

A Guide to Better Understanding ISA S71.04-1985

Who is the ISA?

The Instrumentation, Systems, and Automation Society (ISA) is an international, non-profit, technical organization that fosters advancements in technology for measurement and control in a wide variety of applications.



What is ISA S71.04-1985?

A document that classifies the level of airborne contamination that is safe for electronics. It is the basis of Purafil's system designs and a popular guideline for warranties of electronic/electrical equipment.

How are "airborne contaminant gases" measured?

According to ISA, we can measure the level of airborne contaminant gases via *reactivity monitoring*. Purafil's Corrosion Classification Coupons and OnGuard Technology are based on reactivity monitoring.

How does ISA classify environmental corrosion?

Class G1: Mild - Corrosion is NOT a factor in determining equipment reliability.

Class G2: Moderate - Corrosion is measurable.

Class G3: Harsh - It is probable that corrosion will occur.

Class GX: Severe - Only specially designed and packaged equipment will survive.

How do I determine my room's ISA Classification?

The ISA Class is dependent upon the rate corrosion buildup (corrosion thickness over time). Corrosion thickness is

measured in Angstroms (one ten-billionth of a meter). According to ISA, a G1 environment has less than 300Å of corrosion buildup in 30 days, G2 has <1000Å, G3 has <2000Å, and GX \geq 2000Å. Purafil's Corrosion Classification Coupons and OnGuard Monitors can be used to determine a room's ISA classification.

What are Copper Coupons?

A Copper Coupon consists of a copper-plated metal strip mounted to a plexiglas panel. Purafil offers Copper Coupons, Copper-Silver Coupons, and Copper-Silver-Gold Coupons.

How do you measure corrosion with a copper coupon?



Step #1

Place the Copper Coupon in a motor control center, rack room, or other area housing sensitive electronics. DO NOT place the coupon inside the control panel or outside of the building!

Step #2

Over time, the coupon will tarnish. Purafil's laboratory will analyze the coupon to determine the room's ISA class. If the coupon is corroding, so are the electronics!

How does the OnGuard CCT monitor corrosion?

OnGuard technology is based on the use of copper-plated quartz crystal microbalance sensors. The sensors have a natural resonance frequency based on mass. Corrosion buildup on the sensor causes a mass gain. The OnGuard Continuous Corrosion Transmitter (CCT) correlates this mass gain to corrosion thickness. Once we know the corrosion thickness, the ISA class can be quickly calculated.

