

Compounds Selector Guide

Top Materials Selection Matrix

Conductive Sealants:

Ever-Flexible Sealant Silver-Copper Isobutylene

CHO-BOND® 4660 caulking compound is a single-component, electrically conductive, paste-like material intended for EMI shielding and grounding applications. Its non-hardening characteristic makes the material particularly suited for shielding joints and seams which are likely to be disassembled, or joints subject to vibration, warping, or temperature-induced displacement.

This compound consists of Chomerics' silver-bearing powder dispersed in a binder of polyisobutylene. The formulations remain permanently flexible and adherent, with no tendency to crack or pull away from the surface. The material exhibits good chemical resistance to acids, alkalis, aqueous inorganic salts, oxygen and ozone, but is attacked by strong oxidizing agents (such as hot nitric acid) and halogens (fluorine, chlorine, etc.).

A major advantage of CHO-BOND 4660 is reduced cost. Its low density permits twice as much coverage per pound as other conductive caulking compounds.

Gap Filler & Sealant Copper Urethane

CHO-BOND® 2165 conductive sealant is a stabilized-copper-filled, two-component polyurethane. It has excellent electrical and physical properties for aerospace and military applications. CHO-BOND 2165 sealant is highly resistant to aircraft fluids and to corrosion. It contains non-chromate inhibitors to prevent copper oxidation and minimize corrosion on metal substrates.

The material is supplied in kit form. It is easily applied with a spatula or caulking gun. CHO-BOND® 2165 achieves full properties in less than 4 hours with a combination room temperature cure plus a 125°C cure, or in 24 hours at room temperature. It is tack-free in 4 hours.

Cured CHO-BOND® 2165 sealant will survive 2,000 hours in salt spray (MIL-STD-810C). It is recommended for applications in corrosive environments.

Conductive Coatings:

High Performance Coating Silver Epoxy

CHO-SHIELD® 596 coating is a two-component, silver-bearing, highly conductive epoxy paint designed to provide EMI shielding when applied to a dielectric substrate. It is also useful for coating flanges for salt spray corrosion protection when mounting an electrically conductive gasket between the surfaces.

CHO-SHIELD 596 dries to the touch in less than 1 hour at room temperature and attains full chemical resistance after 1 week at room temperature. However, the best electrical properties are achieved by curing at elevated temperatures.

Commercial Grade Coating Silver & Silver-Copper Acrylic

CHO-SHIELD® 2056 conductive coating is a high performance, acrylic system specially formulated for application to plastics. A hybrid combination of silver-plated copper and pure silver provides high levels of EMI shielding for electronic enclosures and assemblies. The superior electrical conductivity of CHO-SHIELD 2056 paint allows for thinner applied coatings, saving time and money in processing. Thinner coatings limit material wastage due to overspray and reduce the frequency of mask washing steps.

High Performance Silver Urethane

CHO-SHIELD® 4994 is a smooth, highly conductive flexible silver-filled polyurethane coating designed for military/aerospace airframe applications. This coating provides superior adhesion, excellent solvent rub and wear resistance, and is resistant against numerous operational and environmental fluids. CHO-SHIELD 4994 can be applied to aluminum as well as non-conductive substrates and is designed to be used with primers and with external topcoat systems. CHO-SHIELD 1091 can be used as a primer for ensuring improved performance on aluminum substrates.

Flange Protection Coating Copper Urethane

CHO-SHIELD® 2001 and 2002 electrically conductive coatings provide corrosion protection for enclosure flanges, which mate with EMI shielding gaskets. They can also provide a corrosion resistant conductive surface coating on aluminum or plastic substrates.

These tough, urethane coatings offer a highly conductive interface which improves overall EMI shielding performance. When used as a coating on a composite or other non-conductive surface, they provide the conductivity necessary to achieve excellent shielding effectiveness while maintaining their stability in hostile environments. CHO-SHIELD 2000-series coatings are three-part, copper-filled urethanes whose filler systems have been treated to remain electrically stable at elevated temperatures. A number of stabilizers prevent the copper from corroding in high humidity and/or marine environments.

CHO-SHIELD 2001 contains soluble chromates to minimize the effects of galvanic corrosion of the aluminum substrate, even in the event of a coating scratch. The CHO-SHIELD 2002 coating, primarily intended for composite substrates or as a 2001 repair coating, is chromate-free.

Compounds Selector Guide - Top Materials Selection Matrix (Continued)

Silver Epoxy:

All Purpose Silver Epoxy

CHO-BOND® 584-29 is a two-component, highly conductive silver-filled epoxy adhesive, combining the good adhesive properties of epoxy with the superior conductivity of silver. In addition to being available in bulk form, the CHO-BOND 584-29 material is offered in pre-measured syringe kits and CHO-PAKs™ for rapid application.

CHO-BOND 584-29 meets the most exacting electrical bonding requirements without the high temperatures, fluxes and expensive preparatory techniques usually needed to obtain effective lead-tin solder joints.

