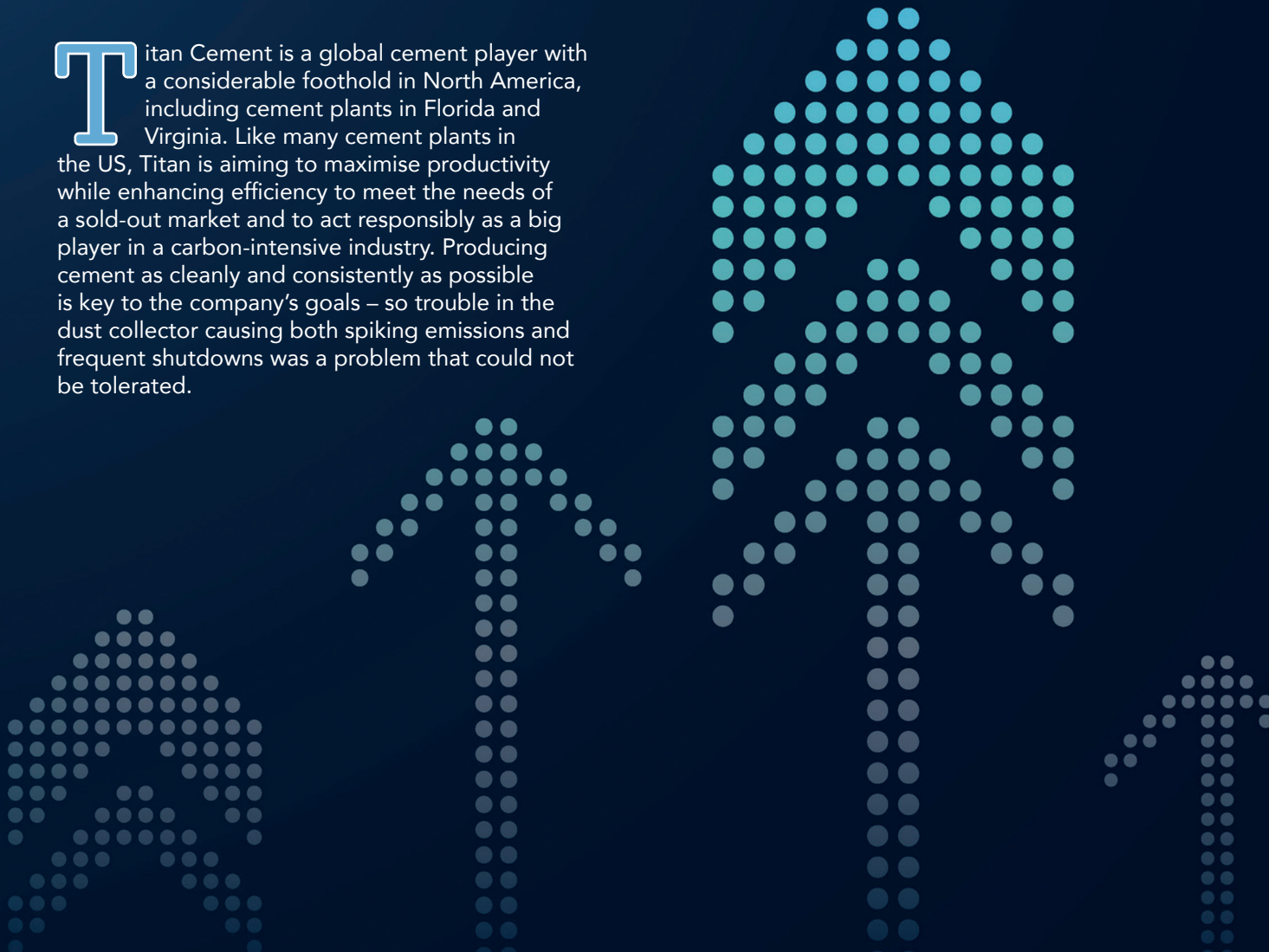


# Reducing dust-related downtime

Eric Gross, W. L. Gore & Associates,  
and Stojanche Milevski,  
Titan Cement, explain how  
upgrading the filter bags at a finish  
mill dust collector reduced both  
downtime and emissions.

**T**itan Cement is a global cement player with a considerable foothold in North America, including cement plants in Florida and Virginia. Like many cement plants in the US, Titan is aiming to maximise productivity while enhancing efficiency to meet the needs of a sold-out market and to act responsibly as a big player in a carbon-intensive industry. Producing cement as cleanly and consistently as possible is key to the company's goals – so trouble in the dust collector causing both spiking emissions and frequent shutdowns was a problem that could not be tolerated.



## “Nothing was working”

Titan Cement’s 2.1 million tpy Pennsuco plant in Florida had experienced issues in their finish mill dust collectors for many years. Every few weeks, they noticed dust coming out of the stack and were forced to stop the mill to carry out maintenance – painstakingly searching through the baghouse to locate and replace the damaged filter bags. In a region with no low season, and in a hot market, the cost of downtime was significant.

