

## TUFFAK SL polycarbonate sheet

### UV RESISTANT SIGN GRADE

TUFFAK SL Sign Grade sheet is a polycarbonate product with an advanced UV resistance technology that promotes long lasting outdoor weathering performance. It features outstanding impact strength, excellent dimensional stability, high temperature resistance, and high clarity. This lightweight thermoformable sheet is also easy to fabricate and decorate. TUFFAK SL is offered in clear, a wide range of standard sign colors, or can be custom matched to any color. The product, available in either sheet or reels, has a proven track record of outstanding performance in extreme environments and meets the UL 879 standard for electric sign components. A ten (10) year limited product warranty is available for both clear and colors for breakage resistance. Clear sheet is also covered for weathering resistance. The terms of the warranty are available upon request.

### APPLICATIONS

Flat and formed sign faces and channel letters

### Regulatory code compliance and certifications

Florida Building Code 2017, 6th Ed.  
High Velocity Hurricane Zone Classified  
Miami-Dade NOA: NOA

UL 879: Electric Sign Components,  
UL File #E146154

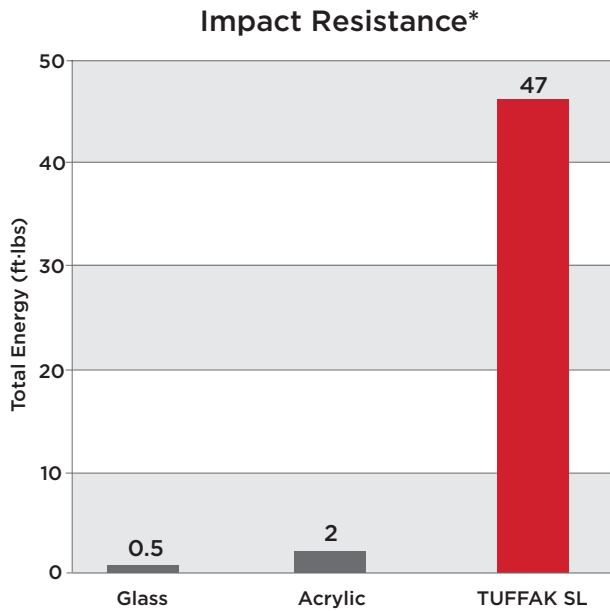
UL 94: Flammability, UL File #E351891

UL 972: Burglary Resistant Glazing  
Materials, UL File #BP2126

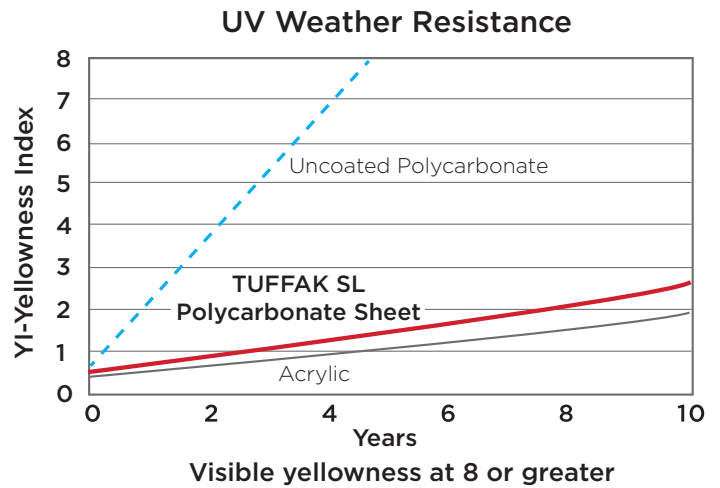
### Typical Properties

Property	Test Method	Units	Values
<b>PHYSICAL</b>			
Specific Gravity	ASTM D 792	-	1.2
Refractive Index	ASTM D 542	-	1.586
Light Transmission, Clear @ 0.118"	ASTM D 1003	%	86
Light Transmission, B59 White @ 0.118"	ASTM D 1003	%	27
Light Transmission, B54 White @ 0.150" and 0.177"	ASTM D 1003	%	27
Water Absorption, 24 hours	ASTM D 570	%	0.15
Poisson's Ratio	ASTM E 132	-	0.38
<b>MECHANICAL</b>			
Tensile Strength, Ultimate	ASTM D 638	psi	9,500
Tensile Strength, Yield	ASTM D 638	psi	9,000
Tensile Modulus	ASTM D 638	psi	340,000
Elongation	ASTM D 638	%	110
Flexural Strength	ASTM D 790	psi	13,500
Flexural Modulus	ASTM D 790	psi	345,000
Compressive Strength	ASTM D 695	psi	12,500
Compressive Modulus	ASTM D 695	psi	345,000
Izod Impact Strength, Notched @ 0.125"	ASTM D 256	ft-lbs/in	18
Izod Impact Strength, Unnotched @ 0.125"	ASTM D 256	ft-lbs/in	60 (no break)
Instrumented Impact @ 0.125"	ASTM D 3763	ft-lbs	47
Shear Strength, Ultimate	ASTM D 732	psi	10,000
Shear Strength, Yield	ASTM D 732	psi	6,000
Shear Modulus	ASTM D 732	psi	114,000
Rockwell Hardness	ASTM D 785	-	M70 / R118
