

CASE STUDY 4

A MOBIL OIL REFINERY



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PURAFIL MEASURES REAL-TIME CORROSION 4 A MOBIL OIL REFINERY



PRODUCT APPLICATION AT A MOBIL OIL REFINERY

Corrosion of computer control equipment can result in increased maintenance costs, reduced productivity and unscheduled downtime. Purafil's OnGuard® 2000 Atmospheric Corrosion Monitor was installed to measure Mobil Oil Corporation's environmental corrosive severity level. This information allows Mobil Oil to immediately identify environmental conditions that can lead to lost profits and costly repairs.

THE PROBLEM

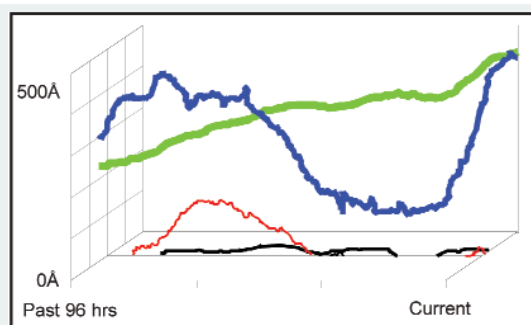
A Mobil Oil refinery in Paulsboro, New Jersey was experiencing constant computer failures due to corrosion and, as a result, was forced to replace 40 computer boards.

"When these DCS go down, it can cost us \$200,000 per day in operational costs and lost product," explained Terry Hunter, an engineer at Mobil Oil. "What we needed was a way to be alerted at the earliest possible moment when our computers were at risk so that we could immediately correct the problem."

PURAFIL PROVIDES THE SOLUTION

Purafil, Inc., suggested using Purafil's OnGuard Atmospheric Corrosion Monitor. The OnGuard monitors temperature, relative humidity, differential room pressure and the environment's corrosive severity level. Because these measurements are real-time, engineers can forecast precisely when preventive maintenance should be scheduled.

Hunter installed four OnGuard units in Input/Output control rooms containing Honeywell TDC 3000 process control systems. Analog (4-20 mA) outputs were fed into the TDC 3000. Although the control rooms were protected by chemical filtration, the OnGuard units documented environmental changes that could have damaged the computer systems. The following chart depicts the data accumulated by one OnGuard monitor over a 96-hour period.



The high incremental silver corrosion rate (thick blue line) and lower incremental copper rate (thin red line) indicate the presence of contaminants that primarily react with silver. When the media was changed in the chemical filtration system, both rates dropped immediately. However, within a couple of days a major chemical spill occurred, using up the remaining life of the media. As a result, the incremental silver corrosion rate shot back up, once again indicating the presence of corrosive gases in the control room. The cumulative silver rate (thick green line) also reflected these events, flattening out after the media was changed, then increasing by 100 angstroms during a 12 hour period after the chemical spill. The cumulative copper (thin black line) showed very slight corrosion, indicating that copper corrosion was being properly controlled.

Purafil's patented OnGuard technology offers continuous, real-time monitoring of contaminant levels in control rooms, rack rooms, motor control centers and other sensitive environments. In addition to monitoring copper and silver corrosion (both cumulative and incremental), OnGuard also measures temperature, relative humidity and differential room pressure.

OnGuard's design is compact and simple to use. All measurements correlate directly to the Instrument Society of America's (ISA) standards for acceptable levels of airborne contaminants.

These measurements can be easily viewed on the graphic Liquid Crystal Display (LCD), and the parameters can be easily configured using the menu-based keypad. As an added benefit, OnGuard's powerful memory can log up to one full year's worth of comprehensive data.

The OnGuard is suitable for stand-alone applications, but can also be easily networked to relay information from single or multiple units to a central location. This information can be easily uploaded to a personal computer (PC) for viewing or graphing using the exclusive OnGuard Remote Control software.

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