+44 (0)1482 327944
Main Street Hull HU2 0LF UK
Fax +44 (0)1482 216670 sales@fabricast.co.uk

HDPE - High Density Polyethylene

HDPE - High Density Polyethylene is a tough, comparatively low cost plastic with a useful combination of properties:

- Exceptionally good resistance to attack by a wide range of chemicals.
- Excellent electrical insulating properties.
- Low coefficient of friction.
- A “non-stick” surface that it is resistant to abrasion and self lubricating especially in dry movements against metal surfaces.
- Good impact strength even at low temperatures.
- Almost no moisture absorption.
- Approved for contact with foodstuffs, virtually odourless and tasteless.
- Low density.
- Easily fabricated.

Chemical Resistance and Weathering

At moderate temperatures high density Polythene is not affected by aqueous solutions of salts, acids and alkalis unless they are strongly oxidizing such as nitric acid, oleum or the halogens. However it is liable to crack if stressed and simultaneously exposed to liquids such as wetting agents, aromatic and halogenated hydrocarbons and polar substances. At temperatures below 60˚C it is resistant to a large number of solvents. At a higher temperatures it is dissolved by solvents such as decahydronaphthalene and by aromatic and halogenated hydrocarbons. Natural colour high density Polythene is adversely affected by prolonged exposure to ultra violet radiation. Black material should be used for outdoor applications.

AVAILABILITY - HDPE

• Rod • Sheet • Section • Machined Parts

MECHANICAL PROPERTIES		Test Method	Natural	Units
Density		DIN 53479	0.945	g/cm^2
Tensile Strength at Yield		DIN 53455	24	N/mm^2
Elongation at Break		DIN 53455	>800	%
Modulus of elasticity		DIN 53457	850	N/mm^2
Limiting Flexural Stress		DIN 53452	30	N/mm^2
Ball Indentation Hardness (30 sec)		DIN 53456E	36	N/mm^2
Shore Hardness D		DIN 53505	64	
Notched Impact Strength		DIN 53453	18	mJ/mm^2
Moisture Absorption		DIN 53495	0.01	%
Coefficient of Dynamic Friction	against HD Polythene		0.30	
	against Polished Steel		0.19 - 0.23	
THERMAL PROPERTIES				
Crystalline Melting Range			127 - 131	˚C
Vicat Softening Temperature		DIN 53460	65	˚C
Coefficient of Linear Expansion		DIN 52328	2	10^{-4} ˚C^{-1}
Heat Deflection Temperature	Method A		49	˚C
	Method B		61	˚C
	Thermal Conductivity	DIN 56212	0.43	W/m.K
Maximum Service Temperature	short term		100	˚C
	continuous		70	˚C
Minimum Service Temperature	continuous		-80	˚C
Flammability		not self extinguishing		
ELECTRICAL PROPERTIES				
Volume Resistivity		DIN 53482	$>10^{16}$	ohm cm
Surface Resistivity		DIN 53482	$>10^{13}$	ohm kV/
Dielectric Strength		DIN 53481	90	mm
Dielectric Constant at 2 x 10^6 Hz		DIN 53483	2.34	
Dielectric Loss Factor	50 Hz	DIN 53483	$<2\ 10^{-4}$	
	10^3 Hz	DIN 53483	$<1\ 10^{-4}$	
	10^4 Hz	DIN 53483	$<1\ 10^{-4}$	
	10^5 Hz	DIN 53483	$<2\ 10^{-4}$	
Tracking Resistance		DIN 53480	KC>600	
Arc Resistance		DIN 53484	L4	