

PRODUCT DATA SHEET

WS-688

Flip-Chip Flux

Introduction

Flip-Chip Flux WS-688 is a NIA halogen-free water washable flip-chip dipping flux, which has an activator system powerful enough to promote wetting on the most demanding substrate metallizations. **WS-688** reduces or eliminates flip-chip voids, even in applications where damage to the solder bump, or traces of oxide on the solder bump or solder on pad, can generate voids in the final flip-chip joint.

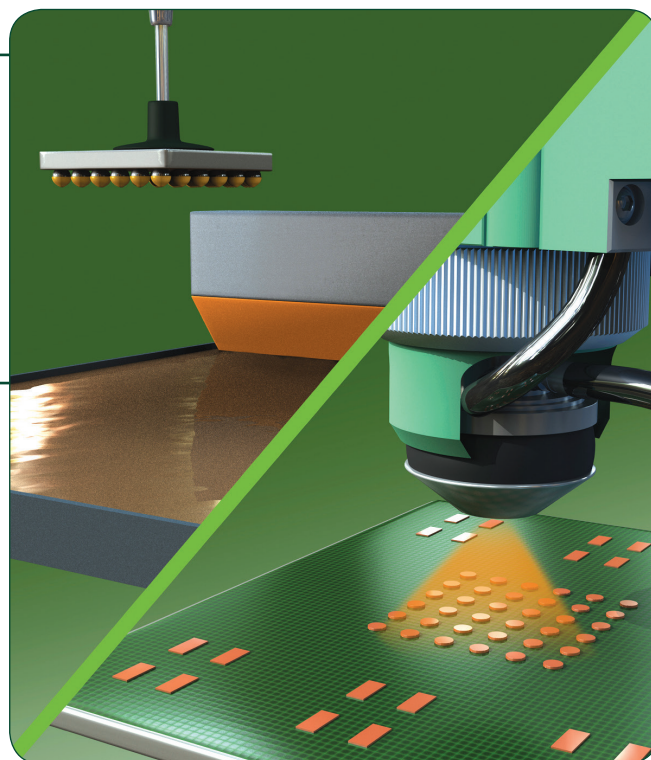
Features

- Halogen-free – no intentionally added (NIA) halogens
- Designed for flip-chip dipping applications
- Suitable for both Sn63 and Pb-free applications
- Excellent solderability on a variety of metallizations
- Reduces flip-chip voids
- Uniform dipping performance over extended periods
- Tackiness suitable for holding large die during assembly
- Bubble-free packaging

Properties

Property	Value	Test Method
Flux Classification	M0	J-STD-004 (IPC-TM-650: 2.3.32 and 2.3.33)
Typical Viscosity	9.3kcps	Brookfield HB DVII+-CP (5rpm)
SIR (Ohms, after cleaning)	Pass (>10 ⁸ after 7 days @ 85°C & 85% RH)	J-STD-004 (IPC-TM-650: 2.6.3.3 IPC-B-24)
Typical Acid Value	95mg KOH/g	Titration
Shelf Life	0 to 30°C for 6 months	Viscosity Change/ Microscope Examination

All information is for reference only. Not to be used as incoming product specifications.



Application

WS-688 is intended to be used in an air or nitrogen reflow environment of 50ppm oxygen or less. **WS-688** can be used on many surface finishes including immersion Ag, Cu, and Ni. These surfaces can be soldered with SnPb or Pb-free alloys.

Flux depth should be set to approximately 30-50% of the flip-chip solder bump height.

Cleaning

WS-688 residue can be cleaned with DI water, or water with an added cleaner. Ideal conditions for spray cleaning: 25°C (room temperature) or higher for >one minute at >60psi.

Packaging

WS-688 is available in 10cc and 30cc syringes.

From One Engineer To Another®



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Storage

For maximum shelf life, **WS-688** syringes and cartridges should be stored tip down. Storage temperatures should not exceed 30°C. After removing from cold storage, **WS-688** should be allowed to stand for at least four hours at room temperature before using.

Technical Support

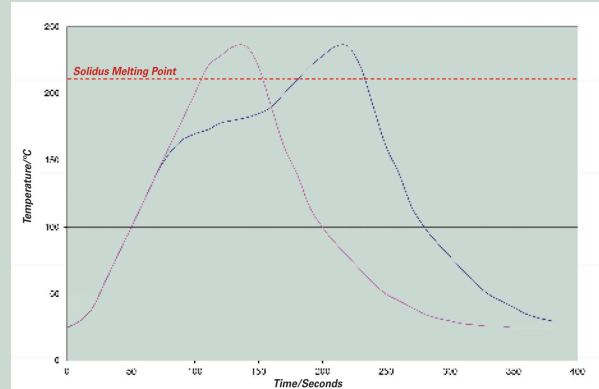
Indium Corporation sets the industry standard in providing rapid response, on-site technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of materials science and semiconductor packaging process applications.

Safety Data Sheets

The SDS for this product can be found online at <http://www.indium.com/sds>

Reflow

Recommended Profile:



A short preheat (150°-160°C) for less than 45 seconds may be used to reduce voiding. The profile should ideally be a linear ramp at 1-2°C/second up to 20-30°C above solidus temperature, with a rapid cool down afterwards, and a minimum time above liquidus of 20 seconds.

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