

TUFFAK Marine 5 polycarbonate sheet

FLEXIBLE ENCLOSURE

TUFFAK Marine 5 sheet is a polycarbonate product designed for applications demanding high optical clarity, exceptional durability, and longevity against the harsh marine environment. State-of-the-art manufacturing processes provide low optical distortion for clear views and unparalleled sight lines. The advanced hard coat technology provides excellent abrasion resistance, enhanced clarity, chemical resistance, and long lasting outdoor weathering performance. TUFFAK Marine 5 maintains its impact strength in extreme temperatures to -30°F. TUFFAK Marine 5 can be easily cut and sewn, making this a more versatile option versus glazing materials that require gluing.

TUFFAK Marine 5 is offered with a five (5) year Limited Product Warranty against micro-cracking, yellowing, and breakage. The terms of the warranty are available upon request.

APPLICATIONS

Marine flexible enclosures, tent and awning enclosures

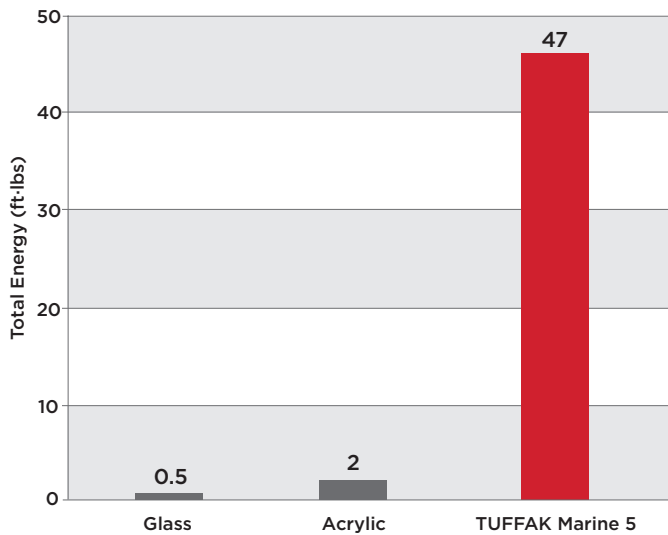
Typical Properties*

| Property | Test Method | Units | Values |
|---------------------------------------------------------------------|-------------|-----------|-------------------------|
| PHYSICAL | | | |
| Specific Gravity | ASTM D 792 | - | 1.2 |
| Light Transmission, Clear @ 0.060" | ASTM D 1003 | % | 90 |
| Light Transmission, Clear @ 0.080" | ASTM D 1003 | % | 89 |
| Chemical Resistance | ANSI Z26.1 | - | Pass |
| Taber Abrasion, 100 Cycles, Delta Haze CS-10F Wheel @ 500 g load | ASTM D 1044 | % | 2 |
| MECHANICAL | | | |
| Tensile Strength, Ultimate | ASTM D 638 | psi | 9,500 |
| Modulus of Elasticity | ASTM D 638 | psi | 340,000 |
| Flexural Strength | ASTM D 790 | psi | 13,500 |
| Compressive Strength | ASTM D 695 | psi | 12,500 |
| Izod Impact Strength, Notched @ 0.125" | ASTM D 256 | ft.lbs/in | 16 |
| Izod Impact Strength, Unnotched @ 0.125" | ASTM D 256 | ft.lbs/in | No Break |
| Instrumented Impact @ 0.60" | ASTM D 3763 | ft.lbs | 21 |
| Instrumented Impact @ 0.80" | ASTM D 3763 | ft.lbs | 33 |
| Instrumented Impact @ 0.125" | ASTM D 3763 | ft.lbs | 47 |
| Instrumented Impact @ 0.125", @ -30°F | ASTM D 3763 | ft.lbs | 50 |
| Poisson's Ratio | ASTM E 132 | - | 0.38 |
| Rockwell Hardness | ASTM D 785 | - | M70/R118 |
| THERMAL | | | |
| Coefficient of Thermal Expansion | ASTM D 696 | in/in/°F | 3.75 x 10 ⁻⁵ |
| Heat Deflection Temperature @ 66 psi | ASTM D 648 | °F | 280 |

*Typical properties are not intended for specification purposes

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Impact Resistance*



*Instrumented Impact per ASTM D 3763, sample thickness is 0.125" nominal

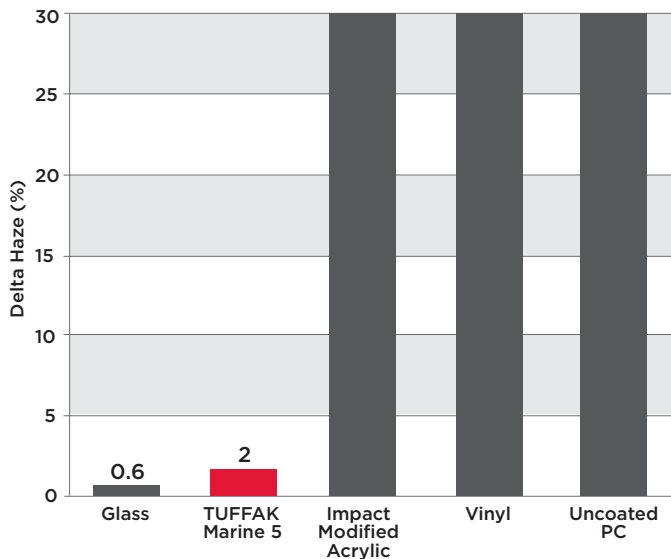
Chemical Resistance*

| Chemical Tested | Resistance Time |
|---------------------------------|-----------------|
| Acetone | >24 hrs |
| Antifreeze (50/50) | >24 hrs |
| Benzene | >24 hrs |
| Bleach (Clorox concentrated) | >24 hrs |
| Denatured Alcohol | >24 hrs |
| Di (2-ethylhexyl) phthalate | >24 hrs |
| Diesel Oil | >24 hrs |
| Isopropyl Alcohol (IPA) | >24 hrs |
| Kerosene | >24 hrs |
| Methyl Alcohol | >24 hrs |
| Methyl Butyl Ketone | >24 hrs |
| Methyl Ethyl Ketone | >24 hrs |
| Methylene Chloride | >24 hrs |
| Naphthalene, 1-bromo- | >24 hrs |
| Potassium Hydroxide - Lye (10%) | >24 hrs |
| Sodium Hydroxide (10%) | >24 hrs |
| Toluene | >24 hrs |
| Turpentine | >24 hrs |
| Unleaded Gasoline (87 Octane) | >24 hrs |
| Vinegar | >24 hrs |
| Xylene | >24 hrs |
| Acids: | |
| Hydrochloric Acid (20%) | >24 hrs |
| Sulfuric Acid (20%) | >24 hrs |

*Tested in accordance to ASTM D 1308-02

Always keep hazardous chemicals away from uncoated edge of Tuffak Polycarbonate Sheet

Abrasion Resistance*



*Taber Abrasion per ASTM D 1044, 100 cycles, CS-10F wheels at 500 g load



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