



Semi-finished Fluoropolymers: Tubes, rods, sheets, tapes

High quality semi-finished billets, rods, plates and sheets provide the basis for your high performing products. Vanéflon's vertical moulding process offers parts with low residual stress for **excellent machinability**. Controlled raw materials and semi-finished products combined with our in-house material knowledge ensure highest quality parts with excellent chemical and mechanical properties.

100+ stock compounds are available for custom designs. Vanéflon – High Performance Plastics. High Performance Solutions



- High Quality, certified raw materials.
- Continuous quality process control
- Vertical moulding process
- Low internal stress due to moulding process
- Excellent machinability
- Superior chemical and mechanical characteristics
- 100+ compounds in stock
- Certificates (3.1, FDA, 2.1,...)

PTFE | TFM® | PFA | PCTFE | FEP | ETFE
PEEK | PPS | PI (Vespel®) | PEI | PEKK
PVDF | PA | POM | PP | UHMPE



PTFE and COMPOUNDS*

VIRGIN PTFE

Has a wide range of applications. Especially where no high mechanical strength is required and where the use of compounds is not allowed. Because of its purity, inertness, high temperature resistance and electrical isolating properties, PTFE finds most of its applications in the chemical, food, pharmaceutical and electrical industry.

TFM (Modified PTFE)

Same as VIRGIN PTFE but with improved creep resistance. Offers excellent weldability and reduced porosity. Used for valve seats, lining sheets etc.

PTFE + 15% GLASS + 25% GLASS

Glass-filling slightly increases PTFE's very low coefficient of friction, but considerably increases wear- and pressure resistance. The best results are obtained by using Dyneon TFM as base material. Used as construction material, for bearing pads, ball seals, etc.

PTFE + 17% GLASS + 3% MoS2

Shows the same pressure resistance as glass-filled PTFE but uses MoS2 as a lubricant. Molybdenum also increases hardness and decreases wear.

PTFE VFG - VX1 - MAROON

The high concentration of glass-fibres, combined with the addition of inert metallic oxides make this compound your best choice, where pressure- and wear-resistance are of major importance. Used for seals that require very low cold-flow abilities.

STAINLESS STEEL

High compression resistance, only for low PV-values. Used for seats in steam valves.

PTFE + CARBON/GRAPHITE 22/3

Carbon is one of the best fillers for chemical use. It features high heat-conductibility and high wear and pressure resistance. Recommended for piston-rings and other dynamic seals.

CARBON FIBER

Same as Carbon/Graphite with improved stiffness, reduced creep and reduced thermal expansion. Used for valve seats, bearings etc. Allowed for steam applications.

PTFE + 15% GRAPHITE

A compound with excellent thermal and electrical conductivity. For antistatic linings and bearings.

PTFE + 10% EKONOL

Exceptional filler component to improve the mechanical properties without increasing the porosity. Used for lip seals, back-up rings etc.

PTFE + 60% BRONZE

This compound combines a low coefficient of friction with a high pressure resistance. Both these properties make this a bearing-material par excellence.

P84 - POLYIMID

Exceptional filler component to improve PV-Values. Used for lip seals, rotary shaft seals etc.

PB72

Same applications as P84, but improved thermal conductivity and higher PV-values. FDA-approved

*Vanéflon can supply a much vaster range of PTFE compounds such as Mica, Al2 O3 , Ceramics etc...

Benefit from...

our range of high performance plastics:

- Compounds – over 100 different compounds in stock.
- Tubes - diameters from Ø27 to Ø1400mm
- Rods - diameters from Ø4 to Ø160mm
- Sheet – thickness from 1 to 150mm
- Tapes – skived in thickness from 0,025 – 6mm

our key competencies:

- Prototyping and customization capabilities
- Ever increasing range of moulding tools improvement.
- Application experience at your disposal
- Flexible production capabilities

