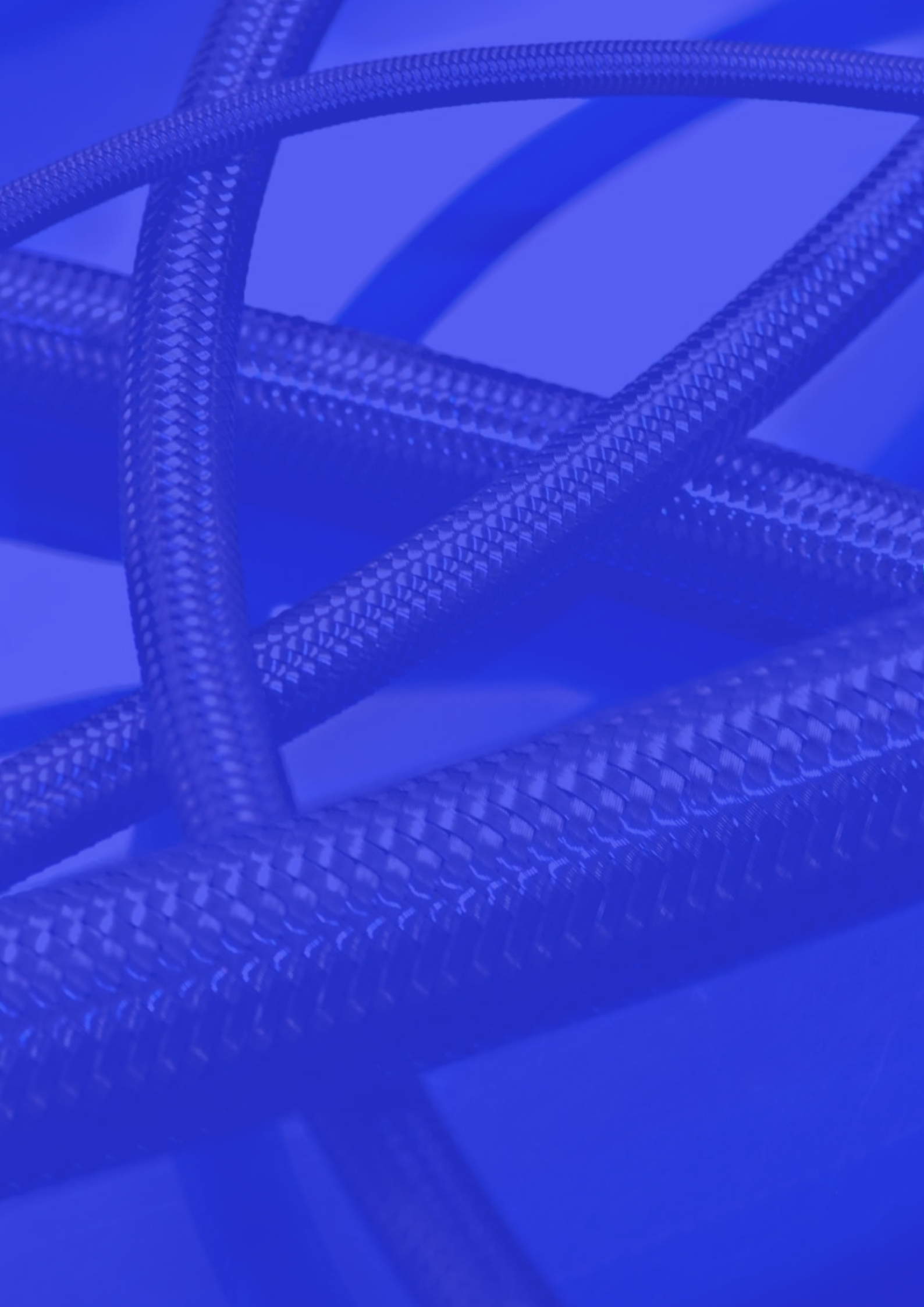
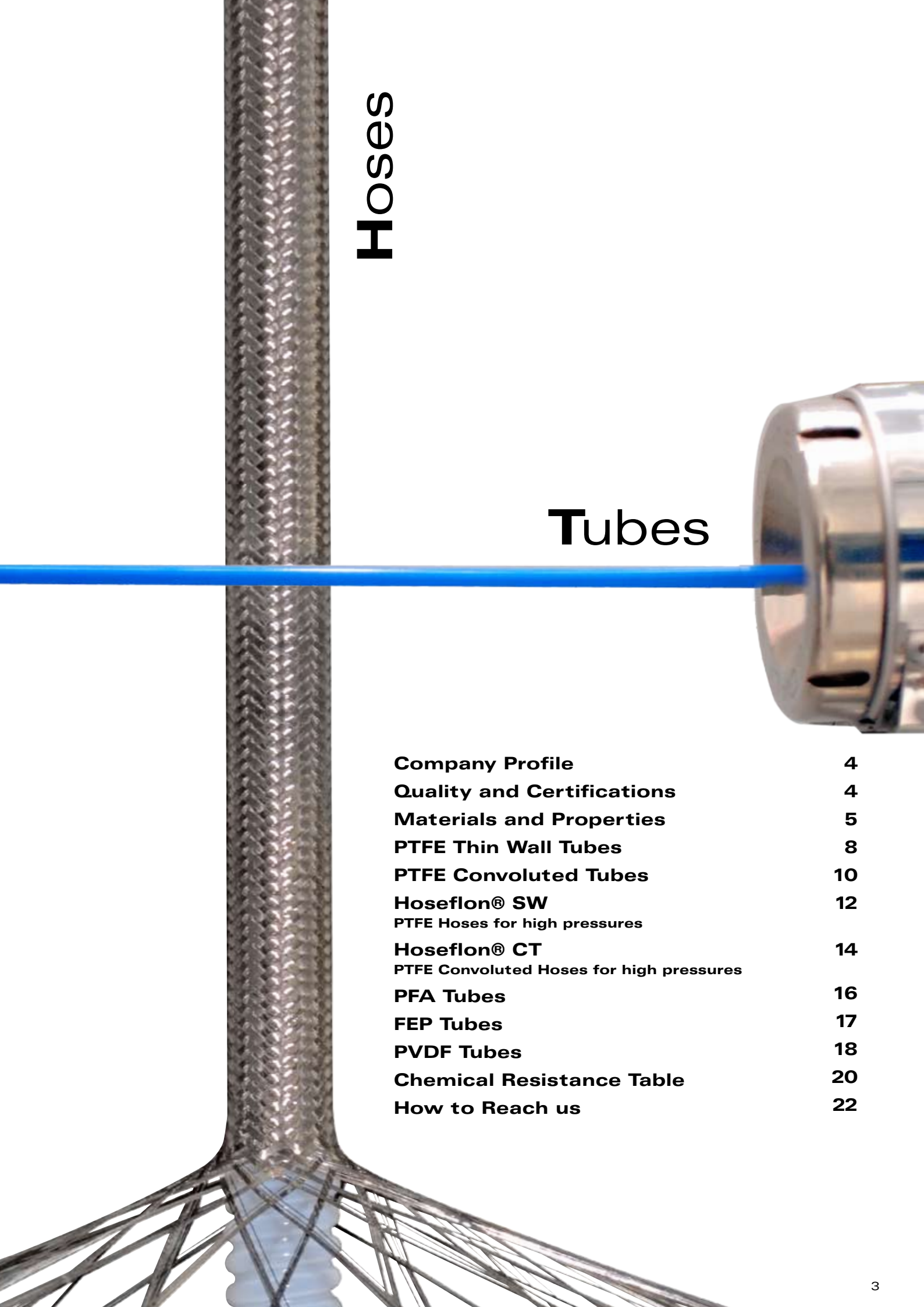




