

PolyTuf™ custom-engineered extruded shapes are manufactured from purified blends of post consumer, post industrial and virgin HDPE (high density polyethylene) base resins. Additional proprietary additives are compounded into each product to meet customer specifications for color, strength and stiffness.

FEATURES

- Manufactured to tolerances specified by customers.
- Material is easily machined with tools appropriate for working with real wood.
- Essentially maintenance free, with exceptional resistance to moisture, fading, insects, splintering, warping and other hazards of environmental exposure common to wood or wood fiber composite products.
- Requires no waterproofing, staining or other recurring maintenance. The material is easily cleaned with an occasional washing with soap and water.
- Manufactured with color stabilizing UV pigment systems that resist breakdown from prolonged sun and weather exposure. PolyTuf™ retains its new look for years.
- It is possible that the material may fade slightly over the service life of the product. However, the fading is minimal compared to most wood and wood composite products that contain wood fibers that fade quickly to a weathered gray color when exposed to the elements.

Property	ASTM Method	Units	Value
Specific Gravity	D6111	Lbs cubic in	0.0216-0.0275*
Water Absorption	D570	%	< 0.1
Tangent Modulus	D6109-03	Psi	117,000
Secant Modulus 2.1% Strain	D6109-03	Psi	86,000
Stress @ 3% Strain	D6109-03	Psi	1,598,000
Coefficient of Linear Expansion	D6341-98	In/in ° f	0.000064
Screw Withdrawal	D6117-97	Pounds force	703

* Lower density may occur in larger cross sections
 ** Testing performed on samples of 2"x6" nominal size

TAILORED OPTIONS

- Semi-reinforced physical properties can be enhanced and achieved by the addition of engineered additives that increase stiffness and reduce expansion and contraction properties.
- Tangent has over one hundred extrusion shapes in-house that meet most customer needs, or we will create custom shapes for unique applications.
- We offer a multitude of colors and surface finishes with new options and capabilities being added regularly:
 - **Standard and Custom Colors** – Popular wood tones are all available as standard colors and include: Cedar, Sand, Gray, Redwood, Mahogany, Light Oak, White and Tudor Brown. Custom matched colors are also available.
 - **Tiger Striping** – Generates highlights between the dark and lights in a single base color. A varied but consistent look that creates depth in tone similar to wood finishes.
 - **Multi-Layered Striping** – Blend of multiple colors that maintain their identity and streak together to produce a unique, rich blend of colors and tones. This effect can be customized to your application.
 - **Wood Grain Texture** – Visually non-repeating deep wood grain embossed pattern can be applied to most shapes.
 - **Textured Anti-slip Surface** – Embossed pattern is excellent for surfaces in damp locations.

TYPICAL APPLICATIONS

PolyTuf™ is well suited for exterior applications where quality appearance, reinforcing properties and superior weather resistance are required. PolyTuf™ maintains its color stability and surface finish over its entire useful service life, and never needs to be sealed, painted or stained.

PolyTuf™ is used by our customers for a number of commercial applications and industries including casual furniture, site amenities, playground equipment, agricultural materials, spa & pool products, golf course amenities, marine applications and more.



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SUITABILITY AND LIMITATIONS

These products have greater impact resistance than wood but are less rigid. Prior to use, a thorough design engineering study should be performed to determine the suitability of PolyTuf™ for your non-structural application.

Material characteristics are similar to wood; normal woodworking tools can be used during product fabrication. One should be advised that transforming the product by drilling holes or routing its edges may alter the material's strength and integrity. Normal safety precautions must be used when handling and fabricating the product including the use of protective eyewear, dusk masks and gloves. (See MSDS sheet for more details)

PolyTuf™ products have an inherently greater coefficient of thermal expansion than stiffer wood products. When designing your application, an accommodation must be made to allow for this expected expansion and contraction over the length and width of the product.

In certain weather conditions, it is possible to experience the effects of static electricity with PolyTuf™ material – especially when the material is new. This is similar to the static shocks experienced when walking across a carpet in dry weather and touching a metal door knob. We do not warrant against static electricity as it is a natural phenomenon and not a sign of a product defect.

As with any exterior surface material, winter conditions can make a PolyTuf™ surface slippery with frost or snow. Fortunately, it is completely safe to use rock salt or other melting agents on PolyTuf™ without damaging the material.

