

PRODUCT DATA SHEET

WS-446

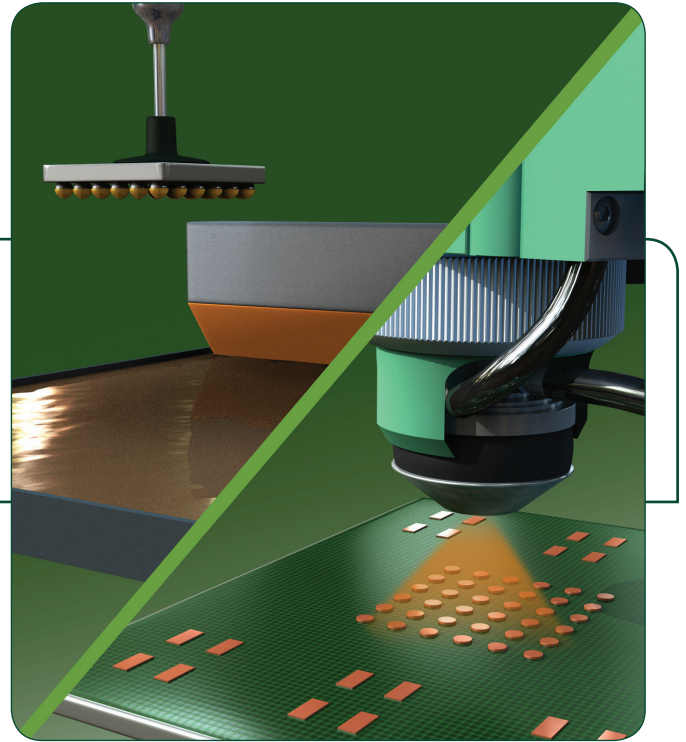
Flip-Chip Flux

Introduction

Flip-Chip Flux WS-446 is a water soluble flip-chip dipping flux which has an activator system powerful enough to promote wetting on the most demanding substrate metallizations. The flux is a distinctive red color, which aids automated level-sensing equipment and also enhances visual inspection.

Features

- Designed for flip-chip dipping applications
- Tackiness suitable for holding large die during assembly
- Bubble-free packaging
- Red color for ease of detection



Properties

	Value	Test Method
Flux Type Classification	H1	J-STD-004 (IPC-TM-650: 2.3.32 and 2.3.33)
Typical Viscosity	9kcps	Brookfield HB DVII+-CP (5rpm)
SIR (Ohms, after cleaning)	Pass (>10 ⁸ after 7 days @ 85°C and 85% RH)	J-STD-004 (IPC-TM-650: 2.6.33 IPC-B-24)
Typical Acid Value	71mg KOH/g	Titration
Typical Tack Strength	570g	J-STD-005 (IPC-TM-650: 2.4.44)
Shelf Life	+5 to 25°C for 3 months or -20 to 5°C for 6 months	Viscosity change/ microscope examination

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

Application

WS-446 is intended to be used in a nitrogen reflow environment of 50ppm oxygen or less. **WS-446** can be used on many surface finishes including immersion Ag, Cu, and Ni. These surfaces can be soldered with Sn/Pb or Pb-free alloys.

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

Cleaning

WS-446 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 >1 minute at >60psi.

Packaging

WS-446 is available in 10 and 30cc syringes.



From One Engineer To Another®



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Storage

For maximum shelf life, **WS-446** syringes and cartridges should be stored tip down at +5 to +25°C for 3 months or -20 to +5°C for 6 months. Storage temperatures should not exceed 25°C. After removing from cold storage, **WS-446** should be allowed to stand for at least 4 hours at room temperature before using.

Technical Support

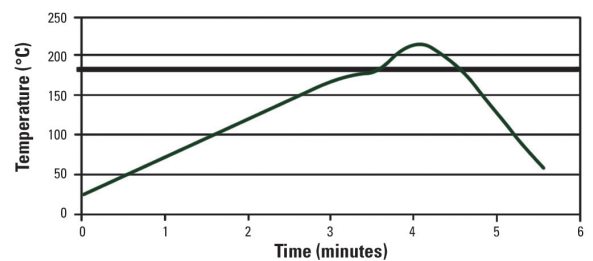
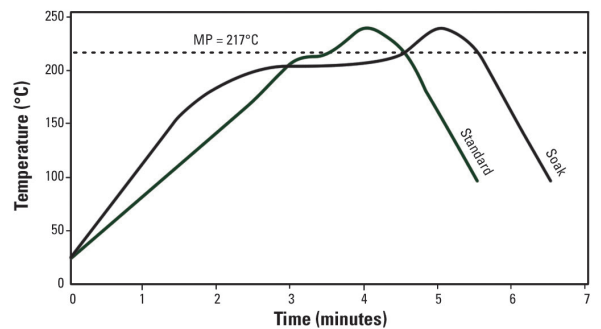
Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation's team of Technical Support Engineers can provide expertise in all aspects of Materials Science and Semiconductor Packaging process applications.

Safety Data Sheets

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

Reflow

Recommended Profile:



Peak reflow temperature should be <350°C in a nitrogen atmosphere (<50ppm O₂), with a linear ramp up to 30°C above liquidus temperature. These profiles are recommended to the user as starting points, and should be optimized by the user to meet their individual process needs.

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