

# Co-operation with the world's leading raw material manufacturers

The development of new polymers, with properties that comply with user requirements, is a continuous process for the chemical industry. We work as both a creator of ideas and an information bank for several of the world's most famous fibre manufacturers.

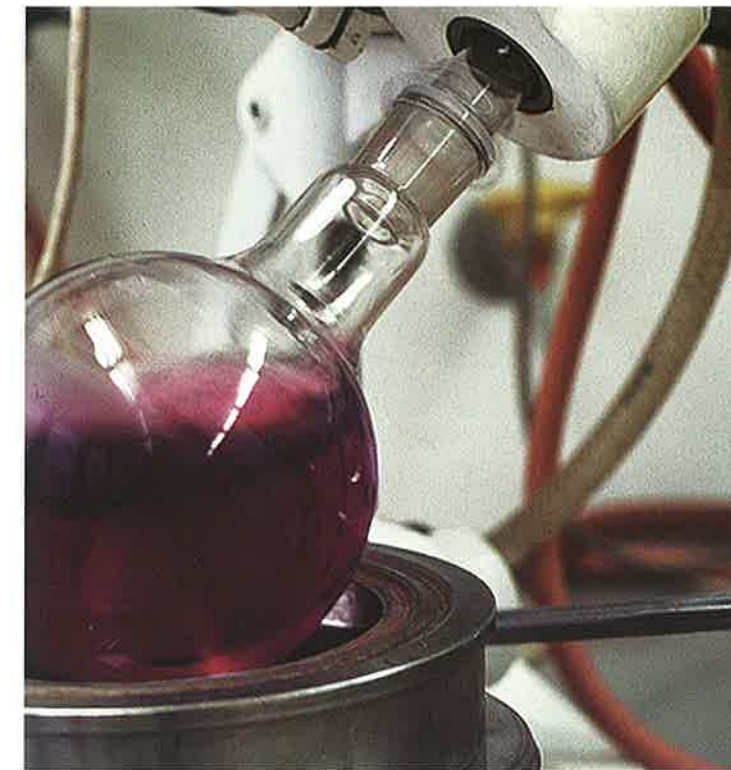
Our objective is to find industrial applications where the existing raw materials either don't work, or can be improved. We determine technical requirements, analyse the market potential, and suggest the emphasis of development work.

In this process we also assist with the practical work of testing the new materials in the field. Test weaving/needling, preparation, cutting and making-up are but a few aspects of our operations.

We follow practical testing, analyse results, continuously observe and then compile the test results.

There are numerous examples where customers in the process industry have solved inconvenient problems, and achieve more efficient production thanks to new, modified or combined polymer materials.

*Textile raw materials natural or synthetic all have specific characteristics which we use for each unique application.*



