Technical Services

Purafil Technical Services

For environmental monitoring and verification of system performance

Clean Air Solutions

Purafil is committed to providing clean air solutions. Our technical services ensure you, the customer, that Purafil's dry scrubbing media and air filtration system installed at your facility are performing optimally. The following services are included as part of Purafil's technical services program:

Reactivity Monitoring using Corrosion Classification Coupons and OnGuard™ technology.

System Verification via media life analysis and reporting.

Field Testing such as equipment certification and door fan testing.

Purafil, Inc. … Your Single Source

- Media Manufacturing
- Equipment Design & Manufacturing
- Laboratory Analysis & Testing Services
- Monitoring Instruments & Programs

ISO 9001 Certified

PURAFIL®

First...in clean air

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Reactivity Monitoring

Reactivity Monitoring is a widely accepted technique used to characterize the destructive potential of an environment. Because many of the contaminants targeted for control are corrosive in nature (i.e., 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 (CCCs).

CCCs (left) are typically employed in industrial environments, to determine the effect of corrosion on sensitive electronics, or in museums, to determine whether or not artifacts are safe from decay.

CCCs are a reliable yet cost-effective means of classifying the external and internal environments. As part of the Purafil's monitoring strategy, individual CCCs are placed in the following areas:

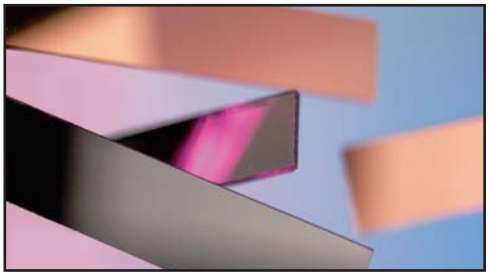
Industrial Environments
- Control Rooms
- Rack Rooms
- Motor Control Centers
- Laboratories
- Critical Parts Storage Rooms
- Mainframe Computer Rooms

Museum Environments
- Outside air intakes
- Inlet of Recirculation Air Handlers
- Storage Rooms
- Display Cases

Following a period of 30 to 90 days, the CCCs are collected and sent to Purafil's laboratory. Field-exposed CCCs are analyzed to determine the level of contamination in the environment.

CCC Analysis

The purpose of CCC Analysis is to determine the type and thickness of corrosion buildup on the surface of each CCC. CCCs are analyzed via Coulometric Reduction, which allows the contaminant type to be easily identified. Knowing the period of time during which the coupon was exposed and the thickness of corrosion present, a corrosion reactivity rate can be calculated.



This method of reactivity monitoring has been extensively researched by Batelle Laboratories and Bell Telephone.

Corrosion Potential

Industrial Environments: Knowing an environment's corrosion potential is important to industrial facilities. Purafil's laboratory analysis provides a quantitative measure of an environment's overall corrosion potential and details the environmental class as defined by Instrumentation Society of America (ISA) Standard S71.04-1985, titled "Environmental Conditions For Process Measurement and Control Systems:

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Airborne Contaminants." This standard requires that rooms containing back plane wired equipment, instrumentation, process control systems or computers, must have a G1 environmental classification, defined in terms of corrosion thickness as 0-299 Angstroms per 30 days. A G1 classification is characterized by ISA as "Mild"; G2, "Moderate"; G3, "Harsh"; and GX, "Severe".

ISA Environmental Classes (RH <50%)				
Copper Film Thickness (Angstroms)	G1	G2	G3	GX
	0-299	300-999	1000-1999	≥2000
Gas Concentrations (Parts per Billion, by Volume)				
	G1	G2	G3	GX
H_2S	≤3	≤10	≤50	>50
SO_2 , SO_3	≤3	≤100	≤300	>300
Cl_2	≤1	≤2	≤10	>100
NO_x	≤50	≤125	≤1250	>1250
HF	≤1	≤2	≤10	>10
O_3	≤2	≤25	≤100	>100
NH_3	≤500	≤10K	≤25K	>25K

Museum Environments: In museums corrosion is caused by the burning of fuels in power-stations, factories, commercial and domestic buildings, and automobiles. Purafil offers CCCs to test multiple locations within the local environment. The environmental classifications for both copper and silver corrosion is provided (right).

Air Purity Recommendations

- **Class S1/C1**: Archives, Metal Collections, Rare Books
- **Class S2/C2**: Museums, Museum Storage, Libraries
- **Class S3/C3**: Historic Houses
- **Class S4/C4:** Short Term Acceptable
- **Class S5/C5:** Not Acceptable

Environmental Classification for Museums Silver Corrosion		
Class	Air Qualify Classification	Corrosion Rate (Å/30 Days)
S1	Extremely Pure	<40
S2	Pure	<100
S3	Clean	<200
S4	Slightly Contaminated	<300
S5	Polluted	≥300

Environmental Classification for Museums Copper Corrosion		
Class	Air Qualify Classification	Corrosion Rate (Å/30 Days)
C1	Extremely Pure	<90
C2	Pure	<150
C3	Clean	<250
C4	Slightly Contaminated	<350
C5	Polluted	≥350

CCC Comprehensive Report

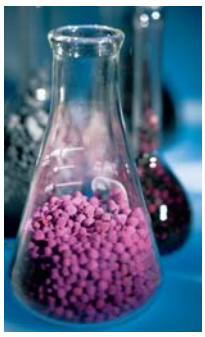
The results of Purafil's environmental analysis are reported and made accessible to your local Purafil representative via Purafil's online Installed Tracking System. Included in the report are the general classes of gases present, estimated concentration levels, and humidity effects.

OnGuard™ Technology

OnGuard™ Monitors provide real-time readings of corrosion levels in your local environment. The OnGuard™ series of monitors continuously detect and record changes in contaminant concentrations at levels <1 ppb, allowing preventive action to be taken before serious corrosion damage occurs.

Use the OnGuard™ to verify the performance of your filtration system and take control of the air quality at your facility.

System Verification



Media Life Analysis: By analyzing samples of media from your air filtration system, Purafil can project your media's remaining service life. Your Media Life Analysis Report is made available to your local Purafil representative via Purafil's online Installation Tracking System.

The Media Life Analysis Report details the remaining life of your system media and projects a media replacement date to ensure the cost-effective and efficient operation of your gas-phase air filtration system.

Field Testing

Purafil offers on-site room inspection and leak testing services for the protection of electronic equipment. As part of this service, Purafil examines room walls, doors, windows, floor/wall joints, ceiling/wall joints, HVAC equipment, duct work and air filtration equipment for room integrity and the presence of corrosive gases.