Cast Polyamides (Nylon) PA6C & POM

POM-NAT/BLK					
PROPERTIES					
PROPERTIES	ITEM		Method ISO/(IEC)	Unit	POM-NAT/BLK
	Color		-	-	white/black
	Density		1183	g/㎤	1.41
	Water absorption	After 24/96h immersion in water of 23℃	62	㎎	20/37
		At saturation air 23℃, 50%RH	62	%	0.24/0.45
		At saturation in water of 23℃	-	%	0.20
			-	%	0.85
Thermal Properties	Melting Temperature		-	℃	165
	Thermal conductivity at 23°C		-	W/(m·K)	0.31
	Coefficient of inear Thermal expansion	Average value btw23~60°C	-	10^{-6}/k	110
		Average value btw23~100°C	-	10^{-6}/k	125
	Temperature of Deflection under load	Method A : 1.8Mpa	75	℃	105
	Max. allowable Service temp. in air	For short periods	-	℃	140
		Continously : 5,000/20,000h	-	℃	115/100
	Min.service temperature		-	℃	-50
	Flammability	UL94 (3/6mm thickness)	-	-	HB/HB
Mechanical Properties at 23°C	Tension test	Tensile stress	527	MPa	62
		Tensile strainat break	527	%	30
		Tensile modulus of elasticity	527	MPa	3100
	Compression test	Compressive stress at 1/2/5/% nominal strain	604	MPa	19/35/67
	Izod impact strength-Notched		180/2A	J/m	40
	Rockwell hardness		2039-2	-	R115
Electrical Properties at 23°C	Electric strength		(60243)	kV/mm	20.0
	Volume resistivity Surface resistivity		(60293)	Ω·cm	$>10^{14}$
			(60293)	Ω	$>10^{13}$
	Relative permittivity:	100Hz	(60250)	-	3.8
		1MHz	(60250)	-	3.8
	Dielectric dissipation factor:	100Hz	(60250)	-	0.003
		1MHz	(60250)	-	0.008
	Comparative tracking index(CTI)		(60112)	-	600

