Filter Fabric
Industrial Air Filtration

Simatek delivers a wide range of qualities of filter bags and filter cartridges for industrial air filtration and process applications.

Filtering Material applied in Pulse-Jet Bag Filters

Filter bags are typically composed by needle-felt-coated supporting scrims in polymeric fibres. The very particle separation is ensured by combining the collection of dust on the filter-bag surface (the filter cake) with a filtration of fine particles deep in the fibres (three-dimensional filtration).

Coating and Treatment

The composition of the filtering material must be comparable with the nature of the dust in question and may include chemical coating, thermal treatment, and antistatic qualities as required.

To provide for a filter bag which is repellent to water and greasy products and at the same time resistant to acid and hydrolytic attacks, a teflon or silicone coating is added to the fabric.

Filtration of Submicron Particles

For the filtration of ultrafine dust particles, a surface filtration (two-dimensional filtration) may be required. To achieve a surface filtration, the filter bag is either coated with a layer of microfibres (MPS) or laminated with a teflon membrane.

The utilization of special membranes provides for a remarkably efficient filtration of submicron particles.
# Filter Bags

## Qualities

<table>
<thead>
<tr>
<th>Material</th>
<th>Temperature</th>
<th>Resistance*</th>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Continuous</td>
<td>Peak</td>
<td>Hydrolyse</td>
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<tr>
<td></td>
<td>°C</td>
<td>°C</td>
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<tr>
<td>Polyester PES</td>
<td>140</td>
<td>150</td>
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<tr>
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<tr>
<td>Polyacrylnitril DT</td>
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<td>140</td>
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<tr>
<td>m-aramide / Nomex MA</td>
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<td>240</td>
<td>3</td>
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<tr>
<td>Polyphenylene sulfide PPS</td>
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<td>1</td>
</tr>
<tr>
<td>Polyimide PI</td>
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<tr>
<td>Polytetrafluoroethylene TF</td>
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<td>280</td>
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<tr>
<td>Glass GL</td>
<td>250</td>
<td>300</td>
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</tbody>
</table>

*Filtration in relation to:

- Silo plants
- Packing and conveying lines
- Grain and feed industry
- Milling plants
- Process plants
- Steelworks (smelting plants)
- Iron - and metal foundries
- Woodworking industry

- Galvanising plants
- Chemical processes
- Flue gas cleaning (coal, oil, wood)
- Waste incineration plants
- Drying plants / Mill-drying
- Coal grinding plants
- Smelting plants
- Asphalt mixing plants
- Flue gas cleaning (bio fuel)
- Asphalt mixing plants
- Cooling and drying plants
- Lime shaft kilns
- Calcination
- Cupola furnaces
- Flue gas cleaning (coal and oil)
- Combustion plants
- Drying plants
- Rotary kilns and furnaces
- Waste incineration plants
- Cement drying plants
- Waste incineration plants
- Calcination
- Lime shaft kilns
- Smelting furnaces
- Waste incineration plants
- Chemical processes
- Drying processes at high temperatures

- Flue gas cleaning
- Waste incineration plants
- Cement drying plants
- Chemical industry

*) 1=excellent, 2=good, 3=moderate, 4=limited
Filter Bags for Flue Gas Cleaning

High-Temperature Filtration

High-temperature filtration is in general most efficiently performed in a self-cleaning pulse jet fabric filter.

Simatek has many years of experience within flue gas cleaning, with a continuously ongoing development keeping the technology abreast of legal environmental requirements. Together with the most innovative suppliers of filtering material, Simatek has over the years taken part in the improvement of filtering material for special applications.

Operating parameters to be considered for the selection of filter bags for flue gas cleaning purposes:

- Flue gas temperature
- Gas composition
- Dew point (acid & water)
- Oxygen content
- Aggressive components
- Particle specifications
- Acid / basic content
- Emission requirements

To achieve the desired filtration capability, chemical resistance, and mechanical strength, the filtering material will probably be composed by more material qualities, either in the shape of mixed fibres or as layers of different fibre qualities.

By surface filtration emission values below 1 mg/Nm³ is achieved.
Filter Bags for Sanitary Applications

Sanitary Process Filtration

A pulse-jet filter applied for product recovery in a process plant is generally considered an integrated part of the plant and thus is subject to the exact same sanitary regulations as any other process equipment in the plant.

Most process applications require an efficient powder recovery, leaving out any undesirable influence on the production process as well as the product quality.

Especially for the separation of food and pharmaceutical products, strict requirements for bag design and material certification are prevailing.

For this purpose we offer filter bags according to the regulations below:

- EC No. 1935/2004
- EC No. 2023/2006
- EC No. 10/2011
- Directive 2002/72/EC
- FDA 21 CFR §177.1630

Processes in humid and aggressive environments handling sticky and/or hygroscopic products, require specific bag qualities.

Replacement of bags in a CIP-able filter in Brazil, SimPulse 3C-CIP
Filter Bags for CIP

Cleaning In Place

Modern process filters are to a large extent equipped with an integrated system for wet cleaning in place (CIP) of the filter bags. For this purpose specific requirements for bag design and filtering material are to be fulfilled.

Top and bottom of the bag has inside stitchings to ensure an optimum CIP. Loose fibres or threads, if any, are kept isolated from the final product.

Standard bag with outside stitchings. This design is unsuitable for CIP, as it would be difficult to wash off the powder.

Milk powder processing

Bags before CIP

Bags after CIP
Filter Bags and Cages - Specially Designed
for CIP Applications

Specially designed bag and cage for optimum CIP

Spherical bag bottom for optimum Cleaning in Place.

The specially designed spring in the bottom of the filter cage keeps the filtering material stretched and free of creases, ensuring washing of the entire filtering surface.
Filter Experts

Simatek has since 1981 been delivering pulse-jet cleaned fabric filters and filter systems for almost any industrial line of particle filtration and powder recovery.

Based on more than 30 year’s experience together with the worldwide delivery of more than 15,000 filters from own manufacturing workshop, Simatek is placed as technological leader within several key areas, such as:

- Flue gas cleaning of incineration and smelting plants
- Product recovery in chemical and pharmaceutical process plants
- Supersanitary process filters for the food processing industry with or without CIP
- Dust collection of explosive dust
- Collection of hygroscopic and sticky dust
- Industrial air filtration of submicron particles

AFTER-SALES SERVICE

Simatek's service division is manned by filter specialists who are always at your disposal with guidance and direction, agreements on service visits, upgrading of existing filter systems etc.

In case of emergencies requiring prompt technical assistance, our 24-hours hotline service is available (+45 4046 7525).