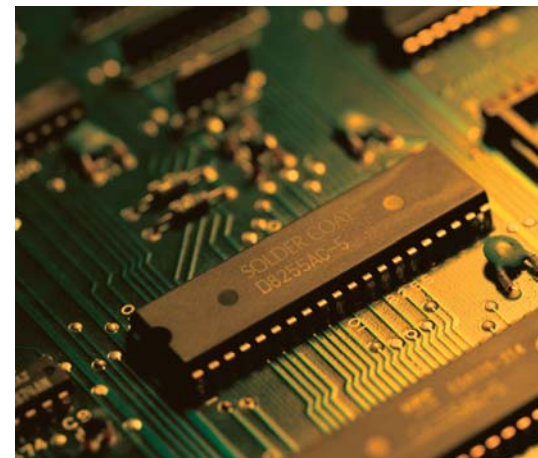
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# SOLDER COAT

PRODUCTS CATALOG

# 我们能以提供最优质的产品 & 恰当的建议， 满足客户对焊锡产品的多元化及高品质化的要求。

We respond to the customers' various demand to seek for higher level of technique with the quality of our product, and offers a proposal that is most appropriate for the customers.



高质素的无铅焊锡，没有对环境带来任何负担，既超出了以往的工业常识，又实现了焊锡的高性能。我们所提供的多样化的产品，能够应用在所有的加工工艺上，使每个客户都能满足。

We realized high performance Lead-free solder material. The material does not contain the substance that is burden to the environment, which is beyond the common knowledge of the industry. We target the customer's satisfaction offering broad wide range of the line-up of the product which is available for every kind of machining demands.

## ● 对应所有的焊锡工程

Suitable for all kinds of soldering process

对应客户的各种各样的工艺要求，我们提供满足所有焊锡工程的产品。

Our best range of products serves all kinds of soldering process to meet each customer's specification.

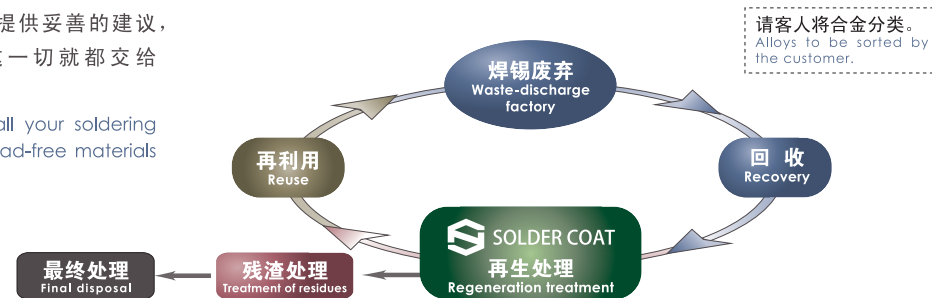


## ● 焊锡资源的循环利用

SOLDER COAT Recycling of Solder Resources

从无铅材料的提供到为您提供妥善的建议，到循环再利用的实施，这一切就都交给 SOLDER COAT 来作吧。

Solder Coat take care of all your soldering needs, from the supply of lead-free materials to waste recycling.



## 焊锡合金产品

Solder Alloy



可在所有温度区域使用的无铅焊锡合金

All temperature range lead-free solder alloy

焊锡合金产品一览 Solder Alloy line-up

● 标准品 Standard product ● 定制品 Available by request

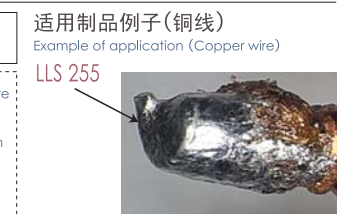
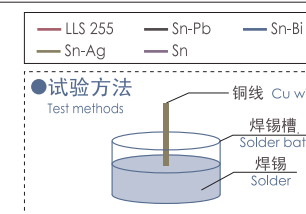
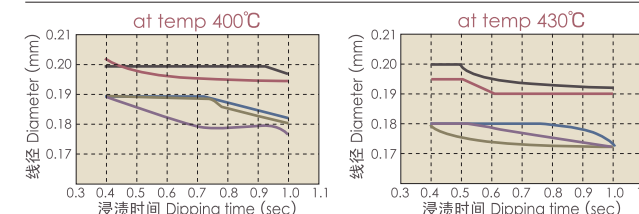
产品名称 Products	熔融温度 Temp.(°C)		形状 Form					合金成分 Alloy composition	
	固相线 Solidus temp.	液相线 Liquidus temp.	棒 Bar	焊锡膏 Paste	含松香线 Flux cored	线 Wire	BGA球 Ball		
高温 High-Temp.	LLS 385	385	●			●		Zn-Al	
	LLS 380	199	340~370	●			●	Sn-Zn-Cu-Ni	
	LLS 375	217	375	●				Sn-Ag-Cu	
	LLS 257	217	330	●			●	Sn-Ag-Cu	
	LLS 255	227	335	●		●	●	Sn-Cu	
	LLS 250	227	310	●		●	●	Sn-Cu	
LLS 240	235	240	●	●		●	●	Sn-Sb	
中温 Middle-Temp.	LLS 227	227	●			●	●	Sn-Cu	
	LLS 227N <sup>※1</sup>	227	●	●	●	●	●	Sn-Cu-Ni-Ge	
	LLS 227α <sup>※1</sup>	227	●	●	●	●	●	Sn-Ag-Cu-Ni-Ge	
	LLS 227L	227	●			●	●	Sn-Cu-X	
	LLS 225	217	227	●	●	●	●	Sn-Ag-Cu	
	LLS 221	221	●	●	●	●	●	Sn-Ag	
	LLS 220	217	222	●		●	●	●	Sn-Ag-Cu
	LLS 220α <sup>※2</sup>	217	223	●		●	●	●	Sn-Ag-Cu-Ni-Ge
	LLS 219 <sup>※3</sup>	217	219	●	●	●	●	●	Sn-Ag-Cu
	LLS 219L <sup>※4</sup>	217	219	●		●	●	●	Sn-Ag-Cu-X
	LLS 219α <sup>※2</sup>	217	220	●	●	●	●	●	Sn-Ag-Cu-Ni-Ge
	LLS 219β <sup>※5</sup>	214	216	●	●	●	●	●	Sn-Ag-Cu-Ni-In
	LLS 217	217	●	●	●	●	●	●	Sn-Ag-Cu
	LLS 217α <sup>※2</sup>	217	219	●		●	●	●	Sn-Ag-Cu-Ni-Ge
	LLS 215	202	214	●		●	●	●	Sn-Ag-Cu-Bi-In
	LLS 210	207	213	●	●	●	●	●	Sn-Ag-Cu-In
	LLS 199	199	●	●	●	●	●	●	Sn-Zn
	LLS 198 <sup>※6</sup>	198	200	●		●	●	●	Sn-Ag-Al
LLS 195	195	197	●		●	●	●	Sn-Zn-Bi	
LLS 190	191	196	●		●	●	●	Sn-Zn-Bi	
低温 Low-Temp.	LLS 140	138	170	●	●		●	●	Sn-Bi-Cu
	LLS 138	138	●	●		●	●	●	Sn-Bi
	LLS 109	100	109	●			●	●	Sn-Bi-In
LLS 78	78	81	●			●	●	Sn-Bi-In	