TECHNICAL PROPERTIES OF CAST NYLON & POM

Technical Properties				6C	6C HS BLUE	POM C	POM H
Properties	**Test Method**	**Units**	**Notes**				
Colour				NATURAL BLACK OTHERS	BLUE	WHITE BLACK OTHERS	WHITE
Density	ISO 1183:1987	g/cm^3	Test Method A	1.145	1.14	1.41	1.41
Moisture Absorption (Equilibrium)	ISO 62:1999	%	50% RH, 23C	-	-	0.1	0.2
Water Absorption (24 Hours)	ISO 62:1999 (modified)	%	Immersion, 23C	0.3	0.3	0.2	0.21
Water Absorption (Saturation)	ISO 62:1999	%	Immersion, 23C	7.00	5.3	0.9	0.9
MECHANICAL							
Tensile strength*	ISO 527:1/2:1993	MPa	Sample Type 1B, 50mm min	80	80	70	80
E-modulus**	ISO 527:1/2:1993	MPa	Sample Type 1B, 50mm min	4000	4000	3100	3500
Elongation at break	ISO 527:1/2:1993	%	Sample Type 1B, 50mm min	>20	>20	>15	>20
Compressive Strength*	ISO 604:2002	MPa	Sample Type B, 5mm min	95	95	110	130
Compressive Modulus	ISO 604:2002	MPa	Sample Type A, 1mm min	2700	2700	2600	3100
Flexural Strength*	ISO 178:2001	MPa	1.5mm min	105	105	80	90
Flexural Modulus	ISO 178:2001	MPa	1.5mm min	3300	3300	2600	3100
Izod Impact Strength	ISO 180:2000	KJ/m^2	Sample Type A Notched)	5.6	5.4	7.2	7.5
Charpy Impact Strength	ISO 179-2:1999	KJ/m^2	Notched	-	-	-	10
Hardness (Shore D)	ISO 868:2003			84	84	83	86
Coefficient of Fiction (Dynamic)		-	31.4m/min, 1.75MPa	0.39	0.15	0.25	0.25
Limiting PV		Mpa/m.min		-	-	6	6
K-Factor		mm3/Nm	31.4m/min, 1.75MPa	5.0×10^6	-	-	-
THERMAL							
Melting Temperature	-	°C		220	220	170	178
Glass Transition Temperature (Tg)	ISO 11359-2:1999	°C		-	-	-60	-60
Heat Deflection Temperature HDT/A	ISO 75	°C	1.8MPa	-	-	110	120
Heat Deflection Temperature HDT/B	ISO 75	°C	0.45MPa	-	-	160	170
Maximum Intermittent Service Temperature	-	°C		170	180	140	150
Maximum Continuous Service Temperature	-	°C	5000hrs	100	115	90	110
Minimum Intermittent Service Temperature	-	°C		-100	-100	-	-
Minimum Continuous Service Temperature	-	°C		-40	-40	-	-50
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	°C	23°C - 55°C	8×10^5	8×10^5	9.2×10^5	9×10^5
Thermal Conductivity	ISO 8301:1991	W/m.°C	Mean T = 20°C	0.26	-	0.31	0.23
Flammability	IEC 60695-11-10:2003-08			HB	HB	HB	HB
ELECTRICAL							
Dielectric Constant	IEC 60250:1969-01		1 MHz	3.7	3.7	3.8	3.7
Dielectric Constant (Low Frequency)			100 Hz	4	4	-	-
Dissipation Factor	IEC 60250:1969-01	Hz	100 Hz	-	-	0.005	0.005
Dielectric Strength	IEC 60243-1:1998-01	kV/mm		25	25	16.5	18
Volume Resistivity	IEC 60093:1980-01	ohm.m		1×10^{13}	1×10^{13}	1×10^{13}	1×10^{13}
Surface Resistivity ROA	IEC 60093:1980-01	ohm		1×10^{12}	1×10^{12}	1×10^{13}	1×10^{13}
Comparative Tracking Index	IEC 60112:2003-01	CTI		600	600	600	600

The data shown in this table has been determined in our manufacturers and should be considered as a useful reference only.

SIZES

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
Cast Nylon Sheets	Ivoy / Blue / Black	1m x 2m	Thickness: 3mm - 200mm
Cast Nylon Rods	Ivoy / Blue / Black	1m - 2m Length	Diameter: 6mm - 500mm

Polyamides (Nylon) PA 6E/66E

Product/Name/Description	Key Characteristics
Cast nylons are generally accepted as the primary engineering polymer, suitable for virtually any plain bearing application. By varying the conditions of polymerisation, the mechanical properties of cast nylons may be altered to suit specific applications, and the performance of the basic polymer can be enhanced with the addition of various additives, filter, lubricants.	* Unequalled formulation options and profile range * Excellent mechanical, thermal and chemical resistance * Excellent PV and local bearing capabilities * Excellent wear and abrasion resistance * Good dimensional stability, largely fee from internal stresses
Polyamides, commonly referred to as nylons, are macromolecular, partially crystalline thermoplastics. Their physical properties are mainly determined by the composition and structure of their molecular chains. Their combined strengths and characteristic position them as obvious first choice materials for all components, subject to structural and wear conditions, in mechanical and plant engineering environments.	* Excellent sliding and wear properties * Perfect balance of mechanical strength, toughness and rigidity * Good electrical insulating properties * Various FDA compliant grades available

