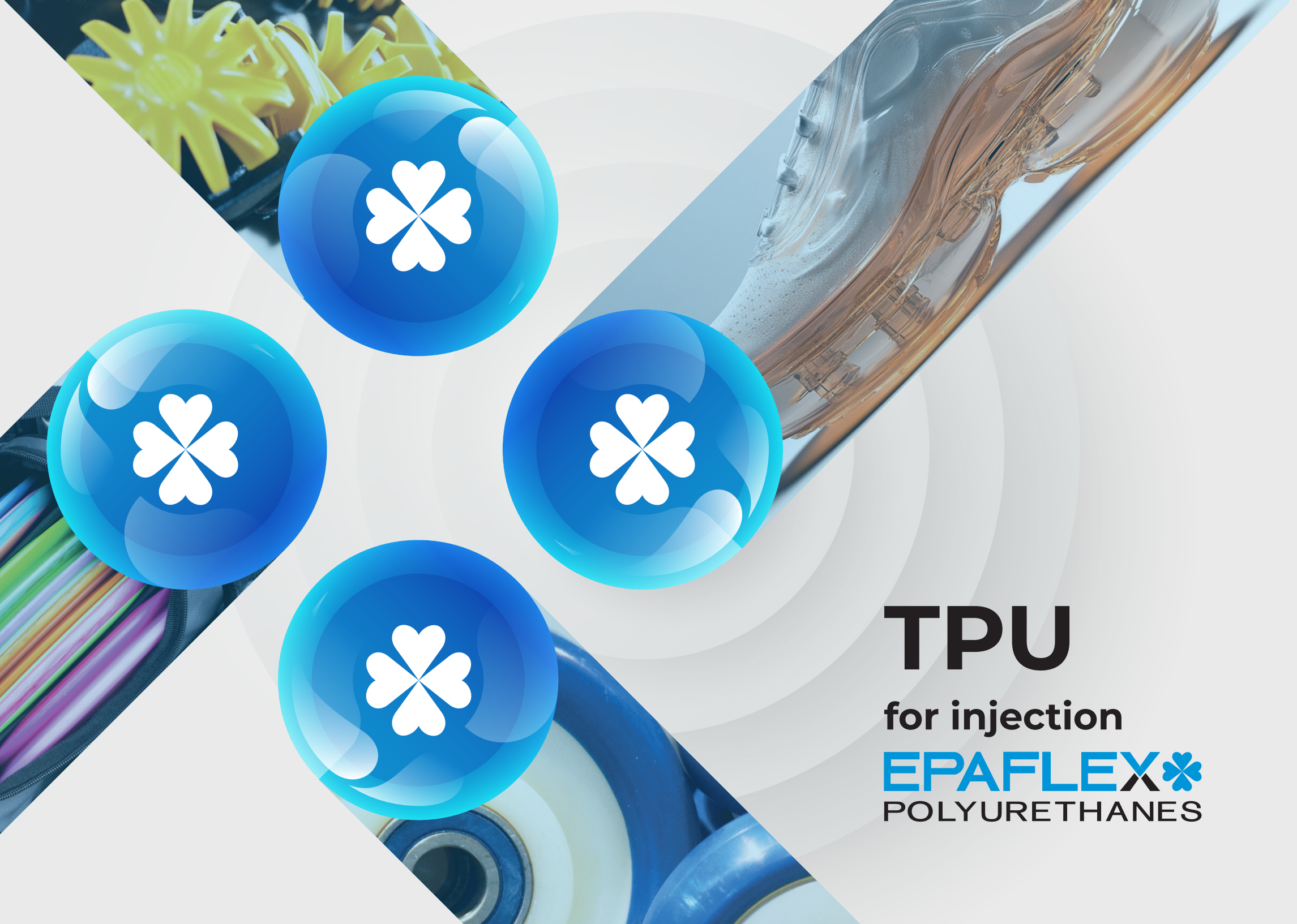




TPU

for injection

EPAFLEX 
POLYURETHANES



The Company

EPAFLEX Polyurethanes® was founded in 1991 in Cassolnovo, Italy as a manufacturer and supplier of polyurethane systems to the footwear industry.

Over the years, EPAFLEX has grown and expanded the product line to better address our customers' needs by adding production of thermoplastic polyurethane (TPU) and polyurethane products for use in coatings, adhesives, sealants, and elastomer (CASE) applications. Together with the parent company, ELACHEM® which is located in Vigevano, Italy, EPAFLEX is a vertically integrated industrial group with state-of-the-art manufacturing.

