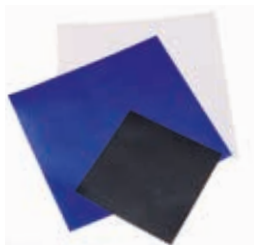


HIGH PERFORMANCE ENGINEERING
PLASTICS AND STOCK SHAPES





Our Range

P TFE Rod & Tube

Extruded rod & tube, moulded rod & tube and PTFE sheet & tape are manufactured to the highest quality and using our Fluorinoid® materials range, products are available in a wide variety of filled grades.

We provide a variety of products for applications in many industries, including:

- Aerospace
- Electronics
- Oil & Gas
- Medical & Pharmaceutical
- Transportation
- Chemical

Specialising in high quality PTFE compression moulded and extruded rod and tube, we offer a wide range of diameters and lengths suitable for today's modern machining.

PTFE Extrusion

- Rod: 1/4" - 5" diameter up to 118" length
- Tube: 5/8" - 6" diameter up to 118" length
- PTFE thin wall tubing in a variety of sizes and colours

Compression Moulding

To produce rod lengths to 72" we use a unique process for low stress material for high precision machining within a narrow tolerance band.

- Rod: 1/8" - 2" diameter up to 72" length
- Rod: up to 60" diameter at various lengths
- Tube: 3/4" - 60" OD at various lengths

Precision Grinding

We offer a precision grinding service to ensure close tolerance rods for modern machining. We ensure a high level of surface finish with a constant tolerance from batch to batch.



For more information on our semi-finished products or for advice on your specific requirements please contact our technical engineers today

Our Range

H igh Performance & Melt Fluoropolymer

Exploiting our specialised processing equipment and wide tooling range, we are able to convert high performance and melt fluoropolymer materials into semi-finished shapes for post machining or low to high volumes of moulded components.

Materials include:

PEEK, PCTFE, PFA, FEP and PPS.

Our range of products includes extruded and hot compression moulded rod, heavy tubing, sheet and custom shapes and can be supplied plain or chemically etched ready for bonding.

Melt Extrusion

- Rod: 1/8" – 4" diameter up to 118" length
- Tube - Heavy wall: 3/4" ID to 4" OD in a variety of lengths
- Sheet: up to 7" width x 39" length x 2" thickness

Hot Compression Moulding

- Rod: 1 1/8" – 8" diameter up to 8" length
- Tube:
 - 1" – 4" ID x 2" – 6" OD up to 8" length
 - 3/8" – 10" ID x 5" – 12" OD up to 6" length
 - 11" – 20" ID x 14" – 22" OD up to 4" length
 - 20" – 33" ID x 24" – 37" OD up to 2 1/2" length
- Sheet: 19.5" length x 19.5" width up to 1.5" thickness

Special Products

- Amorphous clear PCTFE sheet for chemically resistant sightglass covers
- Custom shaped moulded billets and sheet using low cost tooling
- Lining of customer steelwork
- Precision grinding service for close tolerance
- Injection moulded PEEK billets

With over 50 years of experience in the manufacture of PTFE, melt fluoropolymers and high performance polymers, our range of engineering plastics and stock shapes is one of the most extensive in the world.

Our Range

P TFE Sheet & Tape

As one of the largest UK manufacturers of semi-finished virgin and filled PTFE sheet and tape we ensure each product is tailored to meet customer requirements.

Our extensive range of PTFE sheets and tapes includes dimpled, moulded, skived and self-adhesive; available in a variety of thicknesses. A fast turnaround service is available on non stock items and same day dispatch on all standard stock items.

Using our in-house services all items can be supplied chemically etched on one or both sides using the Fluoroetch® HD etching process.

Skived Tape

- 0.004" - 1/4" thick, max width 48"
- Available in continuous rolls, cut sheets or slit to a specific width
- Filled grades can be manufactured up to 39" wide

Moulded Sheets

- 3/8" - 4" thick to a maximum size of 48"
- Sheets may be supplied as cut pieces or machined into individual shapes

Self-Adhesive Backed Tape (Fluoroetch® SA)

- Four standard thicknesses; 0.005", 0.010", 0.016" and 0.020"
- Available as continuous rolls and slit to specific widths
- Food approval (FDA & ISO) used for lining, hoppers and chutes

