

LKAB, Malmberget selected the PFSC filter for evacuation of dust around the Belt Furnace.

### General scope

In 2007 LKAB made a major revision of their sinter plant a so called Belt Furnace for Pellets. In conjunction with this ITK Envifront delivered a bag filter of type PFSC for the evacuation of dust created around the belt furnace.



### Process description

The process bring a mechanically created and fairly abrasive dust in rather high dust concentrations which had to be considered when selecting the filtration process which operates 24 hours a day the year around.

### Dust collector description

The dust collector is online cleaned and equipped with our gravimetric type of inlet meaning that the sedimentation of dust is accelerated with help from the internal air streams directed downwards surrounding the filter bags which helps the force of gravity to move the collected dust to the hopper.

The capacity of the pulse cleaned bag filter is granted by the well developed pulse cleaning system which creates a very strong cleaning pulse. The cleaning sequence is controlled by a client designed PLC system which is triggered by the pressure drop over the filter bags. The first set of filter bags were in operation more than three years a very good result considering this abrasive dust.

### Process requirements

Type of process	Dust from a sinter plant
Gas flow rate from the process	52 500 nm <sup>3</sup> /h
Process temperature	50-100 °C
Average temperature	60 °C
Gas flow to dust collector	52 500 nm <sup>3</sup> /h
Temperature to dust collector	20 °C
Incoming dust concentration	10-20 g/nm <sup>3</sup>
Incoming dust flow	1000 kg/h
Dust bulk density	1200 kg/m <sup>3</sup>
Incoming dust bulk volume	0,8 m <sup>3</sup> /h

### System specification

Textile dust collector	PFSC-1514-49
Temperature compatibility	50-100 °C
Flow rate	52 500 nm <sup>3</sup> /h
Total Δp at spec. flow rate	1750 Pa
Filter media Δp at spec. flow rate	1250 Pa
Filter media	micro fibrous polyester 470 g/m <sup>2</sup>
Filter area	410 m <sup>2</sup>
Filtration velocity	35,5 mm/s
Filtration resistance	35 Pa/mm/s
Granted emission level	5 mg/nm <sup>3</sup>
Actual emission level	1 mg/nm <sup>3</sup>
Pressurized air requirement (at 4 cleaning cycles/h)	5 nl/s
Pressure requirement on pressurized air	6 bar

### Reference

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