In 2023, Epaflex has furthered expanded their scope into the Americas by launching EPAFLEX Americas - a wholly owned subsidiary of Epaflex intended to service the North American market. Epaflex proudly offers, on top of our branded products, contract manufacturing services that leverage the quality and the reliability of the industrial assets and the R&D facilities available in Italy. With more than 30 years' experience in polyurethane chemistry, we are the partner you are looking for when it comes to quality, reliability, discretion, flexibility, and speed.

TPU PORTFOLIO

EPAFLEX Thermoplastic polyurethane elastomers (TPU) efficiently bridge the performance gap between rubber and plastics in many demanding applications. Our current TPU product portfolio includes:

EPA mould  designed for injection molding processes.

EPA line  designed for extrusion processes.

EPA met  bio-based high performance TPU for injection molding or extrusion processes.

EPA lite  high performance rubberlike TPU based materials.

Key benefits offered by Epaflex TPU

- Excellent abrasion and scratch resistance
- Very good resistance to oil and greases
- Outstanding batch to batch consistency
- Good flexibility even at low temperatures
- Easy recyclability

EPAMOULD Series 100 and 600

Polyester based TPU with very good processability and mechanical properties. Easy to use in injection molding process, both for production of footwear components and for production of technical parts.



Typical Properties	Test Method	Units	164 A 56	175 A 56	185 A 56	192 A 51	698 A 30	660 D 30	662 D 30
Density	ISO 1183-1	Kg /dm ³	1,2	1,2	1,2	1,21	1,2	1,23	1,24
Hardness	ISO 7619	Shore A	68	75	85	90	97		
Hardness	ISO 7619	Shore D					46	52	55
Tensile Strength	ISO 527-1	MPa	20	30	30	45	45	45	50
50% Modulus	ISO 527-1	MPa	2,5	3,5	4,7		10		
100% Modulus	ISO 527-1	MPa	3,4	4,3	5,6		11,5		
300% Modulus	ISO 527-1	MPa	7,5	8,3	10		28		
Elongation @ Break	ISO 527-1	%	650	680	630	550	430	400	370
Tear Strength	ISO 34-B	KN/m	50	75	75	110	140	160	180
Abrasion Resistance	ISO 4649	mm ³	65	60	60	30	35	35	35
Vicat Softening Point	ISO 306	°C	58	71	85	95	125	130	135



EPAMOULD Series 200

Polyester based TPU with enhanced mechanical properties and resistance to hydrolysis. Specifically developed for injection molding of technical parts, it can be easily used in footwear components as well



Typical Properties	Test Method	Units	275 A 10 E	278 A 51 20	285 A 10	290 A 10	292 A 30	292 A 10 F 40	292 A 81 W F 40	295 A 10	245 D 10	260 D 12	265 D 12	270 D 12
Density	ISO 1183-1	Kg /dm ³	1,19	1,18	1,19	1,2	1,2	1,21	1,21	1,21	1,21	1,23	1,25	1,24
Hardness	ISO 7619	Shore A	75	78	83	89	92	90	92	91				
Hardness	ISO 7619	Shore D									45	59	64	69
Tensile Strength	ISO 527-1	MPa	40	48	45	50	50	50	55	55	50	55	50	60
50% Modulus	ISO 527-1	Mpa		4,2	4,3		7,9	6,8	6	7,1		21	23,5	
100% Modulus	ISO 527-1	Mpa		5,4	5,2		9,3	8	7,9	8,4		24,50	25,5	
300% Modulus	ISO 527-1	Mpa		11	12,1		28	23	20	23		45	47	
Elongation @ Break	ISO 527-1	%	640	570	570	500	430	450	500	470	450	360	320	320
Tear Strength	ISO 34-B	KN/m	100	85	105	115	125	115	120	120	130	195	200	220
Abrasion Resistance	ISO 4649	mm ³	45	45	35	30	25	30	25	25	35	45	60	65
Glass Transition Temp (Tg)	DMA	°C		-31	-40	-35		-35	-35	-35		-18	10	
MFI	ISO 1133	g/10 min			15-30	15-30	15-30	30-50	25-40	15-30		30-45	25-40	
MFI Test Conditions					205°C/5 Kg	205°C/5 Kg	210°C/5Kg	205°C/5 Kg	210°C/5Kg	205°C/5 Kg		220°C/5 Kg	225°C/5 Kg	
Vicat Softening Point	ISO 306	°C	82	85	86	95	112	110	108	110	120	142	145	145



EPAMOULD Series 200: premium products (AT and HS)

Polyester based TPU with excellent resistance to hydrolysis, enhanced transparency and very light color. Specifically designed for very demanding footwear components applications.

