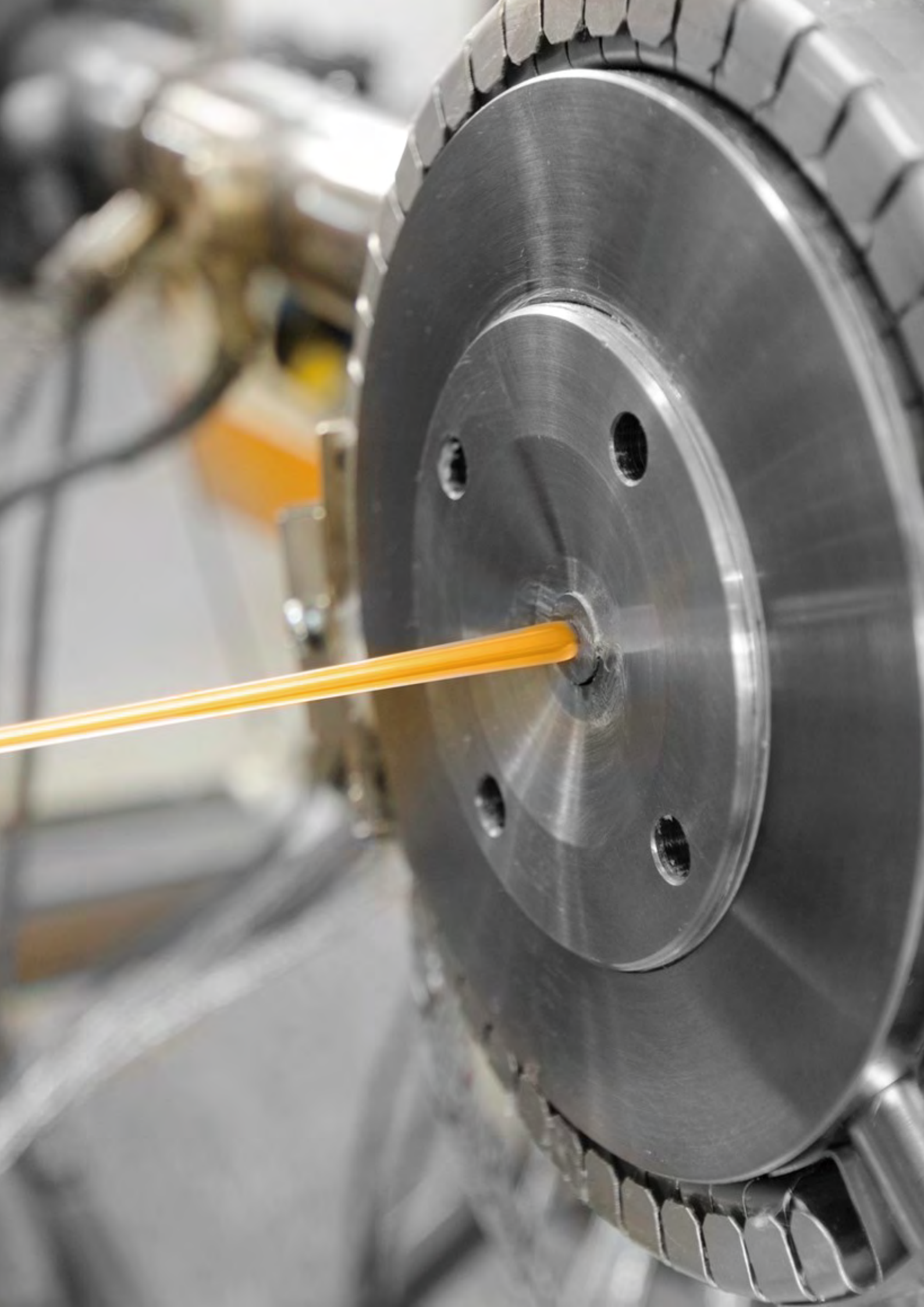
C&F
Since 1999

Techyours™

Fluoroplastic Tubing

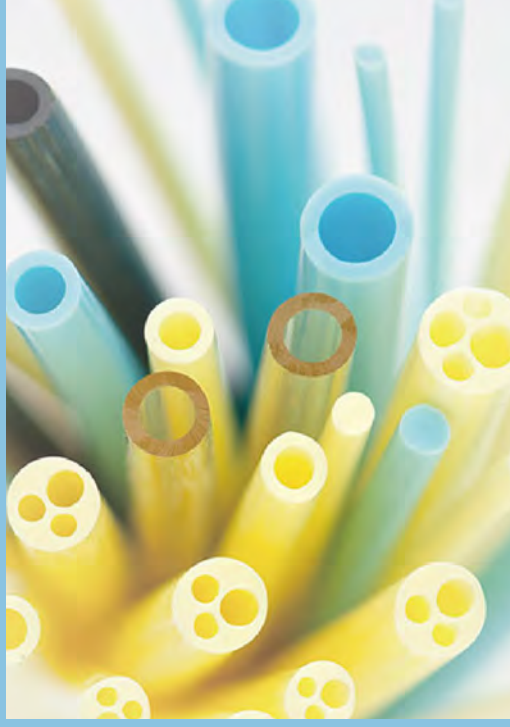
Techyours
Fluoro-Tubing



About Us

With 6,000 square meters of production space,Techyours™ is ready to meet the challenges of the industrial market. We have solid application knowledge in most industries, including automotive, chemical processing, electronics, aerospace, fiber optics, environmental and analytical. Techyours™ knows that new product and material improvements are critical to our customers' competitive advantage and success. Techyours™ offers a wide range of standard and specialty products to meet your every need. Techyours™' technical sales staff has the expertise to help you design the products you need.

In terms of materials, relying on Everflon™ high-performance fluoropolymers provides a full range of fluoropolymers and specialty fluoroplastics, and they have been successfully used in medical devices. Because our extruded tubing, heat shrink tubing and multilumen tubing are highly pure, smooth, non-toxic and do not induce allergic reactions and are compatible with body tissues and body fluids, many products have been selected by the medical industry.