※授权产品 Licensed products ※1: JP PAT No.3152945 etc. ※2: JP PAT No.3296289 / US PAT No.6179935B1 ※3: JP PAT No.3027441 / US PAT No.5527628  
※4: JP PAT No.3599101 ※5: JP PAT No.3776361 etc. ※6: JP PAT No.3357045 ※7: JP PAT No.4135268

## 高温 High-Temp. LLS 255

在所有温度区域铜的腐蚀量与 Sn-Pb 等同或更低。  
At all temperatures, the copper corrosion amount is equal to or less than that of Sn-Pb.

◎铜腐蚀量比较 Comparison of copper corrosion amount





# 焊锡膏

Solder Paste

丰富的多样化产品以对应不同的用途及条件

Various line-up responding to the customer's purpose and conditions of usage.

## 无铅焊锡膏产品一览 Solder Paste line-up

产品名称 Products	合金 Alloy	熔融温度 Temp.(°C)		粉末粒径 Diameter (μm)	特征 Features	每个单位容量 Capacity/pcs
		固相线 Solidus temp.	液相线 Liquidus temp.			
AC 240	LLS 219	217	219	25~38	用于汽车, 可靠性高 (N2回流用) For automobiles, High reliability (For N2 reflowing)	1kg 500g 250g
MT LF 219	LLS 219	217	219	25~38	用于民生, 通用性高 (可满足各种各样的需求) For commercial use, High versatility (Suitable for various needs)	
MT LF 225	LLS 225	217	227	25~38	低成本 (锡球用) Low amount of silver, Low cost (For solder ball)	
MT LF 227N	LLS 227N	227		25~38	低成本, 通用性高 Low amount of silver, Low cost, High versatility	
DP LF 219	LLS 219	217	219	25~38	减少空洞 Decreased void	
XFP LF 219	LLS 219	217	219	25~38	不含卤素 Halogen-free	
MS LF 219	LLS 219	217	219	25~38	用水清洗, 不含卤素, 满足VOC标准 Water soluble, Halogen-free, Satisfies VOC standards	
LT LF 140	LLS 140	138	170	25~53	低成本, 低熔点 Low cost, Low melting point	

有关其他合金成分, 粒径, 以及容量的查询, 请与我们联系。

Please consult our sales representative for other types of products with a different alloy composition, grain diameter, paste capacity

## 低成本 Low cost LLS 225 · LLS 227 · LLS 227N · LLS 227L

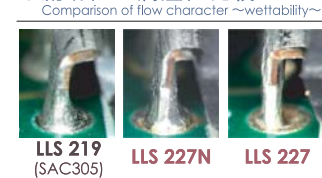
既发挥与SAC305同等的性能, 而成本与SAC305相比大约可降低20~40%。

Cost can be reduced by approx. 20% to 40% when compared to SAC 305.

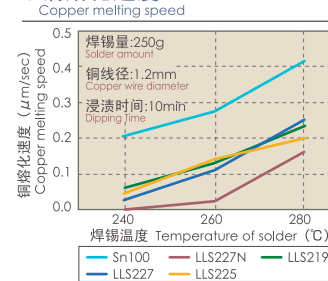
产品名称 Products	合金成分 Alloy composition					强度 Strength (MPa)	伸长 Elongation (%)	成本比较 Comparison of cost
	Sn	Ag	Cu	Ni	Ge			
LLS 219 (SAC305)	Bal.	3.0	0.5	—	—	39.7	74	1
LLS 225	Bal.	0.3	0.7	—	—	34.6	55	0.65
LLS 227	Bal.	—	0.7	—	—	29	53	0.6
LLS 227N *1	Bal.	—	0.6	0.05	≤0.01	30	58	0.62
LLS 227L	Bal.	0.12	0.7	0.05	≤0.01	30.1	60	0.63

\*1: 从日本索尼利亚股份有限公司获得授权  
Licensed by Nihon Superior Co., Ltd.