Dimpled Sheets

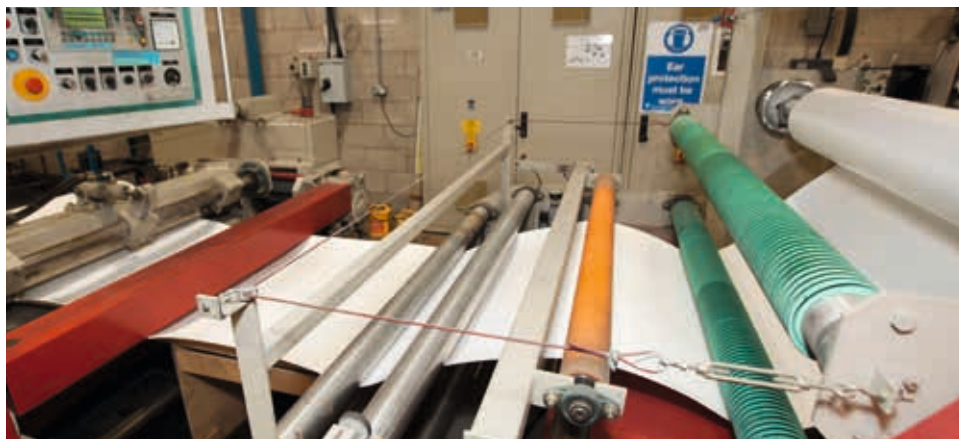
- 1/8", 0.177" and 0.196" thick up to 48"
- Bridge and pot bearings: 0.177" or 0.197" thick; supplied as sheet or machined to size
- Available in filled grades of PTFE
- Dimpled sheets either to BS 5400 or EN1337-2

Fluoropack® PTFE/Cork Laminate

- Sheets available 48" x 24" by 0.095" thick - for blister pack tools

PTFE Coated Glass Cloth

- Available as 39" wide rolls or slit to customer requirements
- Ideal for heat wrapped packaging



E tching & Bonding

PTFE is well-known for being a non-stick material; therefore, to enable bonding to other substrates, surface modification in the form of chemical etching is required.

Our Fluoroetch® HD sodium / ammonia process is the most effective etching medium available. We offer a full in-house service of comprehensively tested chemical etching and bonding of fluoropolymers, including PTFE, PFA, ECTFE, PCTFE, FEP and TFM.

Etching

- Up to 48" width on one or both sides
- Etchant is specifically prepared for each batch run to ensure ultimate bond strength
- Etched sheet can be factory bonded for the manufacture of expansion bearings, slide bearings and skidways
- Etching of free-issue materials in sheet form or finished components

Bonding

- Dedicated hot and cold cure bonding service
- Sheet sizes up to 0.118" x 60" can be bonded at any one time
- Lengths up to 2.5 foot have been bonded
- Bonding of materials include: PTFE, rubber, steel, cork and wood
- Adhesives available include: epoxy, contact and isocyanates

Our Range

Fluorinoid® Materials

Our company Fluorinoid® register, based on PTFE and thermoplastic technologies, includes over 500 materials that offer exceptional characteristics enabling them to operate in demanding environmental conditions at temperatures to over 572°F.

Materials include:

PTFE, PEEK, PPS, PFA, PVDF, PPS, ETFE and PCTFE along with a variety of fillers, including glass, carbon, graphite, bronze, ekonol and aluminium.

Service

- Advice on material selection to meet specific applications
- Customer specific blends including colour pigments to provide exclusivity
- Formulation and in-house blending of special material compounds in a clean and controlled environment
- Testing of materials and finished products to a wide range of European, US and International standards
- Prototyping available
- Materials conditioned and stress-relieved to ensure optimum quality when machining to tight tolerances
- Advanced Surface Coatings from our F-LON™ range includes Sol-Gel Ceramic Technology

