

TPU RAVATHANE



TPU is thermoplastic elastomer material with high abrasion resistance, elasticity and smooth mold. They can also be used in various sectors as they conform to all kinds of shapes. The most outstanding advantage of polyurethane in comparison with other materials is that products with very different hardness, density and elasticity can be produced by modifying their formulations. This allows producing products suitable for different areas of usage just by changing the raw material. TPU is the most importantly preferred as a raw material input due to solid, economical and practical industrial and personal products. Thermoplastic polyurethanes have really good physical properties like high tensile strength and elongation. Depending on their chemical structure and hardness, soft types of thermoplastic polyurethanes (60 - 95 Shore A) grades have up to 45 MPa tensile strength relatively; harder types (50 - 70 Shore D) grades have a high tensile strength. The most important physical advantages of TPU; high abrasion resistance, high mechanical properties, elasticity in a wide temperature range, low electrical conductivity and low shrinkage levels. The most important chemical advantages of TPU; oil and grease resistance, microbiological resistance, hydrolysis resistance, ozone resistance, oxidation resistance, non-polar solvent resistance, providing UV resistance and fire resistance with additives.

Applications:

- Shoe soles
- Automotive (protective films, belt system, door handle)
- Textile (skiweares and equipment, drapery)
- Furniture (profile, film)
- Medical stuff
- Construction – Building (Sewerage, tunnel, transportation infrastructure, railway rails, door and window profiles)
- Information technologies (telephones, computers)
- Pipes
- Electrical materials (cables – socket connections, cable insulation)
- Machinery
- Sports equipment (bicycle tires, surf and snowboard boards)
- Animal identification

Excellent properties:

R 130 series:

- Standart polyester based series
- High mechanical properties
- High abrasion resistance
- High elasticity
- Oil and grease resistance
- Low density (compare other standart TPU products)

R 120 series:

- Special polyester based modified TPU
- Short cycle time
- Fast molding
- High elasticity
- Low density (compare other standart TPU products)
- Oil and grease resistance

R 210 series:

- High mechanical properties
- High hydrolysis resistance
- High antibacteriel resistance
- Ozone resistance
- Oil and grease resistance



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Polyester based TPU Ravathane 130 SERIES

Physical Properties	Units	DIN	ISO	R130A60	R130A65	R130A70	R130A75	R130A80	R130A85	R130A90	R130A93	R130D60	R130D55	R130D60	R130D70
Hardness	Shore A	53505	868	61	67	71	76	82	87	90	93	95	-	60	70
Hardness	Shore D	53505	868	-	-	-	-	-	-	-	-	50	55	-	-
Density	g/cm³	1183 1-A	1183 1-A	1,14	1,15	1,16	1,16	1,19	1,2	1,2	1,21	1,21	1,22	1,23	1,23
Stress at 100% elongation	Mpa	53504	37	2,2	2,5	2,7	3,5	4,9	6,0	7,7	9,5	14	17	21	25
Stress at 300% elongation	Mpa	53504	37	4,5	4,9	5,5	7	9,8	11,5	14,1	19,5	27	32	34	36
Tensile strength	Mpa	53504	37	22	23	25	28	29	35	40	40	45	46	49	50
Elongation at break	%	53504	37	950	925	910	900	660	630	610	550	520	500	480	440
Tear strength	kN/m	34-1/B/b	34-1/B/b	75	80	90	102	127	135	145	165	190	210	230	260
Abrasion loss	mm³	ISO 4649	4649	40	40	35	35	35	35	35	40	40	40	40	40

Polyester based TPU Ravathane 120 SERIES

Physical Properties	Units	DIN	ISO	R120A65	R120A75	R120A80	R120A80S	R120A85	R120A90	R120A90S	R120A93
Hardness	Shore A	53505	868	67	77	82	82	85	90	90	93
Hardness	Shore D	53505	868	-	-	-	-	-	-	-	-
Density	g/cm³	1183 1-A	1183 1-A	1,18	1,18	1,20	1,20	1,20	1,20	1,20	1,21
Stress at 100% elongation	Mpa	53504	37	2	3	4,5	4,5	5	7,5	7,5	8
Stress at 300% elongation	Mpa	53504	37	4,5	7	8	8	9	12	12	15
Tensile strength	Mpa	53504	37	20	24	24	24	35	37	37	40
Elongation at break	%	53504	37	770	750	600	600	600	550	550	500
Tear strength	kN/m	34-1/B/b	34-1/B/b	80	95	100	100	120	130	140	140
Abrasion loss	mm³	ISO 4649	4649	50	50	40	40	40	40	40	40

Polyether based TPU Ravathane 210 SERIES

Physical Properties	Units	DIN	ISO	R210A80UV	R210A85UV	R210A90UV	R210A93UV	R210D50UV
Hardness	Shore A	53505	868	80	87	91	93	-
Hardness	Shore D	53505	868	-	-	-	-	52
Density	g/cm³	1183 1-A	1183 1-A	1,11	1,12	1,12	1,13	1,14
Stress at 100% elongation	Mpa	53504	37	4,5	7,0	8,0	10	15
Stress at 300% elongation	Mpa	53504	37	8,0	13,0	14	18	25
Tensile strength	Mpa	53504	37	30	35	40	45	42
Elongation at break	%	53504	37	650	600	550	500	480
Tear strength	kN/m	34-1/B/b	34-1/B/b	60	110	120	150	180
Abrasion loss	mm³	ISO 4649	4649	40	40	40	45	45

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