

# polygrain®

Marine-grade polymer sheet perfect for outdoor furniture and cabinetry with an embedded woodgrain design and texture.



Polygrain® materials offer the beautiful appearance of wood with the durability and performance advantages of a marine-grade HDPE. Offered in four colors only by SIMONA AMERICA Industries, these materials set the high bar for their combination of long-term performance, durability, appearance and fabrication ease and consistency.

In cabinetry and outdoor furniture applications, this tough, UV resistant sheet withstands long term exposure to intense sun, salt water and rigorous use. This also makes it ideal for outdoor patio, poolside and marina cabinetry, furniture and accessories. Its impact resistance, FDA compliance, easy-to-clean surface and attractive appearance enhance indoor medical, clinical and laboratory cabinetry as well.

Unlike plywood, Polygrain® won't delaminate, rot or splinter, and its integral colors hide scratches and marring that ruin painted surfaces. Its stain resistance, easy-to-clean matte finish and wide spectrum of integral colors further assure long lasting appearance and functionality.

In fabrication, it maintains exceptional flatness and dimensional stability for high production yields and finished part quality. Standard woodworking equipment works well with the material, and fabricators appreciate its advantages especially in thicker gauges for large flat, formed or machined panels.

## Advantages

- High-end woodgrain appearance
- UV and extreme weather resistance
- Integral color hides marring, scratches
- Solid polymer composition won't delaminate, rot or splinter
- Maintenance-free, easy to clean
- Excellent impact resistance
- Recyclable
- Easy to fabricate using standard woodworking tools

## Applications

- Swim platforms
- Boat storage and hatch covers
- Deck and seating components
- Steps and grab rails
- Tables and trim
- Outdoor furniture
- Outdoor cabinetry & storage
- Outdoor Kitchens & dry spaces
- Landscape architecture
- Outdoor signs
- Playground systems
- Marina architecture & storage

## Configurations

- Sheet sizes
  - 54 x 96 in. (1,372 x 2,440 mm)
- Gauges
  - 1/2; 3/4 in. (12.7; 19.0 mm)
- Colors
  - Olyphant Oak
  - Susquehanna Gray
  - Northeastern Walnut
  - Blakely Birch
- Texture
  - Woodgrain finish on both sides
- Custom colors, sizes
  - On request



**PROPERTIES SIMONA® HDPE POLYGRAIN®**

PROPERTY, Units of Measure <sup>1</sup>	Test Method	TYPICAL VALUES	
		SIMONA® HDPE POLYGRAIN®	
Specific Gravity	ASTM D792	0.97 g/cc	
Water Absorption, %	ASTM D570	< 0.1	
<b>MECHANICAL</b>			
Tensile Strength @ Yield	ASTM D638	4,400 psi	30.4 MPa
Elongation @ Break, %	ASTM D638	>300%	
Flexural Modulus	ASTM D790	190,000 psi	1,311 MPa
Notched Izod Impact	ASTM D256	2.75 ft-lb/in.	146.8 J/m
Hardness, Shore D	ASTM D2240	61	
Abrasion Resistance mg/1000	Taber CS 17	—	
Coefficient of Friction (static/dynamic)	ASTM C1894	0.2 / 0.2	
Coefficient of Expansion x10 <sup>-5</sup>	ASTM D696	10	
<b>THERMAL</b>			
Continuous Service Temperature	Maximum	170° F	76.7° C
Melting Point	ASTM D3418	267° F	130.7° C
Heat Deflection Temp. @ 66 psi (0.45 MPa)	ASTM D648	167° F	75° C
Heat Deflection Temp. @ 264 psi (1.8 MPa)	ASTM D648	110° F	43.4° C

<sup>1</sup>All tests at 73°F (22.8°C) in dry conditions unless otherwise noted.



**Polygrain® Colors**



**MACHINING AND 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**

SIMONA Polygrain can be cut using a 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**

To make adjustments and ensure a good finish 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.

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