BAMBUSTOP
Product Datasheet

METZO®PLAST HDPE/T
13/09/2013

Description

High Density Polyethylene (HDPE, PE-HD) has excellent impact properties at very low temperatures.
It has very good chemical resistance, and is easy to thermoform and fabricate.
It has very good stiffness, being the most rigid of the Polyethylene range.
Formulation with improved thermoformability.

Key Features

Chemical Resistance

Very good chemical resistance to many chemicals including strong acids and oils.

Low Temperature Resistance

Very good impact resistance below 0 °C.

Product Availability

Colour

Black

Finish

Smooth

Thickness

2 mm

Sheet/Roll Size Specifications

Gauge	Lenght (mt)		
	Minimum	Maximum	Standard
2 mm	1	200	25

Typical Physical Properties

Properties	Unit	Standard	Method	Value
Density #	g/cm^3	ISO 1183	-	0,96
Charpy Impact Strength	kJ/m^2	ISO 179	1eA at 23°C	29
Tensile Modulus	MPa	ISO 527-3	1 mm/min	900
Yield strength	MPa	ISO 527-3	50 mm/min	20
Tenile strength at break	MPa	ISO 527-3	50 mm/min	14
Elongation at Break	%	ISO 527-3	50 mm/min	> 200
Vicat Softening Point	°C	ISO 306	B50/oil	66

#The density quoted should only be used as a guide. This value can change depending upon the type and quantity of pigments or additives used.

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Additional Information

Thermoforming

Compared to High Impact Polystyrene (HIPS), HDPE tends to require greater heating and cooling cycle times. It is also susceptible to distortion and shrinkage, therefore Vacuum forming equipment with good heating and vacuum controls are recommended. HDPE has very low moisture absorption and pre-drying is not normally required. HDPE has a particularly high shrinkage, and is known to have distortion problems. To reduce distortion issues the tool should be Aluminium, which is temperature controllable. Having a moat and sandblasting the tool will further improve processing. Typical mould temperature of 40-75 ^{o}C, and the moulded article temperature should be below 80^{o}C before removing from the mould. Mould shrinkage is typically 1.8 to 3.5%.

Certification/Approvals

The following approvals are only available on request:
Food: European Legislation 2002/72/EC. ROHS: European Legislation 2002/95/EC.

Fabrication

It can be fabricated using standard plastic methods of fixing and machining. Sheet can be cut with a band/circular saw, and drilled using standard metal working tools. HDPE can be riveted, welded and punched.
ADHESIVES Polyethylene belongs to the group of high-polymer paraffins. This group is chemically slow-acting and possesses a low surface energy, which prevents the moistening of the surface with a substrate, which is a prerequisite for any adhesion. For this reason, pre-treated PE can only be glued with a permanent adhesive. By corona treating the surface, treating it with a primer or dipping it in a chromium sulphuric acid bath, contact adhesives (PUR, synth. rubber) or two-component adhesives (EP, PUR) can be used.
WELDING HDPE can also be welded. Usual methods are hot gas welding (warm air temperature 300 - 350°C) and hot plate welding (weld butt temperature 190 - 210°C).
High frequency welding is not possible.

UV Resistance

In outdoor or strong UV light conditions, HDPE can become brittle in a matter of months. Black pigmentation will improve UV resistance. The addition of UV stabiliser additives will significantly improve longevity. Please contact of Sales office to discuss further.

Cleaning and Maintenance

Typical detergents and soaps dissolved in warm water can be used to effectively clean surface contamination from the surface. For the more stubborn marks organic solvents such as isopropyl alcohol and n-heptane will be more effective.

Chemical Resistance

Chemical resistance is influenced by many factors, including concentration, temperature, exposure time and material stress. Therefore the data below should only be used as a guide.

Reagent	Chemical resistance		Reagent	Chemical resistance
Acetone	Very good		Beer	Excellent
Acid – (Weak)	Excellent		Brake Fluid	Very good
Acid – (Strong)	Very good		Coffee	Excellent
Alcohol	Very good		Detergent	Excellent
Anti-freeze	Excellent		Diesel	Good
Base (Weak)	Excellent		Foodstuffs	Excellent
Base (Strong)	Good		Lubricating Oil	Good
Battery Acid	Very good		Petrol	Good

Platten und Folien METZELER

Purpurea
Piante per la biotecnica e la biodiversità

BAMBUSTOP Root Protecting Sheets

Brief characteristic:

Polyolefine sheets with good chemical resistance.

Mechanical properties			
Yield strength	ISO 527	N/mm²	20-25
Elongation at yield	ISO 527	%	10
Tensile strength at break	ISO 527	N/mm²	10-25
Elongation at break	ISO 527	%	350-700
Modulus in flexure	ISO 178	N/mm²	750-950
Impact strength at 23°C	EN ISO 179/1eU	kJ/m²	
Impact strength at -30°C	EN ISO 179/1eU	kJ/m²	
Impact strength notched at 23°C	EN ISO 179/1eA	kJ/m²	
Impact strength notched at -30°C	EN ISO 179/1eA	kJ/m²	
Indentation hardness (H 358/30)	EN ISO 2039-1	N/mm²	
Thermal properties			
Vicat softening point VST B 120	ISO 306	°C	
ISO/R75 process A	ISO 75	°C	
ISO/R75 process B	ISO 75	°C	
Continuous working temperature		°C	
Thermal coefficient of linear expansion	ISO 7991	10^{-5}/K	
Thermal conductivity	ISO 8302	W/Km	
Specific heat		kJ/kgK	
Electrical properties			
Dielectric constant	IEC 250		
Dissipation factor	IEC 250	10^{-4}	
Specific volume resistivity	DIN EN 61340-5-1	Ωcm	
Surface resistivity	DIN EN 61340-5-1	Ω	
Dielectric strength	DIN 53481	kV/mm	
Other properties			
Shrinkage		%	
Water absorption	DIN 53495	%	
Density	ISO 1183	g/cm³	0,92-1,00

The stated values are basic values and can differ do to the various polyolefine resins being used.

11/03-BK/R&D

ISO 9001:2000