<b>THERMAL</b>			
Coefficient of Thermal Expansion	ASTM D 696	in/in/°F	3.75 x 10 <sup>-5</sup>
Coefficient of Thermal Conductivity	ASTM C 177	BTU-in/hr-ft <sup>2</sup> -°F	1.35
Heat Deflection Temperature @ 264 psi	ASTM D 648	°F	270
Heat Deflection Temperature @ 66 psi	ASTM D 648	°F	280
Brittleness Temperature	ASTM D 746	°F	-200
<b>ELECTRICAL</b>			
Dielectric Constant @ 10 Hz	ASTM D 150	-	2.96
Dielectric Constant @ 60 Hz	ASTM D 150	-	3.17
Volume Resistivity	ASTM D 257	Ohm-cm	8.2 x 10 <sup>16</sup>
Dissipation Factor @ 60 Hz	ASTM D 150	-	0.0009
Arc Resistance	-	-	-
Stainless Steel Strip electrode	ASTM D 495	Seconds	10
Tungsten Electrodes	ASTM D 495	Seconds	120
Dielectric Strength, in air @ 0.125"	ASTM D 149	V/mil	380
<b>FLAMMABILITY</b>			
Horizontal Burn, AEB	ASTM D 635	in.	<1
Flame Class @ 0.060"	UL 94	-	HB
Ignition Temperature, Self	ASTM D 1929	°F	1022
Ignition Temperature, Flash	ASTM D 1929	°F	824

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



## TUFFAK SL Standard Colors

Standard Plaskolite Color	Standard Industry Color	Standard Gauge
Clear/ A00	–	0.093" - 0.236"
White/ B59	7328	0.093" - 0.118"
White/ B54	7328	0.150" - 0.236"
Red/ D92	6192	0.118" - 0.177"

These suggestions and data are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale.

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**SAFETY DATA SHEET**  
**Tuffak® Polycarbonate Sheet**

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING**

Trade Name: Tuffak® Polycarbonate Sheet

Other Name(s): Includes Polycarbonate (PC) Sheet, Tuffak® Clear, Tinted and Colored Polycarbonate Sheet (DX-NR, FD, FI, GP, GP-V, IR, LD, LF, Lumen XT, Lumen XT-V, MG, NR, OP, OP-V, PV, QD, QV, SK, SK1, SL, SL-V, SQ, UC, UV, VR, WG), Tuffak® Patterned Polycarbonate Sheet, Polycarbonate Lighting Sheet

Usage: Plastic sheet products

Supplier: Plaskolite, LLC.  
1770 Joyce Avenue, Columbus, Ohio 43219, USA  
Telephone: 614-294-3281  
www.plaskolite.com

Emergency Telephone: 614-294-3281

**2. HAZARDS IDENTIFICATION**

**This material is classified as not hazardous under OSHA regulations.** Under normal conditions of use, this product is not expected to create any unusual industrial hazards. Irritating gases/fumes may be given off during burning or thermal decomposition. Contact with hot material will cause thermal burns.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical Characterization: 100% Polycarbonate (PC) [Proprietary]

**4. FIRST AID MEASURES**

Inhalation: Move subject to fresh air.