Hoses and Tubes







# Hoses

# Tubes

<b>Company Profile</b>	4
<b>Quality and Certifications</b>	4
<b>Materials and Properties</b>	5
<b>PTFE Thin Wall Tubes</b>	8
<b>PTFE Convoluted Tubes</b>	10
<b>Hoseflon® SW</b> PTFE Hoses for high pressures	12
<b>Hoseflon® CT</b> PTFE Convoluted Hoses for high pressures	14
<b>PFA Tubes</b>	16
<b>FEP Tubes</b>	17
<b>PVDF Tubes</b>	18
<b>Chemical Resistance Table</b>	20
<b>How to Reach us</b>	22



## Company Profile



Production Plant

Since 2007 ITALNORD-FLEX develops and manufactures the following production lines:

- PTFE Thin Wall Tubes
- Fluorothermoplastic Tubes (FEP, PFA, PVDF)
- PTFE Flexible hoses for high pressure

ITALNORD-FLEX offers its clients a wide range of products made ensuring a high standard of quality and by using latest generation and technologically advanced processing plants.

ITALNORD-FLEX focuses its resources on the following industrial fields:

- fluid, gas and other materials transport, automotive and motorcycle, naval, aeronautical, aerospace, chemical, pharmaceutical, medical, electronic, semiconductors and technical products distribution.

ITALNORD-FLEX prefers to develop long-term partnerships with its clients in order to guarantee continuous support and solutions designed to meet critical requirements and technical needs that industry has to face daily.

ITALNORD-FLEX is fast growing and its strength points are:

- focus and orientation to client needs
- total quality and continuous improvement
- competitiveness and relentless research of new technologies and innovative products
- a constant, flexible and high quality client service guarantee

*For every need you can trust our products and refer to us to benefit from our services.*

### Quality and Certifications

For ITALNORD-FLEX total quality is an essential element of all production processes and of our company philosophy. ITALNORD-FLEX commits itself everyday to the total quality management and to achieve and pursue the continuous improvement. All quality assurance procedures comply with ISO 9001:2008 and ISO 14001:2004 and the below certifications images are the proof of our commitment.



## Materials and Properties

For its products range ITALNORD-FLEX transforms the following high performance fluoropolymer resins: PTFE, PFA, FEP and PVDF.

### PTFE (PolyTetraFluoroEthylene)

Owing to its many properties, PTFE is a high-performance fluoropolymer that is chosen for a broad range of industrial applications. Although if it is classified as a thermoplastic resin, PTFE does not melt or soften like other fluorothermoplastics. Therefore it cannot be processed by using the traditional melting extrusion of the plastics industry. In fact, when heated above its melting point (327° C), the material has a high viscosity and therefore specific equipments and techniques are necessary to achieve its processing.

The PTFE paste extrusion process is composed of three main steps:

- cold-compression of the resin
- sintering
- gradual cooling

### General properties

The strength of the carbon-fluorine bond and the high atomic weight gives PTFE a range of outstanding properties:

- the high heat resistance allows PTFE products to be used in continuous service with temperatures from -200°C to + 260°C
- chemical inertia to almost all the chemical products; the only chemicals that react with PTFE are:
  - alkali metals in elemental state (melted or in solution)
  - fluorine and some of its derivatives
- a very low friction coefficient, either static and dynamic
- self-lubricating and anti-sticking
- non flammable
- outstanding electric properties (independent from frequencies and temperatures)
- good mechanical properties (excellent tensile strength in low and high temperature conditions; good resistance to fatigue and impacts)
- total resistance to ageing, humidity and U.V. rays
- non-toxic and qualified for food use

### Fluorothermoplastics

Fluorothermoplastic are processed by using the traditional production method of melting extrusion.

### PFA (PerFluoroAlkoxy)

PFA is a melt processable fluoropolymer resin entirely fluorinated and with very high purity.

Its molecular structure and also properties are very similar to those of PTFE, including: chemical inertia to almost all the chemical products, broad service temperatures range, resistance to weathering, low coefficient of friction, excellent electrical insulation.

Compared to PTFE, PFA is transparent, more resistant and it is able to meet stricter needs.

Even absorption and permeation are lower.

### FEP (PerFluorEthylenePropylene)

FEP is a melt processable fluoropolymer resin. It is transparent like PFA and it differs mainly from PTFE and PFA because of the working temperature range that is slightly lower: from -60° C to +205° C.

### PVDF (PolyVinylidene Fluoride)

PVDF is a partially fluorinated thermoplastic that has good mechanical resistance and good wear and creep resistance. It is compatible with most chemicals and it has an excellent weather resistance.



## Materials Properties

PROPERTY	UNIT	SPECIFICATION (ASTM)	PTFE	PFA	FEP	PVDF
<b>MECHANICAL</b>						
<b>Specific Gravity</b>	gr/cm <sup>3</sup>	D792	2.15	2.15	2.15	1.78
<b>Tensile strength</b>	Kg/ cm <sup>2</sup>	D638 D1708	180-280	280	250	350
<b>Coefficient of friction</b>	Dynamic (<3m/ min)	-	0.1	0.2	0.2	0.3
<b>Compressive strenght</b>	Kg/ cm <sup>2</sup>	D695	250	150	150	800
<b>Elongation</b>	%	D638 D1708	250-400	300	300	150
<b>Hardness</b>	Shore D	D2240	D 55-65	D 60-65	D 55-60	D 78
<b>Tensile modulus</b>	Kg/ cm <sup>2</sup>	D638	5.600	2.800	3.500	15.000
<b>ELECTRICAL</b>						
<b>Dielectric constant</b>	-	D150	2.1	2.1	2.1	7.2
<b>Dielectric strength</b>	KV/mm	D149	>55	>75	>75	>40
<b>Dielectric dissipation factor</b>	-	D150(10 <sup>3</sup> Hz)	0.0002	0.0002	0.0001	0.03
<b>Volume resistivity</b>	Ohm/cm	D257	>10 <sup>18</sup>	>10 <sup>18</sup>	>10 <sup>18</sup>	>10 <sup>14</sup>
<b>THERMAL</b>						
<b>Melting point</b>	°C	-	+327	+310	+275	+170
<b>Maxi. service temperature</b>	°C	-	+260	+260	+205	+140
<b>Mini. service temperature</b>	°C	-	-60	-60	-60	-40
<b>CHEMICAL</b>						
<b>Chemical resistance</b>	-	-	Excellent	Excellent	Excellent	Good
<b>Weather resistance</b>	-	-	Excellent	Excellent	Excellent	Excellent
<b>OTHER</b>						
<b>Aspect</b>	-	-	White translucent	Transparent	Transparent	White opaque
<b>Flammability</b>	UL94	-	V-0	V-0	V-0	V-0
<b>Limiting oxygen index</b>	D2863	%	>95	>95	>95	40
<b>Water absorption</b>	%	D570	<0.01	<0.03	<0.01	<0.04