“It was killing us”, explained Director of Maintenance Engineering Stojanche Milevski. “We had tried to resolve the issues we were having by adjusting our system, but nothing was working. We were having to stop the mill every couple of weeks, for 12 – 14 hours each time – a loss of



Titan’s Pennsuco Plant, Medley, Florida.

**Table 1. Cost of lost production time caused by filter bag failure.**

|                                  | Lost product per outage (t) | Lost product per year (t) | Cost per outage (US\$) | Cost per year (US\$) |
|----------------------------------|-----------------------------|---------------------------|------------------------|----------------------|
| Before GORE LOW DRAG Filter Bags | 1200                        | 31 200                    | 144 000                | 3 456 000            |
| After GORE LOW DRAG Filter Bags  | 0                           | 0                         | 0                      | 0                    |

1200 – 1400 t of cement each time. We knew about Gore and decided to reach out to them and see whether they could help, starting with Finish Mill 6.”

Engineers were sent by W. L. Gore & Associates to conduct a thorough inspection of the baghouse. Eric Gross explained that the plant’s bags were getting blinded with dust and were not cleaning properly, stating that, “Particulates were escaping through the stack, and the air flow was severely hampered – even with fans running at maximum capacity. Titan noted that they started having problems as they launched new cement blends. High mill temperatures pushed Titan to increase the level of water spray. All of these things were having a deleterious effect on bag performance and bag failure.”

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*“We’ve gone from stopping the mill every few weeks due to issues in the dust collector, to no dust-related shutdowns at all in the year since the new bags were installed.”*

## Hi-tech filter/technical expertise

The Gore team visited the plant on one of Titan’s regular preventive maintenance days when the mill was shut down. The team was able to look inside the dust collector, evaluate the bag-to-cage fitment and check the cleaning cycle. This showed that the design of the current bags was unsuitable for the plant’s needs. Put simply, the bags were not cleaning down well enough and as a result the temperature was climbing, more water was introduced, and cleaning became even harder. Adjusting the cleaning cycle by pulsing harder and more frequently was worsening their bag issues, not helping them.

Having seen what they were dealing with and after much discussion, Gore developed a customised filter bag design for the Finish Mill 6 dust collector, using GORE® LOW DRAG Filter Bags.

“Gore was very helpful. Their people are very technical, very detailed, and very experienced.

The filter bags are expensive, but we were very confident that they would solve our problems – and they have”, Stojanche said. “We’ve gone from stopping the mill every few weeks due to issues in the dust collector, to no dust-related shutdowns at all in the year since the new bags were installed. That’s game-changing for us.”

Blinding of the filter bags is no longer a problem because the new filter bags’ membrane captures particulate matter on the surface and does not allow it to penetrate the fabric. Despite this, air passes easily through the filter, so energy consumption is low. The nature of the

membrane surface also makes cleaning much more effective, thus enabling bags to maintain extremely high levels of performance for much longer than standard filter bags. All of this had made a dramatic difference to performance levels at the Pennsuco plant.

### **A positive experience**

With the new bags performing well for Finish Mill 6, Titan Cement opted to roll them out to other dust collectors.

“Based on the success of the new bags on the Finish Mill 6 dust collector, we swapped out the filter bags in the Finish Mill 4 dust collector, and have plans to do the same for Finish Mill 3. Finish Mill 4 has gone from having 10 shutdowns in a year to resolve the dust collector problems, to none at all since the new bags were installed. And each of these installations has a 4-year warranty. It’s a no-brainer – the new filter bags are dramatically outperforming the old ones and the whole experience has been very positive”, says Stojanche. “The experts from Gore were able to judge the system as a whole and direct us to run it optimally, adjusting the compressed air, the blowdown pipes, the moisture content, everything. Their experience is invaluable. We’re looking at opportunities in other dust collectors and other plants to really make the most of what these filter bags can offer.”

“We take a holistic view of the process and complement our experience with this really high-performing advanced membrane filter bag, which opens up opportunities for cement plants to reclaim lost production, reduce emissions, or – as in this case – simply avoid unnecessary shutdowns.” Eric described. “It’s always a thrill to see just how much of a difference we can make.”

The Pennsuco plant will install more GORE LOW DRAG Filter Bags in the Finish Mill 3 dust collector later this year and will send samples to Gore for testing after the initial installation has been in place for two years.

“We’re very happy with the new bags and with the support and attention we’ve had from Gore throughout”, said Stojanche. “They have transformed our operations.” ■

### **About the authors**

Stojanche Milevski is Corporate Engineering Director of Maintenance Engineering at Titan America. He has been with the company for 20 years out of which serving 10 years as Maintenance Manager at Titan’s USJE, Macedonia cement plant and since 2015 is part of Titan America team and in his current position since 2023.

Eric Gross is a 27 year industrial products sales and marketing associate at W. L. Gore.