



Remedia[®]

CATALYTIC FILTER SYSTEM

*The most cost-effective way
to meet dioxin regulations*





Remedia.

CATALYTIC FILTER SYSTEM

THE MOST COST-EFFECTIVE TECHNOLOGY

W. L. Gore & Associates, the leader in filtration technology, now brings you a revolutionary way to meet dioxin and furan emission regulations. Now you can destroy gaseous dioxins and furans simply by installing new filters in your baghouse. This innovative system is effective and cost-efficient—without requiring process changes or adding costly new equipment. Safer for the environment, safer for employees, simpler to use, our GORE® REMEDIA®*



“The GORE® REMEDIA® catalytic filter system proved to be the simplest solution to our dioxin problem. The world-wide team from Gore provided superior service.”

Operating Director, Crematorium

catalytic filter system is the most cost-effective way to destroy dioxin.

Meeting the Dioxin Challenge

The threat of dioxins is drawing increasing attention around the world. Governments are phasing in tougher dioxin restrictions, and reports about dioxin levels in food products have generated widespread concern. Issues related to dioxin emissions and disposal are moving up the

environmental agenda. With heightened public awareness, stricter regulations, and potential penalties for non-compliance, it's more important than ever to avoid the risks associated with inadequate dioxin control.

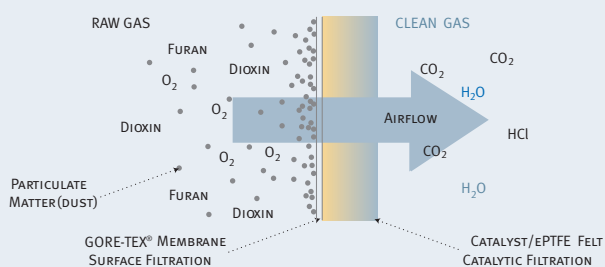
Now, a safe and simple solution is available. Gore's GORE® REMEDIA® catalytic filter system helps you efficiently meet dioxin emission requirements without the burden of costly new equipment. It offers a broad range of benefits unmatched by any other dioxin control technology.

*Baghouse operating temperature must be in the 180°C - 250°C range.

FOR DIOXIN CONTROL

GORE® REMEDIA® CATALYTIC FILTER SYSTEM

Combining the principles of surface filtration and catalysis.



Meeting Dioxin Regulations is a Breeze with GORE® REMEDIA® Filters

Combining the principles of surface filtration and catalysis, the GORE® REMEDIA® catalytic filter system is a unique dioxin control alternative that works in your existing baghouse to destroy gaseous dioxins and furans to levels far below regulatory limits—safely, economically, and with minimal maintenance.

The GORE® REMEDIA® catalytic filter system consists of GORE-TEX® membrane, an expanded polytetrafluoroethylene (ePTFE), laminated to a catalytic felt substrate. A leading and proven filter technology, GORE-TEX® membrane is widely used to control and collect particulate matter in industrial applications.

Using a patented process, catalysts, consistently proven to destroy gaseous dioxins, are combined with PTFE to form a coherent catalytic fiber. The resulting catalyst/ePTFE fiber is needlepunched into a RAS-TEX® ePTFE scrim to create the felt substrate.

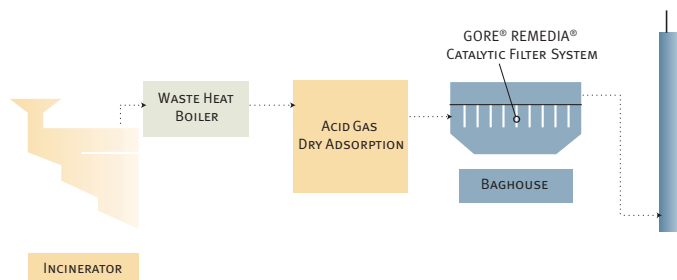
An Innovative Approach to Dioxin Control

Here's how the GORE® REMEDIA® catalytic filter system works: the GORE-TEX® membrane captures fine particulate on the surface of the filter. As the filter is cleaned, solids are released from the surface and collected in the bottom of the baghouse hopper. The gaseous dioxins and furans pass through the GORE-TEX® membrane into the catalytic felt. The catalyst instantly reacts with the dioxin and furan molecules to convert them into insignificant amounts of CO₂, H₂O and HCl.

Making the move to single-step destruction of gaseous dioxins and removal of particulates is easy. Simply replace your existing filter bags with GORE® REMEDIA® catalytic filters. No process changes are required—no additional equipment, procedures or worker training are needed. Since the GORE® REMEDIA® catalytic filter system is a passive control technology that operates continuously, it offers reliable, consistent performance unequaled by any other alternative. The GORE® REMEDIA® catalytic filter system also offers low maintenance and better filter cake management.