## PTFE Thin Wall Tubes



Technical specifications	Industrial sectors
<p>Standard ITALNORD-FLEX product range consists of a set of thin wall tubes made by using natural PTFE resin.</p> <p>Inside diameter: from 1,5 mm to 26 mm. Wall thickness: from 0,5 mm to 3,0 mm.</p> <p>For most requested diameters, ITALNORD-FLEX supplies standard length coils from 25 meters to 100 meters.</p> <p>Owing to the advanced technology of its processing plants, ITALNORD-FLEX is able to produce for some diameters coils with lengths that can vary from 150 to 1.000 meters.</p> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"> <li>- Fluid, gas and other materials transport industry</li> <li>- Alimentary – Food and Beverage industry</li> <li>- Appliances industry</li> <li>- Electronic and electrical industry</li> <li>- Automotive and motorcycle industry</li> <li>- Medical and laboratory equipments</li> <li>- Semiconductor industry</li> <li>- Technical products distribution</li> </ul>

### Tolerance on excentration

Wall thickness (mm)	Maximum excentration (mm)
0,5	0,1
1	0,15
1,5	0,17
2	0,2
2,5	0,25
3	0,3

### Pressure and temperature

Working pressure is 1/3 of the burst pressure

Effect of temperature on pressure resistance	
Temperature (°C)	Pressure (%)
23	100
50	85
100	65
150	50
200	35

Upon request ITALNORD-FLEX can produce PTFE TWT with custom specifications such as: diameter and tolerance as requested by the client's drawing, FDA resins, pigmented resins available in several colours, antistatic and/or special additive filled resins, different shape sections, tubes cut at specific measure and/or treated as requested by the client's drawing, tubes thermoformed in retractable coil tubing.

All our PTFE TWT are ROHS free.

*For every need you can trust our products and refer to us to benefit from our services.*



## PTFE TWT - Standard dimensions and property table

ID (mm)	OD (mm)	Weight (Kg/m)	Burst pressure (bar at 23° C)	Mini. Bend radius (mm)	ID (mm)	OD (mm)	Weight (Kg/m)	Burst pressure (bar at 23° C)	Mini. Bend radius (mm)
1,5	3,2	0,012	110	12,0	8,0	10,0	0,061	40	100,0
1,5	3,5	0,017	125	12,0	8,0	12,0	0,136	70	72,0
2,0	3,0	0,009	70	18,0	9,0	10,0	0,032	15	205,0
2,0	4,0	0,020	110	16,0	9,0	11,0	0,068	35	120,0
2,5	3,5	0,010	55	25,0	9,0	12,0	0,107	50	85,0
2,5	4,0	0,017	80	18,0	10,0	11,0	0,036	15	242,0
2,5	5,0	0,032	110	20,0	10,0	12,0	0,075	30	144,0
3,0	4,0	0,012	50	32,0	10,0	13,0	0,116	45	113,0
3,0	5,0	0,027	85	25,0	10,0	14,0	0,162	55	98,0
3,0	6,0	0,046	110	24,0	11,0	13,0	0,081	30	145,0
4,0	5,0	0,015	40	50,0	12,0	14,0	0,878	25	196,0
4,0	6,0	0,034	70	36,0	13,0	15,0	0,095	25	225,0
4,0	7,0	0,056	90	33,0	14,0	16,0	0,101	20	256,0
4,0	8,0	0,081	110	32,0	15,0	17,0	0,108	20	289,0
4,5	6,5	0,037	60	41,0	15,0	18,0	0,167	30	216,0
5,0	6,0	0,018	30	50,0	16,0	18,0	0,115	20	324,0
5,0	7,0	0,041	60	49,0	16,5	19,5	0,182	30	254,0
5,0	8,0	0,066	80	43,0	17,0	20,0	0,187	25	267,0
5,0	9,0	0,055	95	41,0	18,0	20,0	0,128	15	400,0
6,0	7,0	0,022	25	98,0	18,0	22,0	0,270	30	242,0
6,0	8,0	0,048	50	64,0	19,0	22,0	0,208	20	323,0
6,0	9,0	0,076	70	54,0	20,0	22,0	0,142	15	325,0
6,0	10,0	0,109	85	50,0	20,0	24,0	0,297	25	288,0
6,5	9,5	0,081	65	60,0	21,0	24,0	0,228	20	384,0
7,0	9,0	0,054	40	81,0	22,0	24,0	0,155	15	576,0
7,0	10,0	0,087	60	67,0	24,0	27,0	0,258	20	486,0
7,5	9,5	0,058	40	90,0	24,5	27,0	0,217	15	583,0
8,0	9,0	0,029	20	162,0	25,0	28,0	0,268	15	523,0

### Diameters tolerances

Tolerance for standard PTFE TWT with wall thickness from 0,50 mm to 1,00 mm

Internal diameter (mm)	Tolerance (mm)
1,5 < ID ≤ 5	± 0,10
5,1 < ID ≤ 7	± 0,15
7,1 < ID ≤ 10	± 0,20
10,1 < ID ≤ 15	± 0,30
15,1 < ID ≤ 20	± 0,40
20,1 < ID ≤ 26	± 0,60

Tolerances for PTFE TWT with wall thickness exceeding 1,00 mm : European standard UNI EN ISO 13000-1.

**Note:** To guarantee quality and reliability of our products, all PTFE TWT are tested under pressure

## PTFE Convoluted Tubes



Technical specifications	Industrial sectors
<p>Standard ITALNORD-FLEX product range consists of a set of convoluted tubes made by using natural PTFE resin.</p> <p>Inside diameter: from 3 mm to 24,5 mm.</p> <p>Convoluted tubes are made in two versions based on the requested thickness: HW (Thick wall) and TW (Thin wall).</p> <p>ITALNORD-FLEX supplies no less than 10 meters length tubes.</p> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"> <li>- Fluid, gas and other materials transport industry</li> <li>- Electronics</li> <li>- Semiconductors industry</li> <li>- Aeronautics and aerospace</li> <li>- Medical and laboratory equipments</li> <li>- Technical products distribution</li> </ul>

Upon request ITALNORD-FLEX can also produce convoluted tubes with custom specifications such as: diameter and tolerance as shown by the client's drawing, FDA resins, anti-static resins, hoses cut to specific measure, hoses with non-convoluted ends as shown by the client's project.

