

Success Stories



Table of Content

1. Chemical Secunda - Dust Extraction Plant
 2. Foundry Benoni - Fume Extraction Plant
 3. Compressor Manufacturer (IR) - Compressor Air Intake
 4. Copper Mine - Compressor Intake
 5. Platinum mine - Compressor Air Intake
 6. Smelter - Clean Air Intake unit
 7. Retrofitting MAK engine air intake
 8. Uranium Mine – Machine Intake
 9. Bag Filters – Copper Smelter
 10. Iron Ore Mine - Positive Pressure
 11. Gas supplier - Western Cape steel factory
 12. Ausmelt Fume Extraction System
 13. Dust and Fume Extraction Plant
 14. Ventilation and pressurization
 15. Ventilation and Pressurization of substation
 16. Ventilation Titanium dust
 17. Ventilation and Pressurization of Compressor house
 18. Vacuum System
 19. Winder Motor System
 20. Vacuum System Black arsenic
 21. Dust Extraction Bag System Arsenic
 22. Dust and Fume Extraction Gold Mine
 23. Dust Extraction Furnace - Silica
 24. Chem control system - Petrochemical substation
-

Dust Extraction Plant

Customer
Site

Chemical
Secunda

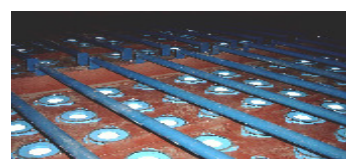


Application	Fertilizer Extraction from Granulation Plant
Plant Exhaust Volume	Total 163,800 m ³ /hr
Dust	Fertilizer Dust
Bulk Density	700 kg/m ³
No. of Filters	786
Filters Installed	LP 145 G15 A5407
Filter Area	4,245 m ²
Air to Cloth Ratio	0.68 m/min
Stable Pressure Loss	1,500 Pa
Cleaning System	Reverse Pulse
Customers problem	Airborne dust inside plant at various points of the material handling system
Freudenberg's mandate	Reduce the dust to a level to <5mg/m ³ at 1 meter from the hoods and maintain a stack emission of <10mg.
Benefit and added value to the customer	Freudenberg Filtration achieved both targets . Plant was commissioned in 2009 and plant is still operating with the first set of filters, thus reducing human exposure to the toxic dust and saving money on filter changeout.

Fume Extraction Plant

Customer
Site

Foundry
Benoni



Application	Fume Extraction from two Electric Arc Furnaces via Roof Canopies
Plant Exhaust Volume	Total 115,200 m ³ /hr at 35° C
Dust	Furnace Dust
Bulk Density	950 kg/m ³
No. of Filters	480
Filters Installed	LP 145 G15 A5407
Filter Area	2595 m ²
Air to Cloth Ratio	0.74 m/min
Stable Pressure Loss	1,000 Pa
Cleaning System	Pulse Jet, 80 x CFC 401 Valves
Customers problem	Excessive fumes from the furnace
Freudenberg's mandate	Capture of free floating fumes
Benefit and added value to the customer	Freudenberg fume extraction system achieved an efficiency of 88% capture of fumes from the furnace. Stack emission is <10mg/m ³ .

Filter System for Compressor Air Intake

Customer Compressor Manufacturer (IR)
Site JHB



Application	Compressor Intake Filter
Plant Volume	Total 25200m ³ /hr
Dust	Atmospheric Dust
Primary Filters Installed	Viledon T60 Pocket Filter
No. of Filters	9
Filter Area	55.8m ²
Secondary Filters installed	Viledon MX98 Compact Filter
No. of Filters	9
Filter Area	162m ²
Unit Manufactured from	2.5mm Mild Steel
General	Designed, supplied, installed and commissioned.

Compressor Intake (CIF)

Customer

Copper Mine



Application

Compressor Intake Filter Unit (CIF)

Plant Exhaust Volume

28m³/s

Dust

Atmospheric

No. of Filters

Primary: 36

Secondary: 36

Filters Installed

Primary: G35 1/1

Secondary: MX98

Filter Area

18.72m²

Stable Pressure Loss

650 Pa

Cleaning System

Change out

Customer's Problem

To protect compressor from airborne contaminants

Benefit and added value to customer

Protection of compressor internals increasing its life span

Filter System for Compressor Air Intake

Customer
Site

Mining Industry
Platinum Mine



Application	Compressor Air Intake Filtration
Plant Supply Volume	Total 51,000 m ³ /hr
Dust	Atmospheric Dust
No. of Filters	36
Filters Installed	LP 327 G12 A2309
Filter Area	530 m ²
Air to Cloth Ratio	1.024 m/min
Stable Pressure Loss	1,000 Pa
Cleaning System	Pulse Jet, 6 1 ½ Compressor Solenoid Valves
Customers problem	Compressor blade corrosion, causing damage to the compressor resulting in excessive costs.
Freudenberg's mandate	Design a system with high efficiency filtration and self cleaning.
Benefit and added value to the customer	The system achieved a 99% at 1 um efficiency. Even without chemical filtration, the CO ² levels were reduced thereby reducing the corrosive conditions inside the compressor. The filters achieved an operational life of > 4 years.