NO MAJOR MODIFICATIONS NECESSARY

The GORE® REMEDIA® catalytic filter system works in your existing baghouse, providing dioxin destruction without process modifications or changes to your physical plant.





THE TOTAL DIOXIN SOLUTION FOR INDUSTRY

The GORE® REMEDIA® catalytic filter system offers substantial benefits over sorbent injection systems and other dioxin control technologies.

Destroys dioxins. Unlike sorbent-based systems such as powder activated carbon (PAC), the GORE® REMEDIA® catalytic filter system does not merely move dioxin and furan molecules from the gas stream to the solid residue stream—it destroys them.

Compared to sorbent-based systems, the GORE® REMEDIA® catalytic filter system decreases total release of dioxin to the environment—both gas and solids—by more than 90 percent.

Lower disposal costs. With no dioxin-contaminated sorbents to dispose of, the GORE® REMEDIA® catalytic filter system minimizes the cost of hazardous waste disposal. It addresses concerns about existing or future landfill

restrictions on the amount and toxicity of sorbent levels in fly ash. Reducing hazardous waste disposal with the GORE® REMEDIA® catalytic filter system also demonstrates your company's commitment to environmental protection.

GORE® REMEDIA® CATALYTIC FILTER SYSTEM

The only dioxin abatement technology with all of the following benefits:

“I am very pleased that we are eliminating almost all of our dioxin/furan emissions using the GORE® REMEDIA® catalytic filter system, rather than simply transferring the material from the flue gas to the solid residue stream, such as with activated carbon.”

*President and CEO,
Medical Waste Incinerator*

BENEFIT	Sorbent Injection (e.g., carbon)	Catalytic Reactor (e.g., SCR)	Carbon Bed	GORE® REMEDIA® Catalytic Filter System
Meets PCDD/F emissions regulations	▲	▲	▲	▲
Destroys gaseous PCDD/F		▲		▲
Provides dust control				▲
Reduces PCDD/F total emissions to the environment		▲		▲
Passive system—low maintenance		▲		▲
No need to purchase new equipment				▲
Uses existing facility footprint				▲

RY AND THE ENVIRONMENT

Easy to get started. No new capital equipment is required. GORE® REMEDIA® filters work in your current baghouse so you can optimize your existing assets. No change in your current process is needed, and your facility's footprint remains the same.

Easy to operate. The GORE® REMEDIA® catalytic filter system is a passive operation, continuously destroying gaseous dioxins and furans while in operation. With no additional equipment to operate, ongoing maintenance demands are kept to a minimum.

Safer for employees. Carbon-based systems create a risk of baghouse fires. Hazardous carbon dust, especially when it is contaminated with dioxin, also puts operators at risk. With the GORE® REMEDIA® catalytic filter system, avoiding carbon eliminates the risk of fires and minimizes potential health risks.

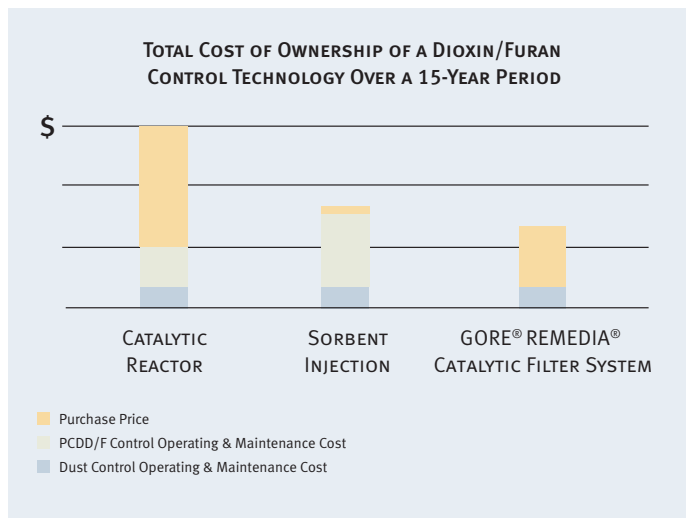
Efficient dioxin removal. With sorbent-based systems, cooling of the flue gas is often required to maximize dioxin removal efficiency. The GORE® REMEDIA® catalytic filter system operates at temperatures from 180°C to 260°C. Because no cooling is necessary, no additional equipment or system modification is required to cool the flue gases.