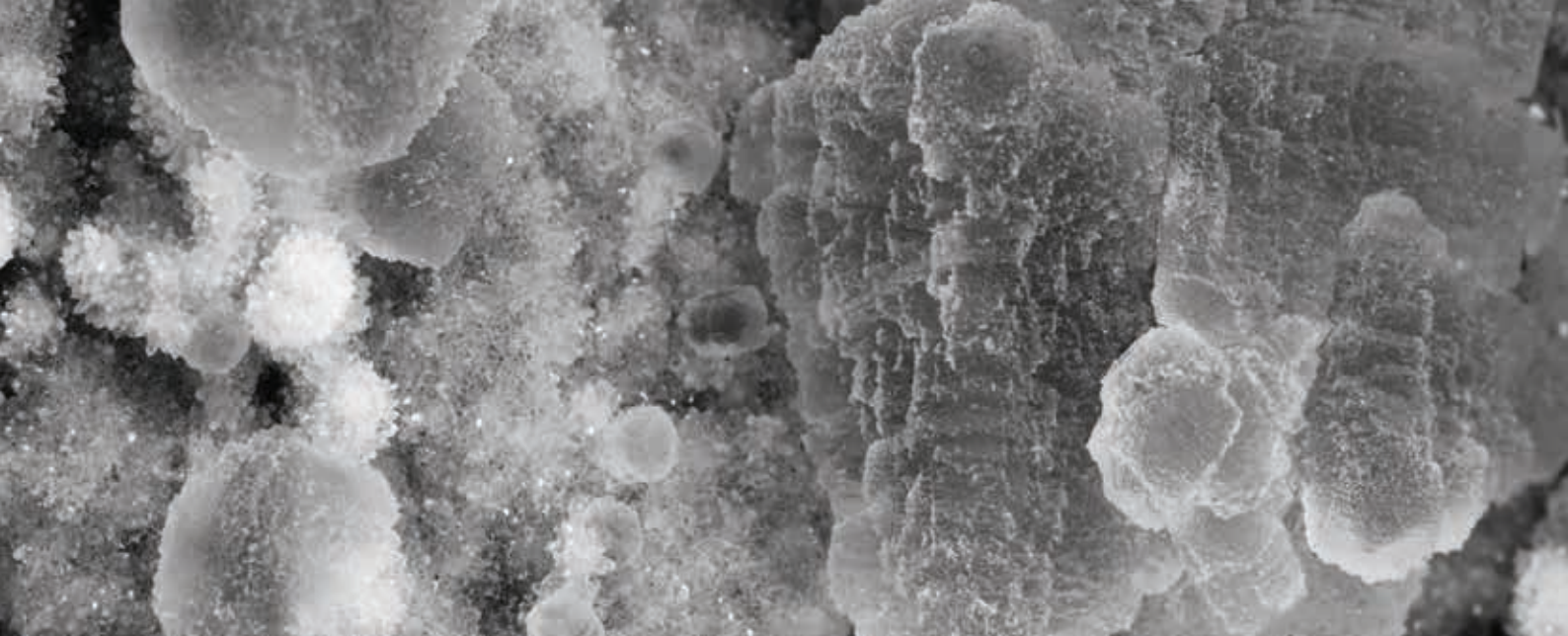
Exceptional Characteristics

- High chemical resistance
- Low co-efficient of friction
- Exceptional dielectric properties
- Thermal insulation
- Good wear resistance

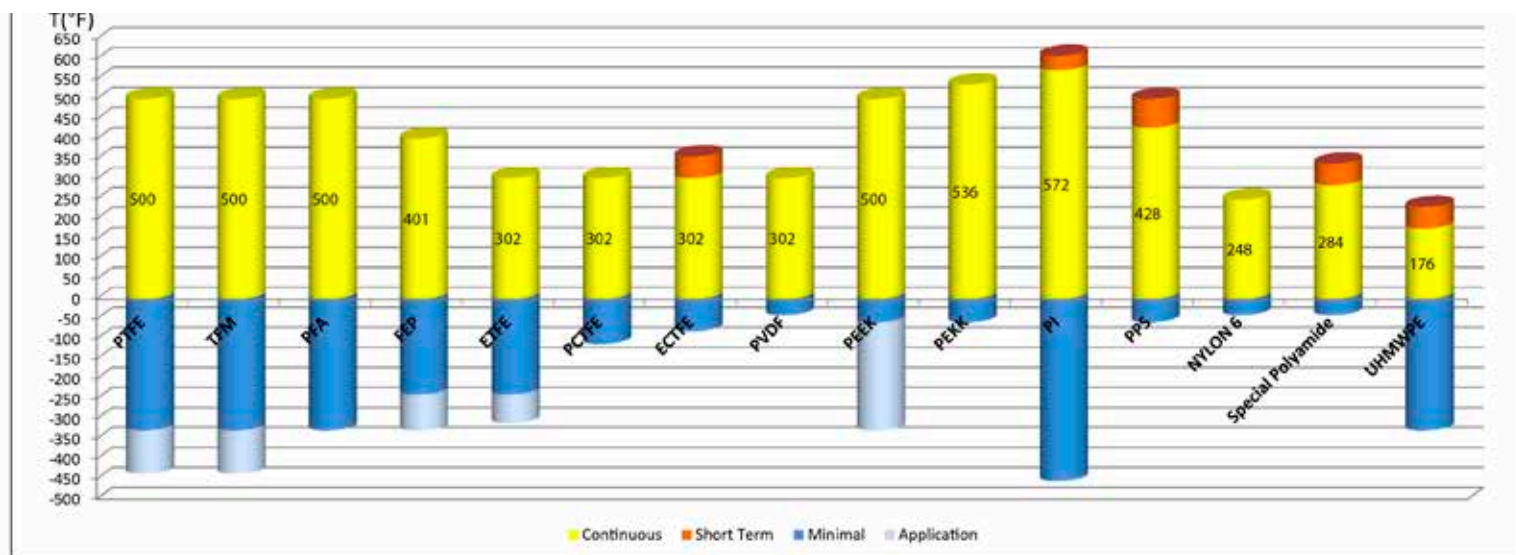
We ensure the highest standards of finished product by retaining complete control of the manufacturing process, whilst converting compounds into semi-finished products.