All our PTFE convoluted tubes are ROHS free.

*For every need you can trust our products and refer to us to benefit from our services.*

### PTFE HW Convoluted Tubes – Dimensions and technical specifications table

Reference	ID (mm)	Thickness (mm)	OD (mm)	Weight (g/m)	Mini. bend radius (mm)	Pitch (mm)	Burst pressure (bar at 23° C)
HW 04	3	0,31	5,5	10	16	2,0	20
HW 06	4,6	0,6	8,1	28	19	3,2	18
HW 09	7,0	0,48	10,6	35	32	3,4	12
HW 10	7,6	0,48	11,4	40	35	3,6	12
HW 12	9,2	0,5	13,0	53	38	3,6	12
HW 14	10,8	0,52	14,6	55	45	3,6	10
HW 16	12,3	0,5	16,2	65	51	3,6	9
HW 20	15,6	0,6	19,5	95	64	3,6	9
HW 24	19,0	0,7	23,5	130	76	4,2	10
HW 28	21,8	0,7	27,5	158	83	5,0	7
HW 32	24,5	0,7	31,2	180	89	5,2	7



## PTFE TW Convolved Tubes – Dimensions and technical specifications table

Reference	ID (mm)	Thickness (mm)	OD (mm)	Weight (g/m)	Mini. bend radius (mm)	Pitch (mm)	Burst pressure (bar at 23° C)
TW 04	3,0	0,31	5,5	8	13	2,0	20
TW 06	4,6	0,45	8,1	22	16	3,2	16
TW 09	7,0	0,42	10,6	28	28	3,4	11
TW 10	7,6	0,42	11,4	30	30	3,6	11
TW 12	9,2	0,44	13,0	35	33	3,6	10
TW 14	10,8	0,42	14,6	40	39	3,6	8,5
TW 16	12,3	0,43	16,2	50	43	3,6	8,5
TW 20	15,6	0,5	19,5	62	54	3,6	8
TW 24	19,0	0,6	23,5	110	76	4,2	8
TW 28	21,8	0,6	27,5	138	83	5,0	8
TW 32	24,5	0,6	31,2	160	89	5,2	6

**Note:** To guarantee quality and reliability of our products, all PTFE convolved tubes are tested under pressure



## HOSEFLON® SW – PTFE Flexible Hoses for high pressures



Technical specifications	Industrial sectors
<p>HOSEFLON® SW range consist of a set of flexible hoses with the following specifications:</p> <ul style="list-style-type: none"> <li>• Inside a Smooth Wall (SW) tube made of natural PTFE resin</li> <li>• Braiding reinforcement in SS AISI 304</li> </ul> <p>Inside diameter: from 3,2 mm to 25,4 mm. PTFE SW flexible hoses are supplied in three versions:</p> <ul style="list-style-type: none"> <li>• S1T (small thickness and single braid)</li> <li>• M1T (medium thickness and single braid)</li> <li>• M2T (medium thickness and double braid)</li> </ul> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"> <li>- Fluid, gas and other materials transport industry</li> <li>- Oil and Hydraulic industry</li> <li>- Chemical industry</li> <li>- Automotive and motorcycle industry:</li> <li>- Naval/Marine industry</li> </ul>

Upon request ITALNORD-FLEX can also produce HOSEFLON® SW with custom specifications such as: FDA resins, anti-static resins, hoses cut at specific measure, hoses wrapped with rubber to fulfil ISO 7840A1 requirements.

*For every need you can trust our products and refer to us to benefit from our services.*

### HOSEFLON® SW S1T – Dimensions and technical specifications table

ID (inches)	ID (mm)	Thickness (mm)	OD (mm)	Mini. bend radius (mm)	Maxi working pressure (bar)	Burst pressure (bar at 23°C)
1/8"	3.2	0.7	5.9	25	250	1000
3/16"	4.8	0.7	7.4	35	200	800
1/4"	6.35	0.7	9	45	175	700
5/16"	7.9	0.7	10.8	50	150	600
3/8"	9.5	0.7	12.4	55	135	540
13/32"	10.3	0.7	13.3	65	130	520
1/2"	12.7	0.7	15.7	70	120	480
5/8"	15.9	0.8	19.1	130	100	400
3/4"	19	0.8	22.2	190	90	360
7/8"	22.2	1	26	250	70	280
1"	25.4	1	29.7	270	65	260



## HOSEFLON® SW M1T - Dimensions and technical specifications table

ID (inches)	ID (mm)	Thickness (mm)	OD (mm)	Mini. bend radius (mm)	Maxi working pressure (bar)	Burst pressure (bar at 23°C)
1/8"	3.2	0.9	6.3	25	250	1000
3/16"	4.8	0.9	7.8	35	210	840
1/4"	6.35	0.9	9.4	45	185	740
5/16"	7.9	0.9	11.2	50	160	640
3/8"	9.5	0.9	12.8	55	140	560
13/32"	10.3	0.9	13.6	65	135	540
1/2"	12.7	0.9	16	70	125	500
5/8"	15.9	1	19.4	130	105	420
3/4"	19	1	22.5	190	95	380
7/8"	22.2	1.1	26	250	75	300
1"	25.4	1.1	29.4	270	67	268
1 1/8"	28.6	1.1	32.6	300	57	228

## HOSEFLON® SW M2T - Dimensions and technical specifications table

ID (inches)	ID (mm)	Thickness (mm)	OD (mm)	Mini. bend radius (mm)	Maxi working pressure (bar)	Burst pressure (bar at 23°C)
3/16"	4.8	0.9	8.8	30	275	1.100
1/4"	6.35	0.9	10.4	35	250	1.000
5/16"	7.9	0.9	12	40	225	900
3/8"	9.5	0.9	13.7	50	210	840
13/32"	10.3	0.9	14.6	60	200	800
1/2"	12.7	0.9	17	70	175	700
5/8"	15.9	1	20.5	110	160	640
3/4"	19	1	23.5	180	140	560
7/8"	22.2	1.1	27	200	125	500
1"	25.4	1.1	30.8	280	95	380

**Note:** To guarantee quality and reliability of our products, all PTFE tubes are tested under pressure



## HOSEFLON® CT – Convoluted PTFE Flexible Hoses for high pressures



Technical specifications	Industrial sectors
<p>HOSEFLON® CT range consists of a set of convoluted hoses with the following specifications:</p> <ul style="list-style-type: none"> <li>• Inside a convoluted tube made by using natural PTFE resin</li> <li>• Braiding reinforcement in SS AISI 304</li> </ul> <p>Internal diameter: from 10/11 to 25,4/26,4 mm.</p> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"> <li>- Fluid, gas and other materials transport industry</li> <li>- Oil and Hydraulic industry</li> <li>- Chemical industry</li> <li>- Automotive and motorcycle industry:</li> <li>- Naval/Marine industry</li> </ul>

Upon request ITALNORD-FLEX can also produce CT flexible hoses with custom specifications such as: FDA resins, anti-static resins, hoses cut at specific measure, hoses wrapped with rubber to fulfil ISO 7840A1 requirements.

