

# FILTERING MEDIA FOR



CHEMICAL, FOOD AND AGRO CHEMICAL INDUSTRIES



GAS AND LIQUID FILTRATION



## Introduction

Chemical, food and agro chemistry industries use processes of separation of both solids-liquids and of solids-gases. The choice of optimum filtering media is of foremost importance to assure the quality and the outcome of the process.

Our products are manufactured starting from the computer design and the production cycle which involves the use of specific technologies such as: **laser, ultrasound, application of resin, thermobonding, and special stitching**. Quality control follows all steps of the production process (from weaving to packaging).

Our engineering and customer care services make use of modern systems of analysis and experimentation such as SEM, DSC, VDI tests as well as more traditional tools.



Bags for liquid filtration



Octopus bag



Filtration disc mounting

## LIQUID FILTRATION

The processes may require retrieving solids, liquids, or both with different filtration performances. Separation techniques are very diverse (in a vacuum or under pressure) in batch or continuous with a wide range of filtering requirements (from the roughest to the finest) and both panel and depth.

**Testori textiles have several combinations of yarns and constructions**, allowing for opportune sizing:

- chemical fiber
- filtration efficiency
- the filter's retention capacity
- the resistance to clogging
- the cake release capacity
- the mechanical resistance

Our wide range of polymer fibres includes: **PP, PA, PES...** we also manufacture natural fibres such as cotton **and other synthetic fibres such as PVC, PTFE, PVDF, PEEK, ECTFE**, etc.

Testori products (**filter cloths, backing cloths, discs, cloths, trapezoidal cloths, and bags for centrifuge**) are suitable for all types of filters: **filter press, belt press, tower filters, rotary filters, drum filters and all other kinds of vacuum, pressure and centrifuge filters**.



Centrifuge bag



Filter press cloth

## GAS FILTRATION

Separation of solids and gasses takes places in chemical, food and agro chemistry industries in the processes related to **drying, grinding, transport, cooking...**

Testori supplies filtering media made of **PES, PAN, Metaramide, P84®, PTFE, PPS, glass** constructed also using **microfibers, coating, dry-on-wet and coating with membranes**.

The choice is made depending on the process with particular reference to the temperature and composition of the gases. In particular acid or basic environment fibres such as PTFE, PP, PPS and Glass are recommended; in oxidising environments, glass and PTFE are deemed suitable.

For applications which require the use of **antistatic filters** our offer includes felt and fabrics containing stainless steel fibres.

Testori's range offers an all-round coverage of all filtering process requirements: extremely low emissions, energy efficiency, long lasting, high temperature, chemical resistance, antistaticity, water/oil repellency, bactericide properties, anti-spark and fireproof. **Testori products include bags and multichannel bags** designed and produced following all the specifications for installation and assembly supplied by the constructors of the filters.



Bags - different felt types

## CHEMICAL INDUSTRY

With **filtration** by textile means it is possible to separate particles of dimensions down to 0.5 microns in chemically aggressive working conditions, with temperatures up to 200°C and also in the presence of difficult-to-treat products.

Our filtering media **for liquids (usually woven fabrics)** are used both for production processes and to separate/dehydrate sludge in the following sectors:

- **“Heavy chemical industry”**: petrochemical, plastics, alumina, sulphuric and phosphoric acid, non ferrous metallurgy etc.
- **“Fine Chemistry”** organic and inorganic pigments, titanium oxide, iron oxide, silicates, glycerine, sodium chloride, salvage of cellulose, etc.

For specific industrial applications (de-waxing, varnishing, resins, glues, etc.) Testori also offers needlefelts for the separation of solids and liquids.

The chemical industry makes wide use of processes of **gas filtration**, both to capture the product and to control and prevent environmental emissions.

In these processes we find all kinds of conditions in terms of temperature, chemical environment and properties of the gas and of the solid being separated. Therefore the filters used (**mostly pulse-jet bag filters**) are equipped with high performance fibre filtermedia. Special chemical treatments are also used to obtain **antistaticity, hydro/oil repellency, resistance to hydrolysis, spark resistance, antibacterial properties**, etc.

