

Introduction

The mining industry uses processes of separation of both solids-liquids and of solids-gases; while water treatment focuses on liquid filtration. All Testori products contribute to the efficiency of production and to controlling environmental emissions.

LIQUID FILTRATION

The processes may require retrieving solids, liquids, or both with different filtration performances. Separation techniques are very diverse: in 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 construction, allowing for opportune sizing:

- the chemical fiber
- filtration capacity
- the filter's retention capacity
- its resistance to clogging
- the ability of the panel to be detached
- mechanical resistance



Spun yarn fabric



Monofilament fabric



Multifilament fabric



Drum filter

LIQUID FILTRATION

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 (**cloths, backing cloths, discs, bags, sleeves, channelled bags, trapezoidal filtrate passages, etc.**) suitable for all types of filters: **filter press, belt press, tower filters, rotary filters, drum filters, and all other**

GAS FILTRATION

The processes of separation of solids and gasses in the mining industry relate to procedures in the quarry and to the crushing, drying of mined material, and retrieval of dust in the oven and in crushing.

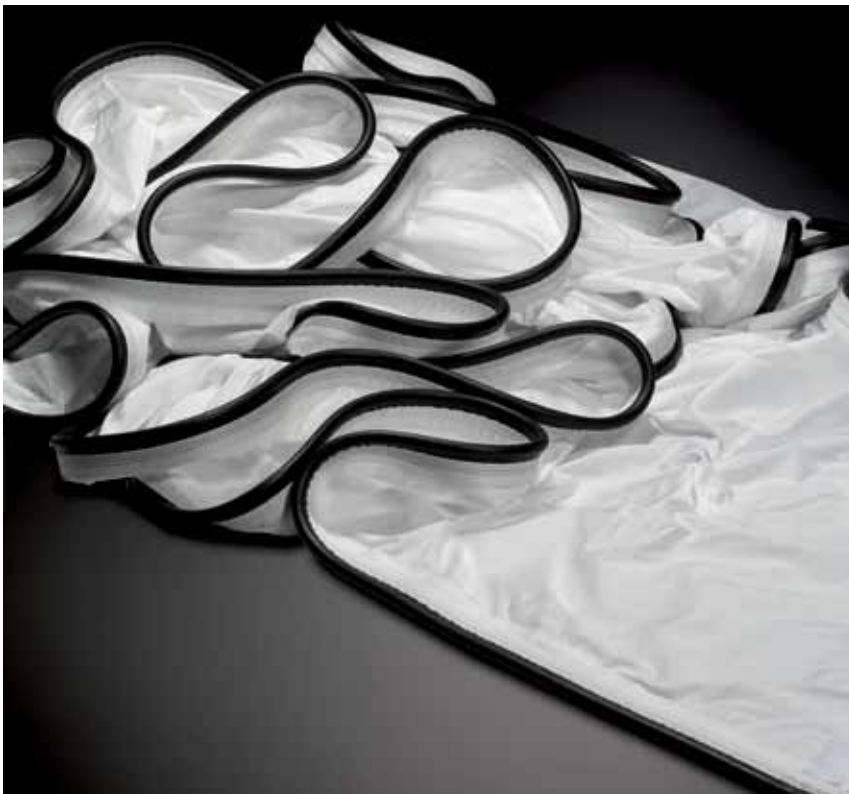
Testori supplies fibres made of **PES, PI, PTFE, PAN, PPS, Metaramide, Glass fiber**, which are manufactured using also **microfibers, chemical treatments and**

kinds of vacuum, pressure, and centrifuge filters.

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, thermal bonding, and special stitching.** Quality control follows all steps of the production process (from the selection of raw materials to packaging).

membrane coupling; the choice is made according to the filter's specifications, the product to be filtered and its working conditions.

The most used products are **bags** with different types of finishing to meet the most particular efficiency demand as is the case with coal powder, gold, silver, platinum, etc.



Filter cloth



Filter bags



Filter press cloth

MINING INDUSTRY

Stones and powders treated in the mining industry include: **coal, ceramics/granite/marble, clay, gravel, kaolin, feldspar, Frits** etc.

