Plastribution

engineering polymers

Plastribution

engineering polymers 2006

RADICI GROUP PLASTICS	Radilon	Nylon 6 & 66
	Heramid	Nylon 6 & 66
	Radiflam	Nylon 6 & 66
	Raditer & Radiflam	PBT
Mitsubishi Engineering Plastics	Iupital	POM copolymer
	Iupilon	Polycarbonate
Idemitsu Petrochemical Co. Ltd	Tarflon PC	Polycarbonate
	Xarec	SPS
polyram creative plastic compositions		Nylon 6, 66, 12
		PBT
		Acetal
	Polytron	LGF PP/PA
degussa. creating essentials	PLEXIGLAS® Moulding Compounds	PMMA
	Cyrolite (medical)	MBS co-polymer
	XT Polymer	Acrylic based multi polymer
	Cyrex	Acrylic/PC alloy
TOSOH	'Susteel'	PPS
	Megol	TPE
	Apigo	TPO
	Tivilon	TPV
	Raplan	TPE
	Apilon 52	TPU
	Apizero/Apifive	TPO

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Mitsubishi Engineering Plastics

Iupital

Polyacetal Co-Polymer

- Well balanced mechanical properties and high fatigue resistance
- Excellent anti-creep properties
- Excellent low friction and anti-wear properties
- Wide range of operating temperatures
- High oil and organic chemical resistance
- Excellent thermal stability in moulding
- FDA, NSF and WRAS approved
- Available in natural and colour compounds.

Mitsubishi Engineering Plastics

Iupital Acetal

Standard Grades

NAME	FUNCTION	FEATURE
F10	For thick moulding & for extrusion	Voids and sink marks in thick moulding are reduced. Suitable for extrusion moulding of round bars, pipes etc.
F20	For general moulding	Standard type.
F25	For general moulding	Medium fluidity types between F20 and F30.
F30	For general moulding (high fluidity)	Suitable for moulded products requiring high flow. Appearance and flow marks of the service are better than F20.
F40	For thin moulding (super high fluidity)	Provides high fluidity of MFI 52. Particularly suitable for moulding of thin products.
F20-52, 54	Weather resistance	Suitable for outdoor use or use in an environment with direct exposure to ultra violet rays.
F20-61	Anti-static	Restricts static electricity and prevents dust and electrical noise.
FV-30	High fluidity and prevention of static electricity	High fluidity and restriction of static electricity.

Mitsubishi Engineering Plastics

Iupital Acetal

Reinforced/Filled Grades

NAME	FUNCTION	FEATURE
FG2025	High stiffness	Mechanical properties (stiffness, fatigue resistance etc) are improved and deflection temperature under load is raised to 164˚C.
MF3020	Dimensional accuracy prevention of warp and sink mark	Anisotropy is less than FG grade owing to filling of short glass fibres and warp and deformation are minor.
FB2025	Dimension of accuracy prevention of warp and sink mark	Effective against warping and deformation. Modulus is higher than the standard grade and sink marks are not apt to occur.
FC2020D	Conductivity High stiffness	Provides high conductivity (surface resistivity $2x10^2$) and extremely high modulus, fatigue resistance, wear resistance and heat resistance.
FC2020H	High stiffness Wear resistance	Provides extremely high stiffness, fatigue resistance and wear resistance.
FT2010	High stiffness Dimensional accuracy Prevention of warp and sink mark	Reinforced grade with potassium titinate fibre having high stiffness and preventing shrinkage anisotropy and warping. This fibre will not damage the screw or cylinder of moulding machines.
FT2020		

Mitsubishi Engineering Plastics

Iupital Acetal

Low Friction & Wear-Resistant Grades

NAME	FUNCTION	FEATURE
LO-21A	Low friction and high wear resistance	Lowers friction and improves wear resistance while the properties of the standard grade are maintained. Especially effective in contact with metal.
FX-11 FX-11J	Low noise, low friction and high wear resistance	Lowers friction and improves wear resistance while the properties of the standard grade are maintained. Especially effective for reducing the friction noise of Polyacetal.
FL2010 FL2020	Low friction and high wear resistance	Friction coefficient and specific wear loss are improved as compared with the standard grade. In particular, FL2020 is well suited for use at high speed under heavy load.
FW-21 FW-24	Low friction and high wear resistance	Lowers friction and improves wear resistance while the properties of the standard grade are maintained. Better at presenting natural colour and better mouldability than FL grades. FW-24 is suited for use at high speed under heavy load.
FS2022 FS2020	Improvement of friction and wear resistance	Wear resistance is improved as compared with the standard grades to suppress friction noise during sliding. FS2020 is a concentrate types and may be diluted 5-20 times.
FM2020	Improvement of friction and wear resistance	Contains MoS_2 and is suited for applications requiring stiffness and wear resistance.

Mitsubishi Engineering Plastics

Iupital Acetal

Other Quality-Improved Grades

NAME	FUNCTION	FEATURE
FU2025	Impact resistance elasticity	Impact resistance and toughness are improved. Elasticity is also improved.
FU2050		Better impact resistance and toughness even at weld part compared with FU-grades.
UR-20H		
ET-20	Conductivity	Provided with conductivity of surface resistivity 1x10² by adding conductive carbon.
TC3015	Stress deformation resistance Dimensional accuracy Coating/printing workability	Deformation (strain) due to the same stress is less than in the case of the standard grade. Dimensional accuracy can be ensured. Excels in close adhesion of coating and printing.
TC3030		

Standard Grades – Technical Data

PROPERTIES	TEST METHOD	TERMS	UNITS	F10	F20	F25	F30	F40	FG20-25	F20-52
Density	ISO 1183	-	g/cm³	1.41	1.41	1.41	1.41	1.41	1.59	1.41
Water Absorption	-		%	0.22	0.22	0.22	0.22	0.22	0.2	0.22
Melt Mass – Flow Rate	ISO 1133	Temp. Load	g/10min	2.5	9	16	27	52	9	9
Mould Shrinkage (3mmt)	-	MD	%	2.2	2	2	2	2	0.6	2
Tensile Modulus	ISO527-1 / 527-2	-	MPa	2800	2900	2900	2900	2900	10000	2800
Yield Stress	ISO527-1 / 527-2	-	MPa	63	64	64	64	64	-	62
Yield Strain	ISO527-1 / 527-2	-	%	10	8.5	8	7.5	7	-	8.5
Nominal Strain at Break	ISO527-1 / 527-2	-	MPa	33	30	27	25	20	-	30
Stress at Break	ISO527-1 / 527-2	-	MPa	-	-	-	-	-	140	-
Strain at Break	ISO527-1 / 527-2	-	%	-	-	-	-	-	3	-
Flexural Strength	ISO 178	-	MPa	89	90	90	91	91	210	88
Flexural Modulus	ISO 178	-	MPa	2500	2600	2600	2700	2700	9100	2500
Charpy Impact Strength	ISO 179-1	23°C	KJ/m²	280	250	200	150	100	60	240
Charpy Notched Impact Strength	ISO 179-2	23°C	KJ/m²	8	7	6.5	6	5	9	6.5
Melting Temperature	ISO 11357-3		°C	166	166	166	166	166	166	166
Temp. of Deflection under Load	ISO 11357-3	1.80 MPa	°C	105	105	105	105	1050	162	105
	ISO 75-1 / ISO 75-2	0.45 MPa	°C	156	156	156	156	156	164	156
Vicat Softening Temperature	ISO 306	-	°C	-	-	-	-	-	-	-
Coefficient of Linear Thermal Expansion	ISO 11359-2	MD	1/°C	1.1 E -04	1.1E -04	1.1E -04	1.1E -04	1.1E -04	3.0E -05	1.1E -04
		TD	1/°C	1.1 E -04	1.1E -04	1.1E -04	1.1E -04	1.1E -04	1.1E -04	1.1E -04
Flammability	UL94	0.8mmt	-	HB	HB	HB	HB	HB	HB	HB
Relative Permittivity	IEC 60250	100Hz	-	3.9	3.9	3.9	3.9	3.9	4.1	-
	IEC 60250	1MHz	-	3.9	3.9	3.9	3.9	3.9	4.1	-
Dissipation Factor	IEC 60250	100Hz	-	0.002	0.002	0.002	0.002	0.002	0.003	-
	IEC 60250	1MHz	-	0.007	0.007	0.007	0.007	0.007	0.008	-
Volume Resistivity	IEC 60093	-	ohm-m	1.E +12	1.E +12	1.E +12	1.E +12	1.E +12	1.1E +12	-
Surface Resistivity	IEC60093	-	ohm	1.E +16	1.E +16	1.E +16	1.E +16	1.E +16	1.1E +16	-
Electric Strength	IEC 60243-1	1mmt	MV/m	32	32	32	32	32	25	-
	IEC 60243-1	2mmt	MV/m	-	-	-	-	-	-	-
	IEC 60243-1	3mmt	MV/m	19	19	19	19	19	16	-
Comparitive Tracking Index	IEC 60112	-	-	600	600	600	600	600	600	-
Filler Content									25% G/F	UV STABILISED