Mechanical and Electrical

In mechanical and electrical insulation applications, Techyours™ fluoroplastic tubes are available in a wide range of fluoropolymer tube products in a wide range of sizes and specifications. Low friction, light weight, high temperature resistance, high dielectric strength and tensile strength are just a few of the many features of fluoropolymers. These properties allow fluoropolymers to be used in applications where many other plastics are not suitable. Techyours™fittings can already meet or exceed the critical environmental requirements of the global aviation program. In addition to spiral cable wraps and gyrotrons in harnesses and cable assemblies, these products include AWG tubes and heat shrink tubing for insulation.

Mechanical applications are not limited to industry standard materials. Chemical modifiers are used to improve the performance of push-pull cable jackets, ultra-thin casings, water-sealed, oil-free bearings, tires, valve seals and wear-resistant jackets. In order to extend the life of the group, Techyours™ also offers a variety of heat shrinkable extrusions, which have become an effective means of applying high-precision jackets capable of withstanding harsh environmental conditions up to 260 degrees of high temperature, wear and impact.

Medical

Most of the products we manufacture for the medical device industry are high precision pipes. With our experienced team of fluoropolymer technologists and extrusion design and production experience, we are an industry expert in customizing the performance of fluoropolymers through process and material modification techniques.

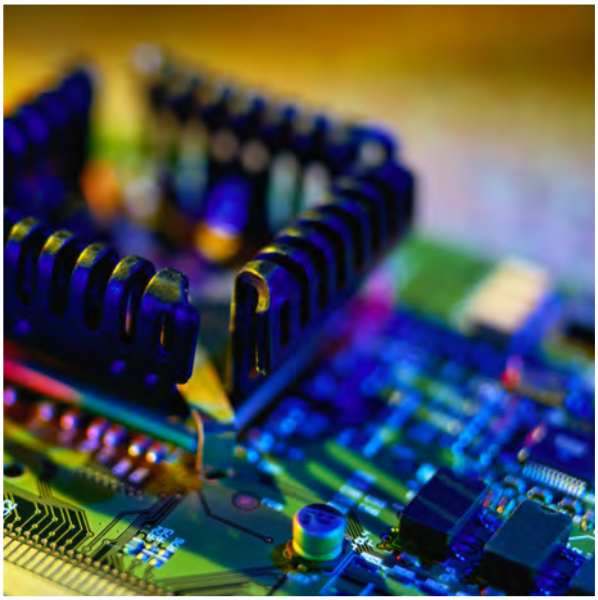
As a major producer of fluoroplastic tubes in the medical device market, Techyours™ is able to fully meet the diverse needs of its customers. At the same time, we have extensive experience in working with the various institutional departments of medical device manufacturers. In order to support these specialization needs, we have set up a medical technology research and development department, and established extensive cooperation with many universities and research institutions in the world.

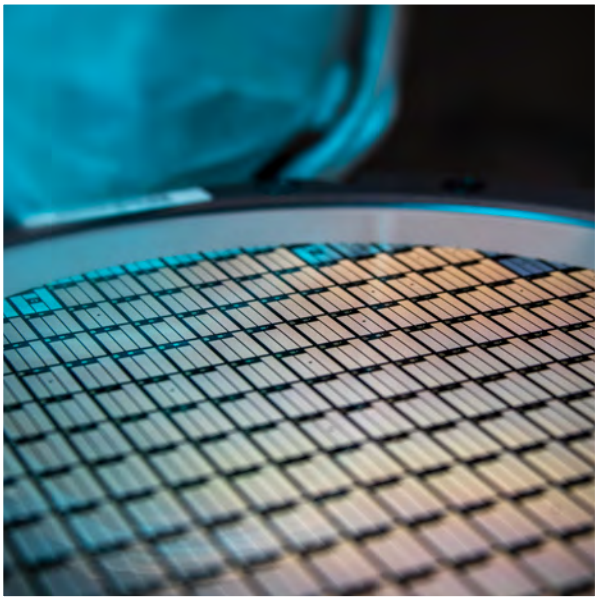
We provide products, technical support and sample production to engineers engaged in the development of new equipment in a timely and rapid manner. We also work closely with production engineers to increase production and production capacity. Certified experts appreciate our quality system. Purchasing agents also appreciate our inventory plans and the level of service and goods we provide to the medical industry.

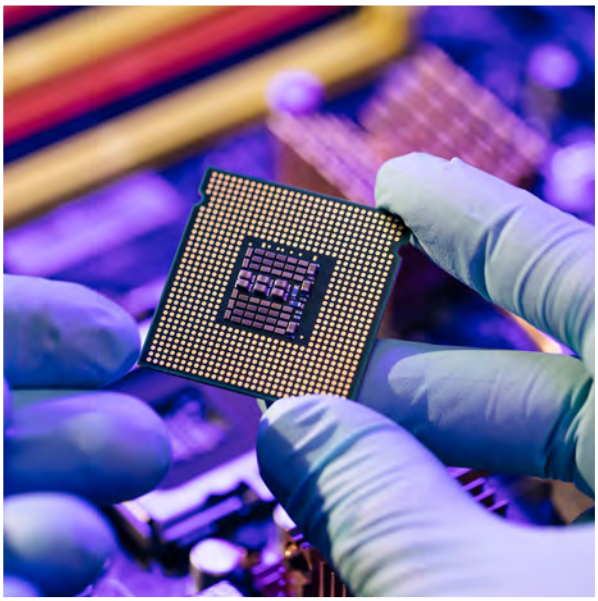
Fluid Handling

High-purity fluororesins are used to extrude tubes with low extractables and the highest surface finish to meet the application requirements of the semiconductor and pharmaceutical industries. Techyours™ also serves a number of specialized markets that enhance impermeability to give any plastic the highest water vapor transmission rate. This is one of the many initiatives that Techyorus fluoroplastic tubes have taken to maintain their leading position in the highly engineered extrusion industry. With the advent of new applications, the demand for our special fluoropolymer series has also increased significantly.

As liquid transport requirements become more sophisticated, the demand for fluoropolymer tubing in fluid applications is also growing. Techyours™ fluoropolymer tube produces a range of chemical resistant extrusions with internal diameters ranging from 1 to 50 mm and resistant to corrosive liquids such as sulfuric acid, hydrocarbon fuels and strong mineral acids.







