

## Product Data Sheet

# Ball-Attach Flux WS-788

### Features

- Halogen-free
- Air reflow
- Designed for Pb-Free applications
- Excellent solderability on a variety of surfaces
- Water wash
- Bubble-free packaging
- Flux rheology applicable for spheres 50-762microns
- Uniform pin-transfer over extended periods
- Red color for ease of detection

### Introduction

**Ball-Attach Flux WS-788** is a thixotropic flux designed for use in pin transfer applications for Ball-Attachment to substrates (BGA manufacturing). Its rheology is specifically designed for use with even the smallest gravity-fed spheres. **WS-788** 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.

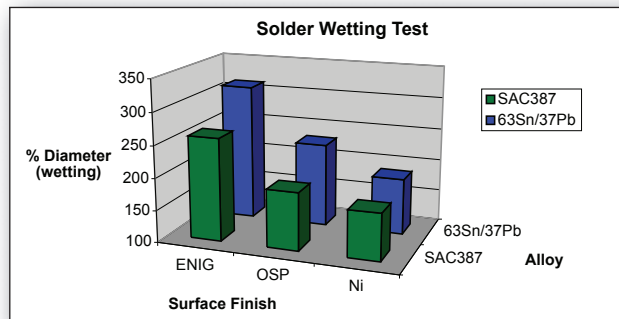
### Properties

Property	Value	Test Method
Flux Classification:	M0	J-STD-004 (IPC-TM-650: 2.3.32 and 2.3.33)
Typical Viscosity:	12.5kcps	Brookfield HB DVII+-CP (5rpm)
SIR (ohms, after cleaning):	>10 <sup>9</sup>	J-STD-004 (IPC-TM-650: 2.6.3.3 IPC-B-24)
Typical Acid Value:	60mg KOH/g	Titration
Typical Tack Strength:	200g	J-STD-005 (IPC-TM-650: 2.4.44)
Shelf Life:	6 months (+5°C to +30°C)	Viscosity change / microscope examination

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

### Application

The amount of flux deposited on the substrate can be optimized by changing equipment parameters. Key variables include pin shape, pin diameter, shear speed, dwell and depth of immersion. The flux rheology can be optimized for the desired application by shearing to achieve the desired viscosity.



### Cleaning

**WS-788** 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.

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Form No. 98490 R0

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## Ball-Attach Flux WS-788

### Packaging

**WS-788** is available in 150g cartridges. Other packaging can be provided to meet the customer's specific requirements.



### Storage

For maximum shelf life **WS-788** syringes and cartridges should be stored tip down at -20°C to +5°C. After removing from cold storage, **WS-788** should be allowed to stand for at least 4 hours at room temperature before using.

### Technical Support

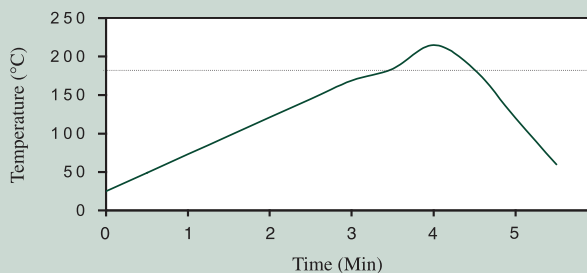
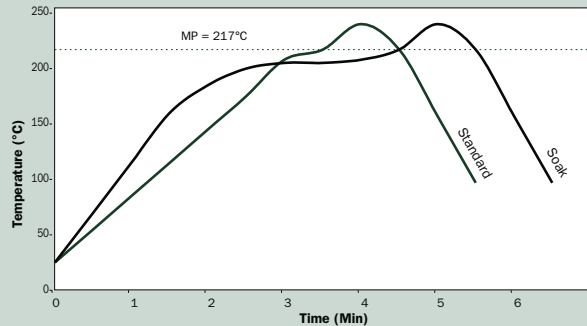
Indium Corporation sets the industry standard in providing rapid response, on-site technical support for our customers worldwide. Indium's team of Technical Support Engineers can provide expertise in all aspects of Materials Science and Semiconductor Packaging process applications.

### Material Safety Data Sheets

The MSDS for this product can be found online at <http://www.indium.com/techlibrary/msds.php>

### Reflow

#### Recommended Profile:



Peak reflow temperature should be <350°C in an air or nitrogen atmosphere (<500ppm O<sub>2</sub>), 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.

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products

described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices.

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