TECHNICAL PROPERTIES OF CAST NYLON & POM

Technical Properties				6C	6C HS BLUE
Properties	**Test Method**	**Units**	**Notes**		
Colour				NATURAL BLACK OTHERS	BLUE
Density	ISO 1183:1987	g/cm^3	Test Method A	1.145	1.14
Moisture Absorption (Equilibrium)	ISO 62:1999	%	50% RH, 23C	-	-
Water Absorption (24 Hours)	ISO 62:1999 (modified)	%	Immersion, 23C	0.3	0.3
Water Absorption (Saturation)	ISO 62:1999	%	Immersion, 23C	7.00	5.3
MECHANICAL					
Tensile strength*	ISO 527:1/2:1993	MPa	Sample Type 1B, 50mm min	80	80
E-modulus**	ISO 527:1/2:1993	MPa	Sample Type 1B, 50mm min	4000	4000
Elongation at break	ISO 527:1/2:1993	%	Sample Type 1B, 50mm min	>20	>20
Compressive Strength*	ISO 604:2002	MPa	Sample Type B, 5mm min	95	95
Compressive Modulus	ISO 604:2002	MPa	Sample Type A, 1mm min	2700	2700
Flexural Strength*	ISO 178:2001	MPa	1.5mm min	105	105
Flexural Modulus	ISO 178:2001	MPa	1.5mm min	3300	3300
Izod Impact Strength	ISO 180:2000	KJ/m^2	Sample Type A Notched)	5.6	5.4
Charpy Impact Strength	ISO 179-2:1999	KJ/m^2	Notched	-	-
Hardness (Shore D)	ISO 868:2003			84	84
Coefficient of Fiction (Dynamic)		-	31.4m/min, 1.75MPa	0.39	0.15
Limiting PV		Mpa/m.min		-	-
K-Factor		mm3/Nm	31.4m/min, 1.75MPa	5.0 X 10^6	-
THERMAL					
Melting Temperature	-	°C		220	220
Glass Transition Temperature (Tg)	ISO 11359-2:1999	°C		-	-
Heat Deflection Temperature HDT/A	ISO 75	°C	1.8MPa	-	-
Heat Deflection Temperature HDT/B	ISO 75	°C	0.45MPa	-	-
Maximum Intermittent Service Temperature	-	°C		170	180
Maximum Continuous Service Temperature	-	°C	5000hrs	100	115
Minimum Intermittent Service Temperature	-	°C		-100	-100
Minimum Continuous Service Temperature	-	°C		-40	-40
Coefficient of Linear Thermal Expansion (TMA)	ISO 11359-2:1999	°C	23°C - 55°C	8 x 10^5	8 x 10^5
Thermal Conductivity	ISO 8301:1991	W/m.°C	Mean T = 20°C	0.26	-
Flammability	IEC 60695-11-10:2003-08			HB	HB
ELECTRICAL					
Dielectric Constant	IEC 60250:1969-01		1 MHz	3.7	3.7
Dielectric Constant (Low Frequency)			100 Hz	4	4
Dissipation Factor	IEC 60250:1969-01	Hz	100 Hz	-	-
Dielectric Strength	IEC 60243-1:1998-01	kV/mm		25	25
Volume Resistivity	IEC 60093:1980-01	ohm.m		1 X 10^{13}	1 X 10^{13}
Surface Resistivity ROA	IEC 60093:1980-01	ohm		1 X 10^{12}	1 X 10^{12}
Comparative Tracking Index	IEC 60112:2003-01	CTI		600	600

The data shown in this table has been determined in our manufacturers and should be considered as a useful reference only.

Polyoxymethylene – Polyacetals (POM)

Product/Name/Description	Key Characteristics
Polyacetals area highly crystalline thermoplastics, characterized by their high mechanical strength, rigidity and impact resistance. Acetal absorbs very little moisture, enabling the product to maintain constant physical properties in a variety of changing environments. POM exhibits excellent dimensional stability and is ideally suited to close tolerance mechanical parts.	* Excellent sliding and wear properties * Perfect balance of mechanical strength, toughness and rigidity * Good electrical insulating properties * Various FDA compliant grades available