polyram
creative plastic compositions

Acetal

- Public company est. 1986 in Israel
- 15 years in partnership with Plastribution
- One of the largest independent producers of engineering thermoplastic compounds in the world
- 30,000 tonnes capacity
- Growing at 20% / year
- QS9000 / ISO9001 / UL94 registered
- Comprehensive product range
- Constant new product development – specific to customer requirements

Standard Grades

GRADE	DESCRIPTION
PM1003	Unfilled, Melt Flow 3
PM1009	Unfilled, Melt Flow 9
PM1013	Unfilled, Melt Flow 13
PM1027	Unfilled, Melt Flow 27
PM1409	PTFE Modified
PM1419	10% PTFE Modified
PM3013G2	10% Glass Fibre Modified
PM8427	Unfilled, Impact Modified

Polyram Acetal

GRADE	PROPERTY											
	DENSITY (G/CM3)	SHRINKAGE (%)	MFI (G/10IN)	TENSILE STRENGTH (MPA)	ELONGATION AT BREAK (%)	FLEXURAL STRENGTH (MPA)	FLEXURAL MODULUS (MPA)	IZOD IMPACT STRENGTH (J/M)	HDT AT LOAD 1.8MPA ©	HDT AT LOAD 0.45 MPA ©	MELTING POINT ©	SURFACE RESISTANCE (OHM)
	DIN53479		ISO1133/230 /2.16	ASTM-D638	ASTM-D638	ASTM-D790	ASTM-D790	ASTM-D256	DIN53461	DIN53461		DIN53482
PM1003	1.41	1.8-2.2	3.5	65	35	85	2700	70	110	160	165	10^14
PM1009	1.41	1.8-2.2	9	60	55	80	2600	70	110	160	165	10^14
PM1013	1.41	1.8-2.2	13	65	25	85	2800	60	110	160	165	10^14
PM1027	1.41	1.8-2.2	27	60	45	80	2600	60	110	160	165	10^14
PM1409	1.85	1.8-2.2	9	45	20	65	1750	55	120	155	165	10^14
PM1419	1.85	1.9-2.5	9	50	35	70	1900	60	120	155	165	10^14
PM3013G2	1.46	-	9	70	3	100	3000	45	-	-	165	10^12
PM8427	1.38	2.0-2.3	9	40	70	60	2100	90	85	145	165	10^12

Radilon & Radiflam

Nylon 6 & 66

Radici are one of the largest producers of nylon in the world. Radilon is a range of prime nylons, which carry many approvals in the global automotive sector, electrical and other leading global markets.

The Radilon range contains grades which include; unfilled, glass filled, impact modified, mineral filled and mixed fillers, co-polymer nylons and clear nylons.

Radiflam is a range of flame retardant nylons, which include glass filled V0 materials. There are grades which contain halogen and phosphorous flame retardant systems and also the more environmentally friendly non-halogen and phosphorous systems.

With a large technical support team Radici can also formulate grades to suit specific applications.

RADICI GROUP PLASTICS

Radilon & Radiflam

Nylon 6

MATERIAL	GRADE	DESCRIPTION
PA6	Radilon S HS 100 Radilon S 35 FL Radilon S HR Radilon S 40E Radilon S HSX Radilon S RV 300 Radilon S ERV3808K Radilon S LVHPL 128	General Purpose Film Grade Medium High Viscosity High Viscosity Extrusion Elastomer Modified Free Conditioning Glass-Fibre Reinforced Heat Stabilised GF Reinforced High Impact Strength Plasticised for Improved Flexibility
PA6 Copolymer	Radilon CS 38 Radilon CS 38FL Radilon CS T	Monofilament Extrusion Grade Film Grade Transparent
PA6 F/R	Radiflam S FR	Self-Extinguishing without Halogens / Phosphorous

Radilon & Radiflam Nylon 6

PROPERTY	TEST METHOD	RADILON 6	GRADE									
			S HS 100	S 35FL	S 35HR	S 40E	S HSX	S RV300	S ERV 3808K	SLVHP L128	CST	RADI-FLAM S ER
Density	ISO 1183 kg/m³	Dry as moulded state	1140	1140	1140	1140	1110	1340	1270	1160	1130	1180
Melting Temperature	ISO 3146 °C	Dry as moulded state	220	220	220	220	220	220	220	215	210	220
Tensile Modulus	ISO 527-2 MPa	Dry as moulded state	2750 700	2900	3100 750	2950 650	2850 750	10000 5100	8600 4450	950 550	2750	3750 1150
Yield Stress	ISO 527-2 MPa	Dry as moulded state	80 35	75	75 35	70 35	65 35	100	95	45 30	75	75 40
Yield Strain	ISO 527-2 %	Dry as moulded state	3.4 25.0	4.0	3.5 25.0	3.5 25.0	4.0 20.0	6.5	8.0	35.0 30.0	4.0	3.1 25.0
Nominal Strain at Break	ISO 527-2 %	Dry as moulded state	>50 >50	>50	>50 >50	>50	40.0 >50	8.0	11.0	>50 >50	>50	8.5 <50
Stress at Break	ISO 527-2 MPa	Dry as moulded state						170	130			
Strain at Break	ISO 527-2 %	Dry as moulded state						4.0	3.8			
Charpy Impact Strength	ISO 179 kJ/m²	Dry as moulded state						90 100	80 95		85	
Charpy Notched Imp Strength	ISO 179 kJ/m²	Dry as moulded state	5.5 175.0	6.0	6.5 160.0	6.4 185.0	16.3 130.0	13.0 22.0	18.0 33.0	15.0 130.0	5.1	3.5 9.5
Hdt 1.8 MPa	ISO 75-2 °C	Dry as moulded state	55		60	60	200	200	200	50	55	60
Flammibility	UL 94		V-2	HB	HB	HB	HB	HB	HB	HB	HB	HB
Humidity Absorption	ISO 62 %	Dry as moulded state	2.4	1.6	1.6	2.2	1.5	1.0	1.2	1.4	1.6	1.6
Transparency												

