



GORE® Filtration Products

Metals Industry

Case History 5

Electric Arc Furnace

OPTIMIZATION POTENTIAL

Fumes are collected directly from the electric arc furnace shells, ladle metallurgy furnace hood, meltshop scavenger duct, and roof canopies located above the electric arc furnaces and caster turret. Burn holes in the bottom of bags proved to be a problem from the outset of meltshop operations and bag failures started almost immediately. Over a twenty week period in 1998 the plant replaced 24% of all the bags in the baghouse and repaired another 20% of the bags during the same period.

Most disturbingly, the system could not adequately capture fume from the melt shop equipment. Due to frequent high temperature conditions at the baghouse, the APC system had to be operated so as to protect the woven polyester media filter bags. The modification required opening the canopy dampers, thereby sacrificing furnace suction pressure. This was especially true during the most intense part of the heat when fume generation was at the maximum.

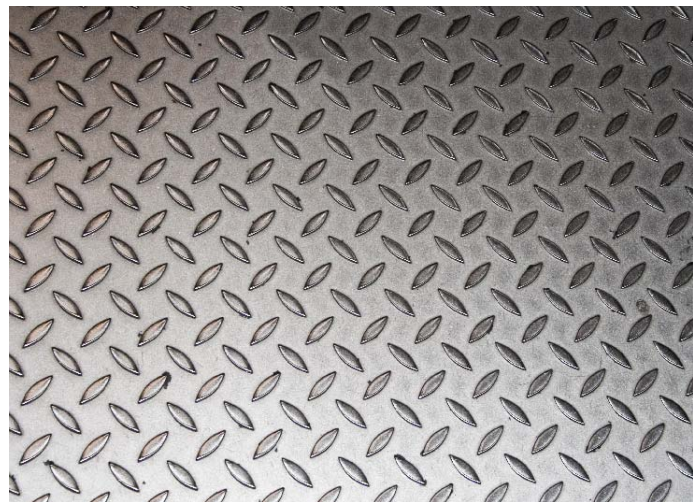
SOLUTION

Optimized system settings and installed GORE® membrane filter bags with 10 oz/yd² acid resistant fiberglass backing material.

RESULT

With the new high temperature membrane filter media, required dilution air from the canopy hood is reduced and furnace suction pressure is consistently maintained, reducing furnace fugitive emissions. The high temperature membrane filter material has proven to be completely resistance to light spark damage, thus reducing bag replacement and maintenance costs.

After installing the GORE® high temperature membrane bags failures dropped dramatically. The first set of bags lasted for seven years.



Application:	Steel - Electric Arc Furnace
Baghouse:	Reverse Air Cleaning 2.4 million Am ³ /h (1.4 million acfm)
Number of bags:	5568
Filter area:	56,000m ² (603,000 ft ²)
Temperature:	Up to 162°C (325°F)
Filter material:	GORE® membrane filter bags with 339 g/m ² (10 oz/yd ²) acid resistant fiberglass backing material

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