*For every need you can trust our products and refer to us to benefit from our services.*

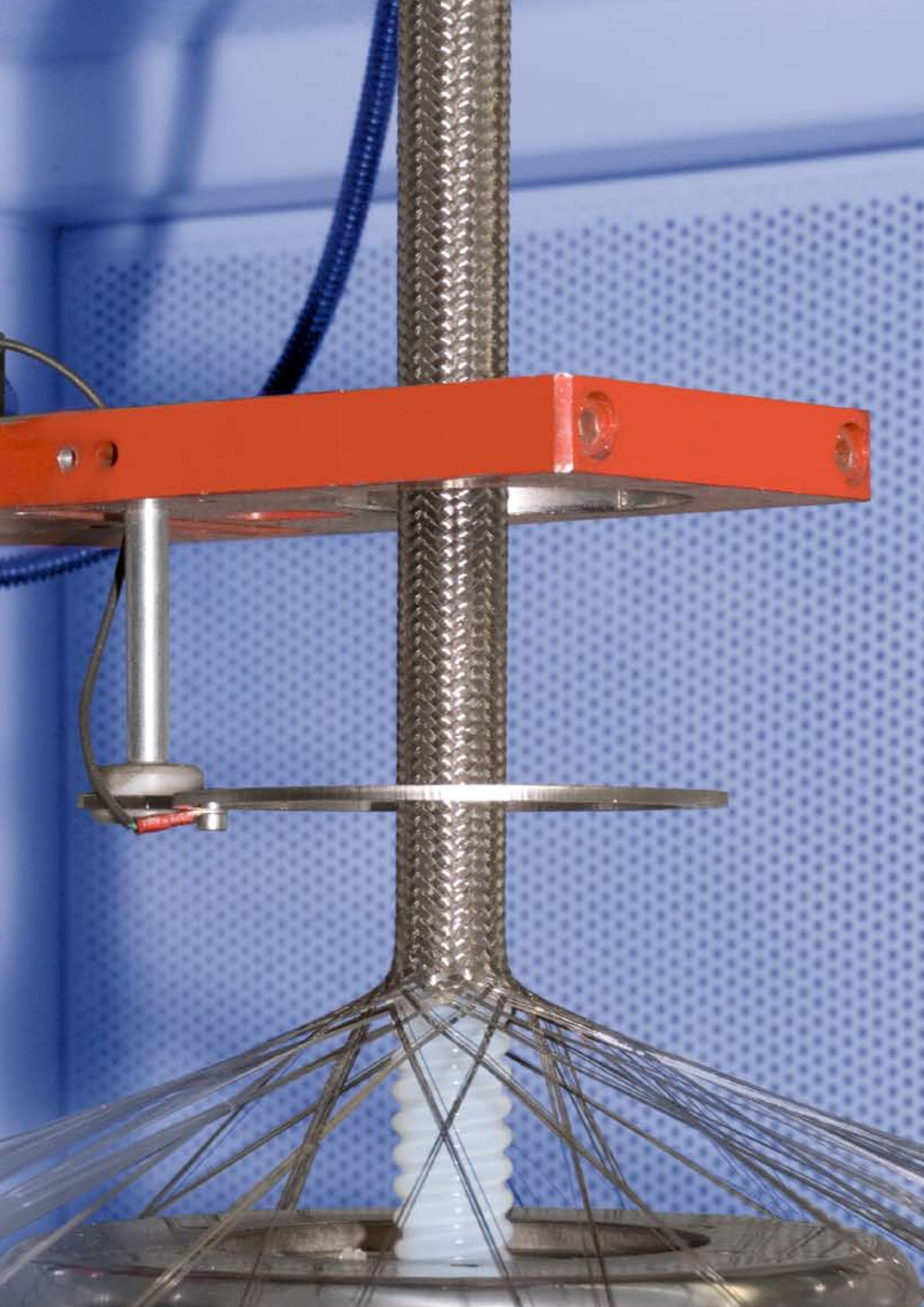
### HOSEFLON® CT - Dimensions and technical specifications table

ID (inches)	ID (mm)	Thickness (mm)	OD (mm)	Mini. bend radius (mm)	Maxi working pressure (bar)	Burst pressure (bar at 23°C)
1/4"	6.4/7.4	0.9	12/12.7	18	130	520
3/8"	10/11	0.9	15/16	20	125	500
1/2"	13/14.5	0.9	18/19	25	110	440
5/8"	16/17	0.9	22/23	50	80	320
3/4"	19.5/20.5	0.9	26/27.4	65	70	280
7/8"	22/23	1.0	28/29.4	75	60	240
1"	25.4/26.4	1.1	33/34.4	90	50	200

**Note:** To guarantee quality and reliability of our products, all PTFE convoluted tubes are tested under pressure.







## PFA Tubes



Technical specifications	Industrial sectors
<p>PFA standard tubes are made by using high molecular weight and very pure natural PFA resins.                      Inside diameter: from 2 mm to 26 mm.</p> <p>No length limit.</p> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"> <li>- Fluid, gas and other materials transport industry</li> <li>- Alimentary industry</li> <li>- Electronic and electrical industry</li> <li>- Medical and laboratory equipments</li> <li>- Semiconductor industry</li> <li>- Technical products distribution</li> </ul>

Upon request ITALNORD-FLEX can also produce PFA tubes with custom specifications such as: diameter and tolerance as requested by the client's drawing, FDA resins, tubes cut at specific measure and/or treated as requested by the client's drawing, tubes thermoformed in retractable coil tubing.

All our PFA tubes are ROHS free.

