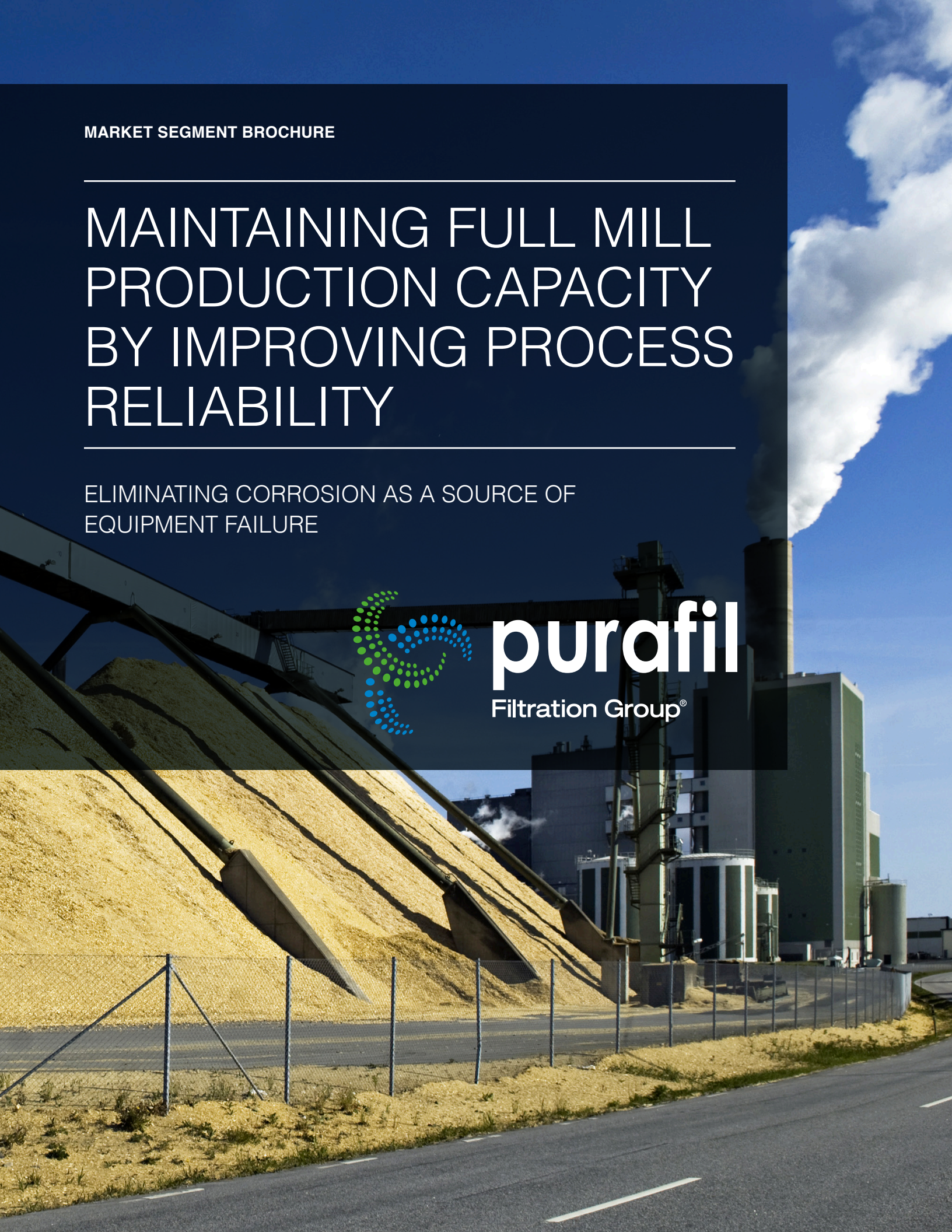
MARKET SEGMENT BROCHURE

MAINTAINING FULL MILL PRODUCTION CAPACITY BY IMPROVING PROCESS RELIABILITY

ELIMINATING CORROSION AS A SOURCE OF EQUIPMENT FAILURE

purafil
Filtration Group®



ENSURING THE SMOOTH OPERATION OF PRODUCTION PROCESSES

HOW TO DETERMINE THE AIR QUALITY IN YOUR CONTROL ROOM BEFORE IT CAUSES EQUIPMENT FAILURE?

Electronics are becoming increasingly more advanced and miniaturized. RoHS, commonly called the “lead-free directive”, is intended to reduce the use of hazardous substances in electronic equipment. However, ongoing research has shown that printed circuit boards made using lead-free materials can be more susceptible to corrosion. A passive air monitoring program using Corrosion Classification Coupons (CCCs) offers an inexpensive air quality indicator for potential corrosion related failure.