RADICI GROUP PLASTICS

Radilon & Radiflam

Nylon 66

MATERIAL	GRADE	DESCRIPTION
PA66	Radilon A HS100	General Purpose
	Radilon A HSX88	Elastomer Modified Free Conditioning
	Radilon A USX200	Very High Impact Strength
	Radilon A RV300	Glass-Fibre Reinforced
	Radilon A RV300RKC	GF Reinforced Heat and Hydrolysis Resistance
	Radilon A CP300K	Heat Stabilised Mineral Filled
	Radilon A ERV1906LK	GF Reinforced with High Impact Strength Heat
PA66 COPOLYMER	Radilon A CA HS	General Purpose
	Radilon A CA RV300L	Glass-Fibre Reinforced
PA66 F/R	Radiflam A FR	Self-Extinguishing without Halogens/Phosphorous
	Radiflam A RV300FR	Self-Extinguishing GF Reinforced without Halogens/ Phosphorous
	Radiflam A RV300AE	Self-Extinguishing GF Reinforced with Halogens
	Radiflam A RV350AF	Self-Extinguishing GF Reinforced with Phosphorous

Radilon & Radiflam Nylon 66

PROPERTY	TEST METHOD	RADILON 6	GRADE											
			A HS 100E	A HX 88	A USX 200	A RV 300	ARV 300 RKC	A CP 300K	AERV 1906 LK	CA HS	CARV 300L	A FR	ARV 300FR	ARV 300AE	A RV 350AF
Density	ISO 1183 kg/m³	Dry as moulded state	1140	1090	1060	1350	1340	1360	1210	1140	1350	1110	1400	1600	1520
Melting Temperature	ISO 3146 °C	Dry as moulded state	260	260	260	260	260	260	260	245	245	260	260	260	260
Tensile Modulus	ISO 527-2 MPa	Dry as moulded Moist state	3350 1450	2650 1000	1750 680	10000 5350	10550 6200	5250 2600	5000 2900	3000 900	8000 5000	3600 1500	13500 7050	12100 9250	11200 6850
Yield Stress	ISO 527-2 MPa	Dry as moulded state Moist state	80 55	60 40	40 30	110	125	65	100 70	80 40	115	80 45		95	90
Yield Strain	ISO 527-2 %	Dry as moulded state Moist state	6.5 19.0	5.5 25.0	7.0 20.0	6.5	5.5	14.0	3.2 10.0	3.4 25.0	7.5	3.4 25.0		2.2	4.0
Nominal Strain at Break	ISO 527-2 %	Dry as moulded state Moist state	30.0> 50	>50 >50	>50 >50	8.5	6.5	40.0	6.3 25.0	<50 >50	12.0	5.5 >50		2.3	4.3
Stress at Break	ISO 527-2 MPa	Dry as moulded state Moist state				180	180	80			170		110	130	145
Strain at Break	ISO 527-2 %	Dry as moulded state Moist state				3.5	3.5	5.8			5.0		1,5 1,9	1.5	1.9
Charpy Impact Strength	ISO 179 kJ/m²	Dry as moulded state Moist state				85 100	95 100		75 110		90 110		29 30	47 49	63 70
Charpy Notched IMP strength	ISO 179 kJ/m²	Dry as moulded state Moist state	5.2 15.0	47.0 117.0	92.0 125.0	14.0 18.0	14.0 19.0	5.4 8.0	9.4 17.0	4.8 38.0	13.5 24.0	3.4 7.2	4.2 5.3	8.5 12.0	10 15.0
Hdt 1.8 MPa	ISO 75-2 °C	Dry as moulded state	75	55	55	235	245	90	175	60	215	70	210	215	230
Flammibility	UL 94		V-2	HB	HB	HB	HB	HB	HB	HB	HB	V-0	V-0	V-0	V-0
Humidity absorption	ISO 62 %	Dry as moulded state	1.3	1.5	1.3	1.1	1.0	0.9	1.4	1.9	1.3	1.2	0.5	0.6	0,9

Radilon B & A

Nylon 6 & 66

A high quality range of prime nylon 6 and nylon 66, with grades that are filled, unfilled and impact modified. These products can also be supplied under the Heramid tradename for those customers wanting a more cost effective solution. The grades listed are preceded by an 'I' e.g. I/BGV30.

Nylon 6 Radilon B Grades

GRADE	DESCRIPTION
BN200	Prime extrusion grade
BN200 AS	Prime Injection grade with additives
BN400 AS	Prime High Viscosity
BGV 30	Prime 30% Glass filled

Nylon 66 Radilon A Grades

GRADE	DESCRIPTION
AN200	Prime extrusion grade
AN200 AS	Prime Injection grade with additives
AH200 AS	Prime High Viscosity
AGV30	Prime 30% Glass filled

Further grades are available - please ask for details.

Radilon B – Nylon 6

PROPERTY	TEST METHOD	UNIT	CONDITION	BN200 AS	BN400 AS	BGV30
Density	DIN 53 479	g/cm³		1.13	1.13	1.37
Water Absorption, 24hrs	DIN 53 714	%	Dry/cond.	3.0 + 0.4	3.0 + 0.4	2.1 + 0.2
Ball Indentation Hardness	DIN 54 456	N/mm²	Dry/cond.	150/65	140/50	220/140
Tensile Yield Strength	DIN 53 455	N/mm²	Dry/cond.	80/50	80/43	175/110
Ultimate Elongation	DIN 53 455	%	Dry/cond.	>50/>50	>50/>50	3/5
Modulus of Elasticity	DIN 53 457	N/mm²	Dry/cond.	3000/1200	2900/1100	10000/5900
Charpy Impact Strength @ +23°C	ISO 179/1eU	KJ/m²	Dry/cond.	NB/NB	NB/NB	90/110
Charpy Impact Strength @ -30°c		KJ/m²		105	NB	80
Charpy Impact Strength Notched @ +23°C	ISO 179/1eA	KJ/m²	Dry/cond.	8/65	9/NB	14/30
Charpy Impact Strength Notched @ -30°C		KJ/m²		-	-	10
Notched Izod Impact Strength @ +23°C	ISO 180/1A	KJ/m²	Dry/cond.	5.5/NB	6/NB	16/20
Notched Izod Impact Strength @ -40°C		KJ/m²		5.5	5	11
Volume Resistivity	DIN 53 482	W· cm	Dry/cond.	1015/1012	1015/1012	1015/1012
Surface Resistivity	DIN 53 482	W	Dry/cond.	1013/1010	1013/1010	1012/1010
Dielectric Strength (3mm)	DIN 53 481	KV/mm	Dry/cond.	100/60	100/60	80/65
Heat Distortion Temp.	ISO 75	°C		>160	>160	>220
Linear Thermal Expansion	DIN 53 752	$1/K \cdot 10^{-5}$	Dry	7-10	7-10	2-2.5
Maximum Service Temp.		°C		<180	<180	<200
Flammability	ASTM D 635	UL-94		V2	V2	HB

Radilon A – Nylon 66

PROPERTY	TEST METHOD	UNIT	CONDITION	AN100 AS	AN200 AS	AGV 30
Density	DIN 53 479	g/cm³		1.13	1.13	1.36
Water Absorption, 24hrs	DIN 53 714	%	Dry/cond.	2.8 + 0.3	2.8 + 0.3	1.7 + 0.2
Ball Indentation Hardness	DIN 54 456	N/mm²	Dry/cond.	160 /100	160 / 100	250 / 180
Tensile Yield Strength	DIN 53 455	N/mm²	Dry/cond.	85 / 60	90 / 65	190 / 140
Ultimate Elongation	DIN 53 455	%	Dry/cond.	50 / >50	40 / >50	3 / 5
Modulus of Elasticity	DIN 53 457	N/mm²	Dry/cond.	3100/1600	3200 / 1600	10000 / 7500
Charpy Impact Strength @ +23°C	ISO 179/1eU	KJ/m²	Dry/cond.	NB/NB	NB / NB	80 / 95
Charpy Impact Strength @ -30°C		KJ/m²				70
Charpy Impact Strength Notched @ +23°C	ISO 179/1eA	KJ/m²	Dry/cond.	7 / 27	7 / 27	12 / 20
Charpy Impact Strength Notched @ -30°C		KJ/m²				10
Notched Izod Impact Strength @ +23°C	ISO 180/1A	KJ/m²	Dry/cond.	5.5 / NB	4.0 / NB	11 / 16
Notched Izod Impact Strength @ -40°C		KJ/m²		5.0	3.0	10
Volume Resistivity	DIN 53 482		Dry/cond.	1015 / 1012	1015 / 1012	1015 / 1012
Surface Resistivity	DIN 53 482		Dry/cond.	1013 / 1010	1013 / 1010	1012 / 1010
Dielectric Strength (3mm)	DIN 53 481	KV/mm	Dry/cond.	120 / 75	120 / 75	90 / 80
Heat Distortion Temp.	ISO 75	°C		>200	>200	>250
Linear Thermal Expansion	DIN 53 752	$1/K \cdot 10^{-5}$	Dry	7 - 10	7 - 10	1.5 - 2
Maximum Service Temp.		°C		<200	<200	<240
Flammability	ASTM D 635	UL-94		V2	V2	HB