### 流动性~润湿性比较~



### 铜熔化速度

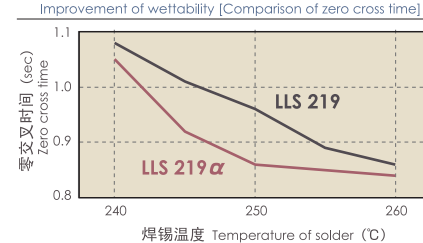


## 低不良率与高可靠性 Defective rate decrease / High reliability LLS 219α

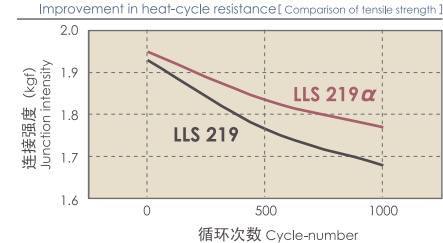
LLS 219α是直接继承具有优越性能的LLS 219的使用条件并进一步提高了“润湿性”和“耐热疲劳性”的合金。

The LLS 219α is an alloy with further improved wettability and heat-cycle resistance properties, and that inherits the superlative performance of the LLS 219.

### 提高润湿性[零交叉时间比较]



### 提高耐热疲劳性[QFP 拉伸强度比较 / -40~125°C]



### 减少缩孔

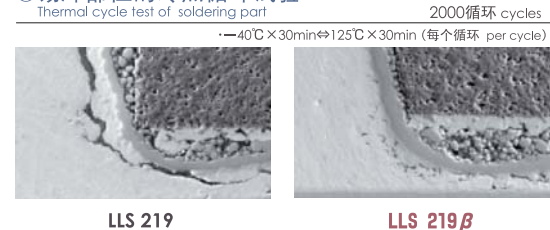


## 超长寿命 Super long life LLS 219β

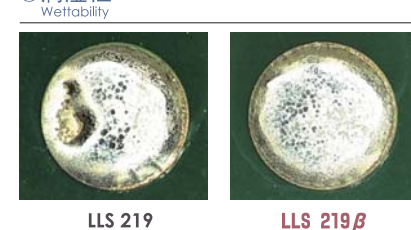
抑制焊盘中的铜与焊锡合金中的锡生成化合物, 获得了高可靠性。

Generation of inter-metallic compounds from the copper in the land and solder alloy tin is minimized, thus achieving higher reliability.

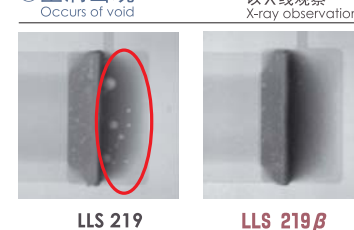
### 锡焊部位的冷热循环试验



### 润湿性



### 空洞出现



## 超塑性、低熔点 Super ductile / Low melting LLS 140

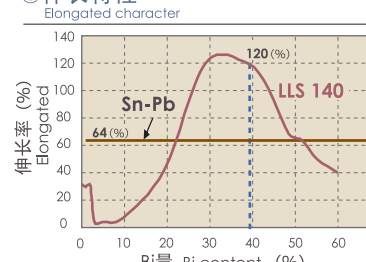
属于超塑性合金, 与Sn-Pb相比, 强度是其1.5倍以上、延展性是其2.5倍。

Over 1.5 times better strength 2.5 times better elongation than Sn-Pb.

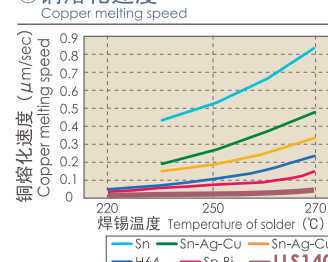
### 拉伸试验



### 伸长特性



### 铜熔化速度



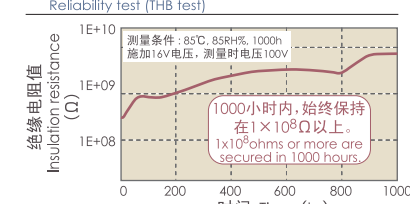
## 可靠性高, 免清洗 High reliability / Non clean AC 240

这种焊锡膏可靠性高, 可抑制锡渣裂纹与电迁移, 在车载设备上得到广泛应用。

A high reliability solder paste that prevents residue cracking and migration, and that possesses a record of use for automotive instruments.