Properties PTFE compounds *Modified PTFE

Property	Norm	Unit	PTFE	TFM*	15% Glass-Fiber	25% Glass-Fiber*	25% Glass-Fiber	15% Glass-Fiber-5%MoS2	VFG-Green / VXI-Blue / VF-MARODON	15% Graphite	22%Carbon - 3% Graphite
Density	ISO 12086	g/cm ³	2,14 - 2,18	2,15 - 2,18	2,18 - 2,2	2,2 - 2,24	2,21 - 2,25	2,22 - 2,25	2,22 - 2,26	2,13 - 2,18	2,06 - 2,11
Hardness Shore D	DIN 53 505	Sh. D	52 - 60	56 - 62	54 - 62	56 - 64	60 - 65	54 - 58	62 - 64	56 - 64	60 - 69
Tensile strength (23°C)	DIN 53 455	N/mm ²	25 - 42	28 - 40	17 - 21	15 - 19	dec- 16	14 - 18	16 - 20	12 - 19	11-15
Elongation at break (23°C)	DIN 53 455	%	250 - 400	450 - 600	250 - 290	220 - 260	350 - 450	200 - 230	240 - 280	130 - 240	60 - 100
Tensile modulus (23°C)	DIN 53 457	N/mm ²	400 - 800	600 - 700	820	1000	950	750	1200	720	1250
Coefficient of thermal expansion (20-150°C)	-	1/K.10 ⁻⁵	12	13	10,5	10	10	10,2	9,4	10,5	8,5
Coefficient of thermal expansion (150-260°C)	-	1/K.10 ⁻⁵	16	16	13,6	13,4	13	13,5	12,8	13,9	11,6
Thermal conductivity (23°C)	DIN 52 612	W/K.m	0,23	0,23	0,39	0,46	0,4	0,35	0,39	0,52	0,54
Deformation after 24h at 23°C - 15 N/mm ²	ASTM-D621	%	16	8	13,5	12,5	7	12	7,5	9	6,5
Deformation after 24h at 260°C - 4 N/mm ²	ASTM-D621	%	7	3	5	4,8	2,5	5	2,2	3,6	2,1
Compr. strength at 1% deformation (23°C)	DIN 53 454	N/mm ²	4,3	7	6,9	8,2	9	6,9	12,5	7,3	11
PV-limit 3 m/min	-	N.M/(mm ² .min)	2,5	-	20	23	-	25	25	21	32
PV-limit 30 m/min	-	N.M/(mm ² .min)	3,9	-	23	25	-	28	29	26	32
PV-limit 300 m/min	-	N.M/(mm ² .min)	5,5	-	30	31	-	32	32	27	35
Coef. of friction - statical	-	-	0,14	0,2	0,16	0,18	-	0,15	0,16	0,15	0,14
Wear K.10 ⁻⁸	-	cm ³ .min/(kg.m.h)	78	-	8,3	7,1	-	8,1	7,7	4,1	7

Property	Norm	Unit	25% Carbon	15% Carbon Fiber - 10% Graph.*	Sumitacsuper 10% Ekonal	7% P84	20%Bronze - 10% carbon fiber - 5% Graph.	40% Bronze 10%Graph.	60% Bronze	50% Stainless Steel	PB72
Density	ISO 12086	g/cm ³	2,08 - 2,12	1,94 - 2,02	2,04 - 2,10	2,03 - 2,09	2,56 - 2,64	3,0 - 3,1	3,85-3,95	3,42	2,04 - 2,10
Hardness Shore D	DIN 53 505	Sh. D	62 - 68	63 - 67	53 - 66	59 - 62	63 - 66	62 - 64	63 - 68	64 - 68	60 - 64
Tensile strength (23°C)	DIN 53 455	N/mm ²	13-15	14 - 20	20 - 26	23 - 27	14 - 18	10 - 14	11 - 15	10 - 13	20 - 26
Elongation at break (23°C)	DIN 53 455	%	40 - 70	140 - 240	250 - 320	240 - 320	120 - 180	100 - 130	110 - 140	130 - 170	220 - 300
Tensile modulus (23°C)	DIN 53 457	N/mm ²	1150	1720	750	820	1420	-	-	-	880
Coefficient of thermal expansion (20-150°C)	-	1/K.10 ⁻⁵	9	6	11	10	7	9,2	9	8,3	7
Coefficient of thermal expansion (150-260°C)	-	1/K.10 ⁻⁵	12	8	14	13	10	12,5	12,3	11,6	10
Thermal conductivity (23°C)	DIN 52 612	W/K.m	0,6	0,56	0,32	0,4	0,72	0,85	0,77	0,63	0,44
Deformation after 24h at 23°C - 15 N/mm ²	ASTM-D621	%	4	2,9	12	10	3	4,2	4,2	3,2	7
Deformation after 24h at 260°C - 4 N/mm ²	ASTM-D621	%	1,6	1,4	5	4	1,6	3	2,8	1,8	3,4
Compr. strength at 1% deformation (23°C)	DIN 53 454	N/mm ²	14	18	6,2	7,5	15	12,5	13	15	9,6
PV-limit 3 m/min	-	N.M/(mm ² .min)	-	38	18	22	35	26	21	18	32
PV-limit 30 m/min	-	N.M/(mm ² .min)	-	38	22	28	35	28	27	22	34
PV-limit 300 m/min	-	N.M/(mm ² .min)	-	42	26	30	39	29	28	22	35
Coef. of friction - statical	-	-	-	0,15	0,18	0,16	0,15	0,15	0,17	0,19	0,14
Wear K.10 ⁻⁸	-	cm ³ .min/(kg.m.h)	-	5,2	32	6,5	5,5	5,9	6,1	8,8	5,2