*For every need you can trust our products and refer to us to benefit from our services.*

### PFA Tubes – Standard dimensions range table

ID (mm)	Thickness (mm)	OD (mm)	Tolerance (mm)	Weight (g/m)
1.17	1,00	3.17	±0.10	15.0
2,00	0,50	3,00	±0.10	8.6
2,00	1,00	4,00	±0.10	20.3
2,50	0,75	4,00	±0.10	16.8
4.00	1,00	6.00	±0.10	33.8
4.35	1,00	6.35	±0.10	37.0
6.00	1,00	8.00	±0.10	47.3
6.35	1,57	9.50	±0.10	87.0
8.00	1,00	10.00	±0.10	60.8
10.00	1,00	12.00	±0.10	74.3
9.50	1,60	12.70	±0.10	122.0
12.00	1,00	14.00	±0.10	87.8



## FEP Tubes



Technical specifications	Industrial sectors
<p>FEP standard tubes are made by using natural FEP resins. Inside diameter: from 2 mm to 26 mm.</p> <p>No length limit.</p> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"> <li>- Fluid, gas and other materials transport industry</li> <li>- Alimentary industry</li> <li>- Electronic and electrical industry</li> <li>- Medical and laboratory equipments</li> <li>- Semiconductor industry</li> <li>- Technical products distribution</li> </ul>

Upon request ITALNORD-FLEX can also produce FEP tubes with custom specifications such as: diameter and tolerance as requested by the client's drawing, FDA resins, tubes cut at specific measure and/or treated as requested by the client's drawing, tubes thermoformed in retractable coil tubing.

All our FEP tubes are ROHS free.

*For every need you can trust our products and refer to us to benefit from our services.*

### FEP Tubes – Standard dimensions range table

ID	Thickness	OD	Tolerance	Weight
(mm)	(mm)	(mm)	(mm)	(g/m)
2,00	1,00	4,00	±0.10	20.3
2,50	0,75	4,00	±0.10	16.8
4.00	1,00	6.00	±0.10	33.8
4.35	1,00	6.35	±0.10	37.0
6.00	1,00	8.00	±0.10	47.3
6.35	1,57	9.50	±0.10	87.0
8.00	1,00	10.00	±0.10	60.8
6.35	1,57	9.50	±0.10	87.0

## PVDF Tubes



Technical specifications	Industrial sectors
<p>PVDF standard tubes are made by using natural PVDF resins. Inside diameter: from 2 mm to 10 mm.</p> <p>No length limit.</p> <p>Packaging in coils or on spools.</p>	<ul style="list-style-type: none"><li>- Fluid, gas and other materials transport industry</li><li>- Chemical industry</li><li>- Technical products distribution</li></ul>

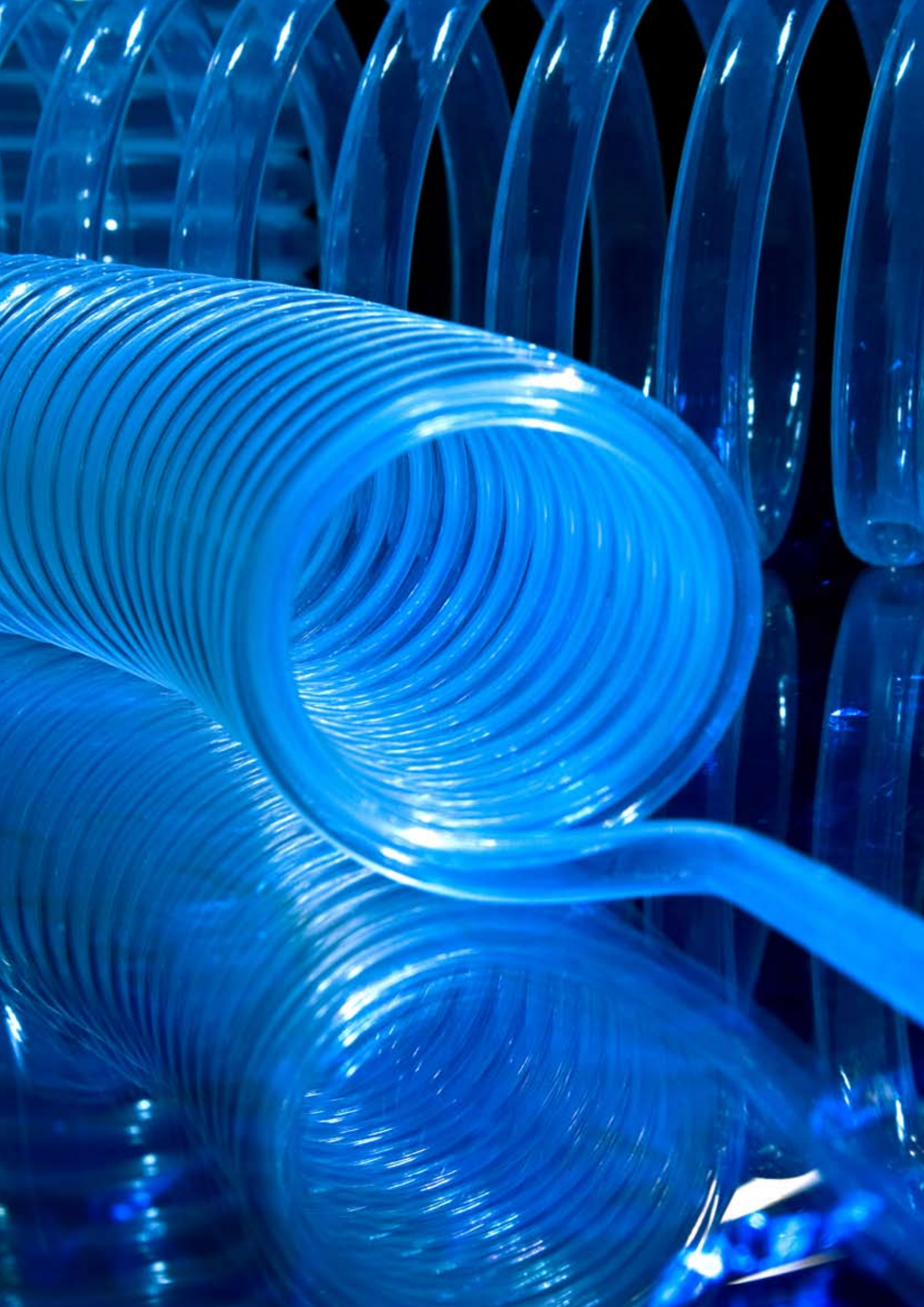
All our PVDF tubes are ROHS free.