## Important Textile Fibres and their Properties

Fibre Composition		Amorphous Silica Acid Fibre	Aromatic Polyester	Carbon Fibre	Chlorofibre (PVC)	Cotton	Flax (Linen)	Glass Fibre	Jute	Metaaramide	Metal Fibre (Stainless Steel)	Modacrylic	Paraaramide	Phenolo formaldehyde (Bakelite)	Polyacrylonitrile	Polyamide (Nylon)	Polyamide-imide	Polyester	Polyetheretherketone	Polyetherimide	Polyethylene	Polyimide	Polyphenylene Benzobisoxazole	Polyphenylene sulphide	Polypropylene	Polytetrafluoroethylene	Poly-urethane Elastomeric Fibre (Elastan)	Polyvinylidene fluoride	Viscose	Wool	
Fiber Code (BISFA)			PET-AR	CF	CLF	CO	FL	GF	JU	mAR	MTF	MAC	pAR	PF	PAN	PA	PAI	PET	PEEK	PEI	PE	PI	PBO	PPS	PP	PTFE	EL	PVDF	CV	WO	
Fibre or Polymer Name		Refrasil*	Terate*	Besfight* Tenax*	Rhovyl* Thermovyl*	Giza				Nomex* TeijinConex*	Bekinox* Naslon*	Protex* Verel*	Kevlar* Twaron*	Kynol*	Dolanit* Ricem*	Perlon* Rilsan*	Kerml* Torlon*	Diolen* Trevira*	Victrax*	Ultem*		P84* Vespel*	Zylon*	Torcon* Procon*	Meraklon* Weiteken*	Rastex* Teflon*	Lycra* Spandex*	Kynar* Solel*	Lenzin FR* Swelan*	NZ Wool	
Tensile Strength	STAPEL	N/tex	0,48	x	1,67	0,27	0,24	0,5	0,45	0,32	0,48	0,23	0,32	2,07	0,18	0,56	0,5	0,35	0,5	0,48	0,27	x	0,33	3,7	0,27	0,43	0,14	x	x	0,18	0,13
		N/mm <sup>2</sup>	1240	x	3000	360	370	750	1170	470	660	1780	420	3000	230	660	570	470	690	625	345	x	465	5900	370	390	300	x	x	270	165
	FILAMENT	N/tex	x	2	1,67	0,32	x	x	0,59	x	0,5	0,23	x	2,3	x	x	0,62	0,41	0,6	0,65	0,27	0,5	0,33	3,7	0,27	0,54	0,14	0,07	0,31	x	x
		N/mm <sup>2</sup>	x	2820	3000	430	x	x	1520	x	680	1780	x	3330	x	x	710	540	830	850	345	470	465	5900	370	490	300	90	560	x	x
Break Elongation %		3	2-2,5	0,4-1,8	20-40	3-7	2-4	2-3	1,5-2,5	18-20	1	15-40	2-3,7	20	13-18	10-19	20-30	8-15	20	38	20-30	30	2,5-3,5	25-30	15-25	13	600	20-50	9-23	25-40	
Wet Strength %		100	100	100	100	100-120	102	100	105	75-80	100	90-95	75-80	100	90-96	90-95	75-80	95-100	100	100	100	75-80	100	100	100	100	100	100	100	55-63	75-85
Density g/m		2,6	1,41	1,8	1,35	1,52	1,49	2,6	1,5	1,38	7,9	1,3	1,45	1,25	1,18	1,14	1,34	1,38	1,3	1,28	0,94	1,41	1,56	1,37	0,91	2,1	1,2	1,78	1,52	1,32	
Moisture Absorption %		<0,1	<0,1	<0,1	<0,1	7,5	10	<0,1	17	2,5	2	0,5	3	6	1,5	4,5	3-5	0,4	0,1	1,25	0,01	3	0,6-2,0	0,6	<0,1	<0,1	1,5	0,04	13	16	
Continuous Temperature °C		1000	180	530	80	80	80	240	80	200	550	80	180	150	130	100	250	135	240	170	65	260	400	190	90	240	90	130	135	90	
Peak Temperature °C		Softens at 1300, Melts at 1700	276-322	Flame resistant, Sublime at 3650	160-180	Decomposes over 150	Decomposes over 150	845	Decomposes over 150	Decomposes over 400	Softens at 1400	190-200	Decomposes over 425	Decomposes over 2500	Carbonizes over 240	250	Decomposes over 400	257	335	225	120	Decomposes over 400	Decomposes over 650	285	160	Decomposes over 400	250	156	Decomposes over 190	Decomposes over 130 Carbonizes over 300	
Resistance of Raw Material	Acid *	3/3	4/3	4/4	4/4	2/1	1/1	3/3	2/1	3/2	4/3	4/4	3/2	4/3	4/3	2/1	4/3	4/3	4/4	3/2	3/3	4/4	4/3	4/4	4/4	4/4	3/2	4/4	3/2	3/2	
	Alkali *	3/2	4/3	4/4	4/3	4/3	3/2	4/3	3/2	3/3	4/4	3/3	3/3	4/3	3/3	4/3	3/3	2/1	4/4	3/2	3/3	2/1	4/3	4/4	4/4	4/4	3/2	4/4	3/2	2/1	
	Oxidising Agent	4	3	4	4	2	1	4	1	3	4	3	3	1	3	2	4	4	3	3	1	3	4	2	3	4	2	3	1	1	
	Organic Solvent	4	4	4	2	3	4	4	3	3	4	3	4	4	3	4	4	3	4	3	3	3	4	4	3	4	2	3	3	3	

4=Excellent, 3=Good, 2=Average, 1=Poor    tex=g/1000 m    N/mm<sub>2</sub>=g/cm<sub>2</sub> x N/tex x 1000    \* (diluted/concentrated)