EPA mould 											
Typical Properties	Test Method	Units	65 AT	65 HS	70 HS	75 AT	80 AT	80 HS	85 AT	85 HS	90 AT
Density	ISO 1183-1	Kg /dm ³	1,18	1,18	1,18	1,19	1,21	1,19	1,2	1,19	1,21
Hardness	ISO 7619	Shore A	65	64	71	75	80	78	85	83	91
Tensile Strength	ISO 527-1	MPa	25	24	28	30	40	35	30	50	50
50% Modulus	ISO 527-1	MPa	2,3	1,4	2,5	2,8	3,9	3,6	4,5	5	7
100% Modulus	ISO 527-1	MPa	3	2,1	3,2	3,7	4,7	4,4	5,8	6,2	8,1
300% Modulus	ISO 527-1	MPa	6	4,7	6,2	7	8,2	8,1	10,5	15	16
Elongation @ Break	ISO 527-1	%	700	750	650	700	750	650	580	530	550
Tear Strength	ISO 34-B	KN/m	50	60	70	60	95	90	80	105	125
Abrasion Resistance	ISO 4649	mm3	100	80	70	100	85	65	45	35	30
Vicat Softening Point	ISO 306	°C	60	60	70	82	90	90	95	95	100
 Hydrolysis resistant											



EPAMOULD Series 700

Polyether based TPU which offers outstanding stability in hot and humid conditions, excellent resistance to microbial attack and outstanding transparency. Specifically designed for injection molding of technical parts, it can be easily used in sport and leisure and in footwear applications.



Typical Properties	Test Method	Units	784 A 10	745 D 15	745 D 35	752 D 35	755 D 15	755 D 35	756 D 15	765 D 15
Density	ISO 1183-1	Kg /dm ³	1,11	1,16	1,16	1,16	1,17	1,17	1,17	1,15
Hardness	ISO 7619	Shore A	84		95					
Hardness	ISO 7619	Shore D		45	44	50	55	54	55	63
Tensile Strength	ISO 527-1	MPa	48	45	50	45	45	50	45	50
50% Modulus	ISO 527-1	MPa	5,3							
100% Modulus	ISO 527-1	MPa	6,7							
300% Modulus	ISO 527-1	MPa	13,6							
Elongation @ Break	ISO 527-1	%	500	390	400	370	370	350	370	300
Tear Strength	ISO 34-B	KN/m	95	140	140	135	160	140	160	165
Abrasion Resistance	ISO 4649	mm ³	25	35	35	35	45	35	45	50
Vicat Softening Point	ISO 306	°C	90	120	115	128	140	135	142	150



EPALITE - EPADISC

Premium quality lightweight TPU based elastomers with special haptics (velvet touch). Specifically designed for soft touch applications and 2K molding on polar engineering thermoplastics, both in footwear and in other consumer applications.

EPA lite

			362 A 02	362 A 02 HS	372 A 02	372 A 02 HS
Typical Properties	Test Method	Units				
Density	ISO 1183-1	Kg /dm ³	1,04	1,04	1,04	1,04
Hardness	ISO 7619	Shore A	65	65	70	70
Hardness	ISO 7619	Shore D				
Tensile Strength	ISO 527-1	MPa	15	15		
50% Modulus	ISO 527-1	MPa	2	2	2,1	2,1
100% Modulus	ISO 527-1	MPa	2,7	2,7	2,7	2,7
300% Modulus	ISO 527-1	MPa	6,5	6,5	6,5	6,5
Elongation @ Break	ISO 527-1	%	500	500	550	550
Tear Strength	ISO 34-B	KN/m	45	45	45	45
Abrasion Resistance	ISO 4649	mm ³	65	65	65	65
☹ Hydrolysis resistant				☹		☹

EPA disc

			50 D 03
Typical Properties	Test Method	Units	
Density	ISO 1183-1	Kg /dm ³	1,04
Hardness	ISO 7619	Shore A	95
Hardness	ISO 7619	Shore D	48
Tensile Strength	ISO 527-1	MPa	27
50% Modulus	ISO 527-1	MPa	10,6
100% Modulus	ISO 527-1	MPa	13,4
300% Modulus	ISO 527-1	MPa	22,7
Elongation @ Break	ISO 527-1	%	430
Tear Strength	ISO 34-B	KN/m	62
Abrasion Resistance	ISO 4649	mm ³	60
☹ Hydrolysis resistant			☹



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POLYURETHANES

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