*For every need you can trust our products and refer to us to benefit from our services.*

### PVDF Tubes – dimensions table

ID	Thickness	OD	Tolerance	Weight
(mm)	(mm)	(mm)	(mm)	(g/m)
2,00	1,00	4,00	±0.10	20.3
4.00	1,00	6.00	±0.10	33.8
6.00	1,00	8.00	±0.10	47.3
8.00	1,00	10.00	±0.10	60.8







## Chemical resistance table

All the information should be treated as a general guide only and testing under actual service conditions is strongly recommended

CHEMICAL	PTFE	304SS	316SS
Acetaldehyde	E	E	E
Acetic Acid Glacial	E	G	G
Acetic Acid 30%	E	G	G
Acetic Anhydride	E	G	G
Acetone	E	E	E
Acetylene	E	E	E
Acrylonitrile	E	E	E
Alum, Ammonium or Potassium	E	G	G
Aluminium Acetate	E	E	E
Aluminium Bromide	E	G	G
Aluminium Chloride	E	G	G
Aluminium Fluoride	E	G	G
Aluminium Hydroxide	E	E	E
Aluminium Nitrate	E	E	E
Aluminium Salts	E	G	G
Aluminium Sulphate	E	U	G
Ammonia Anhydrous	E	E	E
Ammonio Aqueous	E	E	E
Ammonium Carbonate	E	E	E
Ammonium Chloride	N	G	G
Ammonium Hydroxide	E	E	E
Ammonium Metaphosphate	E	E	E
Ammonium Nitrate	E	E	E
Ammonium Nitrite	E	E	E
Ammonium Persulphate	N	E	E
Ammonium Phosphate	N	G	E
Ammonium Sulphate	E	E	E
Ammonium Thiocyanate	E	E	E
Amyl Acetate	E	E	E
Amyl Alcohol	E	E	E
Amyl Chloride	E	E	E
Amyl Chloronaphthalene	E	E	E
Amyl Naphthalene	E	E	E
Aniline	E	E	E
Aniline Dyes	E	E	E
Aniline Hydrochloride	E	U	U
Animal Fats	E	E	E
Aqua Regia	E	U	U
Arsenic Acid	E	N	E
Askarel	E	E	E
Asphalt	N	E	E
Barium Carbonate	E	E	E
Barium Chloride	E	E	E
Barium Hydroxide	E	E	E
Barium Sulphate	E	E	E
Barium Sulphite	E	E	E
Beer	E	E	E
Beet Sugar Liquors	E	E	E
Benzene	E	E	E
Benzenesulphonic Acid	N	N	G
Benzaldehyde	E	N	N
Benzine	E	E	E
Benzyl Alcohol	E	E	E
Benzyl Benzoate	E	E	E
Benzyl Chloride	E	N	N
Bismuth Carbonate	E	E	E
Black Sulphate Liquor	E	E	E
Blast Furnace Gas	E	E	E
Borax	E	E	E
Bordeaux Mixture	E	E	E
Borac Acid	E	G	E
Bunker Oil	E	E	E
Butadiene	E	E	E
Butane	E	E	E
Butter Oil	E	E	E
Butyric Acid	E	E	E
Butyl Acetate	E	E	E
Butyl Alcohol	E	E	E
Butyl Amine	N	E	E
Butyl Carbitol	E	E	E
Butyl Stearate	E	E	E
Butyl Mercaptan	E	E	E
Butyraldehyde	E	N	N
Calcium Acetate	E	E	E
Calcium Bisulphate	E	G	E
Calcium Bisulphite	E	E	E
Calcium Carbonate	E	E	E
Calcium Chlorate	E	G	E
Calcium Chloride	E	G	E

CHEMICAL	PTFE	304SS	316SS
Calcium Hydroxide	E	U	E
Calcium Hypochlorite	E	U	G
Calcium Nitrate	E	E	E
Calcium Silicate	E	E	E
Calcium Sulphate	E	E	E
Calcium Sulphide	E	E	E
Cane Sugar Liquors	E	E	E
Carbolic Acid	E	E	E
Carbon Dioxide	E	E	E
Carbon Disulphide	N	E	E
Carbonic Acid	E	E	E
Carbon Monoxide	E	E	E
Carbon Tetrachloride	E	G	G
Castor Oil	E	E	E
Caustic Soda	E	E	E
Cellosolve Acetate	E	E	E
Cellosolve Butyl	E	E	E
Cellulose	E	E	E
Chlorine, Gaseous Dry	E	U	U
Chlorine, Gaseous Wet	E	U	U
Chlorine, Trifluoride	N	N	N
Chloroacetic Acid	E	U	U
Chlorobenzene	E	E	E
Chlorobromometane	E	E	E
Chloroform	E	E	E
O-Chloronaphthalene	E	E	E
Chlorotoluene	E	E	E
Chromic Acid	E	U	G
Citric Acid	E	U	E
Cod Liver Oil	E	E	E
Coke Oven Gas	E	E	E
Copper Chloride	E	U	E
Copper Cyanide	E	E	E
Copper Sulphate	E	E	E
Corn Oil	E	E	E
Corn Syrup	E	E	E
Cottonseed Oil	E	E	E
Creosote	E	E	E
Cresol	E	E	E
Crude Wax	E	E	E
Cutting Oil	E	E	E
Cyclohexane	E	E	E
Cyclohexanone	E	E	E
Cymene	E	N	N
Decalin	E	N	N
Denatured Alcohol	E	E	E
Diacetone	E	E	E
Diacetone Alcohol	E	E	E
Dibenzyl Ether	E	E	E
Dibutyl Ether	E	E	E
Dibutyl Phthalate	E	E	E
Dibutyl Sebacate	E	N	N
Dichloro Benzene	E	E	E
Diesel Oil	E	E	E
Diethylamine	E	E	E
Diethyl Ether	E	E	E
Diethylene Glycol	E	E	E
Diethyl Phthalate	E	E	E
Diethyl Sebacate	E	E	E
D-Isobutylene	N	E	E
D-Isopropyl Khetone	E	E	E
Dimethyl Aniline	E	N	N
Dimethyl Formamide	N	E	E
Dimethyl Phthalate	E	N	N
Dioctyl Phthalate	E	E	E
Dioxane	E	E	E
Dipentene	E	E	E
Ethanolamine	E	E	E
Ethyl Acetate	E	E	E
Ethyl Acetoacetate	E	E	E
Ethyl Acrylate	N	E	E
Ethyl Alcohol	E	E	E
Ethyl Benzene	E	E	E
Ethyl Cellulose	E	E	E
Ethyl Chloride	E	E	E
Ethyl Ether	E	E	E
Ethyl Mercaptan	E	N	N
Ethyl Pentochlorobenzene	E	E	E
Ethyl Silicate	E	E	E
Ethylene Chloride	E	E	E
Ethylene Chlorohydrin	E	N	N
Ethylene Diamine	E	N	N
Ethylene Glycol	E	E	E
Fatty Acides	E	E	E
Ferric Chloride	E	U	U
Ferric Nitrate	E	E	E
Ferric Sulphate	E	E	E
Ferrous Chloride	E	E	G
Ferrous Nitrate	E	E	E
Ferrous Sulphate	E	E	E
Fluoroboric Acid	E	E	E
Formaldehyde	E	E	E
Formic Acid	E	G	E

