

Product Bulletin for Corrosion Classification Coupon+



The Corrosion Classification Coupon+ (CCC+) measures the amount of corrosion formation on copper and silver surfaces and logs the temperature and relative humidity of the immediate environment. This provides data allowing an industry standard classification of the amount of corrosion present as well as identifying contaminant classes.

Because many contaminants are corrosive in nature (e.g., hydrogen sulfide and sulfur dioxide), reactivity monitors have long been used to gauge the quality of ambient air and to indicate the effectiveness of pollution control strategies. Purafil's reactivity monitoring technique is passive in nature and involves the use of copper and silver Corrosion Classification Coupons. The CCC+ also contains a temperature and relative humidity logger for evaluation of controls and limits.

Typical CCC+ Installation Sites

Industrial and Mission Critical Environments

- Control rooms
- Rack rooms
- Motor control centers
- Laboratories
- Critical parts storage rooms
- Server rooms

Museum and Library Environments

- Outside air intakes
- Recirculation air handlers
- Storage rooms
- Display cases
- Archives

Customer Benefits

- Simple to use in a variety of environments
- Unobtrusive, easy installation and data gathering
- Economical investment for determining air quality
- Scientifically supported, reliable results
- Vital for determining corrective solutions to protect equipment, processes and artifacts

Copper and Silver Analysis:

After an installation period of 30 days, the CCC+s are collected from the field and returned to Purafil's laboratory for analysis. The purpose of CCC+ analysis is to determine the type and thickness of corrosion deposits on the surface of each CCC+. CCC+s are analyzed using Coulometric Reduction and identifies the type of contaminant. A corrosion reactivity rate is calculated by measuring the amount of time the CCC+ is exposed and the thickness of the corrosion present. Comprehensive reports are posted online for your local Purafil Representative.

Temperature and Relative Humidity:

Temperature should be maintained consistent with electronic equipment warranty requirements or at the lowest level possible consistent with personal comfort, typically 72°F, 22°C ($\pm 2^\circ\text{F}$, $\pm 1\text{-}2^\circ\text{C}$). Relative Humidity should be less than 50% with close control of deviations, no greater than 6% per hour.

Features	CCC	CCC+
Copper Corrosion Analysis	✓	✓
Silver Corrosion Analysis	✓	✓
Summary Report	✓	✓
Temperature Analysis		✓
Relative Humidity Analysis		✓

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ISA Environmental Classes: Airborne Contaminants

This standard requires that rooms containing backplane wired equipment, instrumentation, process control systems or computers, must have a G1 environmental classification, defined in terms of corrosion thickness as 0-299 Angstroms (Å) per 30 days on copper or silver coupons. A G1 classification is characterized by ISA as "Mild" (0-299Å); G2, "Moderate" (300-999Å); G3, "Harsh" (1000-1999Å); and GX, "Severe" (>2000Å).

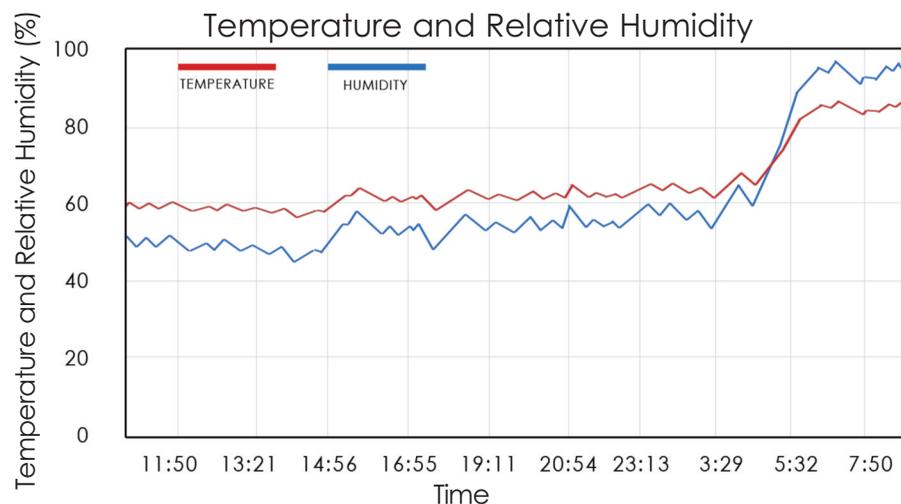
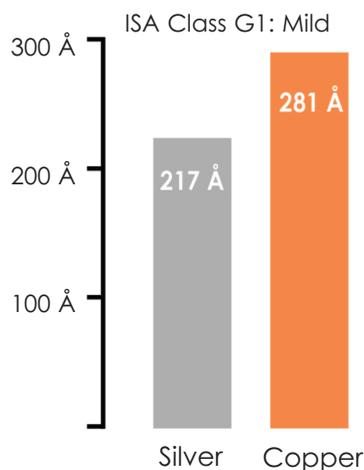
ISA STANDARD S71.04-2013*			
Severity Level	Reactivity Level	Copper Corrosion	Silver Corrosion
G1	Mild	<300 Angstroms / 30 days	<200 Angstroms / 30 days
G2	Moderate	<1000 Angstroms / 30 days	<1000 Angstroms / 30 days
G3	Harsh	<2000 Angstroms / 30 days	<2000 Angstroms / 30 days
GX	Severe	>2000 Angstroms / 30 days	>2000 Angstroms / 30 days

*This standard was revised in 2013 to include a requirement for the use of BOTH copper and silver corrosion rates to determine environmental classifications. The overall ISA Severity Level is based on the higher of the two corrosion rates.

CCC+ Comprehensive Report

The results of Purafil's environmental analysis are reported and made accessible to your local Purafil representative via Purafil's online Installed Tracking System. Included in the report are the general classes of gases present, estimated concentration levels, and temperature and relative humidity effects and graphs. Reports can be tailored to your application by selecting the appropriate label (Industrial, Data Center or Preservation).

Example Report



About Purafil

Purafil is the global leader for protecting people, processes, and investments by engineering and manufacturing customized clean air solutions. Since 1969, we have earned the customer loyalty of 20,000 companies, delivering world-class expertise and driving technical standards of the industry. We offer chemical filters, equipment and monitors in four vertical markets: Industrial, Commercial, Electronics and Wastewater. Purafil delivers superior customer value and provides insight on the markets.