黏度 (Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.55~0.65
卤素含量 (%) Halogen content	<0.05
绝缘电阻值 (Ω) Insulation resistance	>1.0×10 <sup>8</sup>
铜板腐蚀试验 Copper corrosion test	合格 Pass

### 可靠性试验 (THB试验)



### 锡渣裂纹比较



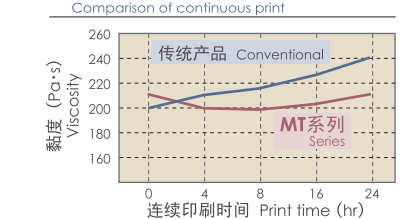
## 标准 General commercial product MT LF 219

这种焊锡膏既具有优越的连续印刷性, 又可抑制电迁移的发生, 用途广泛。

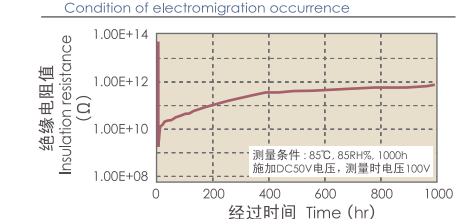
A high versatility solder paste that possesses outstanding continuous printability and prevents the occurrence of migration.

黏度 (Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.55~0.65
卤素含量 (%) Halogen content	<0.05
绝缘电阻值 (Ω) Insulation resistance	>1.0×10 <sup>9</sup>
铜板腐蚀试验 Copper corrosion test	合格 Pass

### 连续印刷性比较



### 电迁移发生状况



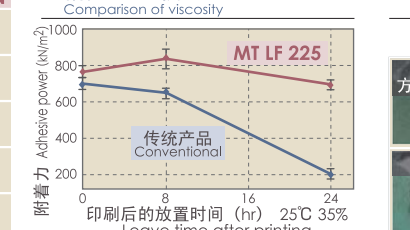
## 低成本 Low cost MT LF 225 · MT LF 227N

这种焊锡膏既追求低成本, 又提高了粘附性和耐腐蚀性。

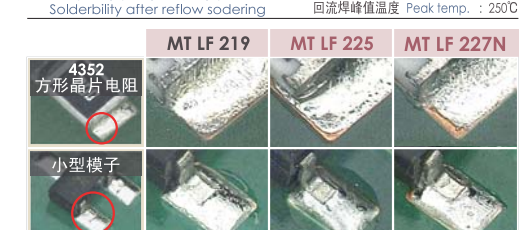
A solder paste featuring improved viscosity and corrosiveness at a low cost.

黏度 (Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.55~0.65
卤素含量 (%) Halogen content	<0.05
绝缘电阻值 (Ω) Insulation resistance	>1.0×10 <sup>9</sup>
铜板腐蚀试验 Copper corrosion test	合格 Pass

### 粘附性比较



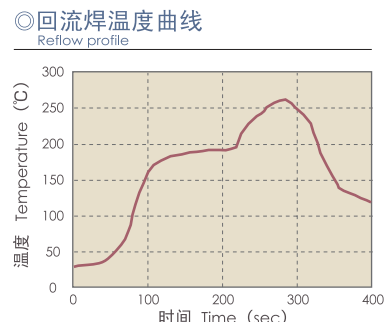
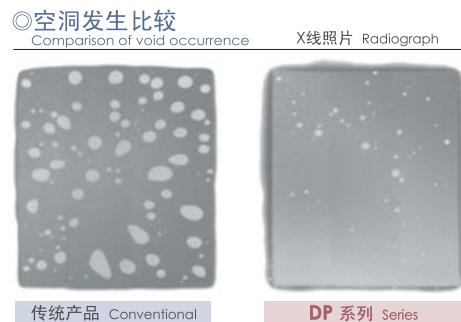
### 回流焊接后的焊接性



## 减少空洞 Decreased void type DP LF 219

即使高温预热也可大幅抑制空洞的出现,使用半水溶剂清洗液可获得良好的清洗性。  
Decreases occurrence of voids, even with high-temperature preheating. Shows good cleaning performance with semi-aqueous cleaning solvent.

黏度(Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.60~0.70
卤素含量(%) Halogen content	<0.05
绝缘电阻值(Ω) Insulation resistance	>1.0×10 <sup>9</sup>
铜板腐蚀试验 Copper corrosion test	合格 Pass



## 不含卤素 Halogen-free XFP LF 219

这种焊锡膏既确保卓越的焊接性,又将助焊剂的飞溅控制在最低限度。  
A solder paste that realizes outstanding solderability while also reducing flux splash to the lowest possible amount.

黏度(Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.55~0.65
卤素含量(%) Halogen content	检测下限 *1 Lower limit of detection
绝缘电阻值(Ω) Insulation resistance	>1.0×10 <sup>9</sup>
铜板腐蚀试验 Copper corrosion test	合格 Pass

\*1: 燃烧-离子色谱法  
Combustion - Ion Chromatography

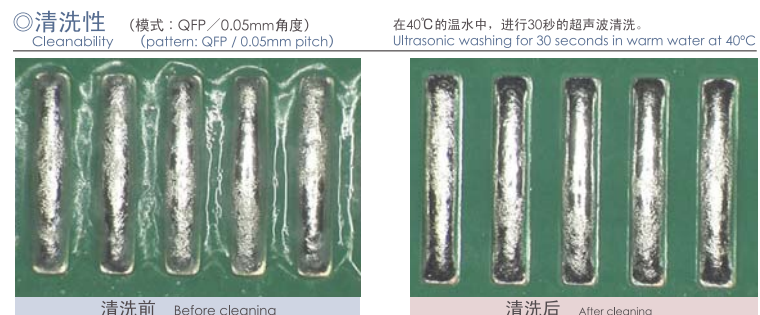


## 可用水清洗、不含卤素 Water soluble / Halogen-free MS LF 219

这种焊锡膏不含卤素,符合VOC标准,无环境污染,具有卓越的清洗性。  
Environmentally friendly non-halogen type solder paste which has cleared VOC standards and offers outstanding cleanability.

