SF160
No Clean Liquid Flux
For Solar Photovoltaic Application

RoHS compliant

Product Description

SF160 is an excellent flux to apply on solar (PV) cell bus strips prior to soldering tab ribbons in place. SF160 solder flux facilitates solder wetting by dissolving the oxides present on the surface of the tabbing ribbon as well as the silver metallization bonding stripes on the top and bottom of the solar cell. The flux flows smoothly and evenly for consistently secure and uniform solder connections with no mess. It speeds up assembly time and makes nice-looking panels. Residue is non-corrosive, non-conductive, moisture resistant, and fungus resistant. There is no surface insulation resistance degradation caused by the flux residue

Application

SF160 is formulated for the solar photovoltaic process both in SnPb and Lead Free applications. It can be applied by soaking, dipping and spraying.

Fluxing Method:
a) Soaking
It is recommended to soak the tab ribbon in the flux for about 4 - 8 minutes and dry it naturally in air or bake it directly in the oven until it is semi-dry.

b) Dipping
SF160 can also be applied by dipping the tab ribbon in the flux tank, which is carried by a conveyor. The recommended cleaning frequency of flux residue on the stringer is every 4 hours, depending on the output yield.

Soldering Method:
a) Manual Soldering
After soaking the tab ribbon and dry it until semi-dry, manual solder at 320 - 380°C.

b) Auto-soldering
Preheat the tab ribbon that is dipped or sprayed at 50 – 130°C. The tab ribbon is then soldered by laser beam, infra-red, electromagnetic or hot air auto-heating method. Recommended soldering temperature is 180 – 300°C.

Specification

Item	Result
State	Liquid
Colour	Colourless
Specific Gravity @ 25°C JIS Z 3197 8.2.2	0.793 ± 0.005
Non-volatile Solid Content (6g sample in 7cm Petri-dish,110°C, 4hr)	1.70 ± 0.5 wt%
Non-volatile Solid Content (6g in 100ml beaker, heat under 110°C until hourly weight difference <0.005g) Canadian Solar Test Method	1.60 ± 0.4 wt%
Silver Chromate Test IPC-TM-650 2.3.33 JIS Z 3197 8.1.4.2.3	Halide not present
Halide Content JIS Z 3197 8.1.4.2.1	Not Added
Acid Value Test IPC-TM-650 2.3.13 JIS Z 3197 8.1.4	14.0 ± 2 mg KOH/ g flux
Water Extract Resistivity JIS Z 3197 8.1.1	> 1 x 10^4 Ω-cm
Surface Insulation Resistance (85°C, 85%RH, 168hrs) IPC-TM-650 2.6.3.3	> 1 x 10^8 Ω, Pass
Copper Mirror Test IPC-TM-650 2.3.32 JIS Z 3197 8.4.2	Classified as “M”, Pass
Flux Activity Classification IPC J-STD-004	ORM0
Spread Factor JIS Z 3197 8.3.1.1	> 80% (SnPb)
Residue Dryness Test IPC-TM-650 2.4.47 JIS Z 3197 8.5.1	Pass

Residue Removal

Since the residues are minimal and non-corrosive, removal is usually not required. If cleaning is required, the flux residue could be removed by any solvent or aqueous flux cleaner available in the market.

Recommended Solvent

Asahi's complementary Solvent #2000. Solvent can be stored for about 2 years under normal storage conditions of 25°C.

Health and Safety

Observe standard precautions for handling and use, such as well-ventilated areas and avoidance of prolonged or repeated contact with the skin. For more information, please refer to the Material Safety Data Sheet.

Storage

Under proper storage condition, SF160 can be stored for up to 6 months. SF160 is flammable. Keep away from all sources of heat, sparks, flame and sunlight.

Packaging

Available in 18kg/carboy.

Singapore Asahi Chemical and Solder Industries Pte Ltd
47 Pandan Road Singapore 609288
Tel: +65 6262-1616 Fax: +65 6261-6311
Website: http://www.asahisolder.com Email: enquiry@sinasahi.com.sg

Ver 3 (Mar 24)
CRR/003/24