CONTINUOUS USE TEMPERATURES

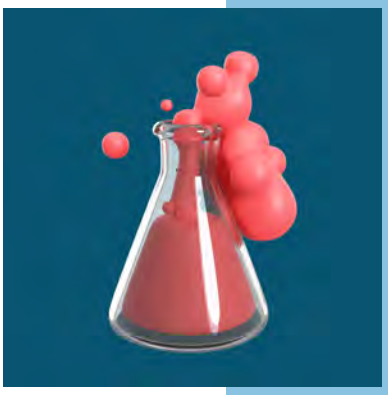
Techyours™ fluoropolymer tubing, in general, may be used to operate at significantly higher temperatures than other common plastics. PTFE and PFA may be used up to 260 ℃ (500F) while FEP can withstand temperatures up to 204℃ (400). These are among the few materials that can actually withstand live steam, and are often used as heat exchanger tubing for heating applications in corrosive environments. They have excellent resistance to cryogenic temperatures. Please contact Techyours™ for temperature ratings for other fluoropolymers. Please note that irradiation of any tubing alters its chemical structure, and in general, leads to some reduction in properties.

ELECTRICAL PROPERTIES

PTFE, PFA, MFA and FEP have outstanding dielectric strength and are generally the first choice in applications requiring a high voltage breakdown threshold. This property holds even when these materials are exposed to solvents and liquids. The dissipation factor for PTFE at frequencies up to 10 Hertz is extremely low. This characteristic is effectively utilized in signal transmission equipment and cables.

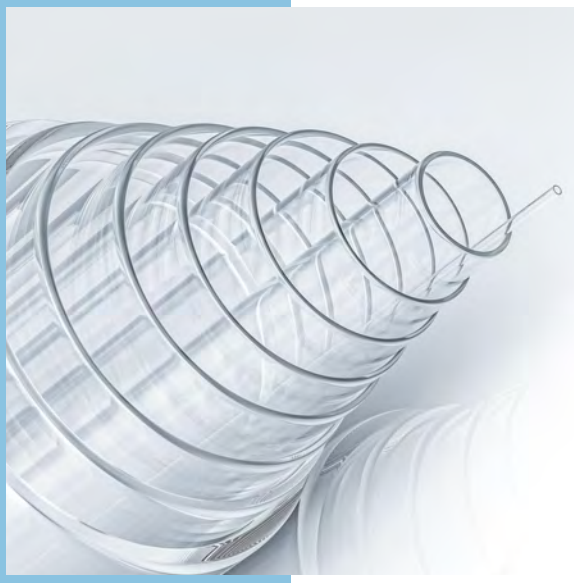
CHEMICAL RESISTANCE

Fluoropolymers, particularly, PTFE, PFA and FEP are inter to attack by virtually all industrialized solvents, acids, bases, and other chemicals over a wide range of temperatures. The few exceptions are molten alkali metals, halogenated complexes containing fluorine and molten sodium hydroxide.



NON-STICK PROPERTY

This is a unique property of perfluoropolymers such as PTFE, FEP, and PFA. This feature is employed in a variety of ways. For example the transport of thick viscous materials such as molasses, batch operations where easy and rapid cleaning is required between batches (paint, for example) tube clarity or transparency requirement in sight glasses or sight tubes, and eliminating contamination from particles or droplets sticking to tube.



SIZES

Standard AWG, Fractional (inch) and Metric industrial sizes are available. Custom sizes and colors are available upon request. Standard dimensional tolerances are indicated in tables. Please consult Techyours for special tolerances. Custom tolerances are based upon tube size and wall thickness. Material certifications, if required, will be furnished with shipment.

Materials

Techyours™ tubing is available in a range of fluoropolymer materials. These include PTFE, FEP, PFA, ETFE, PVDF, HP-PFA. Filled radio opaque tubing and colors are available for many of these materials. Fillers are generally used to enhance a single property or functionality such as electrical or thermal conductivity, color identification, improved tensile strength or abrasion resistance. In general, addition of fillers increase the stiffness-however, this may be dependent upon the amount and type of filler added.

APPLICATION

The wide usage of fluoropolymers in virtually all industries types and applications is proof of their versatility and unmatched properties. Issues such as safety, chemical resistance, electrical breakdown and signal loss, contamination and environmental requirements dictate the preference of fluoropolymers over other plastics. Techyours™ servers many industry segments with a wide variety of fluoropolymer tubing – standard or custom, coils and formed or fabricated geometrics.

Fluoropolymer tubing is used in an extremely wide range of applications. Since they are premium materials, and have high performance properties, the application environment generally necessitates their use. Examples of performance requirements are high purity, nonstick, high temperature, high electrical breakdown voltage threshold and chemical inertness to corrosive attack.

Some examples of Techyours™ fluoropolymer tubing use are: fluid glow (gas or liquid), electrical insulation, medical devices, laboratory instrumentation, clean room environments, microwave applications, food and beverage processing where the nonstick feature of PTFE, FPA, FEP and ETFE materials facilitates easy clean out.

Infinite possibilities: New uses for tubing spawned by new ideas turn up with amazing frequency. Techyours™ fluoropolymer tubing manufactured and supplied by Techyours™ possesses either a unique property or a combination of properties that are ideally suited for a novel application. The experience of Techyours™ can support your creative efforts that just might open up a brand new market.

MARKET

Fluoropolymer tubing serves a very broad array of markets. Virtually everywhere you look, fluoropolymer tubing is there. Colors and stripes are used to identify tubing carrying specific materials. Household appliances, medical devices, tubes carrying syrupy solutions in the food industry, ultrapure water in semiconductor and pharmaceutical manufacturing, corrosive and hot chemicals, fuel transfer lines, steam heating, NMR instruments in the laboratory, environmental sampling of air and underground water, hospital and surgical devices, copying machine toners, deep sea oil fields, fiber optics, electrical power supplies and insulation, high frequency and radar devices, satellites and space.