黏度(Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.40~0.50
卤素含量(%) Halogen content	检测下限 *1 Lower limit of detection
绝缘电阻值(Ω) Insulation resistance	>1.0×10 <sup>8</sup> *2
铜板腐蚀试验 Copper corrosion test	合格 Pass

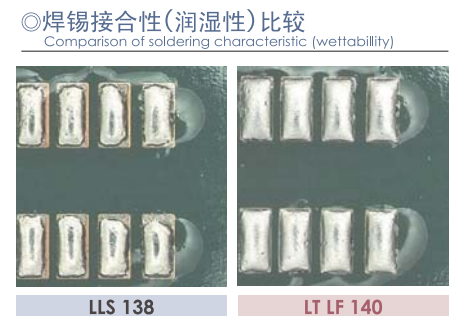
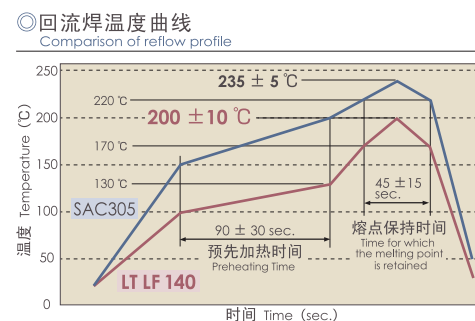
\*1: 燃烧-离子色谱法  
Combustion - Ion Chromatography  
\*2: 使用经过水清洗的基板  
Uses a circuit board that has been cleaned with water.



## 低熔点 Low melting paste LT LF 140

这种锡膏可从回流焊峰值温度190°C开始锡焊。  
A solder paste for which soldering is possible from a reflow peak temperature of 190 °C.

黏度(Pa·s) Viscosity	180~220
触变指数 Thixotropic Index	0.60~0.70
卤素含量(%) Halogen content	<0.05
绝缘电阻值(Ω) Insulation resistance	>1.0×10 <sup>9</sup>
铜板腐蚀试验 Copper corrosion test	合格 Pass



## 含松香的焊锡线 Flux Cored Solder

Flux Cored Solder



新开发的含松香焊锡拥有超凡的操作性及可靠性  
Newly developed flux realized exceptional workability and reliability.

### 含松香的焊锡线产品一览 Flux Cored Solder line-up

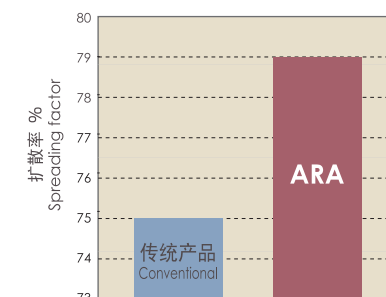
产品名称 Products	型号 Type	卤素含量 Halogen Content (wt%)	铜板腐蚀试验 Copper corrosion test	绝缘电阻值 Insulation resistance (Ω)	扩散率 Spreading Factor (%)	主要特征 Features	线径 Diameter (mm)	重量 Weight
ARA	RA	<0.4	合格 Pass	>5.0×10 <sup>9</sup>	>75	通用型号 General purpose	0.1~1.6	1kg 500g 250g
GR	RMA	<0.1	合格 Pass	>1.0×10 <sup>9</sup>	>75	高可靠性 High reliability		
GR-III	RA	<0.4	合格 Pass	>1.0×10 <sup>9</sup>	>80	提高瞬间润湿性 Improved instantaneous wettability		
GR-III(M)	RA	<0.4	合格 Pass	>1.0×10 <sup>9</sup>	>75	降低飞溅 Reduces flux splash		
XFC	RMA	检测下限 *1 Lower limit of detection	合格 Pass	>5.0×10 <sup>9</sup>	>75	不含卤素 Halogen-free		

\*1: 燃烧-离子色谱法  
Combustion - Ion Chromatography

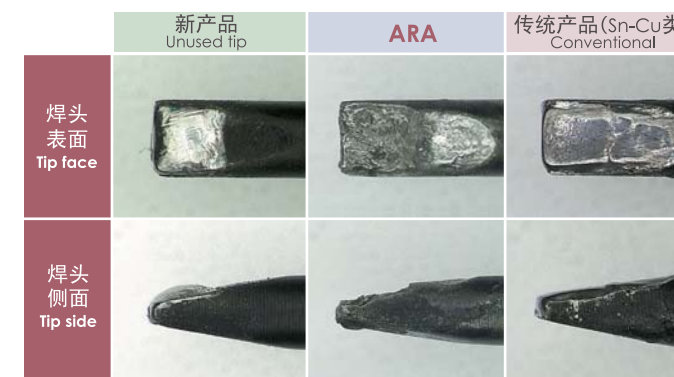
### 含松香焊锡标准 Stand flux cored solder ARA

具有优良的操作性,减少焊头的交换次数  
The frequency of soldering tip changing is low owing to excellent workability.