polyram
creative plastic compositions

Nylon 6

- Public company est. 1986 in Israel
- 15 years in partnership with Plastribution
- One of the largest independent producers of engineering thermoplastic compounds in the world
- 30,000 tonnes capacity
- Growing at 20% / year
- QS9000 / ISO9001 / UL94 registered
- Comprehensive product range
- Constant new product development – specific to customer requirements

Standard Grades

GRADE	DESCRIPTION
PB145	Unfilled
PB300G3	15% Glass Fibre Filled, Heat Stabilised
PB300G4	20% Glass Fibre Filled, Heat Stabilised
PB300G6	30% Glass Fibre Filled, Heat Stabilised
PB302G50	50% Glass Fibre Filled, Heat Stabilised, UV Stabilised
PB320G6	30% Glass Fibre Filled, Heat Stabilised, Fire Retardant
PB322G6	30% Glass Fibre Filled, Heat Stabilised, UV Stabilised
PB321I6	30% Glass Fibre and Mineral Filled
PB340S6	30% Glass Sphere Filled, Heat Stabilised
PB350M4	20% Mineral Filled
PB350M6	30% Mineral Filled
PB500	Unfilled, Fire Retardant

GRADE	DESCRIPTION
PB507	Unfilled, Fire Retardant, V0 Halogen-Free
PB702	Unfilled, UV Stabilised
PB801	Unfilled, Impact Modified
PB825G5	25% Glass Fibre Filled, Impact Modified
PB840	Unfilled, Intermediate Impact Modified
PB847I4	20% Glass Fibre Filled, Impact Modified
PB890	Unfilled, Super Tough Highly Impact Modified
RB133BK10	Unfilled, Industrial Grade in Black
RB301G6BK10	30% Glass Filled Industrial Grade in Black

Polyram Nylon 6

GRADE	PROPERTY												
	DENSITY (G/CM3)	SHRINKAGE (%)	TENSILE STRENGTH (MPA)	ELONGATION AT BREAK (%)	FLEXURAL STRENGTH (MPA)	FLEXURAL MODULUS (MPA)	IZOD IMPACT STRENGTH (J/M)	HDT AT LOAD 1.8MPA ©	HDT AT LOAD 0.45 MPA ©	UL FLAMM-ABILITY	MAX TEMP CONT. USE ©	MAX TEMP. SHORT PERIODS ©	SURFACE RESISTANCE (OHM)
	DIN53479		ASTM-D638	ASTM-D638	ASTM-D790	ASTM-D790	ASTM-D256	DIN53461	DIN53461	UL94			DIN53482
PB145	1.14	1.2-1.6	95	20	110	2600	50	80	185	V2	80	180	10^13
PB300G3	1.23	1.2-1.6	125	3.5	180	5000	60	190	215	HB	110	200	10^12
PB300G4	1.28	0.8-1.1	140	3.5	200	7000	70	200	220	HB	110	200	10^12
PB300G6	1.37	0.3-0.4	180	3.5	250	8000	120	210	220	HB	110	200	10^12
PB302G50	1.55	0.2	220	3	320	14000	180	215	220	HB	110	200	10^12
PB320G6	1.38	0.3-0.4	110	3	170	5500	90	190	218	V0	110	>200	10^10
PB322G6	1.37	0.3-0.4	180	3.5	250	8000	140	210	220	HB	110	200	10^12
PB321I6	1.37	0.3-0.4	110	3.5	200	7000	45	-	-	HB	110	200	10^12
PB340S6	1.35	0.8-1.0	70	4	120	3600	50	90	190	HB	80	180	10^12
PB350M4	1.26	0.8-1.1	85	4	130	3500	50	140	200	HB	70	180	10^12
PB350M6	1.36	0.8-1.1	85	4	70	5000	50	140	200	HB	70	180	10^12
PB500	1.16	1.0-1.4	80	15	120	3000	50	80	185	V0	90	180	10^13
PB507	1.15	1.0-1.4	80	15	120	3000	40	80	185	V0	105	180	10^13
PB702	1.14	1.2-1.6	90	15	110	2600	60	80	185	HB	80	180	10^13
PB801	1.05	1.2-1.6	80	70	110	2600	165	65	170	HB	80	180	10^13
PB825G5	1.28	0.3-0.4	110	3	115	5500	125	195	210	HB	80	200	10^10
PB840	1.1	1.2-1.6	60	50	85	2200	220	65	170	HB	80	180	10^13
PB847I4	1.3	0.5-0.7	75	3.5	125	3500	90	-	-	-	-	-	-
PB890	1.06	1.4-1.8	45	100	60	1500	900	60	160	HB	80	180	10^12
RB133BK10	1.14	1.4-1.8	>70	>15	>95	>2200	>60	>65	>160	-	-	-	-
RB301G6BK10	1.28	0.15	125	-	180	6000	70	190	210	HB	-	-	10^12

creative plastic compositions

Nylon 66

- Public company est. 1986 in Israel
- 15 years in partnership with Plastribution
- One of the largest independent producers of engineering thermoplastic compounds in the world
- 30,000 tonnes capacity
- Growing at 20% / year
- QS9000 / ISO9001 / UL94 registered
- Comprehensive product range
- Constant new product development – specific to customer requirements

Standard Grades

GRADE	DESCRIPTION
PA100	Unfilled
PA106R	Molybdenum Disulphide Modified
PA124	Unfilled, Fast Cycling
PA301G3	15% Glass Fibre Filled, Heat Stabilised
PA301G4	20% Glass Fibre Filled, Heat Stabilised
PA301G5	25% Glass Fibre Filled, Heat Stabilised
PA301G50	50% Glass Fibre Filled, Heat Stabilised
PA301G6	30% Glass Fibre Filled, Heat Stabilised
PA303G6	30% Glass Fibre Filled, Heat Stabilised, Hydrolysis Resistant
PA303G33	33% Glass Fibre Filled, Heat Stabilised, Hydrolysis Resistant
PA309G6	30% Glass Fibre Filled, Heat Stabilised, UV Stabilised
PA320G4	20% Glass Fibre Filled, Heat Stabilised, Fire Retardant
PA320G6	30% Glass Fibre Filled, Heat Stabilised, Fire Retardant
PA324G6	30% Glass Fibre Filled, Heat Stabilised, Fire Retardant, Self Extinguishing
PA325G5	25% Glass Fibre Filled, Heat Stabilised, Fire Retardant
PA325G6	30% Glass Fibre Filled, Heat Stabilised, Fire Retardant
PA340S6	30% Glass Spheres Filled, Heat Stabilised

