

PRODUCT BULLETIN 4

ON GUARD[®] 3000

PURAFIL



MUSEUM & ARCHIVE APPLICATIONS

THE PURAFIL ONGUARD 3000 (OG3) measures in real-time the overall reactivity level of Airborne Molecular Contaminants (AMC) present in the local environment as well as temperature and relative humidity. This data can either be logged by an internal data logger or can be transmitted directly to the facility monitoring system via a 4-20 mA output signal. Reactivity monitoring is an accurate and reliable method of evaluating the quality of makeup and recirculation air characterizing the museum or archive environment, and evaluating the effectiveness of chemical filters.



ONGUARD OG3

FEATURES & BENEFITS

- Internal temperature and relative humidity sensors
- Incremental and cumulative corrosion data
- Service life of 4000 Angstroms
- Battery-operated, no wiring necessary
- Patented technology specific to airborne corrosion
- Accurate within ± 0.5 -1% of full span
- Corresponds to guidelines proposed for advanced museum preservation
- 4-20 mA output signal
- Four 4-20mA outputs: Copper, Silver, Temperature, RH
- LCD display (on battery operation, display and backlight activated by any button press)
- PC based software program to interface with the unit
- Serial or USB interface to PC
- Data logging possibilities

PRINCIPLE OF OPERATION

The OnGuard OG3 is the first reactivity monitor to provide real-time data on the level of AMC present in the local environment. A quartz crystal microbalance sensor (QCM) is plated with copper or silver and used to measure the mass accumulation of the corrosive film that results from the reaction of contaminants with the metals. The mass increase is described in terms of the corrosion film thickness measured in Angstroms (\AA). This highly sensitive method of measurement will indicate the reactivity level of an environment with contaminant levels at or less than one part per billion (1 ppb).

Since 1989, Purafil has been working with a number of institutions to develop and refine techniques with which conservators may accurately gauge the destructive potential of their environments towards those artifacts and materials trusted to their care. This led to the formulation of a classification scheme that would allow conservators to determine if their environments were "preservation environments" or whether contaminants control measures were indicated.

SYSTEM ADVANTAGES

MAINTENANCE: The only maintenance necessary of the OnGuard OG3 is the replacement of the sensor(s), which is required at 4000 angstroms of cumulative corrosion growth, or if the sensor(s) has been damaged, causing the Red LED to blink.

INSTALLATION: Location: Select a clean, dry location free of excess vibration where the temperature will be between -10 and 75° C (14° and 167° F) and the relative humidity will be between 10% and 95% non-condensing.

PLACEMENT: When installing the OnGuard OG3 special care should be given to its placement. It should be mechanically affixed to a structure at eye level within the protected space.

PC BASED SOFTWARE PROGRAM:

The OnGuard OG3 can be connected to any PC to view retrieved data via a software program included with the monitor. This software package can be downloaded to your PC and is used for communication and graphing of data stored within the monitor.

RECOMMENDED AIR QUALITY CONTROL:

Based on Purafil's environmental research with museums, archives and libraries worldwide, Purafil recommends that a Class 1 or Class 2 be maintained in areas with unrestricted public access and areas with restricted access to authorized personnel but where material are removed and replaced frequently. Environmental Class 1 is recommended in areas with highly restricted access where materials will be removed and replaced infrequently.

COPPER CORROSION		SILVER CORROSION	
AIR QUALITY CLASSIFICATION	REACTIVITY RATE*	AIR QUALITY CLASSIFICATION	REACTIVITY RATE*
Extremely Pure	<90 \AA /30 days	Extremely Pure	<40 \AA /30 days
Pure	<150 \AA /30 days	Pure	<100 \AA /30 days
Clean	<250 \AA /30 days	Clean	<200 \AA /30 days
Slightly Contaminated	<350 \AA /30 days	Slightly Contaminated	<300 \AA /30 days
Polluted	>350 \AA /30 days	Polluted	>300 \AA /30 days

* \AA = angstroms