Compounds can be moulded or extruded to produce stock shapes or machined into components to suit individual specifications offering high quality, end-to-end service that is second to none.





Service Temperature



The graph indicates generic minimum and maximum temperatures for different polymers in Yellow and Blue respectively; the printed figured on each is the maximum continuous temperature possible. The extended range in Orange and Grey demonstrates that the polymers temperature envelope can be increased for specific applications and/or for short term use.

	PTFE	TFM	PFA	FEP	ETFE	PCTFE	ECTFE	PVDF	PEEK	PEKK	PI	PPS	Nylon 6	Special Polyamide	UHMWPE
Short Term							356				608	500		338	230
Continuous	500	500	500	401	302	302	302	302	500	536	572	428	248	284	176
Minimal	-328	-328	-328	-238	-238	-418	-112	-40	-58	-58	-454	-58	-40	-40	-328
Application	-436	-436		-328	-310				-328						

The above physical properties are typical values for comparative purposes only and do not represent a product specification. Properties will vary depending on the source of raw material, method of processing, physical form of the product or direction of measurement etc. The above properties must not be used for design purposes. For the correct properties in a specific application please refer to our Technical Department.

Our Range

Typical Properties Table

Fluoropolymers and Engineering Plastics													
Fluorinoi [®] grade	Material	General			Mechanical					Electrical		Thermal	
		Density	Flam-mability	Water absorp-tion	Tensile strength at 73.40°F	Elonga-tion at break at 73.40°F	Rockwell hardness	Shore hard-ness D	Coeffi-cient of friction	Volume resistivity	Dielec-tric strength	Coeffi-cient of linear expan-sion	Maximum continuous operating temperature
		g/cm ³		%	psi	%				Ωcm	V/mil	10 ⁻⁵ F ⁻¹	°F
FL100	PTFE Virgin	2.14-2.19	NC	0.00	2900-5800	200-450		55-65	0.05-0.2	10 ¹⁸	1000-2050	7-9	500
FL105	PTFE 25% Glass	2.24	NC		1750-2900	200-300		60-70	0.07-0.2			6-8	500
FL115	PTFE 25% Carbon	2.10	NC		1595-2350	70-150		60-70	0.1-0.2			4-6	500
FL141	PTFE 60% Bronze	3.90	NC		1450-2050	80-160		65-75	0.07-0.2			5-8	500
FL200	Modified PTFE	2.16	NC		4350	375		56	0.05-0.20	>10 ¹⁸	1800	7-9	500
FL305	PFA	2.12-2.17	NC	<0.03	3700-4650	300		60-65	0.2-0.3	>10 ¹⁸	1300-2050	7-9	500
FL304	FEP	2.12-2.17	NC	<0.01	2750-3650	250-350		55-60	0.2-0.3	>10 ¹⁶	1300-2050	4-8	401
FL300	ETFE	1.70-1.75	SE	<0.1	5200-6950	200-500	R45-55	70-75	0.3-0.5	>10 ¹⁶	1500-2300	3-5	302-356*
FL308	PVDF	1.75-1.78	SE	0.05	4350-7250	20-250	R100-115	75-85	0.2-0.5	10 ¹⁴	1000-2050	4-7	302-338*
FL346	ECTFE Halar [®]	1.67-1.70	SE	<0.1	5950-7850	200-300	R85-95	70-80	0.2	10 ¹⁵	1300	2-4	302-356*
FL325	PCTFE	2.10-2.16	NC	<0.01	4500-6100	80-250	R103-118	70-90	0.2-0.3	>10 ¹⁷	1300-1800	2-4	302-356*
FL347	Vespel [®] SP1	1.35-1.45	SE	1-1.3	6550-12500	2-8	E45-60		0.2-0.35	10 ¹⁴ -10 ¹⁵		2-3	572
FL348	PPS	1.34	NC	0.07		3	M93		0.24-0.3	10 ¹⁶	500	4	392
FL341	PES	1.37	NC	2.2	12350	30	M88		0.27-0.32	10 ¹⁶	400	2-3	356
FL350	PEEK	1.30	NC	0.5	15250	110	M99		0.2-0.25	10 ¹⁶	500	4	500
FL340	UHMPE	0.94	C		2900-5800	300-500		60-70	0.15-0.3	10 ¹⁷	2300	11	176
FL349	NYLON 6	1.10-1.15	C	9-10	5800-11600	80-100	M80		0.22-0.26	10 ¹³	900	4	194
FL328	NYLON 66	1.10-1.15	C	7.5-9.5	5800-12350	60	M80		0.2-0.28	10 ¹⁵	750	4-6	194
FL333	NYLON 12	1.01-1.05	C	1.5-2	5800-8700	150-350	M82			10 ¹⁵	900	4-8	158
FL339	HDPE	0.945-0.963	C		2750-5100	300-500	M75-80	62-69	0.3-0.35	10 ¹⁷	1500-2300	8-11	176
FL321	ACETAL	1.40-1.42	C	0.8	10150	30-80	M80		0.14-0.35	10 ¹⁵	500	6	185-293*