Reduces corrosion. The lower operating temperatures required with other dioxin control systems can cause corrosion in your baghouse. Since the GORE® REMEDIA® catalytic filter system works at higher temperatures, there is less chance of corrosion.

Long product life. Made of a catalyst/ePTFE fiber, the GORE® REMEDIA® catalytic filter system has high mechanical strength and durability. In fact, system life can be expected to exceed five years—ensuring savings well into the future.

AFFORDABLE TO OWN

The GORE® REMEDIA® catalytic filter system provides an unmatched combination of benefits and value.



Efficient dust control. The GORE-TEX® membrane's microporous structure filters dust—even submicron particles. By capturing fine particles it reduces total emissions of toxins, such as trace heavy metals, to the atmosphere.

Flexible baghouse operation. The microporous structure and smooth surface of the GORE-TEX® membrane make it easy to clean, providing better dust cake management. The resulting pressure drop can lead to increased production, more stable operation, and energy savings.



“The best thing about GORE® REMEDIA® catalytic filters is that the system destroys dioxin instead of simply capturing it. There were no changes to our process or equipment. In addition, no operator is needed after these filters are installed.”

Plant Manager, Municipal Waste Incinerator

A TESTED AND PROVEN TECHNOLOGY

Since 1995, Gore has performed more than 200 polychlorinated dibenzo-dioxin/furan (PCDD/F) measurements in combustion facilities around the world. In addition, more than 700 GORE® REMEDIA® catalytic filter samples have been tested in more than 70 facilities, including municipal waste incinerators, as well as crematoria, pyrometallurgical plants, and cement kilns burning hazardous waste.

Specifically, tests of the GORE® REMEDIA® catalytic filter system at a full-scale municipal waste combustor burning 200 tons of waste per day yielded dioxin emissions well below the required level of 0.1 ng (TEQ)/Nm³ over a six-year period. Raw gas concentrations of dioxins and furans were measured to be between 2.9 and 5.9 ng (TEQ)/Nm³, with subsequent emission concentrations as low as 0.002-0.04 ng (TEQ)/Nm³—substantially below the required 0.1 ng (TEQ)/Nm³ level.

Furthermore, analysis revealed that the concentrations of dioxin in the fly ash using the GORE® REMEDIA® catalytic filter system were

significantly lower than those achievable using a PAC system. The results are impressive. Total dioxin and furan emissions to the environment—including release of both gas and solids from the baghouse—were reduced more than 90% compared to PAC systems.

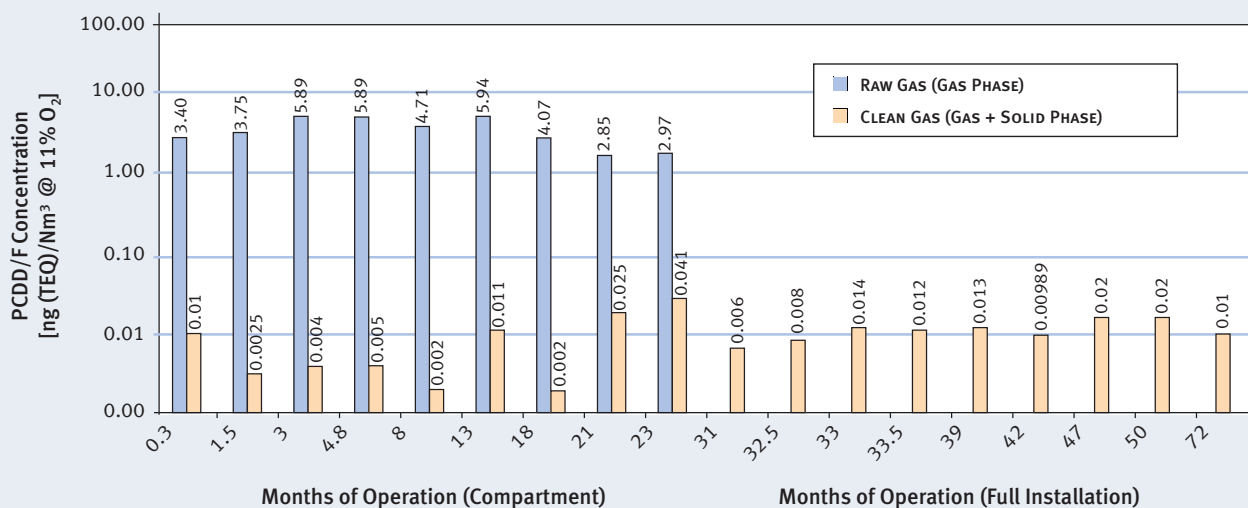
These results are consistent with numerous tests performed in both full-scale systems and pilot test programs. Tests were conducted at temperatures ranging from 180° to 250°C and at filtration velocities varying from 0.8 m/minute to 1.4 m/minute. Within these ranges, the GORE® REMEDIA® catalytic filter system is designed to perform with the same efficiency and reduce emissions of dioxins/furans to below 0.1 ng (TEQ)/Nm³.

