

CarboCond



CarboCond are electrically conductive epoxy resins filled with carbon nanoparticles. They exhibit very much improved mechanical properties compared to conventional systems.

Products of the **CarboCond** series are electrically conductive, solvent-free and stably crystallizing epoxy resins. They consist of low-molecular bisphenol A and bisphenol F components, and contain carbon nanoparticles. The electrical conductivity of **CarboCond** can be optimized for a very wide selection of applications by simply varying the carbon concentration.

CarboCond exhibits numerous advantages compared to conventional systems filled with carbon black or graphite:

- unequaled electrical conductivity (specific resistance in the region of $10^2 \Omega \cdot \text{cm}$),
- substantially improved mechanical properties compared to commercial, electrically conductive epoxy resin systems,
- adjustable electrical conductivity through matched carbon content,
- obtainable in different versions, e.g. for mold making or coatings.

CarboCond products have dynamic viscosity of 3 to 13 Pa·s. They consist of low-molecular epoxy resins based on bisphenol A and F, and contain carbon nanoparticles plus graphite.

Aimed at as wide a range of applications as possible, **CarboCond** is obtainable in two basic types for different viscosity and hardening parameters:

- **CarboCond 171**, with dynamic viscosity of approx. 13 Pa·s, is suitable for cold, warm or hot hardening.
- **CarboCond 471** is reactively diluted, its dynamic viscosity is approx. 3 Pa·s, and it is suitable for cold or warm hardening.

The two systems come in three different ranges of conductivity:

- 0.1 weight % carbon nanoparticles, specific resistance 10^5 to $10^7 \Omega \cdot \text{cm}$
- 0.4 weight % carbon nanoparticles, specific resistance 10^3 to $10^5 \Omega \cdot \text{cm}$
- 0.6 weight % carbon nanoparticles, specific resistance 10^2 to $10^3 \Omega \cdot \text{cm}$

CarboCond can be used wherever very high electrical conductivity is called for, e.g.

- floors,
- coatings,
- cast parts,
- ESD protective components.

CarboCond products are compatible with very different epoxy resin systems, and can also serve as a master batch in various concentrations. The resulting specific resistance will implement diverse standards in the area of ESD/explosion protection.

A number of aminic and anhydrous hardeners are obtainable for **CarboCond**.