#### 扩散试验 Spreading test



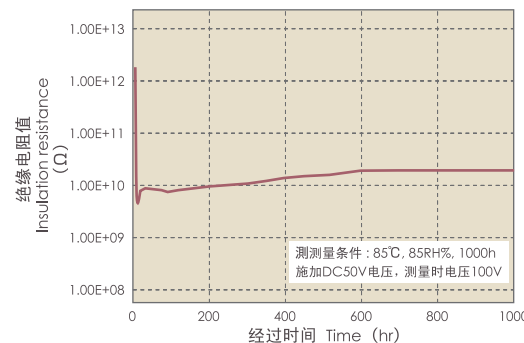
#### 焊头腐蚀试验 (焊接10,000次后的焊头腐蚀状况) Erosion of soldering tip test (Erosion of tip after 10,000 shots)



### 高可靠性 High reliability GR

这种含松香焊锡可抑制电迁移和铜腐蚀的发生,提高可靠性。  
Increased reliability flux cored solder that suppresses the occurrence of migration and copper corrosion.

#### 电迁移试验 Electromigration test



#### 铜板腐蚀试验 Copper corrosion test





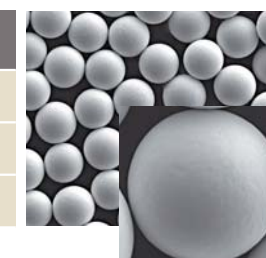
BGA Solder Ball

## 组装用微型焊锡球

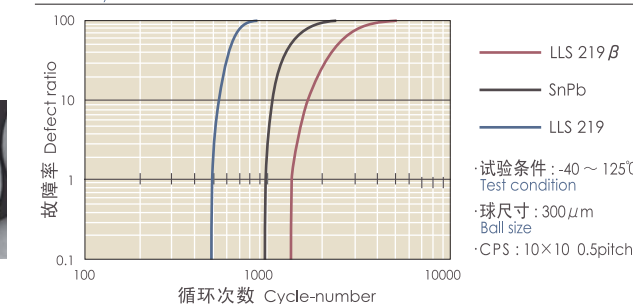
以新开发的技术METAL JET TECHNOLOGY, 制造出高精密度以及低成本的球形, 同时以微量添加物, 提升耐热疲劳及接合性

Highly accurate sphere and low cost are achieved by a newly developed metal jet method. Addition of micro-additives increased heat-cycle resistance and bonding ability.

球径 Sphere Diameter (mm)	公差 Tolerance (mm)
0.10~0.15	±0.005
0.20~0.60	±0.010
0.65~0.80	±0.015



耐热疲劳试验  
Heat-cycle resistance test

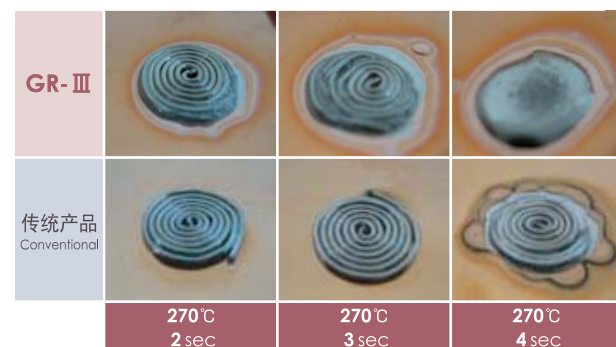


## 优越的瞬间润湿性 Superior instantaneous wettability GR-III

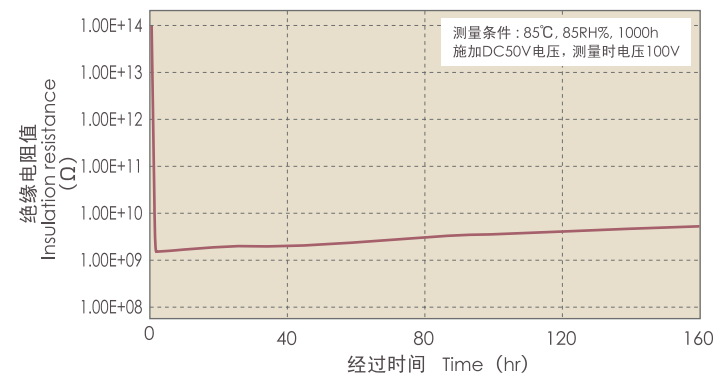
缩短开始熔化所需的时间, 既抑制电迁移又提高操作性和可靠性。

Reduces the time until the start of melting and also suppresses migration, thus offering both workability and reliability.

瞬间润湿性试验  
Instantaneous wettability test



电迁移试验  
Electromigration test

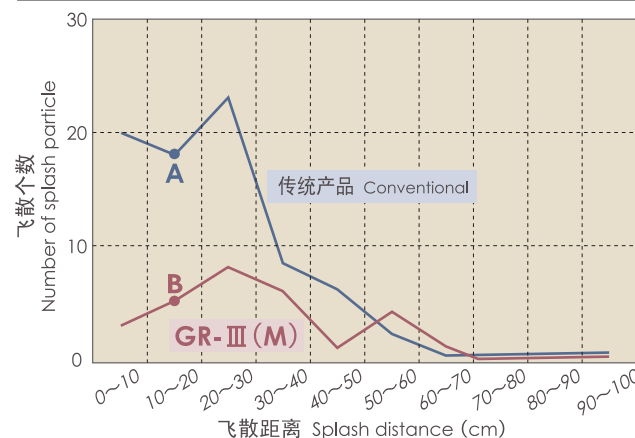


## 降低飞散 Reduces flux splash GR-III (M)

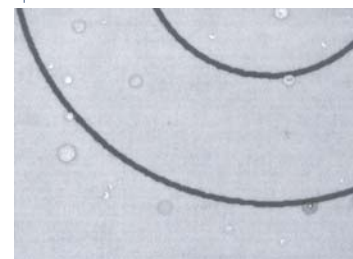
大幅降低助焊剂飞散的含松香焊锡。

Flux cored solder with significantly reduced flux splash.