**PTFE layered felts with microexpanded membrane** are also used frequently when emission limits of solid particles are less than 1 mg/m<sup>3</sup>.



Moore filter



Tilting pan filter



Chemical industry - drying, mixing, blending, compounding and coatings

## FOOD AND AGRO CHEMICAL INDUSTRIES

Using Testori products in the food and agro chemistry industry is highly effective in several processes which involve **liquid filtration**:

- purifying of animal and vegetable oils
- production of oil for biofuel (e.g. palm oil)
- olive oil
- powdered milk
- chocolate
- drying of pasta and biscuits
- gluten and starch
- wine and beer: filtering of juices and dehydration of dregs (including dehydration of brewer's yeast)
- refining of alcohol solutions
- food acids (e.g. Tartaric Acid): filtering of distilled products
- purifying sugary juices
- farming and slaughtering: dehydration of washing sludge.
- silos to stock cereals (antistatic and anti-explosive filtering means)

Testori's optimum filtermedia depend on the conditions of the process: PH, temperature, morphology and nature of the mineral particles. These materials, which are very hard and abrasive, limit the choice of fibres which can be used.

**The raw materials used to produce filtermedia are rigorously selected to grant their suitability to contact with food. Many Testori products are FDA certified to work in contact with food.**

**The most frequently used filters are: candle filters, centrifuge, filter press and other pressure filters, vacuum filters (disc and drum).**

The steps of separation of **solids from gases** are very frequent in the agro/food chemical production processes. Because of the nature of the products they treat and of the way they operate, filtermedia have to be suited to the properties of the powders to be separated, which can often be: electrifiable, explosive, abrasive, agglomerating, hygroscopic, sub-micronic, perishable, subject to contamination...

The Testori range includes all kinds of filtering elements manufactured according to specific requirements.



Pasta drying



Sugar



Filter press - courtesy of Diemme

FILTERMEDIA - CHEMICAL, FOOD, AND AGRO CHEMISTRY INDUSTRIES - TECHNICAL DETAILS

Our products include several fibres, forms and fields of application. Below are the main examples, **both for separation of solids and gases, and for liquids and gases. Strainer bags** (liquid filtration) for the food and paints/adhesives industries are available on request.

LIQUID FILTRATION

Material	Type of yarn	Testori code	Type of filter				Air permeability @ ½" H <sub>2</sub> O ft <sup>3</sup> /ft <sup>2</sup> /min
			Centrifuge: •Starch, gluten	Filters press: •Pigments (TiO <sub>2</sub> ) •Sugar production •Non ferrous metal (zinc, lead) •Glycerin	Vacuum filters: •Pigments (TiO <sub>2</sub> ) •Starch, gluten •Alumina •Sugar production •Non ferrous metal (zinc, lead) •Phosphoric acid	Candle and filters press: •Starch, gluten •Alumina •Sugar production •Non ferrous metal (zinc, lead) •Glycerin	
Polypropylene	F/F + Bekinox	PW 6527 T	■				16,4
	S/S + Bekinox	PW 2657 TB	■				3,1
	S/S	P 1557 T	■	■		■	2,5
	S/S	P 1558 T	■	■			1,4
	F/S	P 5415 T	■				8,2
	M/M	P 6124 CQ	■				20,5
	F/F	P 6527 T	■	■		■	10,3
	F/S	P 6583 TC	■	■			1,2
	M/M	P 6133 CQ			■		61,5
	M/F	P 1003 CQ		■		■	2,05
	M/M	P 1515 GQ			■		800
	M/F	P 3801 CQ		■			3,7
	M/F	P 4018 CQ		■			7,2
	M/M	P 5501 CQ		■		■	5,1
	M/M	P 9350 TC		■	■	■	32,8
M/M	P 9366 TC		■			82	
M/M	P 2625 CQ		■			82	
F/F	P 4407 TC	■	■	■	■	3,7	
Polyester	S/S + Bekinox	TW 2201 TB	■				16,4
	F/F +Bekinox	TW6615 TB	■				32,8
	F/F + Bekinox	TW 6616 TC	■				6,15
	F/S + Bekinox	TW 6585 TC	■				6,15
	F/F	T 4600 T	■				1,03
	M/M	T 3802 CQ		■	■	■	71,8
	F/S	T 6585 T	■	■			6,15
F/F	T 6218 CQ		■			1,03	
Fluoropolymer PTFE	F/F	F 6020 GQ	■				1,4
	M/M	F 4422 CQ	■				102,5
Cotton	S/S	C 3350 T	■	■			1,85
	S/S	C 3320 T	■	■			2,87
Polyamide	F/S	N 6584 T	■	■			3,1
	F/F	N 106 T	■		■		24,6
	F/F	N 2501 TQ	■		■		12,3
	F/F	N 3219/2 T	■		■		36,9
	M/M	N 4462 CQ	■	■	■	■	61,5
M/M	N 4423 CQ	■	■	■	■	71,7	
Polyamide Polypropylene	M/M	NP 9301 TC		■	■	■	102,5

