



IQ-BOND 2514

“Fill” Adhesive

Low Viscosity, Pre-Mixed, One Component, Epoxy-based Adhesive for “Fill” Applications

Product Description:

IQ-BOND 2514 is a solvent-free, one-component, pre-mixed, thermoset epoxy based adhesive, developed for “Fill” applications. In combination with a “Dam” encapsulant, such as IQ-BOND 2504, it can be used in applications for protection of wire-bonded bare IC’s. This combination of “Dam” and “Fill” material can also be used for encapsulation of components such as BGA’s, where a well defined height and flat surface is required.

IQ-BOND 2504 “Dam” and IQ-BOND 2514 “Fill” are based on the same chemistry, and therefore can be co-cured.

In comparison to IQ-BOND 2512, IQ-BOND 2514 has a lower viscosity and improved flowability, combined with smaller particle size, improving flowability of the resin into small cavities. Despite the higher filler loading compared to IQ-BOND 2513, the viscosity of IQ-BOND 2514 is lower. The rheology of IQ-BOND 2514 is optimized for applications where flow is required. The rheology has been optimized to make sure that during the cure profile, when temperature increases, IQ-BOND 2514 will self-level, and make a uniform layer.

The chemistry is selected to be suitable for applications in which thermal cycling requirements are from -65°C up to + 160°C.

Furthermore, the resin and fillers have been selected to make IQ-BOND 2514 suitable for typical dispense applications. The particle size of the filler allows easy dispensing with needles with internal diameter > 400 µm.

IQ-BOND 2514 has a potlife of 24 hours at room temperature.

When fully cured, IQ-BOND 2514 is resistant to moisture, cleaning agents and dilute acids and bases.

IQ-BOND 2514 is a solvent-free, 100% solids material and RoHS / REACH compliant.

For cleaning un-cured IQ-BOND 2514 from stencils, screens, squeegee, or other equipment, the use of IQ-CLEANER 9500 is recommended.



Product Properties:

- Appearance: Black
- Chemistry: Epoxy
- Odor: Faint
- Mix-Ratio: Not Applicable – pre-mixed single component adhesive
- Fineness: < 60 µm
- Viscosity: ~ 2.500 mPa.s (Brookfield CP51 at 10 rpm – T° 25°C)
~ 4.500 mPa.s (Brookfield CP51 at 2,5 rpm – T° 25C)
- Density ~ 1,65 gr/cc
- Filler content: ~ 66 %
- Solids content: 100%
- Cure Speed:
 - 2 hours @ 150°C
 - 1 hour @ 165°C
 - 1 hour @ 125°C + 2 hours @ 150°C (“Lower stress cure”)

For good mechanical strength, cure according above conditions is recommended, and a minimum of 125°C required. The final bond strength will depend on the residence time at the given cure temperature. Typically, a higher curing temperature, as well as a longer cure time will result in higher adhesion strength, and improved polymer crosslinking. For example 120 minutes cure at 80°C will further improve adhesion strength and stress relief in the resin.

- Hardness: > 85 shore D
- Tg: ~ 165°C
- Coefficient of Thermal Expansion (CTE) < Tg: ~ 21 - 29 ppm/°C
- Dielectric Constant ~ 4,0 from 1 Hz – 100 MHz
- Electrical Dissipation Factor < 0,02 (from 1Hz to 100 MHz)

Processing parameters:

IQ-BOND 2514 is suitable for most common dispensing systems.

Prior to use, it's advised to let the adhesive IQ-BOND 2504 equilibrate to room temperature. Temperature conditions of about 25°C, and relative humidity not higher than 70% are recommended for optimum performance. Higher temperatures may have an effect on viscosity. Too high humidity, may cause moisture accumulation in the adhesive, which can reduce the worklife of IQ-BOND 2514.

Also, after dispensing, it's recommended to proceed with the curing cycle within 1 – 2 hours, to prevent moisture accumulation. This may have a negative impact on final cure properties of IQ-BOND 2514

Storage stability:

Storage stability is 6 months from date of production, when stored at -40°C, in closed containers. Storage stability is 3 months from date of production, when stored at temperatures below -20°C, in closed containers. At room temperature, IQ-BOND 2514 has a long worklife / potlife of 24 hours.

Attention:

The technical information contained herein should not be used in the preparation of specifications, as it's intended for reference only. Please contact your local sales representative for support. The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Roartis specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Roartis products and services. Roartis specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license. We recommend that each prospective user tests his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more European or foreign patents or patent applications. The information contained in this data sheet corresponds to the present state of our knowledge ; it is intended for your guidance but we are not bound by it since we are not in a position to exercise control over the manner in which our products are used. Moreover, the attention of the user is drawn to the risks that could possibly occur should a product be used for an application other than that for which it is intended.