

IQ-BOND 5600 CE

Electrically Conductive Adhesive

Two Component, Silver filled, Electrically Conductive Adhesive for Low Temperature Cure

Product Description:

IQ-BOND 5600 CE is a solvent-free, two-component, thermoset epoxy based adhesive, which provides electrically conductivity, even at low curing temperatures.

IQ-BOND 5600 CE is designed to make electrical connections where hot soldering is impractical or to make electrical connections to conductive plastics and/or components which cannot be subjected to high (solder) temperatures.

One of the unique features of IQ-BOND 5600 CE is its “low outgassing” properties, which makes it suitable to pass ESA and NASA outgassing standards.

Unlike most epoxy-based electrically conductive adhesives, which require heat to develop sufficient conductivity, IQ-BOND 5600 CE provides already good conductivity, even if cured at room temperature.

IQ-BOND 5600 CE is supplied as a two-component material, and has a long shelf life at room temperature, of 12 months.

IQ-BOND 5600 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, membrane switches, etc.

IQ-BOND 5600 CE is a solvent-free, 100% solids material, and is supplied as a high viscous and thixotropic paste, assuring it will not flow during application. After cure, it provides good chemical resistance.

For cleaning uncured IQ-BOND 5600 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 %): 100 parts A / 2,5 parts B
- Working Life: +/- 30 – 45 minutes
- Density: 3,1 – 3,3 gr/cc
- Volume Resistivity: $< 5 \times 10^{-4}$ Ohm.cm (after cure 5 minutes 150°C)
- Tg: ~ 85°C



- CTE₁ (< T_g): ~ 33 ppm/°C
- CTE₂ (> T_g): ~ 115 ppm/°C
- Low Outgassing properties:
Total Mass Loss, % 0.24
CVCM: Collected Volatile Condensable Material, % 0.01
- Low extractable ionic content:
Sodium Na⁺ < 5 ppm
Ammonium NH₄⁺ < 20 ppm
Potassium K⁺ < 5 ppm
Chloride Cl⁻ < 5 ppm
- Tensile Lap Shear strength: ~ 10 MPa
- Cure Speed *:
 - 48 hours @ 25°C
 - 3 hours @ 50°C
 - 1 hour @ 80°C
 - 30 minutes @ 100°C
 - 10 minutes @ 120°C
 - 1 minute @ 150°C

*: For good mechanical strength, cure according above conditions is recommended. 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, lower electrical resistivity, and improved polymer crosslinking. In all curing conditions, a post-cure of 2 hours at the highest expected use temperature, can be considered.

Instructions For Use of IQ-BOND 5600 CE :

To obtain optimum properties, it's recommended to use an exact mixing ratio of part A and part B. For IQ-BOND 5600 CE, this means 100 parts of part A, with 2.5 parts of part B, by weight.

The mixing of part A and part B, should be done in a clean container.

As IQ-BOND 5600 CE is a high viscosity paste, it is recommended to mix part A and part B together by hand, by applying a "kneading" motion, for about 1 - 3 minutes. This will assure an optimum mixing performance of part B into part A, and will assure best product properties and performance. To minimize material losses, it's advised to scrape the bottom and sides of the mixing container frequently. This will also help in obtaining a uniform mixture.

Prior to bonding the substrates, makes sure part A and part B of IQ-BOND 5600 CE are thoroughly mixed.

Furthermore, 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:

Storage stability is 6 months from date of production, when stored dry at room temperature, in closed containers.

During storage, crystallization may happen of the IQ-BOND 5600 CE Part A. This is easily reversible by putting the part A in an oven at about 50 – 60°C, for a few hours (2 – 4 hrs depending quantity). When cooled down, the material has obtained its original properties again, and can be used under normal conditions.

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.