All of these minerals are extracted as blocks, cut into pieces and often polished; water is the standard fluid used in these processes and its recovery is carried out through a treatment which eliminates polluting elements; this requires separating **solids from liquids** carried out through a **filter press or a belt press equipped with suitable fabrics and filtering media**.

The extraction, concentration and purification of **metal minerals** such as aluminium, zinc, lead, nickel, gold, silver, platinum, niobium, lithium, titanium, coltan, etc. also require processes of separation of solids from liquids.

The optimum filtering solutions which Testori offers are studied depending on the working conditions: PH, temperature, morphology and nature of the mineral and of the slurry. The minerals are often very hard and abrasive, and limit the choice of fibres which can be used: **mostly polyamide, polypropylene and at times polyester**. **The fabric is usually a monofilament in order to guarantee the long lasting qualities and excellent release of the panel**.

The main products used are cloths for press filters, mats for vacuum filters and trapezoidal cloths passages for vacuum disc filters.

For products with very fine particles such as those for working clay and kaolin, filtering means must have an excellent retention power as well as high tensile strength, low permeability and easy release of the panel.

The mining industry frequently makes use of separation phases of **solids from gases in which filters using needed felt bags are involved**.

During **the extraction, crushing, grinding, drying, cooking and transportation** the concentration of dust has to be reduced both to capture the product within it and to prevent its circulation in the environment.

The fusion of minerals for the production of ferroalloy also requires the separation of solids and gases at high temperature using our filter bags.



Raw materials



Leaf filter



Mining industry

WASTE WATER TREATMENT

Testori produces textiles and filtering fabrics used for the treatment of **municipal sewage and industrial residual waters**. The main industrial sectors involved are: **tanneries** (leather treatment), **textiles** (dyeing of fabrics, wool production processes and acrylic fibres), **animal husbandry, chemistry, galvanic, pulp and paper, stone, and energy** (coal power stations and incinerators). Often the water to be treated comes from treatments of **desulphurization and denitrification of gas waste in certain types of industries**.

Other types of waste waters to be filtered come from **galvanic treatments** in metallurgy: such as chromium plating, galvanizing, anodizing.

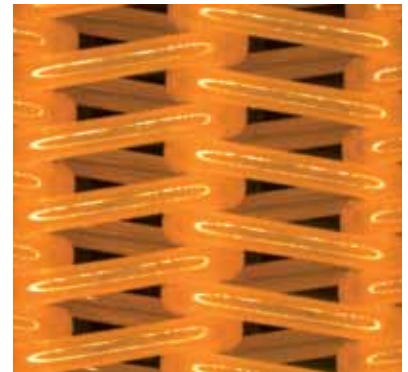
Our filtering means for these uses are manufactured using highly technical yarns made of **polypropylene and polyamide**.

The main types of filter used are: **press filters, belt filters and press belt**.

The sludge deriving from the treatments can sometimes be destined to **waste-to-energy plants**; in such cases the fumes are neutralized and their dust removed through sleeve filters.



Filter press - courtesy of Diemme



Spiral woven fabric



Belt press

FILTERING MEANS - TECHNICAL DETAILS

Our products include several fibres, forms and fields of application. Below are the main examples, **both for solid-gas separation, and for solid-liquid separation.**

