



INDUSTRY: Aluminum Recycling

PROBLEM: Meeting EPA regulations for dioxin and furan gas emissions.

SOLUTION: A Donaldson Torit Dalamatic® baghouse collector with GORE® REMEDIA® catalytic filter bags.



The Donaldson Torit Dalamatic® baghouse collector with GORE® REMEDIA® filter bags helps this recycler meet EPA regulations for dioxin and furan abatement.

Aluminum Recycler Avoids Heavy Fines

by meeting EPA dioxin & furan regulations with a Donaldson® Torit® Catalytic System

In the aftermath of a daunting EPA violation for dioxin and furan gas emissions that could have led to a possible shutdown and mounting fines, a major aluminum recovery plant contacted Donaldson Torit for help on controlling emissions.

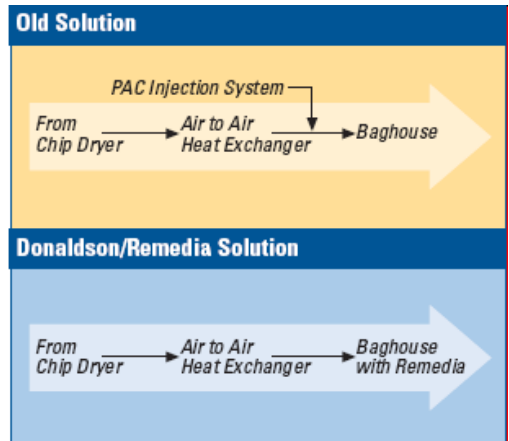
This plant is a secondary aluminum metal recycling operation that converts scrap back into a usable aluminum alloy and sells it to primary aluminum manufacturers. During processing, the aluminum passes through a thermal chip dryer to dry off moisture to prevent the furnace from exploding during melting. The moisture burned off the aluminum then passes through an after-burner to remove volatile organic contaminants (VOC) before they are exhausted outside.

Upon inspection, the EPA found that the chip dryer was emitting more than 5 times the 2.50 microgram limit of dioxin and furan VOC gases per megaton of throughput.

Because the plant had been a Donaldson Torit customer for over a decade, the plant engineer called on the expertise of Donaldson Torit to recommend a solution that would quickly prove to the EPA they were making a good-faith effort to bring their chip dryer into compliance.

Commonly Used Solutions

The commonly-accepted solution for dioxin and furan emissions has been an injection system that uses Power Activated Carbon (PAC). The problem with this solution is that PAC is a fire and explosion

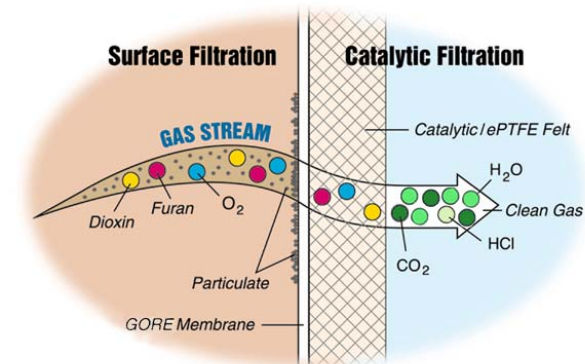


hazard, needs constant monitoring, and only captures (not destroys) the dioxins and furans, producing a toxic waste that needs to be landfilled. Although this kind of waste is not currently regulated in the U.S., it is in other countries and will likely be regulated here in the future.

To overcome these issues, Donaldson Torit sought a simpler answer.

A Chemical Catalyst Solution

While searching for a better solution, Donaldson found that W.L. Gore & Associates, Inc., developed a filtration technology in the late 1990s specifically engineered to help manufacturers meet dioxin and furan emission regulations. Gore claimed that their



technology, named REMEDIA® D/F Catalytic Filter, was well-proven as an easy solution that actually destroys these toxic gases.

