

CTC AppNotes

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

Chemically resistant connectors for use in extreme environments

Sulfuric acid corrosion in many materials is dependent upon the acid concentration. Many materials that will not corrode when in contact with 98% concentrations of sulfuric acid may suffer significant corrosion at lower concentrations. Stainless steels are one of the material groups that can survive at very high concentrations of sulfuric acid (93 to 98% concentrations) but suffer significant corrosion at lower concentrations. CTC has developed a connector for situations like this where stainless steel based connector parts will not survive.



Stainless Steel sensor body showing the effects of corrosion from sulfuric acid.

CTC has created a connector where all of the exposed parts are made from sulfuric acid resistant materials. The connector insert, backshell body and locking ring are all made from polyphenylene sulfide. Polyphenylene sulfide is a high performance thermoplastic material that exhibits extreme solvent resistance up to 200 degrees C. Actual service temperature of PPS is up to 218 degrees C (424 deg. F). The inner sealing o-ring of the connector is made of Viton, another acid resistant polymer that displays excellent flexibility at higher temperatures. Completing



Remnants of a CTC A2A connector where the polycarbonate has completely disintegrated and the stainless locking ring has been seriously eroded due to the actions of sulfuric acid.

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the package is the epoxy fill in the backshell body. These connectors are made specifically for use in the extreme environments where strong acidic or strong basic concentrations may occur.

PPS was selected for this application because it offers the broadest resistance to chemicals of any available advanced engineering plastic, including bases and acids and also offers inertness to steam and hydrocarbon based solvents. A very low coefficient



CTC's new PPS connectors—available in 2 socket or 3 socket configurations. "A2S" 2 socket connectors and A3S 3 socket connectors.

coefficient of linear thermal expansion makes PPS products ideally suited for the machined components required for CTC's connectors. In addition, PPS products exhibit excellent electrical characteristics and are inherently flame retardant, good benefits when working in industrial environments.

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.

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