

# Case Study

## BHA® ThermoPleat®

### US calcium carbonate producer reduced product loss through emissions and lowered maintenance downtime costs in their flash dryers and micronizers.

#### Challenge:

This customer dries limestone slurry in a natural gas-fired flash dryer and then micronizes the particles to the desired size in high-speed air mills. They were using several 240-bag pulse-jet Flex-Kleen™ baghouses to capture finished calcium carbonate particles for packaging and shipment. Each collector had 2,520 ft<sup>2</sup> of filter area, yielding a 4.4:1 air-to-cloth ratio.

The very fine dust (mean particulate size < 2 microns) quickly blinded and bled through aramid felt bags, causing differential pressure to rise to 10–12" w.c. At that point, measured emissions increased as significant amounts of unrecoverable product was lost out the collector stack. Feed on the dryers had to be scaled back, slowing production. With bag changeouts every 3–6 months, the operator encountered high downtime costs.

#### Solution:

Parker Hannifin proposed replacing the bags with BHA ThermoPleat filter elements made with a stiffened aramid media and BHA Preveil® ePTFE membrane laminate to stop bleedthrough of fines. With no support cage, the one-piece filter elements were easier to handle and install in the bottom-load collector than bags and cages.

#### Results:

- The greater collection performance of the BHA ThermoPleat filter elements with BHA Preveil ePTFE membrane reduced the emissions rate (product loss) to less than 1%.
- Differential pressure was reduced from 10"–12" w.c. to 2.5"–3.5" w.c.
- Total collector filter area was more than doubled, lowering the air-to-cloth ratio to 1.9:1.

- Filter life was extended from 3–6 months to over 2.5 years, reducing maintenance downtime costs.
- Collector performance was improved without any modification to the baghouse. Dryer feed rates were maintained, and production goals were achieved.

BHA ThermoPleat filter elements more than doubled collector filter area and captured fine product particulate previously escaping traditional bags.

The operator experienced such a significant difference that a second set for an identical dryer was ordered less than 30 days after startup of the first set.

