



# GORE® Filtration Products

Metals Industry

## Case History 10

# Silicon Metal

### OPTIMIZATION POTENTIAL

When the plant increased the furnace power input they noticed shorter bag life and decreased fume pick up at the furnace. Under environmental and cost pressure they had to replace a percentage of their charcoal reducing agent with coal. The higher volatile matter in the coal caused the temperature at the baghouse inlet to exceed the operating limit of fiberglass filter material. Dilution air dampers had to be held open to keep the baghouse temperature at a safe level. This reduced the furnace ventilation and wasted fan power.

The plant considered a multi million dollar expansion of the baghouse to reach the required ventilation rate.

### SOLUTION

Optimized system settings and replaced the existing non membrane woven fiberglass bags with GORE® ePTFE membrane filter bags with 10 oz/yd<sup>2</sup> acid resistant fiberglass backing.

### RESULT

The baghouse differential pressure decreased resulting in increased gas flow without expanding the baghouse. This was achieved even though the plant installed considerably less GORE® membrane filter bags than they had used when operating with non membrane bags. They closed the dilution air damper so that all the baghouse capacity is applied to the furnace. The frequent bag failures stopped and the inside of the baghouse is much cleaner.



- Application:** Smelting -- Submerged Arc Furnace for Silicon metal.
- Baghouse:** Reverse Air Cleaning  
1,000,000 Am<sup>3</sup>/h (588,000 acfm)
- Filter area:** 16,900 m<sup>2</sup> (182,000 ft<sup>2</sup>)
- Temperature:** 240°C (464°F)
- Filter material:** GORE® membrane filter bags with 339 g/m<sup>2</sup> (10 oz/yd<sup>2</sup>) acid resistant fiberglass backing material

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