



ISOTHANE®
TPU RESINS

PARTNER HIGHLIGHT



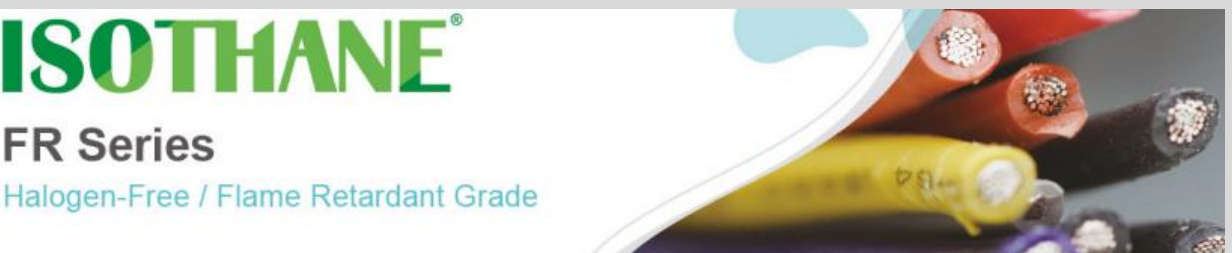
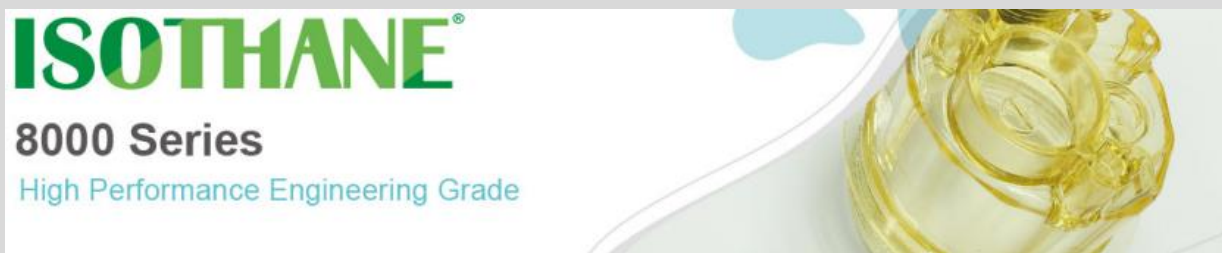
Greco R&D Center

Great Eastern Resins (GRECO) R&D Center - Taichung, Taiwan

Great Eastern Resins Industrial Co. Ltd.(GRECO) formed in 1955. GRECO TPU resins are high quality environmental friendly materials and available in a wide range of hardness in polyester, polyether, and polycaprolactam-based formulations. These Thermoplastic Polyurethane resins can be injection, extrusion and blow molded.

- Poly(adipate)ester
- Polycaprolactone
- Polyether
- High Moisture Vapor Transmission Grade
- Aliphatic
- Engineering Grades
- Adhesive Grades
- Flame Retardant Grades
- Biocompatible Grades
- Calendering Series
- High Performance Engineering TPU Composites
- Hot Melt Adhesive Grade
- G Series Bio-based Grade
- Extrusion Series

ISOTHANE, TPU Resins Series are applied to EU chemicals policy (REACH regulation). Thermoplastic polyurethane possesses the high toughness, mechanical strength, bio-compatibility, and resistance against oil, chemical, hydrolysis, and bacteria. It is perfectly suitable for injection, extrusion, blow film, and other sporting footwear application. ISOTHANE, TPU Resins Series are applied to EU chemicals policy (REACH regulation). GRECO continues as the market leader by pursue innovation, and leverage the latest key technology in the industry.



CERTIFICATIONS



ISOTHANE®

1000 / 1100 Series

Polyester-Based Grade

Characteristics ISOTHANE® 1000 series resins are polyester based thermoplastic polyurethane. They exhibit excellent transparency, mechanical properties, abrasive resistance, and solvent resistance. ISOTHANE® 1000 series can be processed by extrusion and injection molding.

Applications Shoes Applications, Sporting Equipments, and Mechanical Items.