飞散试验  
Splash test



A点的飞散状况  
Splash condition at Point A

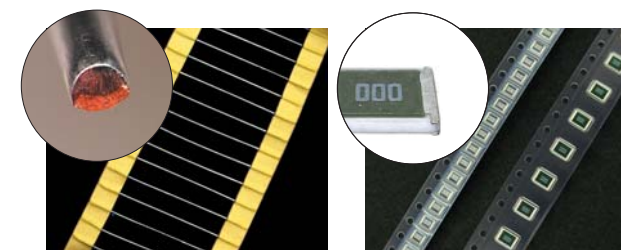


B点的飞散状况  
Splash condition at Point B



## 用于部件电镀和制作锡球的锡

对应高纯度, 高品质, 多机能等多方面要求  
Responding to every kinds of the demand such as high purity and high quality.



铅线电镀 Lead wire coating

端子电镀 Terminal coating

用于制作锡球的锡  
Tin Shot



产品名称 Products	合金成分 Alloy composition
Sn-1	三菱材料 Sn Mitsubishi material
Sn-2	4N Sn
Sn-3	3N Sn

球径 Diameters (mm)	10	13	15	19	20	25	27	30	40	45	50	55
允许公差 Tolerance (mm)	±1.0											

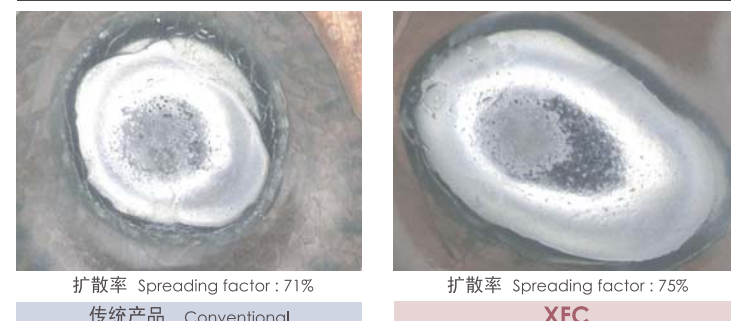
※有关其他成分查询请与我们联络。  
Please consult with our sales representative for other compositions.

## 不含卤素 Halogen-free XFC

尽管不含卤素, 却具有优越的润湿性。

Offers superior wettability even while being halogen-free.

扩散性试验  
Spreading test



### 无卤的定义

氯(Cl)含量: ≤900ppm  
溴(Br)含量: ≤900ppm  
氯溴总含量: ≤1500ppm  
(燃烧-离子色谱法)

### Definition of Halogen-free

Chlorine content: ≤900ppm  
Bromine content: ≤900ppm  
Combined chlorine and bromine content: ≤1500ppm  
(Combustion - Ion Chromatography)

## 预先形状

Pre-form

为配合不同用途, 我们提供了丝带形, 环形, 介子形等产品, 以对应各类型的变化要求。  
Can be preformed to suit various specifications of use.



箔 Foil



晶片 Chip



尺寸 Size (mm)	10φ×10L	10φ×20L	10φ×40L
允许公差 Tolerance (mm)	±1.0		

## 焊锡用助焊剂

Flux for Soldering



我们会提供最合适的助焊剂以对应不同的组成及用途。  
Optimal fluxes are available for a wide range of alloy compositions and applications.

### ◎波峰焊用助焊剂(后补助焊剂) Flux for flowing (Post Flux) line-up

产品名称 Products	外观·色 Exterior and color	比重 Specific gravity	固形分含量 (wt%) Solid content	卤素含量 (wt%) Halogen Content	扩散率 (%) Spreading factor	绝缘电阻值 (Ω) Insulation Resistance	锡渣腐蚀性 Residue corrosiveness
SP-001	淡黄色透明 Pale yellow transparency	0.82 ± 0.03	15 ± 2	<0.1 *1	80 ± 3	>1.0×10 <sup>10</sup>	无腐蚀 No corrosiveness
SP-002	淡黄色透明 Pale yellow transparency	0.80 ± 0.03	5 ± 1	<0.1 *1	80 ± 3	>1.0×10 <sup>10</sup>	无腐蚀 No corrosiveness
SP-003	淡黄色透明 Pale yellow transparency	0.86 ± 0.03	30 ± 2	<0.1 *1	80 ± 3	>1.0×10 <sup>10</sup>	无腐蚀 No corrosiveness
SHF-001	淡黄色透明 Pale yellow transparency	0.82 ± 0.03	15 ± 2	检测下限 *2 Lower limit of detection	>70	>1.0×10 <sup>10</sup>	无腐蚀 No corrosiveness

