



# IQ-BOND 5481-CE

## Electrically Conductive Adhesive for High Temperature Applications

### One Component, Silver filled, Electrically Conductive Adhesive

#### Product Description:

IQ-BOND 5481-CE is a solvent-free, one-component, pre-mixed, thermoset hybrid-epoxy based adhesive. It offers the combination of high temperature resistance, combined with good electrical conductivity.

IQ-BOND 5481-CE has been designed for high temperature resistance, and when properly cured, results in a Tg-value (glass-transition temperature) of 250°C. Unlike common high temperature electrically conductive adhesives which are often solvent based, and have health concerns, IQ-BOND 5481-CE is solvent-free and is REACH and ROHS compliant, without environmental concerns. This makes IQ-BOND 5481-CE a preferred solution for micro-electronic applications where resistance up to 250°C is required.

The rheology of IQ-BOND 5481-CE is ideally suited for high speed small dot dispensing. Also stamping processes can be considered with IQ-BOND 5481-CE.

IQ-BOND 5481-CE has a work life at room temperature, of about 24 hrs.

IQ-BOND 5481-CE bonds very well to metals, glass, ceramics, as well as plastics. It is used for applications where elevated soldering temperatures are not preferable, and low-temperature cure is required. Typical applications include bonding micro-electronic components onto temperature sensitive substrates, such as flexible circuits. Also for those applications where solders are too rigid, the flexible nature of IQ-BOND 5481-CE makes it a suitable alternative for improved thermal cycling resistance.

For cleaning uncured IQ-BOND 5481-CE, the use of IQ-CLEANER 9500 is recommended, although, also other organic cleaning solvents, such as IPA and/or Aceton can be considered.

#### Product Properties:

- |                             |  |
|-----------------------------|--|
| • Appearance:               | Silver, thixotropic Paste                                |
| • Chemistry:                | Epoxy  |
| • Mixing Ratio (by wght %): | Not Applicable , pre-mixed one-component                 |
| • Viscosity (mPa.s):        | ~ 15.000 mPa.s (Brookfield RVII – CP51 – 2 rpm @ 25°C)   |
| • Thixotropic Index:        | ~ 5 – 6  |
| • Working Life:             | ~ 24 hrs   |
| • Density:                  | ~ 3,0 gr/cc  |
| • Fineness:                 | < 30 µm  |
| • Volume Resistivity:       | ~ < 5 x 10 <sup>-4</sup> Ohm.cm (after cure 2 hrs 200°C) |
| • % Ash residue:            | ~ 76 +/- 1   |

- Solids content: 100%
- Cure:

To obtain optimum properties with IQ-BOND 5481-CE, a multiple stage cure is recommended.

- 2 hrs. @ 90°C + 3 hrs. @ 150°C + 6 hrs. 230°C ----- > Tg ~ 250°C
- 2 hrs. @ 90°C + 3 hrs. @ 150°C + 6 hrs. 190°C ----- > Tg ~ 205°C
- 2 hrs. @ 90°C + 3 hrs. @ 150°C ----- > Tg ~ 190°C

To reduce the process and curing time, a shorter curing cycle may be considered, for example 2 hrs at 170°C. In such shorter curing cycle, the Tg may be slightly lower and the material properties may not be fully optimized for best high reliability and thermal cycling resistance.

- Hardness: > 85 shore D
- Tg \*: ~ 230°C (typical value)

\* see cure cycle information for more details on Tg values depending cure cycle)

#### Instructions For Use of IQ-BOND 5481-CE :

Prior to use, it's advised to let the adhesive IQ-BOND 5481-CE equilibrate to room temperature. Depending the size of syringes, 15 – 30 minutes is typically recommended.

It is advised to avoid too high humidity, as it may cause moisture accumulation in the adhesive, which can reduce the worklife of IQ-BOND 5481-CE.

To ensure long term performance of the assembled parts, a complete cleaning of the substrates is recommended to remove contaminations, such as surface oxides, dust, moisture, etc.

It is recommended to read thoroughly the information concerning health and safety in the Material Safety Datasheet, prior to usage.

#### Storage stability:

When stored at -20°C, storage life is 3 months from date of production. In case of storage at -40°C, the shelf life is 6 months.

#### 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.