POM-NAT/BLK PROPERTIES					
PROPERTIES	**ITEM**		**Method ISO/(IEC)**	**Unit**	**POM-NAT/BLK**
	Color		-	-	white/black
	Density		1183	g/㎤	1.41
	Water absorption	After 24/96h immersion in water of 23℃	62	㎎	20/37
		At saturation air 23℃, 50%RH	62	%	0.24/0.45
		At saturation in water of 23℃	-	%	0.20
			-	%	0.85
Thermal Properties	Melting Temperature		-	℃	165
	Thermal conductivity at 23°C		-	W/(m·K)	0.31
	Coefficient of inear Thermal expansion	Average value btw23~60°C	-	10^{-6}/k	110
		Average value btw23~100°C	-	10^{-6}/k	125
	Temperature of Deflection under load	Method A : 1.8Mpa	75	℃	105
	Max. allowable Service temp. in air	For short periods	-	℃	140
		Continously : 5,000/20,000h	-	℃	115/100
	Min.service temperature		-	℃	-50
	Flammability	UL94 (3/6mm thickness)	-	-	HB/HB
Mechanical Properties at 23°C	Tension test	Tensile stress	527	㎫	62
		Tensile strainat break	527	%	30
		Tensile modulus of elasticity	527	㎫	3100
	Compression test	Compressive stress at 1/2/5/% nominal strain	604	㎫	19/35/67
	Izod impact strength-Notched		180/2A	J/m	40
	Rockwell hardness		2039-2	-	R115
Electrical Properties at 23°C	Electric strength		(60243)	kV/㎜	20.0
	Volume resistivity Surface resistivity		(60293)	Ω·㎝	$>10^{14}$
			(60293)	Ω	$>10^{13}$
	Relative permittivity:	100Hz	(60250)	-	3.8
		1MHz	(60250)	-	3.8
	Dielectric dissipation factor:	100Hz	(60250)	-	0.003
		1MHz	(60250)	-	0.008
	Comparative tracking index(CTI)		(60112)	-	600

SIZES

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
POM Sheets	White / Black	1m x 2m	Thickness: 3mm – 100mm
POM Rods	White / Black	1m – 2m Length	Diameter: 6mm – 350mm

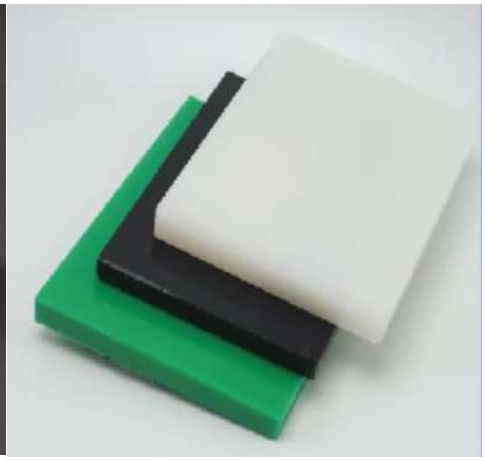
PP (Polypropylene)

Product/Name/Description	Key Characteristics
PP Material is ideal for many applications which require the following properties: Used for fabrication of tanks, work benches, jigs used in a chemically corrosive environment.	* Good chemical resistance * Operating temperature up to 110 degree * Weldability

SIZES

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
PP Sheets	Natural, Grey, White	1m x 2m / 4ft x 8ft / 5ft x 10ft	Thickness: 1mm – 100mm
PP Rods	Natural Grey	1m or 2m length	Diameter: 6mm – 300mm

PE (Polyethylene)

Product/Name/Description	Key Characteristics
PE is ideal for application which require the following: Used in the fabrication of chemical tanks, equipment & fittings. Also as chopping blocks and food equipment.	* Non-toxic material * Chemically inert * Excellent elongation * Weldability * Operating temperature below 90 degrees

SIZES

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
PE Sheets	Natural / Black / Green	1m x 2m / 4ft x 8ft / 5ft x 10ft	Thickness: 1mm – 100mm
PE Rods	Natural / Black	1m or 2m length	Diameter: 6mm – 300mm