WARRANTY

Tangent Technologies LLC the manufacturer of the PolyTuf™ product offers a limited warranty that this product will not rot, splinter, decay or suffer structural damage directly from termites or fungal decay under normal use. Tangent Technologies LLC 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 PolyTuf™ products. However, the finished product manufacturer, installer and/or purchaser is solely responsible for interpreting specific job conditions, and determining the engineering design and suitability of end use and application of any PolyTuf™ 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 Technologies LLC, the manufacturer of the PolyTuf™ products, be liable for labor, installation, reinstallation or for any indirect, punitive, exemplary or consequential damages of any kind whatsoever from the provision of this information.

This revision 2.0 [8/06] supersedes all other PolyTuf™ technical data sheets.

TANGENT

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Section 1: Product Identification and Emergency Information

Product Description

Foamed, colored polyolefin material "PolyTuf" extruded products

Chemical Description

HDPE (High Density Polyethylene) with (less than 1%) colorant and foaming agents

Supplier:

Tangent Technologies

MSDS Number

None

Address

1001 Sullivan Rd
Aurora, IL 60506

CAS Number

Phone Number

(630) 264-1110 Tangent Technologies LLC
(800) 424-9300 Chemtrec

Date Prepared

12/1/05

Section 2: Material Identification and Information

Non-Hazardous Ingredients

HDPE (High Density Polyethylene) with (less than 1%) colorant and foaming agents

Hazardous Ingredients

No Hazardous Ingredients

Section 3: Physical and Chemical Characteristics

Appearance

Non-Translucent, Colored

Odor

Slight

Boiling Point

N/A

Melting Point

250° F 121 °C

Vapor Pressure (mm HG)

N/A

Specific Gravity (H2O = 1), (g/cc)

0.65 – 0.88

Solubility in Water

Negligible

Evaporative Rate

Negligible

Vapor Density (air = 1)

N/A

Evaporation Point

N/A

Section 4: Fire and Explosion Hazard Data

Flash Point

645° F 340°C

Auto-Ignition Temperature

645° F 340°C

Flammable Limits (LEL)

N/A

Flammable Limits (UEL)

N/A

Extinguishing Media

Carbon dioxide, foam, dry chemical and water spray

Special Fire Fighting Instructions

Use self-contained breathing apparatus.
Use standard chemical fire fighting procedures.

Unusual fire and explosion hazards

Exposure to fire can generate toxic fumes.
High dust levels may create potential for explosion

NFPA Hazard ID

Health: 1, Flammability: 1, Reactivity: 0

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Section 5: Reactivity Hazard Data**Stability**

Stable

Conditions to Avoid

Extreme Heat

Incompatibility (Materials to Avoid)

Strong Oxidizers

Hazardous Decomposition Products

Carbon Monoxide, Aldehydes, Acetic Acid

Section 6: Health Hazard Data**Primary Routes of Entry**

Inhalation or ingestion of dust

Health Hazards

Dust may cause irritation of mouth, nose, throat, and eyes

Medical conditions aggravated by exposure

Some long-term breathing conditions can be aggravated by exposure to dust from this product

Emergency First Aid Procedures

Seek medical assistance for further treatment, observation, and support if necessary

Eye Contact

Do not rub eyes, flush with running water, seek medical attention

Skin Contact

None

Inhalation

Move person to fresh air, seek medical attention

Ingestion

Seek medical attention

Section 7: Precautions for safe handling and use**In case of spills or accidental release**

Dispose of as normal refuse in accordance with applicable federal, state, and local regulations.

Waste disposal methods

Dispose as normal refuse, or recycle as HDPE

Precautions to be taken in handling and storage

Store at less than 120° F 49°C

Other Precautions and/or Special HazardsStore away from heat or open flame. Store away from strong oxidants or alkalis
Store flat and supported across entire span**Section 8: Control and protective measures****Respiratory Protection**None, unless machining material.
A properly fitting NIOSH approved dust mask must be worn when machining this material**Ventilation**

Machine this product only in well ventilated area, dust collection systems are recommended

Protective Gloves

No special equipment required

Eye Protection

Wear safety glasses when nailing, cutting, or machining this product

Other Protective Clothing and Equipment

None

Hygienic Work Practices

Wash hands before eating, drinking, or smoking