At facilities operating under good combustion practices—a typical inlet dioxin concentration below 10 ng (TEQ)/Nm³—the GORE® REMEDIA® catalytic filter system is designed to meet and exceed dioxin regulations.

PROVEN RESULTS

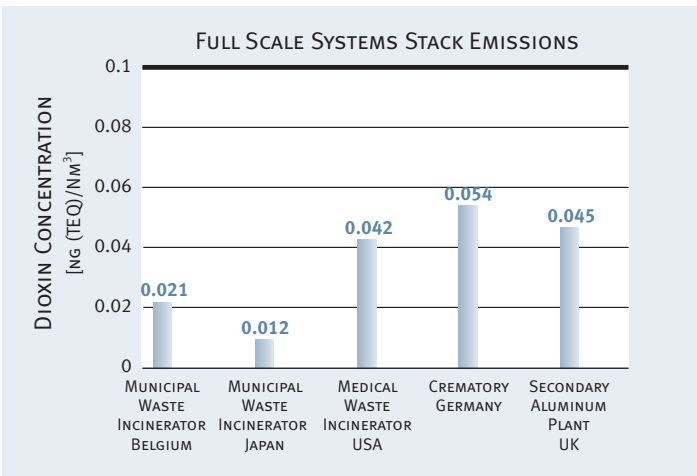
Field tests over a long period of time confirm that the GORE® REMEDIA® catalytic filter system efficiently controls dioxins and furans below regulatory requirements.

MUNICIPAL SOLID WASTE INCINERATOR
Dioxin destruction with Catalytic Filter Media



PROVEN RESULTS

Emissions data from a variety of full scale applications confirm that the GORE® REMEDIA® catalytic filter system controls dioxins and furans below regulatory requirements.



“There will likely be increasingly stringent regulations governing the release of dioxin to the environment and GORE® REMEDIA® catalytic filters will help facility operators meet these requirements while utilizing their existing baghouse. It’s also beneficial that—in addition to controlling dioxin—GORE® REMEDIA® catalytic filters effectively collect particulate matter.”

Technology Manager, Pollution Control Equipment Manufacturer

Gore: A Trusted Name

W. L. Gore & Associates is a worldwide leader in providing high technology solutions for demanding electronic, industrial, medical and fabric applications. Gore is a global manufacturer with worldwide sales and service.

Our innovation and technical accomplishment in the application and use of fluoropolymers, particularly PTFE, has resulted in the development of thousands of diverse products.

As the pioneer in the use of expanded PTFE membrane technology for filtration, Gore benefits from more than 30 years of experience in particulate control. Expanded PTFE’s inherent strength, chemical inertness, thermal stability and microporosity make it a versatile, highly efficient filter media. From vents and adsorbent modules to cartridges and filter bags, whether capturing contaminants in computer disk drives or industrial smokestacks, customers rely on the consistent performance of Gore filtration and separation products.

In order to keep up with environmental regulations and evolving customers’ needs, Gore has pushed the frontiers of traditional filtration and separation technology. Catalytic processes yield higher purity output with less by-products and reduced environmental hazards. The microporosity, cleanability, and non-particulating properties of PTFE, combined with the chemically reactive properties of catalysts, provide particular value in applications like fuel cells and industrial filtration.

Now the GORE® REMEDIA® catalytic filter system, the first in a series of catalytic filtration products, is transforming the future of filtration and toxic emissions control.



Remedia®

CATALYTIC FILTER SYSTEM

GORE® REMEDIA® CATALYTIC FILTER SYSTEM*

Fiber content	Staple – GORE® Expanded PTFE/catalyst Scrim – Rastex® Expanded PTFE fiber
Felt construction	Supported needlefelt
Membrane surface	GORE® ePTFE
Continuous operating temperature	500°F / 260°C (maximum)
Surge temperature	525°F / 274°C (maximum)
Acid resistance	Excellent
Alkali resistance	Excellent

*All specifications are subject to change without notice.

Learn More About GORE® REMEDIA® Catalytic Filter System

To find out if the GORE® REMEDIA® catalytic filter system is right for your facility, contact your local sales representative.

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