The quality of each compound can be greatly influenced by the production methods, the origin of the fillers and the choice of the basic raw material. Modified PTFE's, non fluorine polymers and other naturel or synthetic products lead to new compounds and new applications.

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Tubes, rods, sheets, tapes

The quality of your semi-finished polymer billets, rods, plates, sheets and tapes forms the basis of the performance of your finished products in numerous applications. Our materials find their way into enormous seals, where defects are not an option, or into tiny precision components, where the tightest tolerances are essential.

Vanéflon's semi-finished products provide the perfect starting material for precision machining needs. The vertical compression moulding process allows for low-stress parts with excellent dimensional, chemical and mechanical characteristics. **Gain advantage over your competitors through our know-how, materials and service.**

Physical properties Fluoro-Polymers

Property	Norm	Unit	PTFE	TFM	PFA	MFA	FEP	PCTFE	ETFE	PVDF	ECTFE
Density	ISO 12086	g/cm ³	2,14 - 2,18	2,15 - 2,18	2,14 - 2,17	2,12 - 2,17	2,12 - 2,17	2,1 - 2,16	1,7 - 1,75	1,75 - 1,78	1,67 - 1,7
Maximum continuous operating temperature	-	°C	260	260	260	230	205	170	150	150	150
Minimum continuous operating temperature	-	°C	-200	-200	-200	-150	-100	-273	-100	-60	-75
Ball pressure hardness	DIN 53 456	N/mm ²	23 - 28	25 - 30	25 - 30	-	23 - 28	65 - 70	34 - 40	62 - 68	55-65
Shore Hardness D	DIN 53 505	Sh. D	54 - 60	56 - 62	60 - 65	57 - 60	55 - 60	72 - 80	62 - 72	72 - 82	70 - 80
Water absorption	DIN 53 495	%	0,01	0,01	0,02	0,03	0,03	0	0,02	0,03	0,01
Coefficient of friction-v-steel - Dynamic	-	-	0,1	0,15	0,25	0,28	0,35	0,35	0,4	0,45	0,65
Elongation at break (23°C)	DIN 53455	%	250 - 400	450 - 600	250 - 350	250 - 360	250 - 350	30 - 120	200 - 350	20 - 80	30 - 120
Tensile strength (23°C)	DIN 53455	N/mm ²	25 - 42	28 - 40	25 - 30	28 - 36	20 - 25	32 - 40	36 - 48	38 - 50	40 - 55
Tensile modulus (23°C)	DIN 53 457	N/mm ²	400 - 800	600 - 700	600 - 700	440 - 480	350 - 700	1000 - 2000	500 - 1200	800 - 1800	1200 - 1800
Coefficient of thermal expansion (20-100°C)	-	1/K.10 ⁻⁵	12	13	13	12	12	5	13	10	8
Thermal conductivity (23°C)	DIN 52 612	W/K.m	0,23	0,23	0,22	0,2	0,2	0,19	0,17	0,17	0,15
Dielectric strength	DIN 53 481	KV/mm	50 - 80	60 - 100	50 - 80	30 - 35	50 - 80	50 - 70	60 - 90	40 - 80	50 - 80

Vanéflon

Since 1976 Vanéflon produces high performance plastic semi-finished and machined parts. As a specialist in compression and hot-moulding in combination with high precision machining we offer tailor-made solutions for a wide range of industries. Our flexible, experienced and dedicated team stands in for customized material selection, engineering support and production thus guaranteeing consistent quality on every level. Modern machinery and continuous process optimization assure the cost-efficient execution of the most demanding tasks. Vanéflon's in-house expertise and high standards lead to reliable, flexible and cost-efficient solutions for demanding customers, who expect professional support, high quality products, fast response and short lead-times. Vanéflon is certified to ISO 9001 and offers various material certifications.