LIQUID FILTERING

MINING INDUSTRY AND WATER TREATMENT

Material	Type of yarn	Testori code	Type of filter				Properties		
			Filter pres	Tower filters	Belt filters	Vacuum filters	Air permeability @ ½" H ₂ O ft ³ /ft ² /min	Air permeability @ 200 Pa [l/dm ² /min]	Pore diameter (MFP) µm
Polypropylene	F/F + inox	PW 6527 T	■				16,4	80	-
	S/S + inox	PW 2657 TB	■				3,1	15	9,8
	S/S	P 1557 T	■	■		■	2,5	12	12/17
	S/S	P 1558 T	■	■			1,4	7	12
	F/S	P 5415 T	■		■	■	8,2	40	15
	M/M	P 6124 CQ	■		■		20,5	100	27
	F/F	P 6527 T	■	■		■	10,3	50	33
	F/S	P 6583 TC	■	■			1,2	6	8
	M/M	P 6133 CQ	■		■		61,5	300	50
	M/F	P 1003 CQ	■	■		■	2,05	10	33
	M/M	P 1515 GQ	■		■		800	3900	-
	M/F	P 3801 CQ	■	■			3,7	18	42
	M/F	P 4018 CQ	■	■			7,2	35	23
	M/M	P 5501 CQ	■	■		■	5,1	25	31
	M/M	P 9350 TC	■			■	32,8	160	38
	M/M	P 9366 TC	■	■			82	400	50
M/M	P 2625 CQ	■	■			82	400	70	
F/F	P 4407 TC	■	■		■	3,7	18	12	
Polyester	S/S + inox	TW 2201 TB	■				16,4	80	20
	F/F + inox	TW 6615 TB	■				32,8	160	29
	F/F + inox	TW 6616 TC	■				6,15	30	15
	F/S + inox	TW 6585 TC	■				6,15	30	-
	F/F	T 4600 T	■				1,03	5	7
	M/M	T 3802 CQ		■	■	■	71,8	350	48
	F/S	T 6585 T	■	■			6,15	30	19
F/F	T 6218 CQ		■			1,03	5	20	
Fluoropolymer PTFE	F/F	F 6020 GQ	■				1,4	7	6
	M/M	F 4422 CQ	■				102,5	500	-
Cotton	S/S	C 3350 T	■	■			1,85	9	6
	S/S	C 3320 T	■	■			2,87	14	6
Polyamide	F/S	N 6584 T	■	■			3,1	15	42
	F/F	N 106 T				■	24,6	120	56
	F/F	N 2501 TQ				■	12,3	60	46/66
	F/F	N 3219/2 T					36,9	180	44
	M/M	N 4462 CQ	■			■	61,5	300	38
M/M	N 4423 CQ	■			■	71,7	350	49	
Polyamide Polypropylene	M/M	NP 9301 TC	■			■	102,5	500	45

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 - MINING INDUSTRY AND SLURRY INCINERATION

Testori also supplies antistatic felts and non-antistatic felts, with different surface weight, and filter bags.

NEEDLEFELTS FOR GAS FILTRATION IN THE MINING INDUSTRY AND SLURRY INCINERATION

Weight g/m ²	Thickness mm
500	1,18
560	1,10
550	1,00
515	0,98
360	0,85
435	0,95
500	0,97
500	1,00
435	0,88
490	0,80
200	0,66
370	0,56
280	0,44
360	0,44
260	0,45
275	0,52
380	0,62
410	0,87
240	0,40
205	0,30
205	0,25
585	0,80
450	0,51
500	0,56
570	0,80
965	1,00
500	0,42
370	0,37
680	1,23
540	1,03
550	0,84
515	0,94
720	1,00
290	0,55
350	0,48
295	0,43
290	0,49

Fibre	Weight range g/m ²	Air permeability @ 200 Pa [l/dm ² /min]	Maximum process temperature °C	Typical feature	Industry
Polyester	350 - 650	400 - 50	140	Standard	Mineral Non ferrous metals
Polyester + Inox	400 - 620	200 - 70		Antistatic	
Polyester (Kleentes)	400 - 550	200 - 50		Hydro-oil repellent	
Acrylic	450 - 600	200 - 90	125	Hydrolysis resistance	
DuPont™ Nomex®	400 - 550	200 - 100	200	Rhytes treatment on demand	Slurry incineration
Metaramide	400 - 550	160 - 100			
Poliimide P84®	500 - 580	180 - 120	220	High temperature	Slurry incineration
Fluoropolymers PTFE	600 - 800	150 - 30	240		

All data are not binding and may vary



ITALY

FRANCE

U.A.E.

U.S.A.

Testori S.p.A.
Group Headquarters
Largo A. Testori, 5
20026 Novate Milanese (MI)
Italy
Tel. +39 02 3523 1
Fax +39 02 3523 230
info@testori.it

www.testori.it