\*1: JIS Z 3197 \*2: 燃烧-离子色谱法 Combustion - Ion Chromatography

### ◎铜焊用水溶性助焊剂 Water-soluble flux for brazing line-up

产品名称 Products	用途 Application	PH	比重 Specific gravity	外观·色 Exterior and color	特征 Features
SCW-508	一般用 All purpose	<1.0	1.5~1.6	黄色透明 Yellow transparency	用于大部分的金属上 Soldering is possible for almost all metals
SW-709	不锈钢用 For stainless steel	<1.0	1.5~1.6	无色透明 Colorless and transparency	没有粘的感觉, 润湿性良好 No stickiness, Excellent wettability
KS-608	铝材用 For aluminum	<1.0	1.5~1.6	无色透明 Colorless and transparency	最适合用于铝材上 Optimal for aluminum material

在热盘上加热: 250°C  
Heating by hot plate  
所用焊锡合金: LLS219  
Type of solder alloy used



镍板 Nickel(Ni) SCW-508



铁板 Iron(Fe) SCW-508



不锈钢板 Stainless steel SW-709

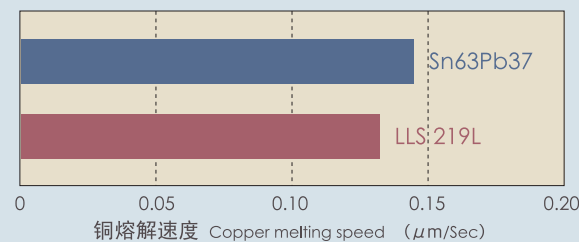
## 整平机(焊料涂敷装置)专用焊锡 Solder for the leveler (solder coater)

※形状均为「焊锡棒」  
All of the forms are bar solder.

※补充用 For refill

产品名称 Products	合金成分 Alloy system	每盒容量 Capacity per box
LLS 219L	Sn-Ag-Cu-X	20kg
LLS 219AL	Sn-Ag-X	
LLS 220L	Sn-Ag-Cu-X	
LLS 220AL	Sn-Ag-X	
LLS 225L	Sn-Ag-Cu-X	
LLS 225AL	Sn-Ag-X	
LLS 227L	Sn-Cu-X	
LLS 227AL	Sn-X	

### ◎LLS 219L 铜腐蚀试验 Copper corrosion test



219L的铜腐蚀量限制在与Sn63Pb37同以下水平。  
The copper corrosion amount of LLS 219L can be held to a level that is equal to or less than that of Sn63Pb37.

## 周边机器 垂直整平机(焊料涂敷装置)

Vertical Leveler (Solder Coater)

最适合基板前处理的焊锡整平机  
Solder levelers which are ideal for preprocessing of circuit boards.

### Product:1 HAL-211

#### 1. 针对无铅焊锡的设计

- 透过加大加热管位的容量, 以及扩大焊锡槽, 稳定了焊锡温度。
- 焊锡槽的材质采用了SUS316, 防治焊锡槽因无铅化而被腐蚀。
- 空气加热器的容量也扩大了, 使空气的设定也稳定了。

#### 2. 驱动部分的构造使用高可靠性的HS-651

- 驱动部分是采用HS-651同样的结构, 以确保其可靠性。

#### 3. 高效率及节省空间的垂直型机器

- 采用可以快速处理的垂直型机器, 更能节省地方。

#### 1. Lead-free solder design

- Stabilization of solder temperature is realized by large capacity of the pipe heater and enlarged size of solder bath.
- Lead-free SUS316 is used for the material of solder bath to prevent corrosion of the solder bath.
- Increased air heater capacity stabilizes the set air temperature.

#### 2. Highly reliable HS-651 structure for the driving section

- A structure similar to HS-651 is adopted as the driving section to ensure reliability.

#### 3. Highly efficient & energy saving vertical type leveler

- Vertical type leveler is applied in order to save space and improve speed processing.



HAL-211

### Product:2 HAL-311

#### 1. 采用轻触式操纵屏幕

- 所有机能均能集中控制。
- 能够以微调设定来控制加热管位的温度。
- 保存 记录有关数据。
- 随时提取旧有数据, 重新作业。
- 可以将数据转移至电脑作储存及运作。

#### 2. 针对无铅专用设计

- 通过加大加热管位的容量, 使焊锡温度稳定。(15kw→17kw)
- 通过加大焊锡槽的容量, 使焊锡温度稳定化。(比原来高出15%UP)
- 为对应槽位因无铅焊锡而腐蚀的问题, 焊锡槽位改为使用SUS316。
- 由于焊锡温度可以作出微调, 焊锡的设定温度得以稳定。

#### 3. 以实绩来培养出信赖的驱动部

- 驱动部使用HS-601-D的结构, 提高信赖性。
- 由于使用相同结构, 使零件供应可以交换, 提高可靠性。

#### 1. Touch panel system

- All functions are centrally controlled.
- Pipe heater control allows minute control of solder temperature.
- Data are recorded and stored.
- Past data can be called up for reapplication.
- Data can be transferred to PC for accumulation and editing.

#### 2. Lead-free exclusive design

- Increased solder pipe heater capacity stabilizes solder temperature (15kw→17kw)
- Increased solder tank capacity stabilizes solder temperature (15% larger than the conventional one.)
- Material of solder bath is changed to SUS316 as an anti-corrosion measure, preventing the corrosion of the bath by lead-free solder.
- Minute control of solder temperature stabilizes the set solder temperature.

#### 3. Reliable driving section built upon excellent performance

- HS-601-D structure is adopted as the driving section to increase reliability.
- Adoption of this compatible structure enables stable supply of parts.



HAL-311