GRADE	DESCRIPTION
PA350M8	40% Mineral Filled
PA352M6	30% Mineral Filled, Molybdenum Disulphide Modified
PA360G6	30% Glass Fibre Filled, Molybdenum Disulphide Modified
PA4501G6	30% Glass Fibre Filled, Silicone Lubricated
PA4801G6	30% Glass Fibre Filled, PTFE Lubricated
PA500	Unfilled, Fire Retardant
PA507	Unfilled, Fire Retardant
PA517	Unfilled, Fire Retardent, V0 Halogen-Free
PA600	Unfilled, Heat Stabilised
PA604	Unfilled, Highly Heat Stabilised
PA700	UV Stabilised
PA810	Unfilled, Impact Modified
PA830	Unfilled, Intermediate Impact Modified
P860	Unfilled, Super Tough Highly Impact Modified
PA865G6	30% Glass Fibre Filled, Impact Modified
RA102BK	Unfilled Industrial Grade in Black
RA103	Unfilled Industrial Grade
RA300G6BK	30% Glass Fibre Filled Industrial Grade in Black
RA301G6	30% Glass Fibre Filled Industrial Grade

Polyram Nylon 66

GRADE	PROPERTY													
	DENSITY (G/CM3)	SHRINKAGE (%)	TENSILE STRENGTH (MPA)	TENSILE MODULUS	FLEXURAL STRENGTH (MPA)	FLEXURAL MODULUS (MPA)	IZOD IMPACT STRENGTH (J/M)	HDT AT LOAD 1.8MPA ©	HDT AT LOAD 0.45 MPA ©	GLOW WIRE TEST	UL FLAMM-ABILITY	MAX TEMP CONT. USE ©	MAX TEMP. SHORT PERIODS ©	SURFACE RESISTANCE (OHM)
	DIN53479		ASTM-D638	Mpa	ASTM-D790	ASTM-D790	ASTM-D256	DIN53461	DIN53461		UL94			DIN53482
PA100	1.14	1.4-1.8	85		120	2700	55	100	210	750	V2	80	200	10^13
PA106R	1.14	1.4-1.8	90	-	120	2700	50	100	210	-	V2	80	200	10^13
PA301G3	1.23	0.45-0.55	130	-	190	6000	60	250	250	-	HB	120	240	10^12
PA301G4	1.27	0.4-0.5	145	-	225	6000	85	250	250	-	HB	110	240	10^12
PA301G5	1.31	0.4-0.5	150	-	230	8000	80	250	250	-	HB	120	240	10^12
PA301G50	1.55	0.1-0.25	230	-	330	15000	130	250	250	-	HB	100	240	10^12
PA301G6	1.37	0.3-0.4	185	-	290	8000	100	250	250	-	HB	120	240	10^12
PA303G6	1.37	0.3-0.4	185	-	290	8000	115	250	250	750	HB	120	240	10^12
PA309G6	1.37	0.2	175	9800	275	9200	110	250	250	-	HB	120	240	10^12
PA320G4	1.4	0.2-0.4	145	-	200	6700	60	250	240	-	V0	100	200	10^12
PA320G6	1.38	0.3-0.4	150	-	200	8000	60	250	235	960	V0	115	>200	10^13
PA340S6	1.35	0.8-1	95	4800	110	3300	50	90	200	-	HB	80	180	10^15
PA350M8	1.45	0.5-0.9	95	-	160	6600	40	235	175	-	HB	80	200	10^13
PA517	1.15	1-1.4	75	-	75	3100	40	90	220	-	V0	80	180	10^13
PA600	1.14	1.1-1.8	85	-	115	2600	60	100	205	850	V2	115	>180	10^13
PA700	1.14	1.1-1.8	85	-	115	2600	60	90	235	-	V2	110	>180	10^13
PA810	1.1	1.4-1.8	70	-	90	2000	100	85	220	-	HB	80	180	10^12
PA860	1.08	1.7-2.5	45	-	65	1450	1000	80	219	-	HB	70	>180	10^13
PA865G6	1.32	0,3-0.5	110	-	170	5500	250	240	250	-	HB	110	>200	10^12
RA103	1.13	1.6	>65	-	>95	>2000	>80	90	235	-	HB	-	-	-
RA301G6	1.37	0.3-0.4	150	-	200	7000	70	250		-	HB	120	180	-

creative plastic compositions

Nylon 12

- Public company est. 1986 in Israel
- 15 years in partnership with Plastribution
- One of the largest independent producers of engineering thermoplastic compounds in the world
- 30,000 tonnes capacity
- Growing at 20% / year
- QS9000 / ISO9001 / UL94 registered
- Comprehensive product range
- Constant new product development – specific to customer requirements

Standard Grades

GRADE	DESCRIPTION
PD100	Unfilled
PD300G4	20% Glass Fibre Filled
PD300G6	30% Glass Fibre Filled
RD101	Unfilled, Industrial Grade, High Impact Strength
RD302G6	30% Glass Fibre Filled, Industrial Grade

Polyram Nylon 12

GRADE	PROPERTY												
	DENSITY (G/CM3)	SHRINKAGE (%)	TENSILE STRENGTH (MPA)	TENSILE MODULUS	ELONGATION AT BREAK (%)	FLEXURAL STRENGTH (MPA)	FLEXURAL MODULUS (MPA)	IZOD IMPACT STRENGTH (J/M)	HDT AT LOAD 1.8MPA ©	HDT AT LOAD 0.45 MPA ©	UL FLAMM-ABILITY	MELTING POINT ©	SURFACE RESISTANCE (OHM)
	DIN53479		ASTM-D638	Mpa	ASTM-D638	ASTM-D790	ASTM-D790	ASTM-D256	DIN53461	DIN53461	UL94		DIN53482
PD100	1.02	1.5	30	-	20	24	450	150	55	125	HB	165-175	10^13
PD300G4	1.25	-	90	6000	3.5	140	4000	100	-	-	HB	165-175	-
PD300G6	1.35	-	115	8000	3.5	170	580	110	-	-	HB	165-175	-
RD101	1.02	1.5	30	-	20	25	450	500	55	125	HB	165-175	10^11
RD302G6	1.35	0.16	130	7500	4	150	500	180	-	-	HB	165-175	-

Mitsubishi Engineering Plastics

Iupilon Polycarbonate

- Superior impact strength
- Superior transparency
- Usability in a wide range of temperatures: -40˚C to 120˚C
- Excellent precision moulding properties and dimensional
- Superior self-extinguishing properties
- Excellent weather resistance
- Excellent electrical insulation capabilities.

Standard Grades

GRADE	DESCRIPTION
E2000	High Viscosity
S2000	Medium Viscosity
S3000	Low Viscosity
H3000	Very Low Viscosity
N5	Flame Retardant

Also available in UV stabilised, extra mould release and flame retardant versions.

Also available in food contact approved grades.