Industrial solutions

TRANSPORTATION

- Insulation, harnesses, bowden cables
- Seal rings for valves
- Liner for high pressure hydraulics and pneumatics
- On-board communication wires, cables, and sensoring

FOOD & BEVERAGE PROCESSING

- Packing and filling machines
- Coffee machines
- UV lamp protection
- Handling of corrosive fluids
- Distribution of cleaning agents
- Dosage systems and robots
- Analytical equipment in quality assurance

SUSTAINABLE ENERGY SOLUTIONS

- Liquid cooling for batteries
- Electrolyte circulation in redox-flow batteries
- Generator hoses for wind power plants
- Fluid handling for solar panels
- Heat exchanger tubing for photovoltaic solutions

SEMICONDUCTORS, ELECTRONICS & CABLES

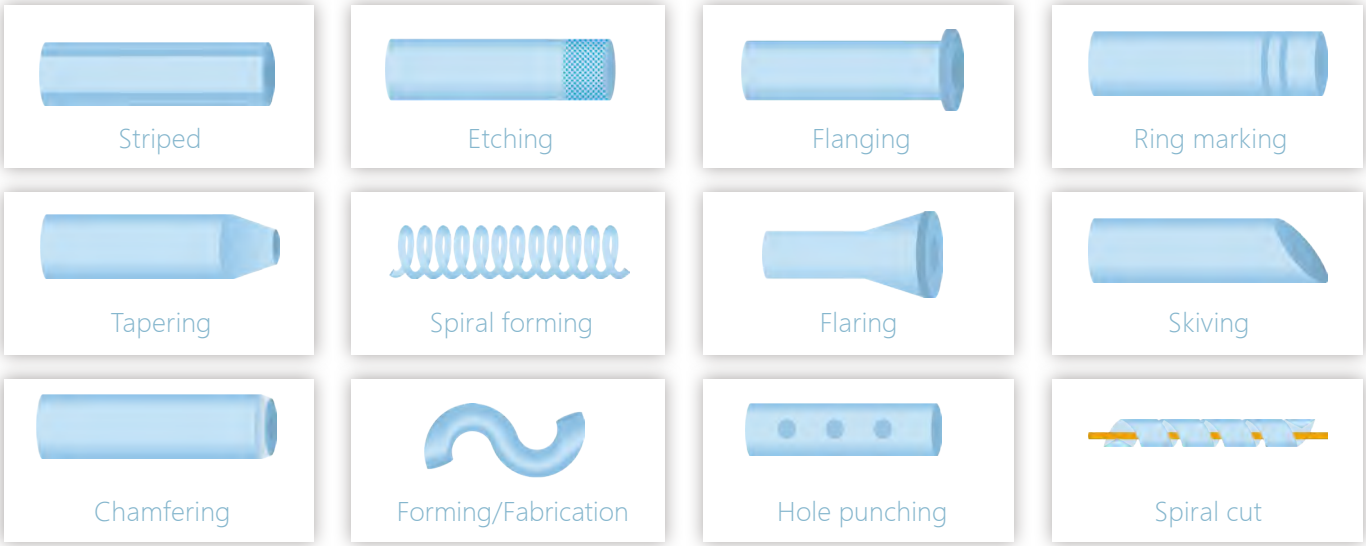
- Handling of process and waste fluids
- Fiber optic protection
- HV cables
- Robotics
- Pneumatics and hydraulics

CHEMICAL PROCESSING

- Water purification
- Heat exchangers
- Chlorine salt processing
- Pharmaceutical processing
- HPLC
- Fluid handling
- Dispensers, burettes, pipettes

Techyours plus

Techyours™ offers many Value-Add Services to refine your product to your specific application. These services are typically additional manufacturing steps on tubing which we can provide for you to better optimize your finished product. Our ability to perform these operations in-house allows you to work with one well established vendor while eliminating processing steps that save you time and money.



FABRICATED PRODUCTS

Techyours+ has designed, constructed and produced fabricated geometries from tubing for a range of applications. These product forms can be made from a variety of materials, and are not limited to fluoro-polymer tubing. Some examples of fabrication operations are as follows:

- Bending
- Shape Forming
- Flanging
- Flaring the ends of tube lengths
- Forming cuffs for fittings or other connections
- Coiling tubing, with predetermined diameter and length, to provide flexibility without kinks
- Supported structure for coils, with separation between turns to support even fluid flow for example

Techyours+ continuously endeavors to research and develop new methods to adapt tube geometries to new, demanding applications. Some of these applications may require tight or restricted spaces or other special considerations.

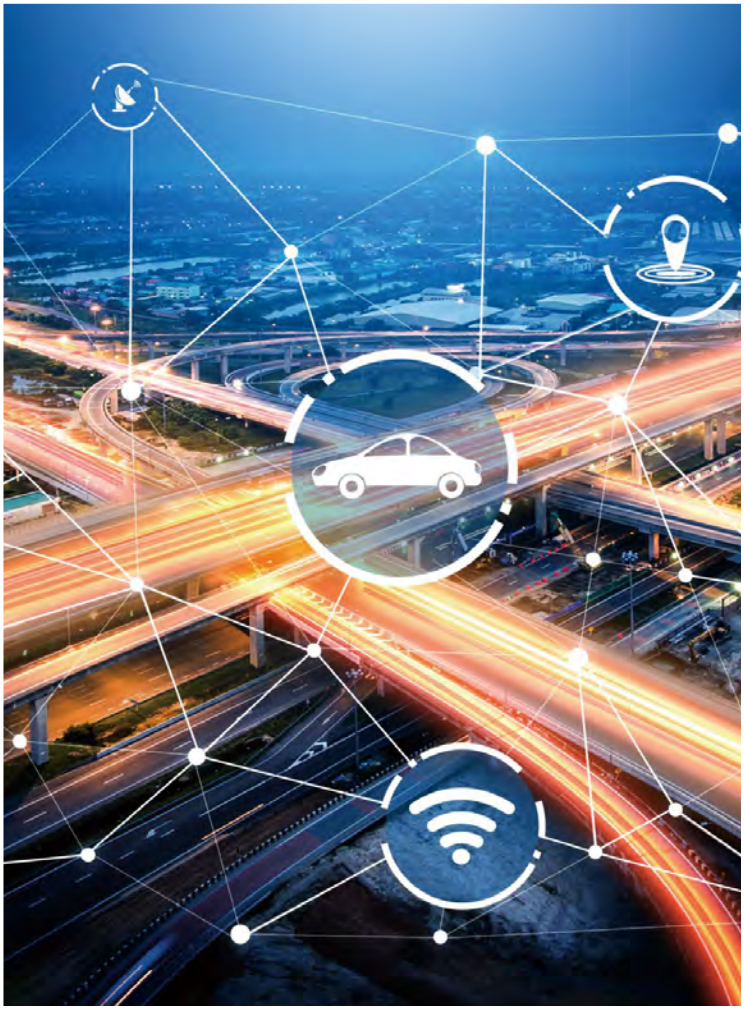
We are a world leader in precision tubing extrusions for industrial applications. We have developed a world-wide reputation of fulfilling customer expectations; not only with fluoropolymer extrusions but also with a wide variety of thermoplastics.