Clean Air Intake Filter

Customer

Smelter



Application

Air intake unit for smelter furnace control room

Plant supply air Volume

Total 8460m³/hr

Dust

Atmospheric Dust

No. of Filters

8

Filters Installed

LP327G12A2109

Filter Area

161m²

Air to Cloth Ratio

0.875m/min

Stable Pressure Loss

1000Pa

Cleaning System

Pulse-Jet, 2-CFC401 Solenoid valves

RETROFITTING AIR INTAKE SYSTEM IN A POWER ENGINE

GENERADORA PROGRESO Power Plant

Location: inside a big cement plant

GUATEMALA

Power engine: **MAK 4.2 MW**

Old filter system:

Oil bath system by **LOCKER AIR MAZE mod LP80**

Main problems:

- Low efficiency, only particles $> 30 \mu$. Filter class G2/G3. Dirt in the turbo.
- High maintenance cost.

Viledon solution:

New Filter unit with one filter stage with 9 Viledon T60. Produced in Guatemala.

Benefits:

- efficiency up to class F6, 99% particles $> 5 \mu$,
- Low maintenance costs: lifetime expected 8,000 h
- Low pressure drop

• Installation in Sep. 2010
Alex Elvir-Guatemala
Santiago de Muller

Old system



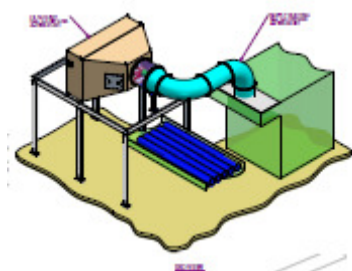
New System



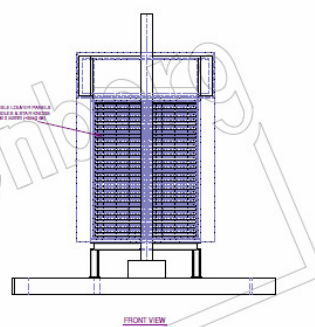
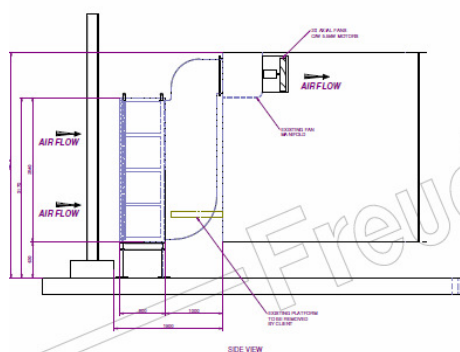
Machine Intake (MIF)

Customer Uranium Mine

Namibia:



Malawi:



Application

Generator air intakes (MIF)

Plant Exhaust Volume

13.5m³/s

Dust

Uranium Dust

No. of Filters

Primary:12

Secondary: 12

Filters Installed

Primary: Panel Filters

Secondary: T60 1/1 Pocket filters

Filter Area

37.44 m²

Stable Pressure Loss

400Pa

Cleaning System

Change Out

Customer's Problem

Atmospheric dust sucked into generators destroying the diesel engines.

Benefit and added value to customer

Diesel engines life span increased due to added filtration.

Bag Filters

Customer

Copper Smelter



Application	Fume extraction from copper converter furnaces
Plant Exhaust Volume	22.4 Am ³ /s at 135°C
Bulk Density	700 kg/m ³
No. of Filters	1440
Filters Installed	Polyphenylene sulphide PPS 550GL (RYTON) PTFE membrane (outside only)
Filter Area	1800m ²
Air to Cloth Ratio	0.75m/min
Stable Pressure Loss	1500 Pa
Cleaning System	Pulse Jet, 160 – CFC401 Solenoid Valves

Positive Pressure

Customer

Iron Ore Mine



Application

Substation Pressurisation

Plant Exhaust Volume

Various : $1\text{m}^3/\text{s} - 10\text{m}^3/\text{s}$

Dust

Atmospheric

Filters Installed

Primary: 1 Spin filter

Secondary: From 2 – 10 F50 Pocket Filters

Filter Area

$1\text{m}^2 - 3.24\text{m}^2$

Stable Pressure Loss

600 Pa

Cleaning System

Change out

Customer's Problem

Dust ingress into remote substations

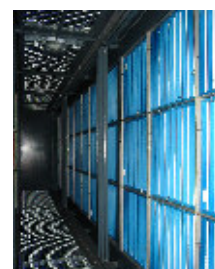
Benefit and added value to customer

Positively pressurising the substations resulted in no dust ingress thus extending the life span of the electrical equipment.