CHEMICAL	PTFE	304SS	316SS	CHEMICAL	PTFE	304SS	316SS
Freon 12	G	E	E	Perchloroethylene	E	E	E
Freon 114	G	E	E	Petroleum	E	E	E
Fuel Oil	E	G	G	Phenol	E	E	E
Fumaric Acid	N	E	E	Phorone	E	E	E
Furan Furfuran	E	E	E	Picric Acid	E	E	E
Furfural	E	E	E	Pinene	E	E	E
Gallic Acid	E	E	E	Pine Oil	E	E	E
Gasoline	E	E	E	Plating Solution, Chrome	E	U	U
Glauber's Salt	N	E	E	Potassium Acetate	E	E	E
Glucose	E	E	E	Potassium Chloride	E	G	E
Glue	E	E	E	Potassium Cyanide	E	E	E
Glycerin	E	E	E	Potassium Dichromate	E	E	E
Glycols	E	E	E	Potassium Hydroxide, 30%	E	E	E
Green Sulphate Liquor	E	E	E	Potassium Nitrate	E	E	E
N-Hexaldehyde	E	E	E	Potassium Sulphate	E	E	E
Hexane	E	E	E	Propane	E	E	E
Hexene	E	E	E	Propyl Acetate	N	E	E
Hexyl Alcohol	E	E	E	Propyl Alcohol	E	E	E
Hydraulic Oil, Petroleum	E	E	E	Pyridine, 50%	E	E	E
Hydrochloric Acid, 15%	E	U	U	Red Oil	E	G	E
Hydrochloric Acid, 37%	E	U	U	Salicylic Acid	N	E	E
Hydrocyanic Acid	E	E	E	Salt Water	E	E	E
Hydrofluoric Acid, Concentrated	E	U	U	Sewage	E	E	E
Hydrofluosilicic Acid	E	U	U	Silicone Greases	N	E	E
Hydrogen, Gaseous	E	E	E	Silicone Oils	N	E	E
Hydrogen Peroxide, 70%	E	G	E	Silver Nitrate	E	E	E
Hydrogen Sulphate, Gaseous	E	G	E	Skydrol 500 & 7000	E	E	E
Hydroquinone	N	E	E	Soap Solutions	E	E	E
Isobutyl Alcohol	E	E	E	Soda Ash	N	E	E
Iso Octane	E	E	E	Sodium Acetate	E	E	E
Isopropyl Acetate	E	E	E	Sodium Bicarbonate	E	E	E
Isopropyl Alcohol	E	E	E	Sodium Bisulphate	E	E	E
Isopropyl Ether	E	E	E	Sodium Borate	E	E	E
Kerosene	E	E	E	Sodium Chloride	E	G	E
Lacquers	E	U	E	Sodium Cyanide	E	E	E
Lacquer Solvents	E	U	E	Sodium Hydroxide, 40%	E	E	E
Lactic Acid	E	G	E	Sodium Hypochlorite	E	U	G
Lard	E	E	E	Sodium Metaphosphate	E	E	E
Lead Acetate	E	E	E	Sodium Nitrate	E	G	G
Lead Nitrate	N	E	E	Sodium Perborate	E	E	E
Lime Bleach	N	G	E	Sodium Peroxide	E	E	E
Linoleic Acid	E	N	N	Sodium Phosphate	E	E	E
Linseed Oil	E	E	E	Sodium Thiosulphate	E	E	E
Lubricating Oils, Petroleum	E	E	E	Soybean Oil	E	E	E
Magnesium Chloride	E	G	E	Stannic Chloride	E	N	N
Magnesium Hydroxide	E	E	E	Steam	E	E	E
Magnesium Sulphate	E	E	E	Stearic Acid	E	G	E
Malic Acid	E	G	E	Stoddard Solvent	E	E	E
Mercuric Chloride	E	E	E	Styrene	E	N	G
Mercury	E	E	E	Sucrose Solution	E	E	E
Mesityl Oxide	E	E	E	Sulphur, 200°F	E	G	E
Methyl Acetate	E	E	E	Sulphur Chloride	E	U	G
Methyl Acrylate	N	E	E	Sulphur Dioxide	E	E	E
Methyl Alcohol	E	E	E	Sulphur Trioxide	E	G	G
Methyl Bromide	E	E	E	Sulphuric Acid, 10%	E	U	G
Methyl Butyl Ketone	N	E	E	Sulphuric Acid, 98%	E	U	G
Methyl Chloride	E	E	E	Sulphuric Acid, Fuming	E	N	E
Methylene Chloride	E	E	E	Sulphuric Acid, 10%	E	G	E
Methyl Ethyl Ketone (MEK)	E	E	E	Sulphuric Acid, 75%	E	U	G
Methyl Formate	E	E	E	Tannic Acid, 10%	E	E	E
Methyl Isobutyl Ketone	E	E	E	Tar, Bituminous	E	E	E
Methyl Methacrylate	E	E	E	Tartaric Acid	E	G	G
Methyl Salicylate	E	E	E	Terpineol	E	N	N
Milk	E	E	E	Titanium Tetrachloride	N	G	G
Mineral Oil	E	E	E	Toluene	E	E	E
Monochlorobenzene	E	E	E	Toluene diisocyanate	N	N	N
Monoethanolamine	N	E	E	Transformer Oil	E	E	E
Naphtha	E	E	E	Transmission Fluid, Type A	E	E	E
Naphthalene	E	E	E	Tributoxyethyl Phosphate	E	N	N
Naphthenic Acid	E	G	E	Tributyl Phosphate	E	N	N
Natural Gas	E	E	E	Trichloroethylene	E	N	E
Nickel Acetate	E	E	E	Trycresyl Phosphate	E	N	G
Nickel Chloride	E	G	G	Tung Oil	E	E	E
Nickel Sulphate	E	G	E	Turpentine	E	E	E
Niter Cake	N	G	E	Urea Solution, 50%	E	E	E
Nitric Acid, All Concentrations	E	G	G	Varnish	N	E	E
Nitric Acid, Red Fuming	E	G	G	Vegetable Oils	E	E	E
Nitrobenzene	E	E	E	Versilube	E	E	E
Nitroethane	E	E	E	Vinagar	E	G	E
Nitrogen, Gaseous	E	E	E	Vinyl Chloride	E	E	E
Nitrogen Tetroxide	N	N	G	Water	E	E	E
N-Octane	N	E	E	Whiskey, Wines	E	G	E
Octyl Alcohol	E	E	E	Xylene	E	G	G
Oil, SAE	E	E	E	Zinc Acetate	E	E	E
Oleic Acid	E	G	E	Zinc Chloride	E	G	E
Olive Oil	E	G	E	Zinc Sulphate	E	G	E
Oxalic Acid	E	G	E				
Oxygen, Gaseous	E	E	E				
Ozone	E	E	E				
Paint	E	E	E				
Palmitic Acid	E	G	E				
Peanut Oil	E	E	E				
Perchloric Acid	E	G	E				

**Key:**  
E=Excellent  
G=Good  
N=No information available  
U=Unsuitable





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