NC - Non-combustible SE - Self-extinguishing C - Combustible

The above physical properties are typical values for comparative purposes only and do not represent a product specification. Properties will vary depending on the source of raw material, method of processing, physical form of the product or direction of measurement etc. The above properties must not be used for design purposes. For the correct properties in a specific application please refer to our Technical Department.

Halar[®] registered trademark of Solvay, Vespel[®] registered trademark of DuPont. *Upper temperature dependent on application, please call for assistance.

Our Range

NORSOK Approved

		Meet NORSOK M-710 Acceptance Criterion			
Material Code	Polymer Type	Swell ¹	Tensile Modulus ²	Tensile Strength ²	Strain ²
FL010	Virgin PTFE	YES	YES	YES	YES
FL011	Filled PTFE	YES	YES	YES	YES
FL012	Filled PTFE	YES	YES	YES	YES
FL013	Filled PTFE	YES	YES	YES	YES
FL014	Filled PTFE	YES	YES	YES	YES
FL015	Filled PTFE	YES	YES	YES	YES
FL020	Modified PTFE	YES	YES	YES	YES
FL021	Modified Filled PTFE	YES	YES	YES	YES
FL030	Virgin PEEK Black	YES	YES	YES	YES
FL031	Filled PEEK	YES	YES	YES	YES

Fluorocarbon are pleased to announce we have been awarded NORSOK M-710 approval for 10 of our Fluorinoid® materials.

The NORSOK M-710 specification underlines the need for oilfield equipment OEMs to achieve higher levels of quality and compatibility for non-metallic seals used in oilfield equipment.

Although this started with mainly Norwegian or European requests for NORSOK M-710 approved materials it has now extended across the globe, making NORSOK into an internationally recognized standard.

Our Service

Quality & Testing Facilities

Using our modern, qualified laboratory, we offer full traceability on all products and materials and ensure the highest quality finish.

With day-to-day testing and analysis to ASTM, DIN and BSI standards. Testing includes, but is not limited to: tensile, elongation, density, hardness zero, strength time and peel testing.





Contacts



Web: www.fluorocarbon.co.uk
Email: info@fluorocarbon.co.uk

Main Contact:

For Melt Fluoropolymer, PTFE Rod & Tube
and Etching & Bonding - contact:

Fluorocarbon Group

Hertford Head Office
Caxton Hill
Hertford
Hertfordshire
SG13 7NH
United Kingdom
Tel: +44 (0)845 250 5100
Fax: +44 (0)845 250 5101

For PTFE Sheet & Tape and
Etching - contact:

Manchester Office
Northbank Industrial Park
Excalibur Way
Irlam
Manchester
M44 5DL
United Kingdom
Tel: +44 (0)161 777 6300
Fax: +44 (0)161 776 2503/7

Manchester Office
Northbank Industrial Park
Excalibur Way
Irlam
Manchester
M44 5DL
United Kingdom
Tel: +44 (0)161 777 6300
Fax: +44 (0)161 776 2503/7

European Sales Office
SC Fluorocarbon SRL
Strada Dunarii Nr. 277, Corp C10
Alexandria
Judetul Teleorman
Romania
Tel: +40 347 880001

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The following trademarks are the intellectual property of Fluorocarbon Group Limited: F-LON®
FCL-SB-USA Issue 2