Iupilon Polycarbonate

PROPERTIES	TEST METHOD	TERMS	UNITS	E2000	S2000	S3000	H3000	N5
Density	ISO 1183	-	g/cm³	1.2	1.2	1.2	1.2	1.28
Water Absorption	-	23°C underwater	%	0.24	0.24	0.24	0.24	0.17
Melt Mass-Flow Rate	ISO 1133	Temp. load	g/10min	5.3	12	16	30	16
Moulding Shrinkage	-	MD	%	5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7
	-	TD	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7
Tensile Modulus	ISO 527-1/527-2	-	MPa	2400	2400	2400	2400	2800
Yield Stress	ISO 527-1/527-2	-	MPa	60	61	62	62	68
Yield Strain	ISO 527-1/527-2	-	%	5.4	5.6	6.7	6.6	6.6
Nominal Strain at Break	ISO 527-1/527-2	-	%	108	113	119	118	118
Flexural Strength	ISO 178	-	MPa	93	93	93	93	99
Flexural Modulus	ISO 178	-	MPa	2300	2300	2300	2300	2300
Charpy Impact Strength	ISO 179-1	23°C	KJ/m²	NB	NB	NB	NB	NB
Chary Notched Impact Strength	ISO 179-2	23°C	KJ/m²	88	76	67	9	6
Temperature of Deflection under Load	ISO 75-1/ISO 75-2	1.80 MPa	°C	131	129	124	122	125
	ISO 75-1/ISO 75-2	0.45 MPa	°C	145	143	139	136	141
Vicat Softening Temperature	ISO 306	-	°C	-	-	-	-	-
Coefficient of Linear Thermal Expansion	ISO 11359-2	MD	1/°C	6.50E-05	6.50E-05	6.50E-05	6.50E-05	6.3 E -0.5
	ISO 11359-2	TD	1/°C	6.60E-05	6.60E-05	6.60E-05	6.60E-05	6.2E -0.5
Flammability	UL94	-	-	HB 0.5-6.0mm	V2 0.38-1.8mm	V2 0.38-1.8mm	V2 0.38-2.4mm	V0 (2mm)
Relative Permittivity	IEC 60250	100Hz	-	3.1	3.1	3.1	3.1	3.1
	IEC 60250	1MHz	-	3.1	3.1	3.1	3.1	3
Dissipation Factor	IEC 60250	100 Hz	-	0.0006	0.0006	0.0006	0.0006	0.0008
	IEC 60250	1MHz	-	0.009	0.009	0.009	0.009	0.0079
Volume Resitivity	IEC 60093	-	ohm-m	3 E + 14	3 E + 14	3 E + 14	3 E + 14	4 E + 14
Surface Resitivity	IEC 60093	-	ohm	6 E + 15	6 E + 15	6 E + 15	6 E + 15	3 E + 15
Electric Strength	IEC 60243-1	1mmt	MV/m	31	31	31	31	30
	IEC 60243-1	2mmt	MV/m	-	-	-	-	-
	IEC 60243-1	3mmt	MV/m	18	18	18	18	17
Comparative Tracking Index	IEC 60112	-	-	275	275	275	275	225

Idemitsu Petrochemical Co. Ltd

Idemitsu Polycarbonate

- High impact strength
- Very high clarity
- High heat resistance
- Excellent dimensional accuracy and stability
- Superior electrical insulating properties
- Suitable for food and pharmaceutical use
- Flame retardant and self extinguishing properties.

BASE	VISCOSITY	DESCRIPTION
#1700	Very low	Highly transparent, very high flow, easy mould releases; suitable for long running distances.
#1900	Low	High flow, excellent processibility.
#2200	Medium	Easy mould release, thin-wall applications and large parts, suitable for injection moulding and injection blow moulding.
#2600	High	Suitable for injection moulding, extrusion also for bullet proof shields.
IRY2200	Medium	Flame retardant material of optical quality (V-0 at 3mm thickness)

Also available in UV stabilised, extra mould release and flame retardant versions.

Also available in food contact approved grades.

Idemitsu Polycarbonate

PROPERTIES	TEST METHOD	UNIT	TYPICAL VALUES				
			1700	1900	2200	2600	IRY 2200
Density	ISO 1183	Kg/m³	1.2	1.2	1.2	1.2	1.2
Melt Flow Index	ISO 1133	g/10 min	27	19	12	6	12
Water Absorption	ISO 62	%	0.23	0.23	0.23	0.23	0.23
Tensile Stress at Yield		MPa	65	65	65	65	65
Tensile Stress at Break		MPa	65	65	65	65	65
Nominal Tensile Strain at Break	ISO 527	%	95	95	95	95	95
Modulus of Elasticity in Tension		MPa	2,000	2,000	2,000	2,000	2,000
Flexural Strength	ISO 178	MPa	90	90	90	90	90
Modulus of Elasticity in Lexure	ISO 178	MPa	2,300	2,300	2,300	2,300	2,300
Charpy Impact Strength	ISO 179-1 EA	KJ/m²	40	70	80	90	80
Rockwell Hardness	ISO 2039	R/M scale	120/50	120/50	120/50	120/50	120/50
Taber Abrasion	ASTM 1044	mg	12	12	12	12	12
Temperature of Deflection	ISO 75	°C	125	125	125	130	125
Vicat Softening Point	ISO 306	°C	145	145	145	150	145
Mould Shrinkage	ASTM D 955	%	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7	0.5 ~ 0.7
Linear Expansion Factor	ASTM D 696	$x10^{-5}$ cm/cm°C	6.5	6.5	6.5	6.5	6.5
Electric Strength (1.6mm)	IEC 60243-1	MV / m	30	30	30	30	30
Volume Resistivity	IEC 60093	W x m	>1016	>1016	>1016	>1016	>1016
Relative Permittivity		100 Hz / 106 Hz	2.91/2.85	2.91/2.85	2.91/2.85	2.91/2.85	2.91/2.85
Dissipation Factor	IEC 60250	60Hz / 106 Hz	$6.6x10^{-4}/9.2x10^{-3}$	$6.6x10^{-4}/9.2x10^{-3}$	$6.6x10^{-4}/9.2x10^{-3}$	$6.6x10^{-4}/9.2x10^{-3}$	$6.6x10^{-4}/9.2x10^{-3}$
Arc Resistance	ASTM D 495	sec	110	110	110	110	110
Refractive Index			1.586	1.586	1.586	1.586	1.586
Total Luminous Transmittance	ISO 13468	%	85 ~ 89	85 ~ 89	85 ~ 89	85 ~ 89	85 ~ 89
Flammability	UL94 File E48268(m)		V2 0.36-2.4mm	V-2 0.36-1.80	V-2 0.36~2.9mm	–	V-0 (3mm)
			HB 2.5-6.0mm	HB 1.9-6.0mm	HB 3.0-6.0mm	HB 0.4-1.5	
Hwi-class at 1.47mm			3	3	3	3	
Flammability – Oxygen Index	ASTM D 2863	%	26	26	26	26	28
Glow wire test at 3.0mm	IEC 695-2-1	°C	850	850	850	850	960

Raditer B & Radiflam

PBT

- High rigidity and strength
- Good toughness at low temperatures
- High heat deflection temperature
- High chemical resistance.

Standard Grades

GRADE	DESCRIPTION
Raditer B N100	General Moulding Grade
Raditer B RV300	30% Glass Fibre Reinforced
Radiflam B N100AE	Flame Retardant
Radiflam B RV250AE	Flame Retardant 30% Glass Fibre Reinforced.

Raditer B & Radiflam PBT

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUES			
			B N100	B RV300	B N100AE	B RV250AE
Density	ISO 1183	Kg/m³	1.32	1.51	1.44	1.62
Melting Point	ISO 3146	°C	225	225	225	225
Tensile Modulus	ISO 527-1/2	MPa	2750	2750	3150	10100
Yield Strain	ISO 524-1/2	%	8.5	–	–	–
Strain at Break	ISO 527-1/2	%	35	2.5	1.7	1.4
Stress at Break	ISO527-1/2	MPa	60	125	40	95
Charpy Impact Strength	ISO 179/1 EU	KJ/m²	–	66	–	–
Charpry Notched Impact Strength	ISO 179/1 EA	KJ/m²	4.2	8.5	2.2	6.6
Flexural Strength	ISO 178	MPa	80	190	88	160
Flexural Modulus	ISO 178	MPa	2200	7500	2750	9200
Heat Deflection Temperature 1.8 MPa	ISO 75/2 A F	°C	60	205	60	195
Heat Deflection Temperature 0.45 MPa	ISO 75/2 B F	°C	165	215	160	210
Vicat Softening Temperature	ISO 306	°C	180	210	180	205
Flammability	UL-94	mm /class	0.8/HB	0.8 / HB	0.8 / V0	0.8 / V0

polyram
creative plastic compositions

PBT

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- Constant new product development – specific to customer requirements

