

Tangent PolySheet™ High Density Polyethylene (HDPE) Sheet is a durable, all-weather sheet that is non-foamed and annealed, creating an incredibly strong board that is able to span greater lengths and exhibits high impact resistance. Resistant to water, mildew, moisture, stains, insects and chemicals, our sheet works easily with CNCs and common woodworking tools.

Common Applications

- Outdoor Furniture & Kitchens
- Outdoor Cabinetry & Storage
- Marine & Watercraft
- Golf Courses, Parks & Playgrounds
- Travel Trailer & RV
- Site Amenities & Signage
- Landscape Architecture



TECHNICAL INFORMATION

Physical	Normal Value	(English)	Normal Value	SI	Test Methods
Density	0.955	g/cm ³	0.955	g/cm ³	ASTM D792
Environmental Stress-Cracking Resistance (ESCR)					ASTM D1693
122°F (50°C), 100% Igepal, F50	>1000	hr	>1000	hr	
Mechanical	Normal Value	(English)	Normal Value	SI	Test Methods
Tensile Strength					ASTM D638
Yield	3920	psi	27.0	MPa	
Break	3770	psi	26.0	MPa	
Tensile Elongation					ASTM D638
Yield	9.0	%	9.0	%	
Break	920	%	920	%	
Flexural Modulus - 2% Secant	150000	psi	1030	MPa	ASTM D790B
Hardness	Normal Value	(English)	Normal Value	SI	Test Methods
Durometer Hardness (Shore D)	58		58		ASTM D2240
Thermal	Normal Value	(English)	Normal Value	SI	Test Methods
Deflection Temperature Under Load					ASTM D648
66 psi (0.45 MPa), Unannealed	163	°F	73.0	°C	
Vicat Softening Temperature	264	°F	129	°C	ASTM D1525

Suitability and Limitations

These products have greater impact resistance than wood but conversely less rigidity, and therefore prior to use a thorough design engineering study must be performed to determine the suitability of High Density Sheet in any critical application.

Fabrication is similar to wood and normal woodworking tools can be used. One should be advised that by transforming the product by drilling holes and routing edges the integrity and strength of the part can be altered. Eye protective wear, dusk masks, gloves and normal safety precautions must be used when handling and fabricating the product.

Inherent in High Density Sheet products, you will observe a greater coefficient of thermal expansion than stiffer wood products. Therefore, when designing your application, an accommodation must be made to properly allow for expected expansion and contraction over the length of the product.

Static electricity is a naturally occurring phenomenon to all resin based products. On extremely dry days there is the potential to experience a small static shock if you walk across a High Density Sheet product and touch a conducting surface such as a metal fixture. This is comparable to walking across your carpet and receiving a static shock when you touch the door handle. We do not warranty against static electricity as it is a natural occurring phenomenon and is not a manufacturing defect.

During winter conditions, you might find any surface made from High Density Sheet to be slippery in snow, wet and frost conditions. Unlike most other surfaces, you can easily spread rock salt or calcium chloride to restore decent traction and melt the frost or ice layer with no harmful effect to the High Density Sheet products.

Fabrication Recommendations

Tolerance Information

- ± 5% for gauges 1/4in. up to 3/4in.

Approximate Weight

- 1/2 in. (12.7 mm) – 90 lbs (40.8 kg)
- 3/4 in. (19 mm) – 135 lbs (61.2 kg)

Cutting and Sawing

Tangent PolySheet™ High Density Polyethylene (HDPE) Sheet can be cut using full range of saw types. Follow recommendations by tooling manufacturers for 'soft plastics.'

Drilling

Standard twist drills work well. A negatively ground rake angle prevents drill jamming.

Turning

Turn using as low a feed as possible with a large cutting depth. Indexable inserts can help provide a smooth cut.

Milling and Routing

High RPM equipment typically used for metals works well. Feed rates between 10 and 16 per minute are recommended.

Conduct a Pre-production Trial

without scorching or melting the material.

Hardware

Stainless steel fasteners and hardware recommended as well as screws designed for plastics. Allow for thermal expansion and contraction depending on temperature.

Warranty

Tangent® Materials, the manufacturer of Tangent PolySheet™ High Density Polyethylene (HDPE) Sheet products, offers a limited warranty:

(a) What this Limited Warranty Covers: This Limited Warranty covers substantial defects directly caused by termite and fungal decay as set forth below.

(b) How Long This Limited Warranty Lasts: Subject to the terms and conditions of the Limited Product Warranty, Tangent (hereinafter "Manufacturer," "We" or "Us") warrants to the original consumer ("Consumer" or "You" of Tangent® Materials, ("Products")) that, in normal applications the Products will not rot, splinter, decay or suffer structural damage directly from termites or fungal decay under normal use for a period of (50) years from the date of purchase (the "Warranty Period").

Tangent® Materials does not recommend or approve this product for all end use applications. The appropriate national and local code authorities should be consulted for safety, suitability and applicability for intended use prior to purchasing product. (See full warranty details).

This guideline and summary is intended to provide the distributor, installer and end user with basic guidelines and technical specifications for designing and properly installing the High Density Sheet products. However, the installer and/or purchaser of any High Density Sheet product is solely responsible for interpreting specific job conditions and determining the engineering design and suitability of end use and application of any High Density Sheet product. Adherence to applicable building and safety codes for specific locations and applications of this product are the sole responsibility of the installer and/or purchaser. In no event shall Tangent® Materials, the manufacturer of Tangent PolySheet™ High Density Polyethylene (HDPE) Sheet products, be liable for labor, installation, reinstallation or for any indirect, punitive, exemplary or consequential damages of any kind whatsoever from the provisions of this information.

This revision 2.0 [09/01/26] supersedes all other High Density Sheet technical data sheets.

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