

DALFRATEX® Textiles

DALFRATEX® is a range of inorganic fibres and textiles manufactured by Promat. The textiles are capable of operating continuously at 1000°C and up to 1600°C for limited periods. They have a high resistance to thermal shock. DALFRATEX® textiles also provide flexible electrical insulation at temperatures as high as 1000°C.



DALFRATEX® products are composed of continuous filaments of amorphous silica, which combine the flexibility of fibres and textiles with the refractory properties of silica.

In order to service the needs of a wide range of applications the majority of DALFRATEX® textiles are available in two basic forms: standard and pre-shrunk. The standard form shrinks during initial heating and products of this type have letter ' U ' incorporated into the code number. As their name implies, the preshrunk forms have been factory treated to confer better dimensional stability in high temperature use.



DALFRATEX® textiles are available as broadcloths, tapes, sleeveings, cords, braided packings, ropes and yarns and also as bulkfibres and batts.

PERFORMANCE

Originally developed for the thermal insulation of gas turbine jetpipes, DALFRATEX® products have played a vital role in the European aerospace programme since the 1960s. More recently, in response to growing concern over health hazards associated with the use of asbestos textiles, demand for DALFRATEX® has increased in all sectors of industry. Asbestosfree, it achieves an improved, higher temperature performance than asbestos and glass fibre in many applications. DALFRATEX® products are also widely employed in nuclear reactor applications.

WORKING AND PROCESSING

DALFRATEX® can be worked and processed with conventional textile working tools.

AREAS OF APPLICATION

- Glass Manufacture
- Electricity Generation
- Nuclear Power
- Fire Protection
- Metallurgical/Steel Production
- Aerospace (gas turbine and rocket engines)
- Electrical Heating
- Pipeline and Vessel Fabrication
- Gas Production
- Petrochemical



TECHNICAL DATA

Product name	DALFRATEX®			
Maximum constant use temperature	1000		°C	
Softening point	1600		°C	
Thermal Shock Resistance	outstanding			
Shrinkage at 1000° C	< 2		%	
Thermal conductivity	Style C-H broadcloth		Standard Filament Batt	
(BS 874: 1973, paragraph 4.2.5)	100°C	0,083	0,040	W/mK
	200°C	0,094	0,057	W/mK
	300°C	0,109	0,077	W/mK
	400°C	0,123	0,103	W/mK
	500°C	0,137	0,131	W/mK
Specific Heat	250°C	0,80	J/g°C	
	500°C	0,88	J/g°C	
	750°C	0,96	J/g°C	
	1000°C	1,09	J/g°C	
Chemical analysis (After ignition at 1000°C)	SiO ₂	98,57	%	
	TiO ₂	0,30	%	
	Al ₂ O ₃	0,47	%	
	Fe ₂ O ₃	0,08	%	
	B ₂ O ₃	0,06	%	
	CaO	0,05	%	
	MgO	0,07	%	
	Alkalies	0,13	%	
	Chlorides	100-150	ppm	

Electrical properties

DALFRATEX® fibre is a good electrical insulator, with high electric strength and low electrical conductivity. For most design purposes it may be assumed that electrical breakdown strength of a region filled with DALFRATEX®, is essentially that of atmospheric air. The dielectric properties of DALFRATEX® at room temperature are adversely affected by the presence of associated water. This can substantially be removed by heating the material to 100°C to 200°C, when the losses are significantly reduced.

Chemical properties

The chemical properties of DALFRATEX® are similar to those of vitreous silica (silica glass). In general DALFRATEX® is compatible with mineral acids except phosphoric and hydrofluoric and is also compatible with a wide range of substances including air, chloride, carbon monoxide, ammoniasulphur dioxide. DALFRATEX® products are compatible with silica refractories at high temperatures. As there is no possibility of forming a SiO₂/Al₂O₃ eutectic, DALFRATEX® can safely be used in conjunction with silica refractories in coke ovens, glass melt tanks etc. DALFRATEX® textiles are not recommended for use in contact with bases such as sodium and calcium hydroxides or substances giving the reaction of these, e.g. sodium silicate.

Promat contains the right to change without notice the properties and values of all products. The given technical values are obtained in specific conditions and are average and indicative. In case of any doubt if these properties and/or values are matching the application requirements, please contact Promat for advice.

DALFRATEX® Textiles

THE RANGE

• Bulk fibre

Available in random length fibres up to 12 mm and standard diameters of 5 to 6 microns, DALFRATEX® Bulk Fibre can also be supplied in various lengths and diameters to suit clients' requirements.

• Batt

Self-bonded, non-woven mats of fibres are available in different weights and thicknesses from 300 gms/sq.m up to 2000gms/sq.m. Sheet lengths of up to 2,7m are attainable and the standard width is 915 mm.

• Cloths

Woven from continuous filament and texturised yarn, DALFRATEX® Cloths are produced in a variety of weaves from open mesh mock leno to heavy duty twills and satins. Available in pre-shrunk or natural condition with or without coating additions.

• Tapes

DALFRATEX® Tapes are available in a comprehensive range of widths and thicknesses, and are supplied woven and knitted from continuous filament and texturised yarns. Pre-shrunk or natural forms, with or without coatings, can be provided. An adhesive backed form is cut from rolls of cloths.

• Cordages

DALFRATEX® Cordages are twisted and braided constructions which are available from less than 9 mm and up to 40 mm in diameter.

• Yarns

DALFRATEX® yarns are essentially thinner versions of the twisted cords. Amorphous silica yarns are unfired and coated for

hand stitching or braiding and lapping. Fused quartz yarn and cotton covered stainless steel yarns are available for machine stitching.

• Sleeveings

Braided constructions ranging from 0,5 mm up to 85 mm in diameter with different wall thicknesses are available in the DALFRATEX® range of sleeveings.





STANDARD SIZES

CLOTH

Thickness (mm)	m/roll
0,9	45
1,6	45
1,6	45
1,7	45

BLANKETS

Thickness(mm)	length/roll	width/roll
3,8	2200	915
6,3	2200	915
9,4	2200	915
12,5	2200	915
25	2200	915

CORD

Thickness (mm)	m/roll
9	25
12	25
18	25
24	25
10	25
20	25
40	25

YARN

Thickness (mm)	m/roll
0,9	340
1,2	210
2	100
3	50

TAPE

Thickness(mm)	width/roll	m/roll
0,4	20	30
0,4	30	30
0,5	30	30
4	22	30
4	45	30
4,5	70	30
3,5	50	30

SLEEVE

Thickness(mm)	innerdiam.(mm)	m/roll
0,5	3,2	30
0,5	4,8	30
0,6	6,4	20
1	20	15
1	25	15
0,4	10	30
0,5	13	30
0,5	20	20
0,5	30	20
	50	20
	65-75	20
	75-85	20

• Ropes

Braidings provided as soft flexible Packings or Dense Ropes are available from the DALFRATEX® range of products. Dense Ropes are supplied in round or square sections. Knitted items using texturised yarns are also available.

• Mattresses

DALFRATEX® Mattresses are supplied as layers of thermal insulation covered in a variety of fabrics to suit a wide range of operating environments and are tailor-made to accommodate simple or complex fitting conditions.

