



AirBorn Operating LP Product Technical Bulletin #27

Resin Bleed on Right Angle Connectors

A residual epoxy material, which is typically clear to amber in color, may be present at the mating face of right angle connectors in the immediate vicinity where the contact exits the insulator. This material is typically restricted to approximately .020" of the contact length and will not interfere with mating wipe. It is not a foreign contaminant and is not considered detrimental to the function of the connector.

An independent lab, as well as the manufacturer of the epoxy, were sent samples of the residual material for analysis. The manufacturer's engineer concluded the material was resin from the epoxy. The independent lab analyzed the material with IR Spectroscopy and concluded that the material was "a phenolic or an epoxy containing an inorganic filler material".

The presence of this residue is common with 2-part heat cured epoxies and is known as "resin bleed". During the process of curing the epoxy, the contact, which is thermally more conductive, heats more rapidly than the insulator. This temperature difference, along with the capillary action taking place because of the contact OD to insulator cavity ID ratio, causes the resin to wick down the contact towards the mating face. As the resin reaches the end of the cavity the capillary action stops and a small amount of resin will be visible around the base of the contact where it exits the insulator.

The resin tends to wick down the contact faster than the curing agent, and the small amount of resin which may exude from the cavity will generally be deficient in curing agent. This resin will remain uncured. This is not indicative of the balance of the epoxy used to retain the contact, it will be cured completely.

As stated above, resin bleed is common in heat cured epoxies, and although epoxies that cure at room temperature do not tend to show resin bleed, they typically have lower bond strength. AirBorn has been using these types of epoxies since the late 1960's and experience shows that the small amount of uncured resin exposed at the base of the contact is not a problem. To date no adverse effects are attributable to this condition.