Safe and intelligent transportation

Where there was solely metal piping before, now light weight high-performance materials like fluoropolymers are coming into place due to their outstanding properties. Techyours™ is in combustion engine or EV, motorcycle, truck or bus; many applications such as brake systems, cable harnesses, encapsulated sensors, high-speed data transmission, fuel components and fire protection systems are using Fluoropolymer components. On the road, at sea, in the air, and even in space.

A good day starts with a good cup of coffee

Almost everyone enjoys a cup of coffee or espresso during the day. In premium coffee machines you will find food grade approved fluoropolymer tubing to maintain the excellent quality in the brewing process. These kinds of tubing are also used in the production/filling of other beverages and liquid foods; even as fabricated tubing solutions.

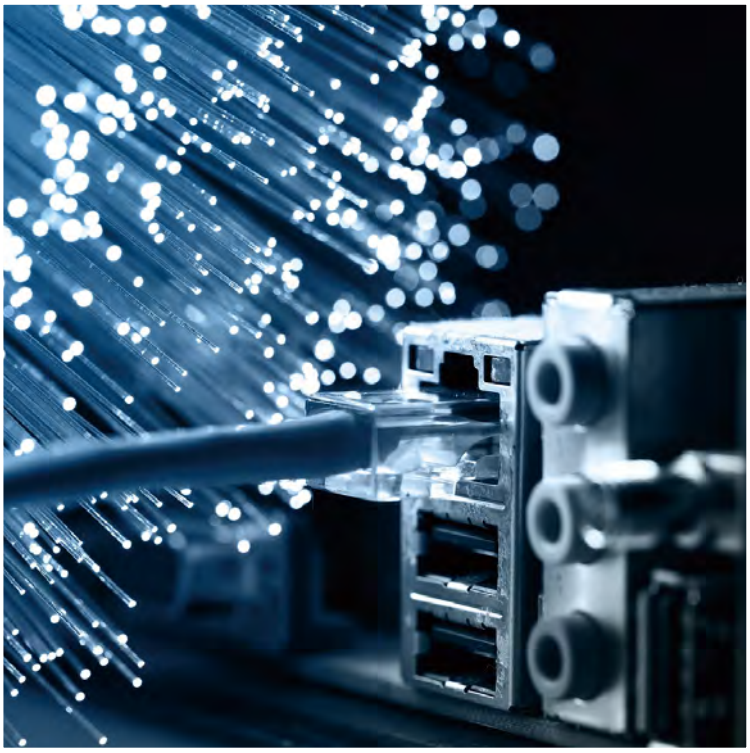


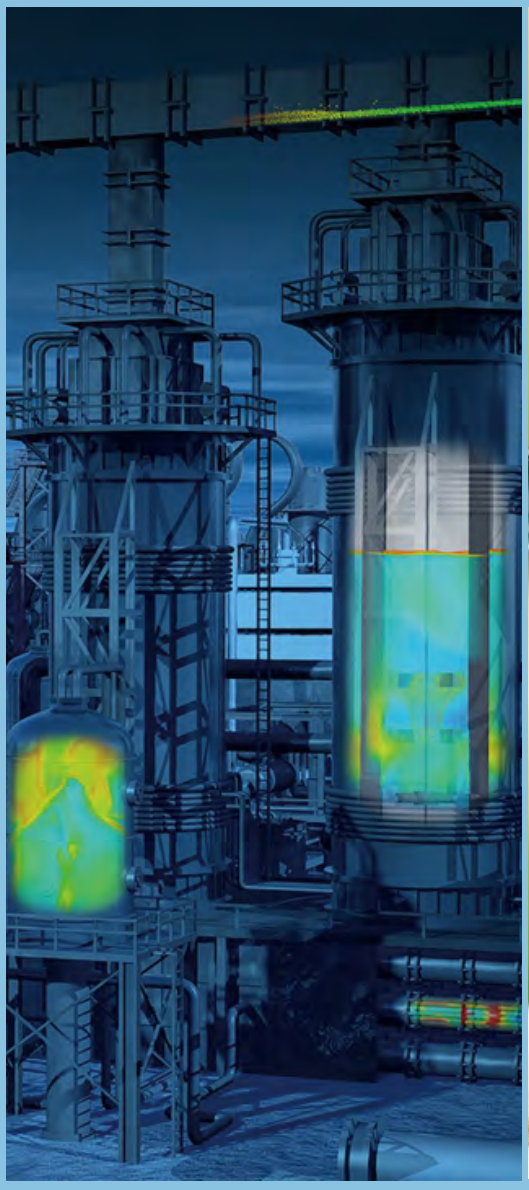
Green energy for a sustainable future

Our tubing is the ideal choice for energy that needs to be generated, stored and transported. Fluoropolymers are unaffected by UV light, very high (+260ºC) and very low temperatures (-200ºC), weather or corrosion so they are the perfect fluid handling solution for all outdoor installations due to both the low maintenance and low life cycle cost while maintaining excellent performance without degradation.

At the speed of light through a tube

Techyours™ is wild applicated in autonomous driving, IoT, 5G or different types of sensors or measurement equipment; fiber-optical based communication is the basis for high speed data transfer and secure data storage for today's environment. The sensitive glass fibers must be protected and shielded and here Techyours™ tubing solutions made of PTFE, FEP or PVdF are used by major cable manufacturers globally.





