**Introduction**

NC-506 Ball-Attach Flux is a low-viscosity thixotropic no-clean flux designed for use in ball-attachment to substrates (BGA manufacturing). It is especially useful in applications requiring soldering to surface finishes with tenacious oxides, such as nickel. It can also be used wherever a no-clean ball-attach flux is needed, and is suitable for a variety of different deposition methods.

**Features**

- Suitable for pin grid array and standard ball grid array applications
- Airless packaging
- Excellent solderability to all common surface metallizations
- No-clean residue
- Can be used for printing, dipping, and pin transfer deposition
- Offers high yields in BGA bumping process
- Suitable for both Pb-free or SnPb applications

**Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flux Type Classification</td>
<td>ROL1</td>
<td>J-STD-004 (IPC-TM-650: 2.3.32 and 2.3.33)</td>
</tr>
<tr>
<td>Typical Viscosity</td>
<td>320kps</td>
<td>Brookfield HB DVII-CP (5rpm)</td>
</tr>
<tr>
<td>SIR (Ohms, after cleaning)</td>
<td>Pass (&gt;10^8 after 7 days at 85°C and 85% RH)</td>
<td>J-STD-004 (IPC-TM-650: 2.6.33 IPC-B-24)</td>
</tr>
<tr>
<td>Typical Acid Value</td>
<td>103mg KOH/g</td>
<td>Titration</td>
</tr>
<tr>
<td>Typical Tack Strength</td>
<td>250g</td>
<td>J-STD-005 (IPC-TM-650: 2.4.44)</td>
</tr>
<tr>
<td>Shelf Life</td>
<td>≤30°C for 1 year</td>
<td>Viscosity change/microscopic examination</td>
</tr>
<tr>
<td>Post-Reflow Flux Residue</td>
<td>45%</td>
<td>ICA test method</td>
</tr>
<tr>
<td>Thixotropic Index</td>
<td>-0.55</td>
<td>SSF</td>
</tr>
</tbody>
</table>

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

**Application**

Pin transfer volumes can be optimized by changing equipment parameters. Key variables of pin transfer include pin shape, pin diameter, shear speed, dwell, and depth of immersion.

**Cleaning**

NC-506 is designed for no-clean applications. If necessary, the flux can be removed by using a commercially available flux cleaner. Please contact an Indium Corporation Technical Support Engineer for recommendations of cleaners to suit your process needs.

**Packaging**

NC-506 is available in 30cc syringes. Other packaging can be provided to meet specific requirements.
PRODUCT DATA SHEET
NC-506 Ball-Attach Flux

Storage
NC-506 syringes and cartridges should be stored tip down at ≤30°C for maximum shelf life. After removing from cold storage, NC-506 should be allowed to stand for a minimum of 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 <260°C in an air or nitrogen atmosphere (<500ppm 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.