CHO-BOND 584-29, prepared at the recommended elevated cure schedule, exhibits a volume resistivity of 0.002 ohm-cm and is usable over a wide temperature range. Adhesion to copper, bronze, cold-rolled steel, aluminum, magnesium, nickel, ceramic, phenolic and plastic is excellent.

Conductive Silicone Adhesives & Sealants:

Highly Conductive Adhesive-Sealant Silver Silicone

TECKNIT 0002 is a pure silver filled, one component RTV silicone adhesive-sealant. It is ready to use without mixing and cures quickly at room temperature on exposure to moisture in the air to form a flexible, resilient conductive bond or seal.

TECKNIT 0002 can be used to bond or install various conductive silicone elastomer EMI gaskets or join strips of conductive elastomers to form continuous shield/seal rings or gaskets. It may also be used as a form-in-place conductive gasket to attach shielded windows to frames or bezels, and in turn, installing the framed window on a shielded enclosure or used as a form-in-place EMI gasketing material for grooves in cast boxes or covers or as a conductive seam sealant.

General Purpose Adhesive-Sealant Silver Silicone

CHO-BOND® 1038 is an electrically conductive, one-component silicone adhesive-sealant that may be used for bonding EMI gaskets or for providing EMI and environmental protection as a caulk. This material cures on exposure to atmospheric moisture and contains no acetic acid or other corrosive agents.

Cured CHO-BOND 1038 remains flexible and conductive at temperatures from -55°C to 125°C. Uncured CHO-BOND 1038 is a smooth, non-flowing paste that may be knife-spread or applied directly to a vertical surface.

CHO-BOND 1038 forms a cured skin within two minutes after exposure to atmospheric moisture and therefore must be tooled within this time period. A full cure is obtained after room temperature aging at 50% relative humidity for one week. In many cases, a good set is obtained within 8 hours. Priming the substrate with CHO-BOND 1086 is recommended.

Heat Accelerated Adhesive Two Part Silicone

CHO-BOND® 1029 is a highly conductive silicone adhesive, intended for bonding Chomerics' conductive silicone EMI gaskets to electrically conductive substrates. It is a two-component silver-plated-copper filled system, which cures to a flexible, permanent bond. Unlike one-part conductive RTV adhesives, its cure can be accelerated with heat.

CHO-BOND 1029 should not be used as an EMI caulk. The material is highly conductive through a bond line of less than 0.20 mm, however the electrical conductivity of CHO-BOND 1029 sharply decreases when the thickness is increased.

Each component of CHO-BOND 1029 is pigmented to give a uniform pink color when thoroughly mixed. Metal substrates must be coated with Chomerics' CHO-BOND 1085 or 1087 Primer before the adhesive is applied. Primer and adhesive should be stored at room temperature.

Aluminum Compatible Adhesive-Sealant Silver-Aluminum Silicone

CHO-BOND® 1075 is an electrically conductive, one component silicone adhesive-sealant that may be used for bonding EMI gasketing or for providing EMI and environmental protection as a caulk. This material cures on exposure to atmospheric moisture, and contains no acetic acid or other corrosive agents.

CHO-BOND 1075 adhesive is unique as it utilizes a silver-plated aluminum filler which provides compatibility when bonding CHO-SEAL® 1285 conductive gaskets. It is also contains no organic solvent, which eliminates solvent evaporation and odors while providing minimal shrinkage.

Cured CHO-BOND 1075 remains flexible and conductive at temperatures of -55°C to 200°C. Uncured CHO-BOND 1075 may be knife-spread or applied directly to a vertical surface.

CHO-BOND 1075 forms a cured skin within 20 minutes after exposure to atmospheric moisture and must be tooled within this time period. A full cure is obtained after room temperature curing at 50% relative humidity for one week. Priming the substrate with CHO-BOND 1086 is recommended.

Two Part Flexible Adhesive-Sealant Silver-Glass Silicone

TECKNIT 0036 is an electrically conductive, medium viscosity, RTV silicone adhesive-sealant. This silver-plated glass filled system is formulated with a special conductive material producing unique advantages. After full cure, the resultant bond or seal is flexible, resilient and conductive.

TECKNIT 0036 is recommended whenever an electrically conductive flexible bond and seal is required. This product is also used to join and install a variety of conductive elastomers and porous or open wire mesh gaskets.

One Part Flexible Sealant Silver-Glass Silicone

CHO-BOND® 1035 sealant is an electrically conductive, one-component RTV silicone, which provides both environmental sealing and EMI/RFI shielding. This sealant, filled with silver plated glass particles, contains no acetic acid and cures in the presence of moisture. Although skin formation takes only a few minutes, full properties develop in one week. CHO-BOND 1035 sealant is ideal for shelter applications where EMP or vibration is not a factor. This product should be stored at room temperature, 65-75°F (18-24°C), only.