Standard Grades

GRADE	DESCRIPTION
PF100	Unfilled
PF300G4	20% Glass Fibre Filled
PF300G6	30% Glass Fibre Filled
PF320G2	10% Glass Fibre Filled, Fire Retardant
PF320G3	15% Glass Fibre Filled, Fire Retardant
PF320G6	30% Glass Fibre Filled, Fire Retardant
PF329G4	10% Glass Fibre Filled, Fire Retardant, V0 Halogen-Free

GRADE	DESCRIPTION
PF340S4	20% Glass Sphere Filled
PF340S6	30% Glass Sphere Filled
PF508	Unfilled Fire Retardant, V0 Halogen-Free
PF702	Unfilled, UV Stabilised
PF810	Unfilled, Impact Modified
RF300G4	20% Glass Fibre Filled, Industrial Grade

Polyram PBT

GRADE	PROPERTY												
	DENSITY (G/CM3)	SHRINKAGE (%)	MFI (G/10IN)	TENSILE STRENGTH (MPA)	ELONGATION AT BREAK (%)	FLEXURAL STRENGTH (MPA)	FLEXURAL MODULUS (MPA)	IZOD IMPACT STRENGTH (J/M)	HDT AT LOAD 1.8MPA ©	HDT AT LOAD 0.45 MPA ©	GLOW WIRE TEST	UL FLAMM-ABILITY	MELTING POINT ©
	DIN53479		ISo1133/230 /2.16	ASTM-D638	ASTM-D638	ASTM-D790	ASTM-D790	ASTM-D256	DIN53461	DIN53461		UL94	
PF100	1.3	2.3	30	57	30	85	2200	40	70	170	750	HB	225
PF300G4	1.45	0.35	20	100	3	155	5000	85	210	220	750	HB	225
PF300G6	1.68	0.3	15	130	3	180	8000	120	210	220	650	HB	225
PF320G2	1.52	1.3	20	80	3	120	4800	50	210	220	750	V0	225
PF320G3	1.53	0.4	15	85	3	120	4800	50	210	220	960	V0	225
PF320G6	1.68	0.2	20	140	3	170	8000	100	210	220	960	V0	225
PF329G4	1.49	1.6	3	87	2.5	135	6000	70	210	220	960	V0	225
PF340S4	1.45	2	15	50	3.5	80	2100	35	100	210	-	HB	225
PF340S6	1.53	1.9	15	57	4	95	2300	35	100	210	650	HB	225
PF508	1.35	2.2	35	50	20	85	2000	70	55	135	960	V0	225
PF702	1.3	2.1	30	57	30	90	2300	55	60	160	750	HB	225
PF810	1.27	2.3	20	50	55	80	2000	100	68	160	650	HB	225
RF300G4	1.45	0.4	20	110	3	170	5300	75	205	220	750	HB	225

creative plastic compositions

Polytron

Long Glass Fibre filled grades

Polyram is a long established name in thermoplastic compounds who conform to the highest quality control and technical standards such as ISO-9001, QS-9000, NSF and UL94. Formed in 1986, they now have capacity in excess of 30,000 tonnes and are growing at 20% per year, which makes them one of the largest independent compounders of engineering materials in the world.

- can offer savings by replacing more expensive materials.
- especially effective in replacing metal in structural applications.
- feature great impact strength, modulus and high HDT values
- available in several grades, with varying percentage of long glass fibre, all of which are suitable for the injection moulding market.

Standard Grades

GRADE	DESCRIPTION
Polytron A40	40% LGF Filled, Heat Stabilised, Black or Neutral
Polytron P30	30% LGF Filled, Heat Stabilised, Black or Neutral
Polytron P40	40% LGF Filled, Heat Stabilised, Black or Neutral
Polytron P50	50% LGF Filled, Heat Stabilised, Black or Neutral

Polytron Long Glass Fibre Filled Grades

GRADE	PROPERTY										
		DENSITY (G/CM3)	SHRINKAGE (%)	MFI (G/10IN)	TENSILE STRENGTH (MPA)	TENSILE MODULUS	ELONGATION AT BREAK (%)	FLEXURAL STRENGTH (MPA)	FLEXURAL MODULUS (MPA)	IZOD IMPACT STRENGTH (J/M)	HDT AT LOAD 1.8MPA ©
Polytron A40	Nylon 66, 40% LGF Filled, Heat Stabilised, Black Or Natural	1.48	0.22	-	195	10650	2.65	295	10700	220	255
Polytron P30	Polypropylene, 30% LGF Filled, Heat Stabilised, Black Or Natural	1.12	0.17	-	90	5450	1.7	155	5550	160	149
Polytron P40	Polypropylene, 40% LGF Filled, Heat Stabilised, Black Or Natural	1.23	0.12	-	125	9500	2.65	175	6700	200	152
Polytron P50	Polypropylene, 50% LGF Filled, Heat Stabilised, Black Or Natural	1.3	0.03	-	125	8000	2.45	200	9000	200	157

degussa.

creating essentials

- Worlds largest producer of PMMA materials
- Large grade range available
- Excellent weatherability
- Outstanding light transmission
- High surface hardness and scratch resistance
- Outstanding brilliance
- Absolutely colourless and transparent
- Good heat resistance
- High rigidity
- Good chemical & fuel resistance
- 100% recyclable

Standard Grades

GRADE	DESCRIPTION
PLEXIGLAS®	
6N	MFI 12 standard moulding grade
7N	MFI 6 standard moulding grade
8N	MFI 3 standard moulding grade
zk4BR	MFI 4.5, higher impact grade
zk5BR	MFI 3.3, high impact grade
zk6BR	MFI 1.6, very high impact grade
7H	MFI 1.4 extrusion grade
8H	MFI 0.8 extrusion grade
df218N	MFI 2.5 87% light diffusing grade
df228N	MFI 2.4 86% light diffusing grade
df238N	MFI 2.1 81% light diffusing grade
hw55	MFI 1.2 copolymer grade with high HDT

Other grades available including Cyrolite medical grades. Please contact your local Plastribution sales representative for details

PROPERTY	UNIT	STANDARD	PLEXIGLAS® 6N	PLEXIGLAS® 7N	PLEXIGLAS® 8N	PLEXIGLAS® zk4BR	PLEXIGLAS® zk5BR	PLEXIGLAS® zk6BR
Mechanical Properties								
Tensile Modulus (1 mm/min)	MPa	ISO 527	3200	3200	3300	2800	2400	1800
Stress at break (5 mm/min)	MPa	ISO 527	67	73	77	71	62	45
Strain at break (5 mm/min)	%	ISO 527	3	3.5	5.5	4.5	4.5	5
Charpy notched impact strength (at 23°C)	kJ/m²	ISO 179	20	20	20	25	50	80
Thermal Properties								
Vicat softening temperature (B/50)	°C	ISO 306	96	103	108	102	100	95
Glass transition temperature	°C	IEC 10006		110	117	108	109	109
Temp. of deflection under load (0.45 MPa)	°C	ISO 75		100	103	99	98	93
Temp. of deflection under load (1.8 MPa)	°C	ISO 75		95	98	95	93	88
Coeff. of linear therm. expansion (0-50°C)	10^{-5} K^{-1}	ASTM E831	8	8	8	8	9	11
Fire rating		DIN 4102	B2	B2	B2	B2	B2	B2
Flammability UL 94 (at nom. 1.6 mm)	Class	IEC 707				HB	HB	HB
Rheological Properties								
Melt volume rate, mVR (230/3.8)	cm³/10 min	ISO 1133	12	6	3	4.5	3.3	1.6
Optical Properties								
Transmission factor τ_{D65}	%	DIN 5036	92	92	92	92	92	91
Haze	%	ASTM D1003		< 0.5	< 0.5	< 1.5	< 2	< 2
Refractive index		ISO 489	1.49	1.49	1.49	1.49	1.49	1.49
Other Properties								
Density	g/cm³	ISO 1183	1.19	1.19	1.19	1.18	1.17	1.16

All listed technical data are typical values intended for your guidance. They are given without obligation and do not constitute a materials specification.