Corrosion protection for save work environment

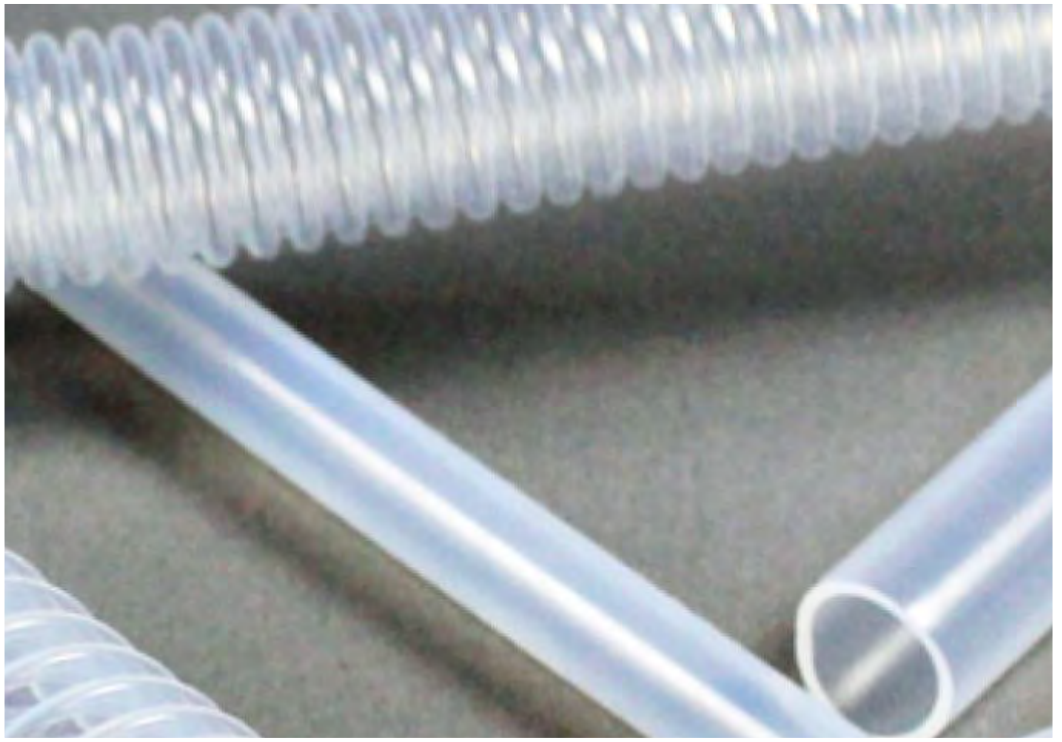
This is one of the major challenges within the Chemical Processing Industry. Due to outstanding chemical resistance, fluoropolymer tubing solutions from Techyours™ are used in a variety of chemical process plants. Applications like heat exchangers, steam handling, chlorine generation, toxic gas monitoring or the distribution of hot adhesives or paints wouldn't be safe without fluoropolymers.

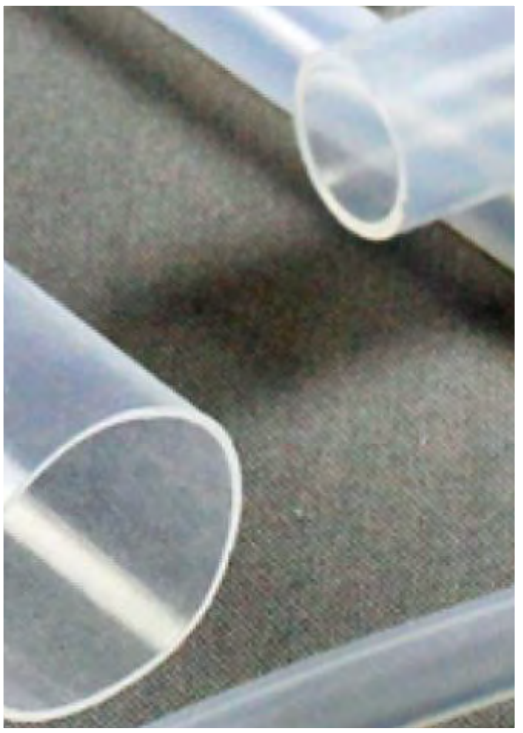
Water – an essential source for life

Different types of water are used to enhance the quality of our Life. Techyours™ service in drinking water, in beverages, the water we swim in, ultrapure water for enhanced manufacturing of computers or phones or process water for different industrial processes which helps with the transport water. Techyours™ PTFE or PFA tubing is the primary choice choice when harsh environments should not affect the quality of the water used.

Working under pressure to save lives

High pressure hoses are designed not to explode under pressure. The high-quality tubing liner encloses fluids or gases that support passenger safety during transportation. Techyours™ tubings used for hydraulics, brakes, fire extinguishing systems or engine parts they are all reinforced with high pressure hoses; the quality of the liner is the guarantee for safety.