Filter System for Compressor Air Intake

Customer
Site

Gas supplier
Western cape steel factory



Application	Compressor Air Intake Filtration
Plant Supply Volume	Total 396,000 m ³ /hr
Dust	Atmospheric Dust/Coastal
1 st Stage Filtration	9 Cells Mist Eliminator
2 nd Stage Filtration	108 Viledon T60 1/1 Pocket Filter
3 rd Stage Filtration	108 Viledon MX98 1/1 Cassette Filter
Initial Pressure Drop	265 Pa
Additional Features	Blow-In Doors, Trash Screen, Permanent Particle Counter (The system was installed with a permanent particle counter measuring levels of particles from 0.3 um to 25 um.)
Customers problem	Ingress of particles into the compressor and the fouling.
Freudenberg's mandate	Primary mandate – to reduce ingress of particles into compressor thus eliminating costly compressor clean outs. Secondary mandate - The customer also required that the new plant be built alongside the current plant in a 24 hour shutdown before the compressor started up.
Benefit and added value to the customer	After the first year the compressor did not need a cleanout thus saving costs on increased down time and labour.

Bag Filters

Customer

Copper Smelter



Application

“Ausmelt” Fume Extraction System

Plant Exhaust Volume

54 Am³/s at 130 °C (194400 Am³/hr at 130 °C)

Bulk Density

700 kg/m³

No. of Filters

3660

Filters Installed

Polyphenylene Sulphide PPS 550GL (RYTON)
PTFE membrane (outside only)

Filter Area

4500m²

Air to Cloth Ratio

0.72m/min

Stable Pressure Loss

1500 Pa

Cleaning System

Pulse Jet, 400 – CFC401 Solenoid Valves

Dust and Fume Extraction Plant

Site

Alrode



Application:	Dust and Fume Extraction
Plant Exhaust Volume:	15840 Am ³ /hr
Dust:	Paint Dust and Fumes
No. of Filters:	16
Filters Installed:	Cartridge Filters FE2508 (Anti Static)
Filter Area:	269m ²
Air to Cloth Ratio:	0.98m/min
Stable Pressure Loss:	1500 Pa
Cleaning System:	Reverse Pulse

Ventilation and Pressurization

Site

Port Elizabeth



Application

Ventilation and pressurization of substation

Plant Supply Volume

6m³/s

Dust

Atmospheric Dust

No. of Filters

6 x Viledon T60 Compact Pocket Filters

Filter Area

33.6m²

Ventilation and Pressurization

Site

RBM



Application

Ventilation and pressurization

Plant Supply Volume

6m³/s

Dust

Atmospheric Dust

Filters Installed

Primary: Spin Filter System

Secondary: 6xViledon T60 Compact pocket filters

Filter Area

33.6m²

2 x 18.5kW fans – one as standby

Ventilation

Site

RBM



Application	Ventilation
Plant Volume	0.027m ³ /s
Dust	Titanium Dust Atmosphere
Filters Installed	Primary: One Viledon F50 S 1/1 Compact Pocket Filter Secondary: Viledon MVP 95 Cassette Filter Tertiary: H14 Hepa Filter 600m ³ /hr 610x610x68mm
Stable Pressure Loss	1300 Pa
Customer's Problem	Keeping Titanium dust out of busbar enclosure

Pressurization and Ventilation of Compressor House

Customer Site Anglo American
KIOL

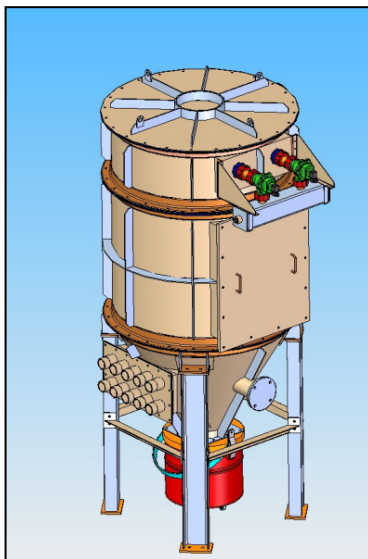


Application	Pressurization and ventilation of compressor house
Plant Supply Volume	187,200m ³ /hr (52m ³ /s)
Dust	Atmospheric Dust
No. of Filter Cartridges	150 off T&F327x1200mmlong, 175 pleats FE2509/47
Filter Area	3024m ²
Air to Cloth Ratio	1.03m/min
Stable Pressure Loss	1500 Pa
Cleaning System	Reverse Pulse
Customer's Problem	Dust in compressors and compressor house.