Items	Units	ASTM	1065A	1070A	1075A	1080A	1085A	1090A
Specific Gravity		D-792	1.18	1.18	1.18	1.18	1.18	1.21
Hardness	Shore A	D-2240	65A	70A	75A	80A	85A	90A
Tensile Strength	MPa psi	D-412	21 3,500	21 3,500	31 4,500	34 5,000	36 5,300	55 8,000
@ 50% Elongation	MPa psi	D-412	2 300	3 350	4 600	4 600	5 700	10 1,500
@ 100% Elongation	MPa psi		3 500	7 950	5 700	6 900	7 1,000	11 1,600
@ 300% Elongation	MPa psi		5 800	7 950	9 1,300	11 1,600	14 2,000	21 3,000
Elongation @ Break	%	D-412	850	850	800	600	600	560
Tear Strength	N/mm lb/in	D-624 DIE C	80 460	90 530	100 570	90 520	140 800	170 1,000

The above values are shown as typical values and should not be used as specifications.

GRECO ISOTHANE® TPU RESINS

Items	Units	ASTM	B1095A	B1098A	1055D	1065D	1160D	1170D
Specific Gravity		D-792	1.22	1.22	1.21	1.21	1.21	1.23
Hardness	Shore A D	D-2240	95A	98A	55D	65D	60D	70D
Tensile Strength	MPa psi	D-412	60 8,700	54 7,800	43 6,300	41 6,000	40 5,800	40 5,800
@ 50% Elongation	MPa psi	D-412	13 1,900	17 2,400	15 2,200	19 2,700	15 2,200	13 1,900
@ 100% Elongation	MPa psi		15 2,200	18 2,600	19 2,700	21 3,000	19 2,700	17 2,500
@ 300% Elongation	MPa psi		25 3,600	32 4,700	33 4,800	33 4,800	33 4,800	25 3,700
Elongation @ Break	%	D-412	600	550	450	440	480	310
Tear Strength	N/mm lb/in	D-624 DIE C	180 1,100	220 1,300	120 680	240 1,400	200 1,200	220 1,200

ISOTHANE®

3000 Series

Polyether-Based Grade

Characteristics ISOTHANE® 3000 series resins are polyether based thermoplastic polyurethane. They exhibit excellent mechanical properties, hydrolytic resistance, fungus resistance, and low temperature performance properties. ISOTHANE® 3000 series can be processed by extrusion and injection molding.

Applications Apparel Applications And Outdoor Applications.

Items	Units	ASTM	3065A	3075A	3080AU	3085AU	3090AU
Specific Gravity		D-792	1.08	1.11	1.13	1.13	1.15
Hardness	Shore A	D-2240	65A	73A	80A	85A	90A
Tensile Strength	MPa psi	D-412	30 4,400	21 3,000	30 4,400	37 5,400	54 7,800
@ 50% Elongation	MPa psi	D-412	2 280	3 440	5 725	4.5 650	8 1,200
@ 100% Elongation	MPa psi		3 370	4 560	7 1,020	5.9 850	10 1,450
@ 300% Elongation	MPa psi		5 740	6 850	10 1,450	12 1,700	15 2,200
Elongation @ Break	%	D-412	730	930	750	600	550
Tear Strength	N/mm lb/in	D-624 DIE C	69 390	86 490	110 630	110 600	120 680

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ISOTHANE® TPU RESINS

GLOBAL MARKETING & SERVICES



Items	Units	ASTM	3095AU	3055D	3060D	3065D	3070DU-W
Specific Gravity		D-792	1.15	1.16	1.17	1.17	1.20
Hardness	Shore A D	D-2240	93A	55D	60D	65D	70D
Tensile Strength	MPa psi	D-412	52 7,500	47 6,800	45 6,500	52 7,500	70 10,000
@ 50% Elongation	MPa psi	D-412	12 1,800	13 1,900	13 1,900	24 2,400	60 8,800
@ 100% Elongation	MPa psi		15 2,100	17 2,450	19 2,800	28 4,100	62 9,000
@ 300% Elongation	MPa psi		23 3,400	31 4,500	32 4,700	41 6,000	-
Elongation @ Break	%	D-412	570	430	400	400	260
Tear Strength	N/mm lb/in	D-624 DIE C	136 780	150 850	150 850	240 1,400	500 2,900

TPU Resin, Thermoplastic Polyurethane

Halogen-Free / Flame Retardant Grade

Items	Units	ASTM	3080A-FR	3085A-FR	3085A-FRT	3085A-FRC	3090A-FR	3095A-FR
			Specific Gravity		D-792	1.15	1.15	1.18
Hardness	Shore A	D-2240	80A	85A	84A	85A	91A	94A
Flammability (2mm)	-	UL-94	V-0	V-0	V-0	V-0	V-0	V-0
Appearance	-	-	White	White	Transparent	White	White	White



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