PRODUCT CATEGORIES

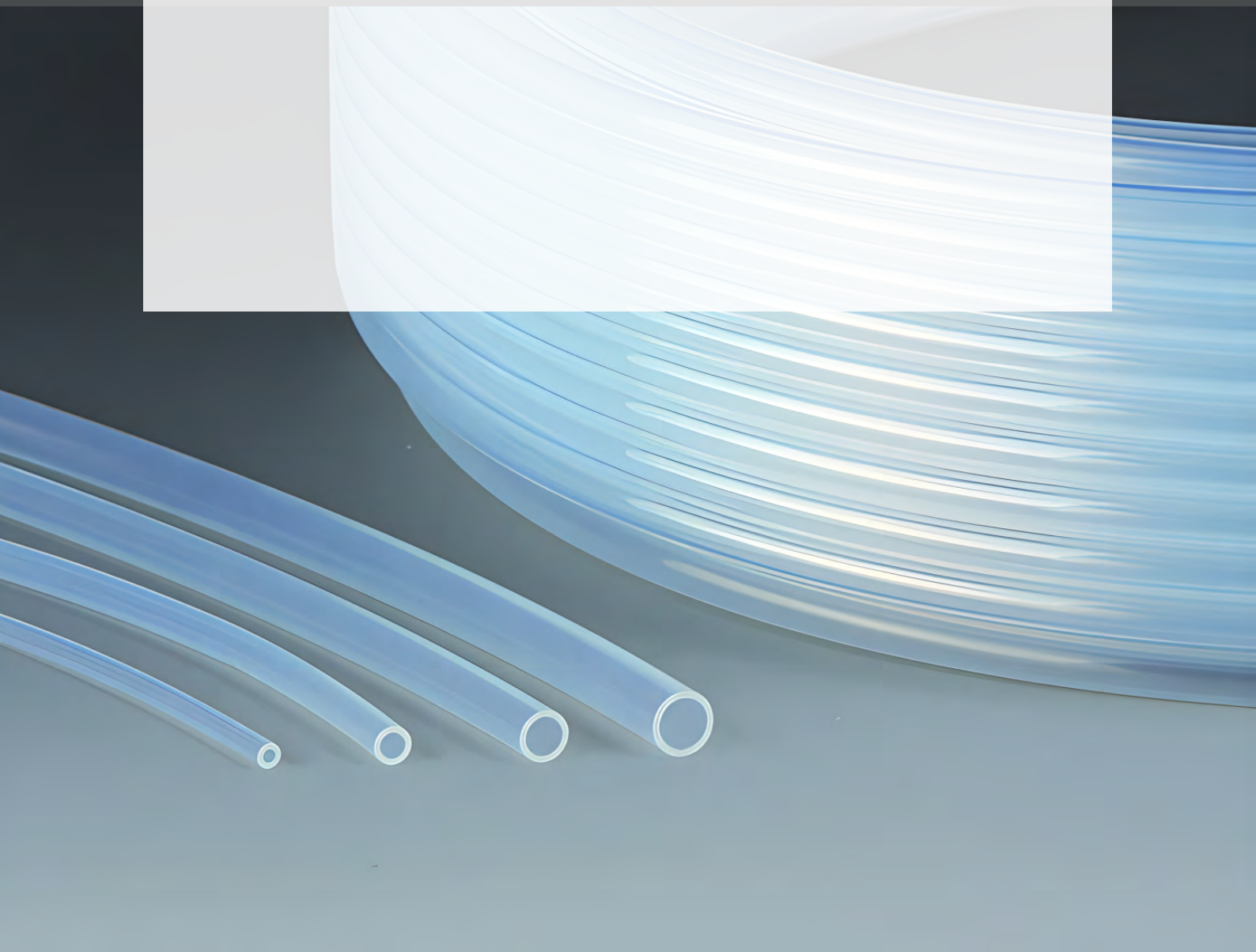
Industrial applications contain demanding specifications to meet today's markets requirements.

Our industrial product categories are designed to solve your design challenges.

- Extruded Tubing
- Heat Shrink Tubing
- Convoluted Tubing
- Striped Tubing
- Spiral Cut Tubing
- Single- and multi-lumen tubing
- Thermally ConductiveTubing
- Web Cross Filter
- Monofilament

Extruted Tubing

- Materials: PTFE, FEP, PFA, ETFE and PVDF.
- Natural or colored
- Size customized



Heat Shrink Tubing

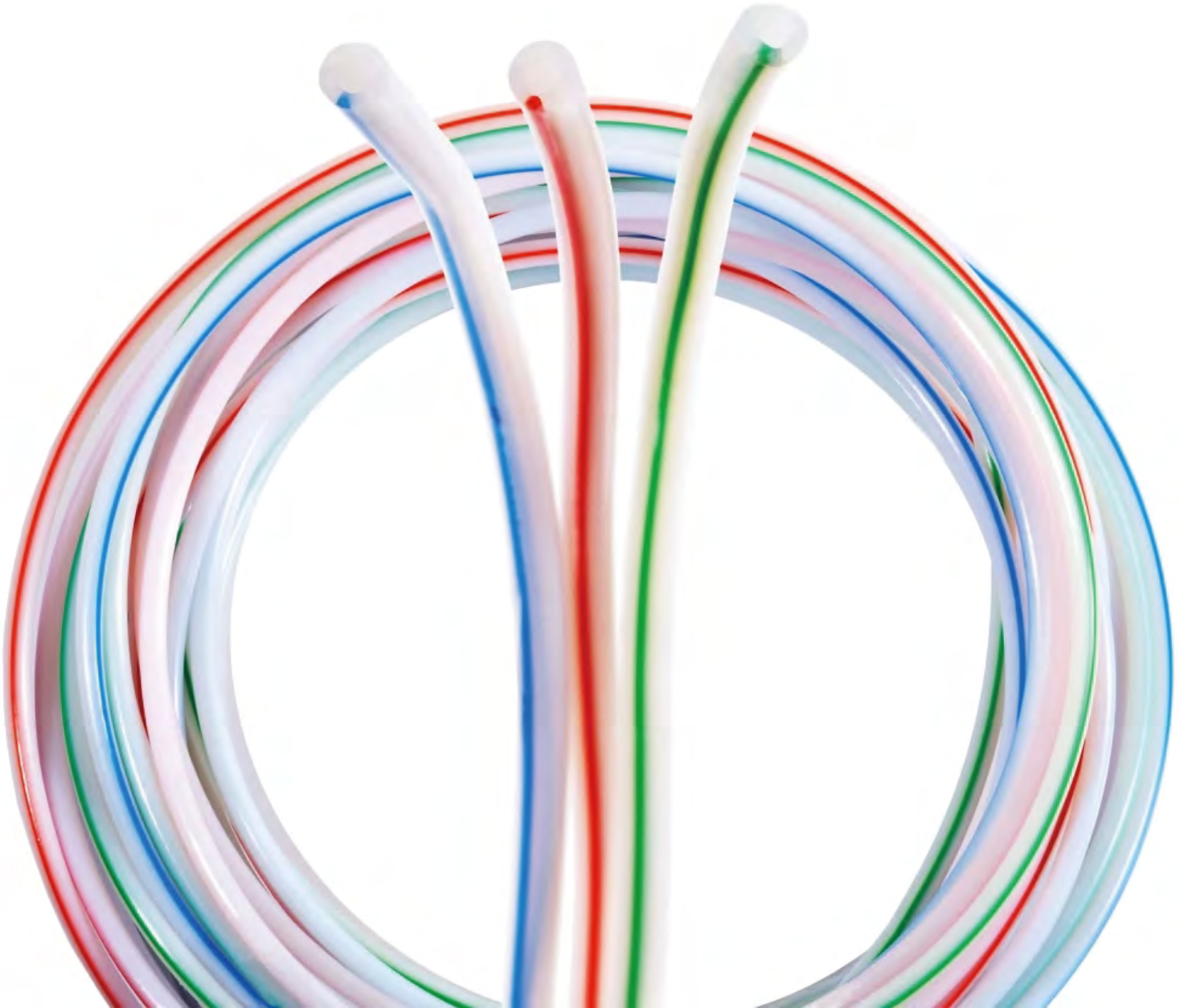
- Materials: PTFE, FEP, Dual wall PTFE/FEP
- Shrink ratio PTFE 2:1 and 4:1
- Shrink ratio FEP 1.3:1 and 1.6:1