Purafil Solution: Corrosion Classification Coupons (CCC)

ARE YOU CONCERNED WITH PRODUCTION DOWNTIME?

Corrosive gases such as hydrogen sulfide (H_2S), sulfur dioxide (SO_2), and chlorine (Cl_2) released during the production of paper can wreak havoc on electronic equipment reliability. The corrosion of contacts and components on circuit boards accounts for 30-40% of all equipment failures and is likely caused by a combination of uncontrolled temperature, humidity, and harmful corrosive gases inside the electronic equipment rooms. Prevent downtime, reduce maintenance costs, and avoid replacement expenses by protecting your control rooms and motor control centers. Custom scrubbers can maintain a clean and pressurized environment to ensure zero downtime due to corrosion.

Purafil Solutions: Tub Scrubbers, Positive Pressurization Units, and Corrosive Air Units

HOW TO ENSURE CORROSION PROTECTION OVER TIME

The most effective way to predict and prevent corrosion related failure in electronic equipment is to collect long-term air quality data. A monitor capable of providing real-time data for corrosion, temperature, room pressure, and relative humidity in your protected space provides a total air quality reading on a continuous basis, allowing for corrective action to be taken before serious damage has occurred. This can also be used to ensure that your air scrubbers are continuing to run at peak efficiency.

Purafil Solution: Purafil OnGuard® Smart (OGS)

PURAFIL PROVIDES THE SOLUTION

HELPING A PAPERBOARD MILL MAINTAIN FULL CAPACITY

A major paperboard and food grade packaging manufacturer headquartered in Georgia was having difficulty identifying and solving an equipment room air quality issue. A critical control room on the wet end of the paper machines continued to indicate a harsh and corrosive ISA “GX” environment that would eventually shut down production. Downtime at this mill can run in excess of $100K per hour. After years of unsuccessful attempts by their previous supplier, Purafil suggested a new solution. By correctly sizing and supervising the installation of a Purafil Tub Scrubber with Puracarb media, and assisting in resolving various construction issues, a clean and sustainable ISA “G1” rating was achieved. By providing a solution to their most difficult filtration problem after others had failed, Purafil became the clean air partner for the remaining control rooms and motor control centers throughout the facility.

“Since utilizing Purafil, this critical control room has maintained a corrosion free environment for over 10 consecutive years.”

Purafil, Inc. is the leading manufacturer of dry-chemical media, scrubbers, and monitors in the pulp and paper industries. Our products and solutions identify and remove harmful and unpleasant particles, gases, odors, bacteria, and viruses from the environment. The results are increased comfort levels, better equipment reliability, and confidence that environmental safety regulations are being met and exceeded.

PURAFIL'S DRY-SCRUBBING MEDIA ADVANTAGE

PURAFIL ENGINEERED MEDIA

By using Purafil air scrubbing media, you can greatly improve the reliability of production processes. You can also prevent expenditures for new systems and lost revenue due to repairs and other downtime-related expenses. Our patented media formulations are manufactured using special chemicals that react with corrosive gases and remove them from the air stream. Contaminant gases are chemically transformed into harmless solids that remain trapped inside the media. Known as chemisorption, this process converts damaging contaminants into harmless salts.

Purafil's media perform well at all temperatures and humidity levels, are non-flammable, UL certified, and remove a broad range of contaminants. Our media provides more than double the removal capacity of equivalent competitor products for key target gases. As a complimentary service, our laboratory technicians analyze samples from your system(s) and provide a report indicating the estimated media replacement date based on the specific conditions in your facility. Purafil's media is either bulk-filled within our engineered equipment, or packaged in our MediaPAK™ modules and PuraGRID® filters.

Purafil offers the following granular media for your specific gas challenges:

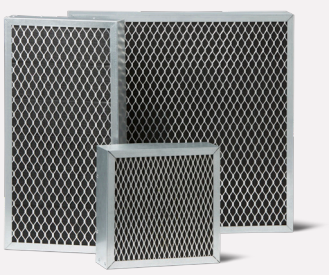
PURACARB®
Manufactured specifically for the removal of acid gases, including hydrogen sulfide and sulfur dioxide, in industrial settings.

PURAFIL® SP
Demonstrates a higher working capacity for broad spectrum oxidation of contaminants, where multiple gas challenges are present.

PURAKOL®
Used in combination with other Purafil media to ensure broad-spectrum removal of pollutants.

