TAMURA PRODUCT INFORMATION

**Technical data**

**Post-flux for printed circuit boards mounted with chip parts for Pb-free soldering**

# LEAD FREERITE EC-19S-8

## 1. Introduction

LEAD FREERITE EC-19S-8 is a high performance, mat type flux developed for automatic soldering using Pb-free solders and an excellent solderability can be obtained with it in Pb-free soldering.
This flux will demonstrate an excellent performance for the soldering of printed circuit boards designed for high-density mounting in Pb-free soldering.

## 2. Features

- An excellent solderability can be obtained in Sn/Ag/Cu, Sn/Ag/Cu/Bi and Sn/Cu based Pb-free solder.
- The product will solve troubles in soldering such as non-wetting and bridge defect in the soldering of printed circuit boards mounted with chip parts and discreet parts.
- Since the flux is of mat type and the surface of solder after soldering will present uniform matted conditions, the inspection after soldering will be easy.
- The residual flux is non-corrosive and excellent in electric insulation.
- Uniform flux coating can be achieved by foaming or spraying.

## 3. Characteristics of Product

Characteristics of LEAD FREERITE EC-19S-8 are shown in Table 1

Table 1 - Characteristics of LEAD FREERITE EC-19S-8

| Items | | Characteristics | Test methods |
|---|---|---|---|
| Appearance | | Light yellow and transparent liquid | Visual examination |
| Color number | | 3 | Gardener method |
| Specific gravity | | 0.822 | JIS Z 3197 (1986) |
| Viscosity (mPa・s) | | 3.9 | JIS Z 3197 (1986) |
| Flash point (℃) | | 11.7 | JIS K 2539 (tag closed cup) |
| Solid content (%) | | 15 | 100℃,1h |
| Chlorine content (%) | | 0.08 | JIS Z 3197 (1986) |
| Acid value | | 30 | JIS Z 3197 (1986) |
| Solder spread (%) | Sn/Ag3.0/Cu0.5 | 79 | JIS Z 3197 (1986) |
| | Sn/Ag2.5/Cu0.5/Bi1.0 | 79 | |
| | Sn/Cu0.7 | 80 | |
| | Sn/Pb37 | 92 | |
| Water extract resistivity (Ω・cm) | | $1.0\times10^{4}$ | JIS Z 3197 (1986) |
| Copper plate corrosion | | Passing | JIS Z 3197 (1986) |

## 4. Reliability

4.1 Insulation Resistance Test

Shown in Fig.1 is the stability of insulation resistance as measured in accordance with JIS Z 3197(1986). It shows no secular decline in insulation resistance, so a good insulation film.

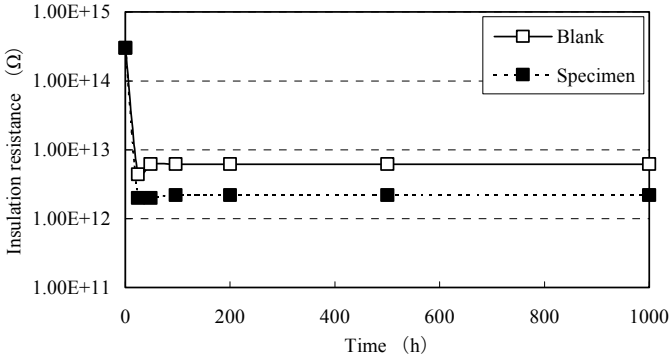



Fig.1 - Electric insulation resistance

Boards: JIS comb type electrode boards, type 2
Measurement Conditions: R.T.

4.2 Migration Test

Results of migration test as measured in accordance with JIS Z 3197(1999) are shown in Fig.2. There is no decline in insulation resistance, nor the occurrence of migration or corrosion.

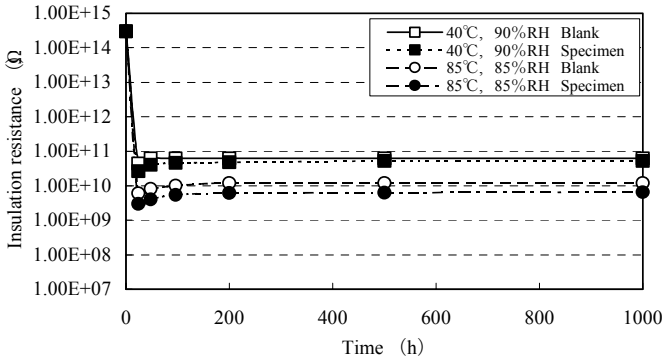



Fig.2 - Migration test

Boards: JIS comb type electrode boards, type 2, coated with flux and flow soldered (235℃) have been used.
Applied voltage: DC 50V
Measurement: Inside the tank, DC100V

## 5. Quality Guarantee Period

The quality guarantee period is 6 months after manufacture if stored in sealed containers at temperature from 0 to 30℃.