PROPERTY	UNIT	STANDARD	PLEXIGLAS® 7H	PLEXIGLAS® 8H	PLEXIGLAS® df21 8N	PLEXIGLAS® df22 8N	PLEXIGLAS® df23 8N	PLEXIGLAS® hw55 clear
Mechanical Properties								
Tensile Modulus (1 mm/min)	MPa	ISO 527	3200	3300	3300	3300	3300	3600
Stress at break (5 mm/min)	MPa	ISO 527	76	78	71	67	65	80
Strain at break (5 mm/min)	%	ISO 527	5.5	6.5	4.5	3.5	2.5	3.5
Charpy notched impact strength (at 23°C)	kJ/m²	ISO 179	20	20	18	18	16	20
Thermal Properties								
Vicat softening temperature (B/50)	°C	ISO 306	103	108	109	109	109	119
Glass transition temperature	°C	IEC 10006	112		111	110	108	122
Temp. of deflection under load (0.45 MPa)	°C	ISO 75	100		103	103	103	109
Temp. of deflection under load (1.8 MPa)	°C	ISO 75	95		98	98	98	106
Coeff. of linear therm. expansion (0-50°C)	10^{-5} K^{-1}	ASTM E831	8	8	6.3	6.3	6.3	7
Fire behaviour		DIN 4102	B2	B2	B2	B2	B2	
Flammability UL 94 (at nom. 1.6 mm)	Class	IEC 707						HB
Glow wire ignition temperature	°C	IEC 695-2			700	700	700	
Rheological Properties								
Melt volume rate, mVR (230/3.8)	cm³/10 min	ISO 1133	1.4	0.8	2.5	2.4	2.1	1.2
Optical Properties								
Transmission factor τ_{D65}	%	DIN 5036	92	92				90
Haze	%	ASTM D1003	< 0.5		87	86	81	
Refractive index		ISO 489		1.49	9	14	20	1.51
Other Properties								
Density	g/cm³	ISO 1183	1.19	1.19	1.19	1.19	1.19	1.19
Water absorption in water	%	ISO 62						2.2
Humidity absorption (23°C, 50%)	%	ISO 62						0.6

All listed technical data are typical values intended for your guidance. They are given without obligation and do not constitute a materials specification.

TOSOH

'Susteel' PPS

- High heat resistance
  – Deflection temperature under load of 260°C
  – Long-term continuous temperature of 220°C
- Good chemical resistance – Only a few types of strong acid can attack Susteel PPS.
- Good dimensional stability due to very low water absorption.
- Excellent mechanical properties – High strength and high rigidity over a wide range of temperatures.
- UL 94 V-0 rated
- Good electrical characteristics.

Standard Grades

GENERAL	DESCRIPTION
Glass Fibre Reinforced Types	
Standard	GS-40(11)
Low Flash	GS-40(21)
High Toughness (40%)	GS-40(31)
High Toughness (30%)	GS-30(31)
High Flow	GS-40(2208)
Glass Fibre/Filler Type	
Standard	G-10
Increased Toughness	P-01
High Toughness	P-30
Arc Resistance	GE-60
Low Stress Relaxation	GM-70

ALLOY GRADES	DESCRIPTION
Super Tough	BGX
High Adhesive (epoxy resin)	P-60
High Flow High Adhesive (epoxy resin)	SGX-120
SPECIAL GRADES	
Self Lubricating	
PTFE Filled unreinforced	F
PTFE/GF	FG
PTFE/CF	FC
Electrically Conductive	
CF Reinforced	CH-30
Low Stress Relaxation	GM-70

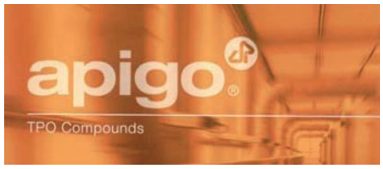
Megol

The Megol family of TPE compounds offers the ideal combination of the elasticity, softness and aesthetics of rubbers and the low processing costs of thermoplastics.

The major constituent of these TPE compounds is SBS and the formulation flexibility of this polymer allows the production of grades with a very wide hardness range suitable for a variety of applications in different industries.

Megol offers the following key features:

- Remarkable range of hardness and elastic modulus
- Excellent resistance to ageing
- Almost white base colour allows very wide colour range
- Excellent performance at low temperature
- Available in high temperature, co-moulding and transparent variants
- Brochures and datasheets available on request
- Brochures and datasheets available on request

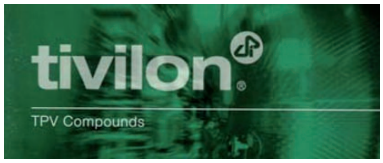


Apigo

Apigo materials are polyolefin based compounds modified with elastomers developed to meet market requirements for alloys with rigidity lower than conventional polypropylene.

Apigo offers the following key features:

- Excellent alternative to flexible PVC when halogen free products are necessary
- Excellent resistance to low temperatures
- Excellent colourability
- Available in medium and low elastic modulus
- Hardness range 35 Shore A to 65 Shore D
- Datasheets and brochures available on request



Tivilon

Tivilon is an innovative TPV family.

The Tivilon grades offer improved properties compared to classic TPV such as tear resistance, tensile strength, elongation, wide range of hardness, processability, aesthetics, low and high temperature resistance and solvent resistance.

Tivilon offers the following key features:

- Remarkable range of hardness
- Excellent resistance to ageing
- Almost white base colour allows very wide colour range
- Excellent performance at low temperatures
- High temperature resistance
- Excellent compression set
- Brochures and datasheets available on request

Raplan

Raplan compounds are a range of SBS based thermoplastic elastomers.

These materials are more elastic than plasticized PVC which had previously dominated the field in footwear applications. They have a look and touch comparable to vulcanised rubber but their technology, workability and recyclability are typical of thermoplastic products.

Raplan compounds, although developed to meet the technical and cosmetic needs of footwear manufacturers, are also perfect for use in other fields in which good flexibility and resistance to low temperatures is required.

Raplan offers the following key features:

- Wide range of hardness
- Density 0.5 – 1.0 g/cc
- Rheology suiting extrusion, calandering, thermoforming, injection moulding
- Excellent low temperature flexibility
- Foamed types available
- Transparent and semi-transparent grades available
- Excellent colourability
- Brochures and datasheets available on request

Apilon 52

Apilon 52 products belong to the thermoplastic polyurethane family with high elasticity and low temperature resistance.

They are plasticizer free, very tough and ideal for applications where extreme resistance to abrasion, oils and fats is a must.

Apilon 52 offers the following key features:

- Excellent abrasion resistance
- Excellent hydrolysis resistance
- Hardness range from 85 Shore A to 65 Shore D
- Excellent low temperature flexibility
- Excellent light resistance
- Datasheets and brochures available on request

Apizero / Apifive

Apizero and Apifive are cross-linkable products based on polyolefin modified with elastomers of the highest quality and have been created to meet market needs for the manufacture of light shoe soles which can successfully compete with conventional products such as PVC, thermoplastic rubber and two-component polyurethane.

Apizero and Apifive offer the following key features:

- Extreme lightness
- Unbeatable cost / volume ratio
- Excellent dimensional stability at warm temperatures
- High aesthetic quality
- Opaque or gloss appearance
- Rubbery and elastic touch
- Wide range of colours
- Brochures and datasheets available on request

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