PuraGRID™ Filter with GridBLOK™ Technology

The GridBLOK is a gas-phase air filtration medium in the form of an extruded carbon composite with a large number of small, parallel cells or channels. The GridBLOK is composed of essentially 100% adsorbent materials allowing the entire composite structure to function as a gas filter. Due to the large number of cells in each GridBLOK, the contact area between the adsorbent media and the airstream that travels inside the cells is very large. These cells are parallel so that the flow is not obstructed and the pressure drop is extremely low. The PuraGRID is available in multiple patented media formulations specific to your needs:



PURAFIL CUSTOM EQUIPMENT

TUB SCRUBBER SYSTEM (TSS)

Located outside protected spaces to pressurize and provide ISA Class G1 air. It has a single, three-foot deep bulk-filled media bed, which is designed to mitigate high concentrations of a targeted gas. Airflows of 500 - 6,000 CFM.

POSITIVE PRESSURIZATION UNIT (PPU)

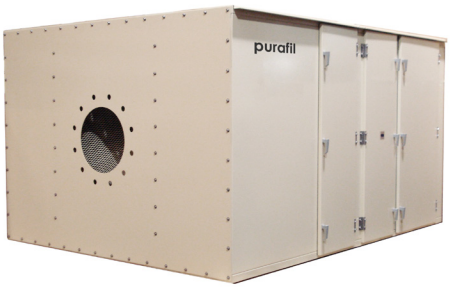
Modular system design works in tandem with standard air handling equipment to eliminate corrosive gases and provides continuous positive pressure within the space as it recirculates the air. Airflows of 500 - 4,000 CFM.

CORROSIVE AIR UNIT (CA)

Self-contained modular air purification system that cleans and recirculates air inside the protected space. Airflows of 500 - 4,000 CFM.

ELECTRONIC CABINET UNIT (ECU)

Modular, side-mounted system that protects electronics contained in a sealed cabinet from acid gases as it cleans and recirculates air and pressurizes the space. Airflows of less than 500 CFM.



COMPRESSOR INTAKE FILTER (CIF)

Modular system design removes contaminant gases from polluted airstreams entering the compressor while preventing corrosion damage to intercoolers, diffusers and casings. Airflows of 400-18,000 CFM.

PURAFIL® SIDE ACCESS SYSTEM (PSA)

Modular system design features insulated double-walled construction and filters moderate levels of acid gases in less polluted areas of the plant. Can also be used as a filter in a recirculation circuit. Airflows of 250 - 50,000 CFM.

AIR QUALITY ASSESSMENT AND MONITORING

AIR QUALITY ASSESSMENT

A controlled space, such as a control room or motor control center is designed in accordance with strict environmental criteria to protect sensitive electronics from damage caused by corrosive gases. These criteria were developed by the International Society of Automation (ISA). The ISA Standard 71.04-2013 titled “Environmental Equipment Conditions for Process Management and Control Systems: Airborne Contaminants,” has become the accepted guide for warranties of electronic equipment.

Purafil’s Air Quality Assessment Service provides specially prepared Corrosion Classification Coupons (CCC’s) for critical operating environments. The rate of corrosion buildup, measured in angstroms, on the coupon is indicative of the environment’s severity level – G1, G2, G3, or GX. Purafil performs this service as a diagnostic tool to determine the types and levels of contaminants in various areas of your facility.

ISA STANDARD 71.04-2013			
CLASS	**COPPER REACTIVITY LEVEL (IN ANGSTROMS)***	**SILVER REACTIVITY LEVEL (IN ANGSTROMS)***	**AIR QUALITY CLASSIFICATIONS**
G1	< 300	< 200	**MILD** *Corrosion is not a factor*
G2	< 1,000	< 1,000	**MODERATE** *Corrosion is measurable*
G3	< 2,000	< 2,000	**HARSH** *High probability that corrosion attacks will occur*
GX	> 2,000	> 2,000	**SEVERE** *Electronic/electrical equipment is not expected to survive*

*Normalized to a 30-day exposure. 1 angstrom = one hundred-millionth of a centimeter, or 10^{-10} meter.

AIR QUALITY MONITORING

Purafil’s OnGuard® Smart (OGS) Monitor helps protect your equipment by measuring and transmitting the level of corrosion in your facility, allowing for action to be taken before problems develop. Purafil’s OGS can transmit real-time data to your SCADA system via a 4-20 mA output signal, and is accessible over ethernet or Wi-Fi. In addition, the Purafil OGS contains internal temperature, humidity, and room pressure sensors. In remote applications, it can be operated as a data logger using battery power. All measurements are directly related to ISA Standard 71.04-2013.

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