## 6. Quality Guarantee Period

- Use the specified thinner #4520 for the adjustment of flux concentration.
- When the flux becomes dense, dilute it with the Thinner #4520 by referring to Fig.3,4.
- For the container to put in the flux, use those clean and made of plastics like vinyl chloride or stainless steel. Never mix with other type of flux.
- Apply the flux by foaming or spraying. Then, uniform coating can be achieved with little going back of flux.
- After the application of flux, be sure to perform preliminary heating by pre-heater to enhance solderability. This is required to prevent the flux from unnecessarily rising toward the parts of circuit boards and to alleviate heat shock to chip parts.
- Set the conveyer speed in automatic soldering at 0.8~1.5 m/min. Furthermore, carefully consider other soldering conditions (such as solder temperature, soldering time and the height of solder jet waves) to secure the best solderability.
- Please examine the washing condition and washing enough beforehand when you wash the flux residue though the flux residue can be washed by alcohol (ethanol and isopropanol), aromatic hydrocarbon (toluene and xylene), and ester kinds (ethyl acetate), etc.
- Physiological interaction varies by individuals. As a prudent policy, therefore, care, should be exercised not to inhale gas of fume of solvent emitted during operations and not to have your skin exposed (especially mucous membrane and other parts vulnerable to stimuli) for a long time.
- The organic solvent is included.
- EC-19S-8 is flammable.

The physical chemistry-character among written contents etc. is not a guarantee value. The evaluation of danger and noxiousness is based and makes material, information, and the data, etc. which can be acquired now. However, it is not because all material was covered and note handling enough, please. As for notes, it is the one intended for usual handling. Special handling is not assumed. Please observe the restriction of related various regulations, and use after executing suitable safety measures for the usage. Before using it in your company, it is related with process conditions or reliability. I ask you to have sufficient examination surely performed.

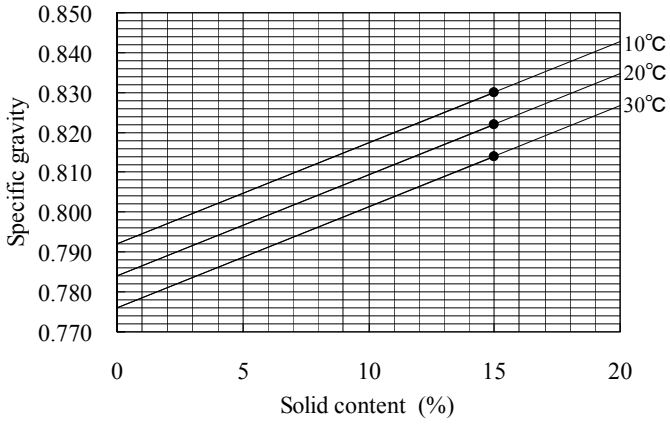



Fig.3 Relation between specific gravity of EC-19S-8 and its solid content.

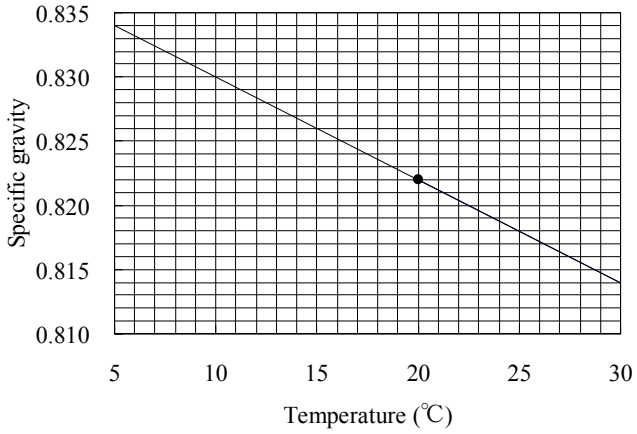



Fig.4 Relation between specific gravity of EC-19S-8 and its temperature.


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