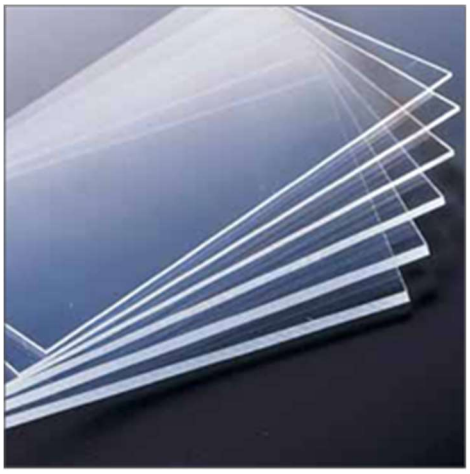
PVC Rigid Sheets & Rods

Product/Name/Description	Key Characteristics
Used in the fabrication of tanks & trunkings for highly corrosive environments and has weathering properties used in process industries constructions, laboratories, advertising, sign-making & cladding.	* It has high impact strength and excellent thermal & electrical insulation * Ease of fabrication with no special handling equipment

SIZES

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
a) PVC Rigid Sheets	Dark / Light Grey	4ft x 8ft	Thickness: 1mm – 50mm
	Clear Transparent	4ft x 8ft	Thickness: 1mm – 20mm
b) PVC Rod	Dark / Light Grey	1m – 2m length	Diameter 6mm – 350mm

Polycarbonate (PC) Flat Sheets



Product/Name/Description	Key Characteristics
Standard PC Sheets are used where high transparency and safety is required as an alternative to glass	* High impact resistance * Weather resistant * Acoustical insulation * Light weight * Ease of installation & Fabrication

TECHNICAL PROPERTIES OF POLYCARBONATE

General Characteristics						
	ASTM	**UNIT**	**VALUE**	**DIN**	**UNIT**	**VALUE**
Specific Gravity	D-792	g/cm^3	1.2	53479	g/cm3	1.2
Tensile Strength at Yield	D-688	PSI	9000	53455	N/mm^2	>60
Tensile Strength at Break	D-638	PSI	9500	53455	N/mm2	>70
Elongation at Yield	D-638	%	6-8	53455	%	6-8
Elongation at Break	D-638	%	>100	53455	%	>100
Modulus of Elasticity	D-638	PSI	340.000	53457	N/mm2	2400
Flexural Strength at Yield	D-790	PSI	14.000	53452	N/mm2	100
Compressive Strength	D-695	PSI	12.500		kg/cm2	850
Rockwell Hardness	D-785		M70/R118			
Water Absorption	D-570	%	0.25	53495	23°C 24h mg	10
Refractive index	D-542A		1.586	53491		1.585
Heat Deflection Temperature Under load 1.81 N/mm (264 PSI)	D-648	°F	275	53461	°C	135
Under load 0.45 N/mm				53461	°C	145
Coefficient of Thermal Expansion	D-696	in/in/°F	3.8×10^{-5}	(VDEO304/1)	1/°C	6.7×10^{-5}
Thermal Conductivity	C-177	cal/cec/°C/cm	4.6×10^{-4}	52612	W/m.k	0.21
Specific Heat		$k/cal/°C/cm^3$	0.3			
Dielectric Strength 23 °C				53481	KV/mm	>30
Volume Resistivity 23 °C				53482	OHM/cm	$>10^{16}$
Surface Resistivity 23 °C				53482	OHM	$>10^{15}$
Dielectric Constant at 10^3 HZ	D-150		2.9	53483		3
Dielectric Constant at 10^8 HZ	D-150		2.9	53483		2.9

The data shown in this table has been determined in our manufacturers and should be considered as a useful reference only

SIZES

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
PC Sheets	Clear Transparent	4ft x 8ft	Thickness: 1.5mm – 12mm

Acrylic Sheets

Group	Types/Colour	Standard Sizes	Range (Thickness/width)
Acrylic Sheets	Clear	1m x 2m / 4ft x 8ft	Thickness: 1mm – 50mm