

CTC AppNotes

A series of technical documents written by members of the CTC community

Choosing Compatible Connectors for the plant environment

Executive Summary

Proper choice of material components for the environment in which they will be used is important in determining the connector's longevity and the integrity of data collected over time. Improper choice of material can lead to poor quality data and deterioration of the connectors themselves.

Many factories have to deal with exposure to chemicals, extreme temperatures and other environmental issues as well, such as prolonged exposure to UV rays (sunlight) or possibly even nuclear radiation, in their daily processes. Selecting the proper materials for both cabling and connectors will help avoid long term problems.



Figure 1; Improperly specified polycarbonate connector showing deterioration two years into service.

While each plant knows what materials it is dealing with on a day-to-day basis, the visiting vibration analyst or over the phone consultant may not know or be aware of the conditions that the products specified might be exposed to. Polycarbonate is a material often used for overmolding connectors, but one that is probably not the best choice for use in applications where either chlorine or caustic soda are used (see figure 1). For this reason CTC has a chemical compatibility chart in all of our catalogs as well as online in our technical resources section: [Chemical Compatibility chart](#).

Many companies offer multiple choices for connectors and cables to be used in particular situations. CTC offers many choices in order to supply cables and connectors with a lifetime warranty to the greatest variety of manufacturing situations.

In figure 2 we see the failure of a connector with an aluminum backshell inside a seal tight boot. Alumi-



Figure 2; The aluminum back shell inside this boot style connector originally provided a rigid core for the boot to be fitted over. Caustic soda used in the manufacturing process has leaked around the boot and caused the aluminum to corrode and expand, thus weakening the boot, and total failure was the result.

num is another material that performs poorly in a paper mill. In order to offer a connector with excellent capabilities for the paper industries, CTC has developed the A2R connector for this specific application. The connector is available in boot style as well as 3 socket versions. Made from polyphenylene sulfide, these connectors offer excellent performance capabilities in paper mills as well as in locations where higher temperatures are common.

While not all chemical compatibilities can be avoided, proper planning and purchasing can provide a lifetime of worry free operation. When in doubt about the compatibilities of the materials specified, always feel free to contact CTC or your local CTC distributor for guidance.



Figure 3: CTCs A2R connector is made from PPS for excellent resistance to caustic bases and acids.

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If you have any questions or for further information please contact CTC directly via Email at dgripe@ctconline.com or jsmith@ctconline.com or feel free to call 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally.

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If any CTC vibration analysis hardware product should ever fail, we will repair or replace it at no charge.