

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	5–25°C for 3 months or -20–5°C for 6 months	Viscosity change/ microscope examination

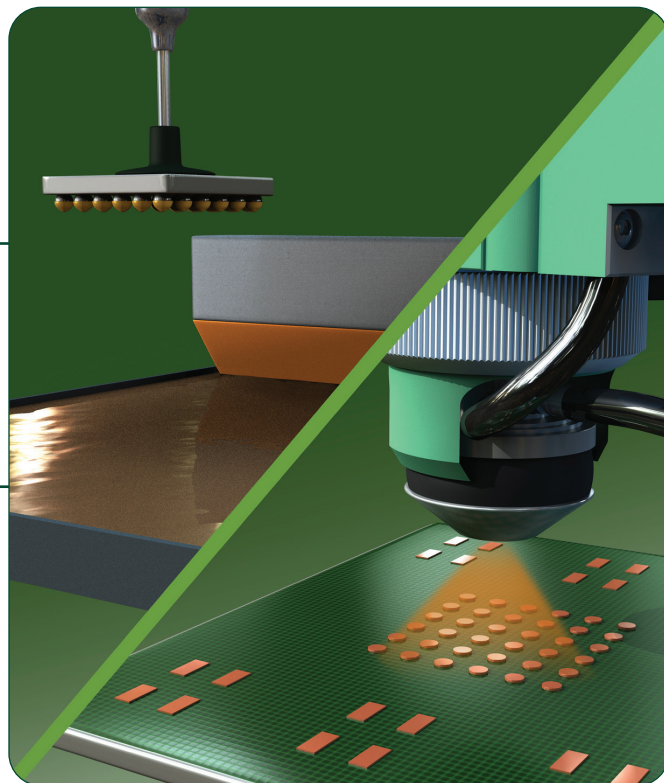
All information is for reference only.

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®



Form No. 98684 R2

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Storage

For maximum shelf life, **WS-446** syringes and cartridges should be stored tip down at 5–25°C for 3 months or -20–5°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

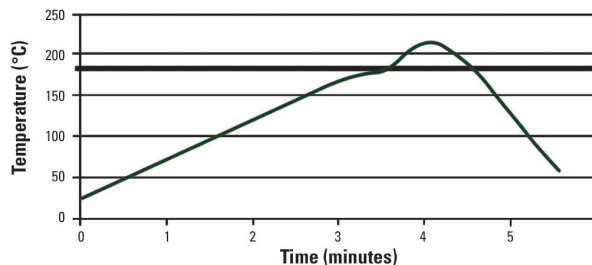
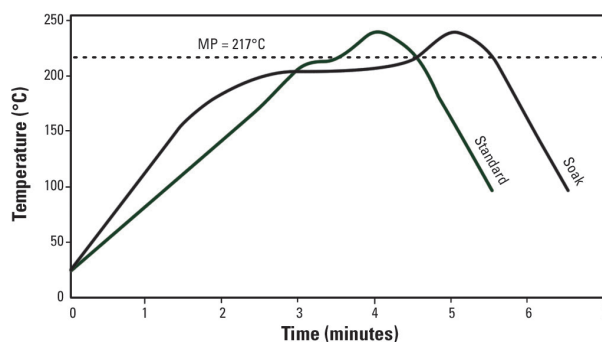
Indium Corporation's internationally experienced engineers provide in-depth technical assistance to our customers. Thoroughly knowledgeable in all facets of Materials Science as it applies to the electronics and semiconductor sectors, Technical Support Engineers provide expert advice in solder preforms, wire, ribbon, and paste. Indium Corporation's Technical Support Engineers provide rapid response to all technical inquiries.

Safety Data Sheets

Please refer to the SDS document within the product shipment, or contact our local team to receive a copy.

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. 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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All of Indium Corporation's solder paste and preform manufacturing facilities are IATF 16949:2016 certified. Indium Corporation is an ISO 9001:2015 registered company.

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