Vacuum System

Customer
Site

Over Africa
RBM



Application

Vacuum System

Plant Exhaust Volume

1000m³/hr

Dust

Rutile, Zircon, Ilmenite, TiO₂

Bulk Density

SG 2.7 to 5.0

No. cartridge of Filters

6

Filters Installed

T&F 145Ø x 800mm long, 72 pleats, FE2509/47

Filter Area

17.3m²

Air to Cloth Ratio

0.96m/m

Stable Pressure Loss Total

15kPA

Cleaning System

Reverse Pulse

Winder Motor Vent System

Customer
Site

Lubambe Copper Mine
Zambia



Application

Man Winder Motor vent System

Plant Supply Volume

23400m³/hr

Dust

Atmospheric Dust

No. of Filters

20 T&F 327mmØ x 1200mm long 175 pleats FE2509/47

Filters Installed

Cartridge Filters (Wash Down)

Filter Area

403.2m²

Stable Pressure Loss

1500 Pa

Customer's Problem

Winder motor overheating and carbon dust build up.

Freudenberg's mandate

To Ventilate winder motor at high velocity to dislodge carbon dust from armature.

Vacuum System

Customer
Site

SMP
Dundee Precious Metals Tsumeb



Application

Black Arsenic Vacuum Cleaning System

Plant Exhaust Volume

2440m³/hr

Feed Rate

5 tons / hr

Particle Size

-48 µm

Dust

Arsenic Dust

Bulk Density

1800 Kg/m³

Bag Filters Installed

36 off Polyester Needlefelt with PTFE

Filter Area

36m²

Air to Cloth Ratio

1.13m/min

Stable Pressure Loss

-50kPA (vacuum operating pressure)

Cleaning System

Reverse Jet pulse System

Dust Extraction Bag Filter

Customer
Site

SMP
Dundee Precious Metals



Application

Kitchen Plant

Plant Exhaust Volume

90000m³/hr

Dust

Arsenic

Bulk Density

1800 Kg/m³

Dust Loading

700 Kg/hr

Particle Size

-48µm

Filters Installed

918 Polyester Needlefelt with PTFE

Filter Area

1147.5m²

Stable Pressure Loss

1500 Pa across bag filter

Cleaning System

Reverse Jet (102 x 1.5" Ø solenoid valves)

DUST AND FUME EXTRACTION SYSTEM

Customer

GOLD MINE



Application

Plant Exhaust Volume

Dust

Bulk Density

Bag Filters

Filters Installed

Filter Area

Air to Cloth Ratio

Stable Pressure Loss

Cleaning System

Customer's Problem

Benefit and added value to customer

Gold Smelter

28800m³/hr at 100°C

Gold Smelter Dust

1400 to 1850kg/m³

432 off 130mmØ x 3050mm long

Polyester Needlefelt PTFE

540m²

0.88m/min

1.5kPA

Reverse Pulse

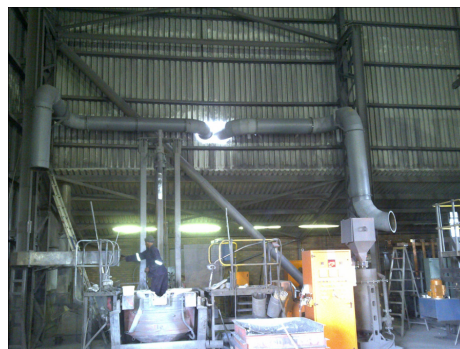
Fume and dust at gold smelter house

Reclamation of Gold dust

FUME AND DUST EXTRACTION

Customer

Keech Furnace



Application	Fume & Dust extraction from 1 x 274 KVA and 1 x 1.25 MVA Electric Furnace
Plant Exhaust Volume	21600 Am ³ /hr at 120 °C
Dust	Si fine and SiO ₂
Bulk Density	2200kg/m ³
No. of Bag Filters	234
Filters Installed	130mmØ x 3050mm long Viledon NEXX filters Viledon FE-2932
Filter Area	292.5m ²
Air to Cloth Ratio	1.23m/min
Stable Pressure Loss	Across filters 1.5kPa
Cleaning System	Reverse Pulse
Customer's Problem	Fumes and dust at the furnace smelting room

Chemcontrol System

Petrochemical Substation

Durban Harbour



Application	Petrochemical Substation
Unit Description	DBS 7006/2
Material of construction	304 Stainless Steel
Plant Air Volume	1.72m ³ /s per fan – 5.5kW one fan standby
Dust	Atmospheric
Filters Installed	Primary: G35s Pocket Filters Secondary: MVP85 Cassette Filters
No. of filters	Primary: 9 Secondary: 9
Gas Phase:	
Primary Stage:	Viledon Chemcontrol CCP108 – 1000kg
Secondary Stage:	Viledon Chemcontrol CCP310 – 1000kg
Stable Pressure Loss:	1500Pa