The tables are not exhaustive of the catalogue of Testori products, data are not binding and are subject to variation  
 Legenda: S=spun yarn; M=monofilament; F=multifilament

## GAS FILTRATION

Here are some products used in chemical, food and agro chemistry industries: we supply **antistatic and non antistatic felts, made of many fibres, with different surface weight and permeability.**

Properties			
Air permeability @ 200 Pa [l/dm <sup>2</sup> /min]	Pore diameter (MFP) µm	Weight g/m <sup>2</sup>	Thickness mm
80	-	500	1,18
15	9,8	560	1,10
12	12/17	550	1,00
7	12	515	0,98
40	15	360	0,85
100	27	435	0,95
50	33	500	0,97
6	8	500	1,00
300	50	435	0,88
10	33	490	0,80
3900	-	200	0,66
18	42	370	0,56
35	23	280	0,44
25	31	360	0,44
160	38	260	0,45
400	50	275	0,52
400	70	380	0,62
18	12	410	0,87
80	20	240	0,40
160	29	205	0,30
30	15	205	0,25
30	-	585	0,80
5	7	450	0,51
350	48	500	0,56
30	19	570	0,80
5	20	965	1,00
7	6	500	0,42
500	-	370	0,37
9	6	680	1,23
14	6	540	1,03
15	42	550	0,84
120	56	515	0,94
60	46/66	720	1,00
180	44	290	0,55
300	38	350	0,48
350	49	295	0,43
500	45	290	0,49

Fibre	Weight range g/m <sup>2</sup>	Air permeability @ 200 Pa [l/dm <sup>2</sup> /min]	Process temperature °C	Distinctive features
Polyester	350 - 650	400 - 50	140	Standard
Polyester Inox	400 - 620	200 - 70		Antistatic
Polyester Membrane PTFE	540	30		Microporous PTFE membrane
Polyester Kleentes	400 - 600	200 - 50		Hydro-oil repellence
Polyester NOVATES	450 - 570	70 - 50		High efficiency
Polypropilene	450 - 500	150 - 90		90
Polypropilene Inox	450 - 500	140 - 30	Antistatic	
PPS sulfar	500 - 600	180 - 120	180	Treatment on demand (Mantes/rhytes)
DuPont™ Nomex®	400 - 550	200 - 100	200	Treatment on demand (Mantes/rhytes)
Metaramide	400 - 550	160 - 100		
Poliimmide P84®	500 - 580	180 - 120	220	Treatment on demand (Mantes/rhytes)
Fluoropolymer PTFE	600 - 800	150 - 30	240	Optimum thermal and chemical resistance

All data are not binding and may vary



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