



# Material and Technical Data Sheet

## ProTurf HDPE Polyethylene Pipe

**Material:** All ProTurf HDPE is manufactured from virgin high density polyethylene resin with the cell classification of 345464C per ASTM D 2239. The material contains a minimum 2% Carbon Black as a UV inhibitor to accommodate outside storage.

**Print Line:** All ProTurf HDPE is permanently indent printed with white print stating the following:

1. Identification of Centennial Plastics as the manufacturer.
2. The appropriate SDR, SIDR and/or CTS designation and nominal diameter.
3. Product trade name.
4. All relevant ASTM standards to which ProTurf is manufactured.
5. Relevant NSF and AWWA standards.
6. Manufacturing date using the Julian calendar.
7. Incremental footage marking every two feet.
8. Design temperature rating.
9. Production shift designation.
10. Identification of PE 3408 high density resin.

**Recommended Usage:** ProTurf HDPE is recommended for use as the piping material for all potable water and irrigation applications.

**Connections:** ProTurf HDPE is manufactured to accommodate insert fittings.

**Handling:** Any handling of the pipe shall avoid contact with sharp edged objects. If stored outside for long periods of time, the pipe should be covered with a UV resistant tarp or cover. If the wall of the pipe is penetrated by more than 10% of it's thickness, the damaged pipe should be cut out, disposed of and replaced.

Hydrostatic Design	
Temperature	Hydrostatic Design Basis
73.4 <sup>0</sup> F. (23 <sup>0</sup> C.)	1600 PSI
140 <sup>0</sup> F. (60 <sup>0</sup> C.)	800 PSI

As the temperature of the fluid increases above 73.4<sup>0</sup> F, the pressure carrying capacity of HDPE pipe decreases.

73 <sup>0</sup> F.	80 <sup>0</sup> F.	90 <sup>0</sup> F.	100 <sup>0</sup> F.	110 <sup>0</sup> F.	120 <sup>0</sup> F.	130 <sup>0</sup> F.
Pressure Capacity in PSI						
80	76	72	64	60	56	40
100	95	90	80	75	70	50
125	118	112	100	93	87	62
160	152	144	128	120	112	80
200	190	180	160	150	140	100



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ProTurf HDPE for use in Potable Water and Irrigation Applications.

ASTM Standards that ProTurf MDPE ,

ASTM D 2239

### ProTurf HDPE Raw Material Properties

Property	ASTM Test Method	Typical Values	
		English Units	SI Units
Density (Natural)	D 4883	-	0.944 g/cc
Density (Black)		-	0.955 g/cc
Melt Index <sup>1</sup>	D 1238	-	12.5 g/10 min
Tensile Strength			
@ Yield (2 in/min)	D 638	3300 psi	22.8 MPa
@ Break (2 in/min)	D 638	4500 psi	31.0 MPa
Elongation			
@ Break (2 in/min)	D 638	>800%	>800%
Flexural Modulus <sup>2</sup>	D 790	120,000 psi	827 MPa
Notched Izod Impact Strength	D 256	6.0 ft-lbf/in	0.32 kJ/m
Hardness (Shore D)	D 2240	68	68
Vicat Softening Point	D 1525	259° F	126° C
Brittleness Temperature	D 746	<-180° F	<-118° C
Hydrostatic Design Basis			
@ 23° C	D 2837	1600 psi	11.0 MPa
@ 60° C	D 2837	800 psi	5.5 MPa
Environmental Stress Crack Resistance <sup>3</sup>	D 1693	>5000 hrs.	>5000 hrs.
Notch Tensile (Pent)	F 1473	>100 hrs.	>100 hrs.
Carbon Black Concentration	D 1603	2.30%	2.30%
Cell Classification	D 3350	345464C	345464C

<sup>1</sup> 190°C/21600 g

<sup>2</sup> 2% Secant-Method 1

<sup>3</sup> Condition C



ProTurf HDPE is certified by NSF Standards 14 and 61.

Listed April, 2002; Updated June, 2005