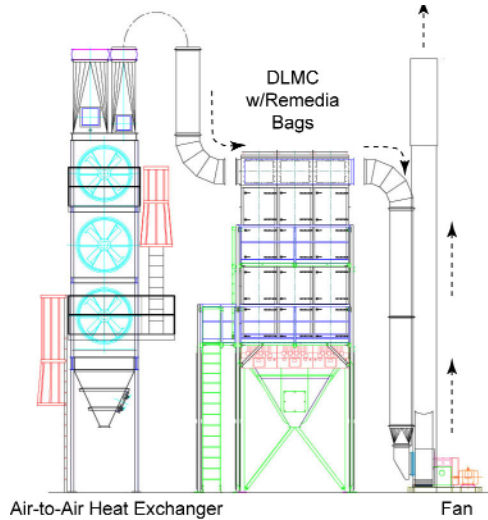
The REMEDIA® D/F is an engineered filter bag constructed of GORE® membrane, an expanded polytetrafluoroethylene (ePTFE), laminated to a catalytic felt substrate. Using a patented process, catalysts are combined with PTFE to form a coherent catalytic fiber. The result is a catalyst/ePEFE fiber that is needle-punched into a GORE® RASTEX® ePTFE scrim to create the felted substrate.

GORE® REMEDIA® filter material captures fine particulate on the surface of the filter, and as the filter is cleaned, solids are released from the surface and collected in the bottom of the baghouse hopper. The dioxins and furans in gaseous form pass through the GORE® membrane into the catalytic felt, causing the catalyst to instantly react with the dioxin and furan molecules. At this point, the dioxins and furans are chemically converted into CO₂, H₂O and insignificant amounts of HCl.

Penalties Avoided

By incorporating the GORE® REMEDIA® bags into a Donaldson Torit cased Dalamatic baghouse designed for high temperature applications, Donaldson helped the plant meet the EPA mandate for a proposed solution within 60 days of violation. This allowed the aluminum recycling plant to continue operating while implementing the solution. The plant was also able to avoid most of the hefty fines — they paid less than 20% of the total possible penalties of up to a half-million dollars.

With the GORE® REMEDIA® filter bags in place, the plant won't bear the expense or hassle of operating a PAC injection system or incurring explosion protection expenses. The dust collector is self-cleaning, requiring minimal maintenance, and is warranted for 10 years.



Project Specifications

Application	Chip Dryer at Aluminum Recycling Plant
Airflow	12,500 ACFM
Operation Temperature	450°F
Contaminant	Aluminum Oxide & Dioxins
Contaminant Type	Dust
Contaminant Size	Small
Agglomerative	No
Fire Hazard	Yes
Toxic	Yes
Abrasive	No
Explosive	Yes
Corrosive	No
Hygroscopic	No
Dust Loading	Very Light (100 lb/year)
Installation Location	Outdoors, 650 ft above sea level
Dust Collector	Donaldson Torit Cased Dalamatic
Collector Model	DLMC 3/8/15
Filter Media	GORE® REMEDIA® filter bags
Duty Cycle	Continuous 24 hrs, 300 days/year

A Complete Package

Donaldson Torit partnered with one of its Dealers, Burke Processing, Inc. to provide the complete package consisting of:

- A self-cleaning Donaldson Torit Dalamatic baghouse, model DLMC 3/8/15, with a single outlet hopper, a two-level service platform, and one rotary valve.
- 240 GORE® REMEDIA® filter bags, guaranteed by Gore to perform for 36 months.
- An air-to-air heat exchanger from the Dustex Corporation.
- A high-temperature fan from Chicago Blower.
- A temperature controller, custom-built by Burke Process, Inc., a material handling and processing turnkey solution provider. This is a critical component, as it automatically provides precise temperature control to keep the REMEDIA® chemistry working at optimum levels.

Burke furnished the exchanger, fan, controller, and installed the entire system.

A Satisfied Customer

The Donaldson Torit Catalytic System was able to help this recycler (1) avoid hefty federal fines, and (2) avoid shutdown. When can Team Donaldson do the same for you? Call us today! ○

**GORE® REMEDIA®
Filter Bags**



**Donaldson Torit
Baghouse Collectors**



RF Collector



Dalamatic Collector



**The Donaldson® Torit®
Catalytic Filtration Solution**

Choose from one of our many baghouse options providing:

- Self-cleaning
- High temperature tolerance
- 10-year warranty

Request the system brochure at www.donaldson.com/promo/removedioxin

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