

PRODUCT DATA SHEET

NanoFoil®

Introduction

As a sacrificial heat source in soldering applications, **NanoFoil®** eliminates the need for an oven or furnace and is able to bond surfaces that have CTE mismatch. After the reaction, **NanoFoil®** becomes a non-functional part of the solder joint.



NanoFoil® can also be used as a reaction initiator in standard sheet form. **NanoFoil®** can be produced based on customer specifications, including reaction velocity and output energy.

Non-bonding applications can also take advantage of the controlled energy released in the **NanoFoil®** reaction. The metallic reaction does not require an oxidizer and does not generate gas. This allows **NanoFoil®** to be used as a primer to initiate secondary reactions. The controlled reaction rate of **NanoFoil®** can be tailored to a range of design criteria, which is ideal for fuses and delays.

Features

- Rapid, controlled, locally-applied heat source
- Instantaneous, flux-free soldering and brazing at room temperature
- Suitable for use with high-temperature solders or brazes
- Enables high-strength bonds between most combinations of materials

Applications

- Reaction initiation
- Reaction delay
- Fuses
- Joining of dissimilar materials in large area formats, such as sputtering targets, armor, and other rigid assemblies
- Soldering or brazing of temperature-sensitive electronics components or assemblies

Forms of NanoFoil®

NanoFoil® is available in 40 and 60µm thicknesses.



NanoFoil® Properties

Composition Before Reaction	Alternating layers of Ni and Al
Composition After Reaction	Ni ₅₀ Al ₅₀
Foil Density	5.6–6.0g/cm ³
Heat of Reaction	1,050–1,250J/g
Reaction Velocity	6.5–8 meters/second
Maximum Reaction Temperature	1,350°–1,500°C (2,460°–2,730°F)
Thermal Conductivity	35–50W/mK
RoHS Compliant	Pb-free

Technical Support

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

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. All Indium Corporation's products and solutions are designed to be commercially available unless specifically stated otherwise.

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.

From One Engineer To Another®

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