Convoluted Tubing

- Materials: PTFE, FEP, PFA, ETFE and PVDF.
- Natural or colored
- Size customized

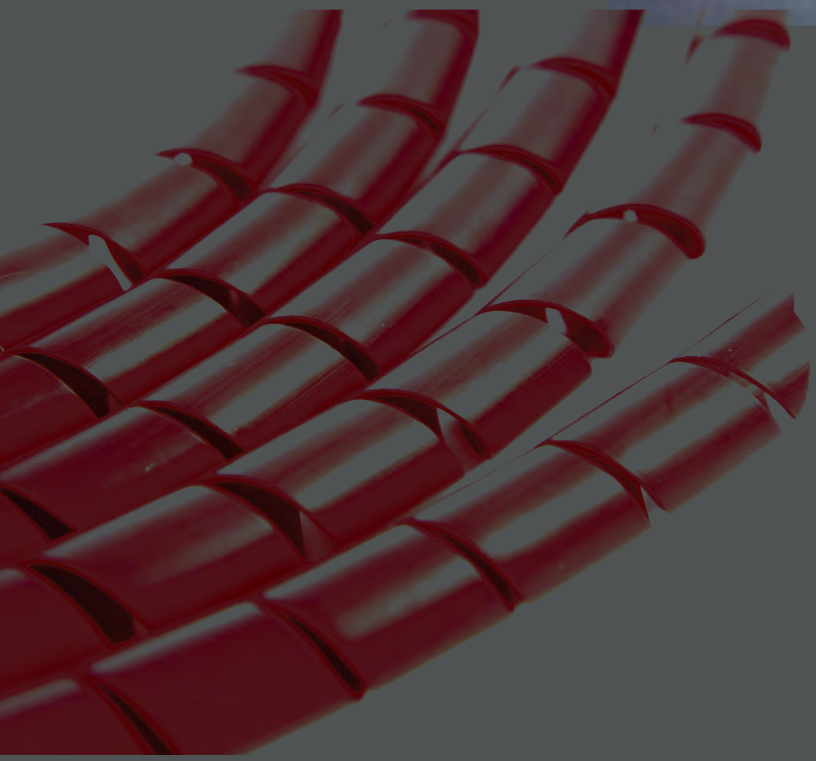
Striped Tubing

- Materials: PTFE, FEP, PFA, ETFE, PVDF
- Full colored, bicolored or (multiple) color stripes
- Antistatic stripes and layers
- Other additives upon request



Single- and multi-lumen tubing

- Materials: PTFE, FEP, PFA, ETFE, PVDF
- Available in long length as well as short cut to length pieces



Spiral Cut Tubing

- Materials: PTFE, FEP, PFA, ETFE, PVDF
- Full colored, bicolored or (multiple) color stripes
- Antistatic stripes and layers
- Other additives upon request

Thermally Conductive Tubing

- Enhanced antistatic properties
- Better heat transfer
- Excellent abrasion resistance
- Better bonding with other materials
- X-ray contrast

Web Cross Filter

- Materials: FEP
- Size customized and ODM supply
- Design for Cat6 network cables
- UL 94 V-0 Certificated

Everflon™ Fluoroplastic Properties

Properties		Unit	PTFE	FEP	PFA	ETFE
general	Density	g/cm^3	2.14-2.19	2.15-2.17	2.15-2.17	1.75
	Upper temperature for continued use	℃	260	200	200	150
	Combustibility		Non	Non	Non	Non
	Water absorption	%	< 0.01	< 0.01	< 0.01	< 0.01
mechanical	Unltimate tensile strength at 23 ℃	Mpa	>30	>20	>20	>20
	at 150 ℃	Mpa	>15	>5	>15	>8
	Yield point at 23 ℃	N/mm^2	10	12	14	24
	Elongation at tear, at 23 ℃	Mpa	>300	>250	>250	>200
	Mod of elasticity in tension at 23 ℃	N/mm^2	400-800	500	650	700
	Maximum bending stress at 23 ℃	Mpa	20	15	20	25
	Mod of elasticity in flexure at 23 ℃	N/mm^2	700	670	650	1200
	Ball hardness 132/60	N/mm^2		28	26	35
	Shore hardness	D	70	65	65	75
	Friction coefficient, dynamic against steel, dry		0.05-0.2	0.3-0.35	0.1-0.2	0.3-0.5
thermal	Melting temperature	℃	327	265	300	265
	Coefficient of elongation	1/K.10^{-5}	10-16	8-14	10-16	8-12
	Thermal conductivity at 23 ℃	W/K.m	0.23	0.20	0.23	0.23
	Specific heat at 23 ℃	KJ/Kg.K	1.01	1.17	1.09	1.95
	Oxygen index	%	>95	>95	>95	>30
electrical	Relative permittivity at 10^6 Hz		2.1	2.1	2.1	2.6
	Dissipation factor at 10^6 Hz		0.7-1.0	2.1	0.8	50
	Volume resistivity	Ω.cm	10^{18}	10^{18}	10^{18}	10^{16}
	Surface resistivity	Ω	10^{17}	10^{16}	10^{17}	10^{14}
	Creep resistance		KA3c	KA3c	KA3c	KA3c
	Arc resistance	sec	>360	>300	>210	>75
	Dielectric strength	KV/mm	40-80	50-80	50-80	60-90

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