

IQ-CAST 9100 AB

Room Temperature Curable, Unfilled, Epoxy Casting Resin and Adhesive

Two component, epoxy-based resin, with very good water resistance, toughness and adhesion

Product Description:

IQ-CAST 9100 is a general purpose, solvent-free, two-component, unfilled, epoxy based potting resin, developed for encapsulation of electronic and/or industrial components.

IQ-CAST 9100 AB meets the Food and Drug Administration (FDA) regulations permitting use in “indirect” food contact applications. The raw materials used in the IQ-CAST 9100 AB comply with the FDA regulations on Title 21 Code of Federal Regulations under Sections 175.105 and 175.300.

When properly cured, IQ-CAST 9100 provides long term protection over a large range of temperatures, and is very well suited for high temperature applications, requiring continuous protection up to 140 – 150°C.

IQ-CAST 9100 is unfilled, and as such, will change to a yellowish / brownish color after curing, and after exposure to heat. This very typical for most common epoxy resins.

In case a black version is requested, we can also offer IQ-CAST 9100 BLACK.

IQ-CAST 9100 has a medium viscosity, and as such, will assure good flow in small cavities, followed by good self-levelling.

IQ-CAST 9100 cures at room temperature in about 24 hours. When curing at elevated temperature, this cure process can be significantly reduced, for example 15 minutes at 120°C. However, when casting larger volumes, please pay attention to the self-heat generating properties of epoxy resins, which can result in bubble-formation. As such, it's recommended to allow the resin to gel at room temperature prior to exposing it to a heat-cure.

When fully cured, the IQ-CAST 9100 is resistant to moisture, water, most cleaning agents and dilute acids and bases. The epoxy-based chemistry provides good adhesion strength on a variety of substrates, such as metals, ceramics, glass and a variety of plastics.

Its chemistry has been selected to enable high temperature resistance of 125 – 150°C, depending the geometries and materials of the component to be encapsulated.

IQ-CAST 9100 is REACH and ROHS compliant.



For cleaning un-cured IQ-CAST 9100 from stencils, screens, squeegee, or other equipment, the use of IQ-CLEANER 9500 is recommended.

Typical Product Properties of Uncured Material

IQ-CAST 9100 – PART A

- Appearance: Transparent / Light yellowish
- Odor: Faint
- Fineness: Unfilled
- Viscosity: at 25°C ~ 12.500 mPa.s (Brookfield RVDVII - CP51 at 5 rpm)
- Density ~ 1,15 gr/cc

IQ-CAST 9100 – PART B

- Appearance: Transparent / Light yellowish
- Odor: Faint
- Fineness: Unfilled, to assure perfect cavity filling
- Viscosity: at 25°C ~ 100 mPa.s (Brookfield RVDVII - CP51 at 50 rpm)
- Density ~ 0,99 gr/cc

Typical properties of mixed IQ-CAST 9100 + CATALYST RT24:

- Mix-Ratio by weight: 100 parts IQ-CAST 9100 part A + 15 parts IQ-CAST 9100 part B
- Appearance: Transparent / Light yellowish Liquid
- Chemistry: Epoxy
- Mixed Viscosity: ~ 4.500 mPa.s (Brookfield RVDVII - CP51 at 5 rpm)
- Worklife / Potlife: 45 minutes at 25°C
- Possible cure profiles:
 - 24 hrs. @ 25°C
 - 4 hrs. @ 60°C
 - 0,5 hr. @ 100°C

Typical properties of cured IQ-CAST 9100:

- Hardness : 87 shore D
- Linear shrinkage after cure: < 0,30 %
- Density: ~1,13 gr/cc
- Dielectric Strength: ~ 14,4 kV/mm
- Dielectric Constant (@ 1 MHz): ~ 5
- Dissipation Factor (@ 1 MHz): ~ 0,030
- Volume Resistivity (@ 25°C): > 10¹⁶ Ohm.cm

Storage stability:

IQ-CAST 9100 part A and part B should be stored at room temperature in conditions such that moisture is excluded, in the original containers kept tightly closed. Under these conditions the shelf

life is 12 months from date of production. If IQ-CAST 9100 develops a haziness or crystallizes during storage, this can be dispersed and the resin restored to its original condition by warming to 55-65°C, with stirring. During this process of de-crystallization, be sure the container is loosely covered during the warming stage, to prevent any pressure build-up. Allow the contents to cool to room temperature before continuing.

Material removed from containers may be contaminated during use. Do not return product to the original container.

Instructions for use:

- a) Complete cleaning of the substrates should be performed to remove any contaminants, such as oxide layers, dust, moisture, salt and oils, which can cause poor adhesion and/or corrosion in the bonded / encapsulated part.
- b) Prior to using, it's recommended to re-homogenize both part A and part B.
- c) Accurately weigh resin (part A) and catalyst (part B) into a clean container in the recommended mix-ratio.
- d) Blend the components by hand, using a kneading motion, for several minutes. Scrape the bottom and sides of the container frequently, to assure a uniform mixture is prepared.
- e) If possible, power mix for an additional 2 minutes. Avoid high mixing speeds to prevent excessive air entrapment into the mixture, as well as to avoid temperature increase which may lead to reduced worklife
- f) To ensure a void-free potting, vacuum de-airing should be used to remove any entrapped air introduced during the mixing operation. It's recommended to pump-down or pull vacuum of the mixture to achieve a vacuum or absolute pressure of ~ 1-5 mBar. During this operation, the resin will rise as a foam, and air will be removed from the mixture. At the end of this process, when most of the air is removed, the mixture will subside.
- g) Continue the vacuum de-airing until most of the bubbling has ceased. This usually takes an additional 3 – 10 minutes.
- h) Pour the mixture into the cavity of the component to be encapsulated.
Gentle warming of the assembly parts reduces the viscosity. This can improve the flow of the material into small cavities.
- i) In some critical applications, further vacuum de-airing may be required after the casting process.

Attention:

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