Skin Contact: If molten material contacts skin, cool rapidly with cold water and obtain medical attention for thermal burn.

Eye Contact: Flush eyes with plenty of water for at least 15 minutes. Call a physician.

Ingestion: This material is not expected to be absorbed within the gastrointestinal tract, so induction of vomiting should not be necessary.

**5. FIRE-FIGHTING MEASURES**

Suitable Extinguishing Media: Carbon dioxide, dry chemical, foam or water.

Specific Fire Hazards: Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Avoid generating dust: fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard.

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Special Protective Equipment &  
Precaution for Fire Fighters:     Wear a self-contained breathing apparatus and full protective gear.

### **6. ACCIDENTAL RELEASE MEASURES**

Personal Precaution:             Provide adequate ventilation. Wear personal protection equipment. Do not breathe dust.

Environmental Precaution:       Do not allow to enter into soil, waterbodies or drains.

Methods for Cleaning Up:        Avoid generation of dust. Remove all sources of ignition. Sweep or scoop up into closed containers for disposal.

### **7. HANDLING AND STORAGE**

Max. Storage Temperature:       120°F (49°C)

Handling:                         Ensure appropriate exhaust and ventilation at machinery and at places where dust can be generated. Avoid dust formation, and accumulation of static charges. Prohibit sources of spark and ignition, such as smoking. Processing of this product under high temperatures will cause hazardous emissions of vapors, carbon monoxide or carbon dioxide.

Storage:                         If this material is stored under ambient temperature conditions, it is not hazardous. However, extensive storing at higher than the maximum temperature will emit vapors, carbon monoxide or carbon dioxide.

### **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Exposure Limits:                 Not applicable

Ventilation Measures:            Provide good ventilation and/or an exhaust system in the work area.

Respiratory Protection:         None required under normal conditions.

Hand Protection:                 Canvas or cotton gloves.

Eye Protection:                 Safety glasses with side shields (ANSI Z87.1 equivalent).

Skin & Body Protection:         Wear suitable protective clothing and boots.

Other Protective Measures:      Avoid contact of molten material with skin. Do not inhale dust particles or vapors. Keep away from sources of ignition. Wash hands before breaks and after work.

### **9. PHYSICAL AND CHEMICAL PROPERTIES**

Physical State:                 Solid sheets  
Color:                            Clear to translucent  
Odor:                             Not applicable  
pH:                                Not applicable  
Melting Point:                 428 - 446°F (220 - 230°C)

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Boiling Point:	Not available
Decomposition Temperature:	Not available
Flash Point:	Not available
Auto-ignition Temperature:	> 842°F (> 450°C)
Explosion Limits:	Not applicable
Evaporation Rate:	Not applicable
Vapor Pressure:	Not applicable
Vapor Density:	Not applicable
Relative Density:	1.2 – 1.3
Solubility:	Insoluble
Softening Point:	302 - 320°F (150 - 160°C)

**10. STABILITY AND REACTIVITY**

Stability:	Stable. Hazardous polymerization does not occur.
Conditions to Avoid:	Protect from excessive heat. Keep away from sources of ignition and heat. Avoid dust formation.
Materials to Avoid:	Acids, bases, and strong oxidizing agents.
Hazardous Decomposition Products:	Thermal decomposition or combustion may emit vapors, carbon monoxide, or carbon dioxide.

**11. TOXICOLOGICAL INFORMATION**

This product should not be harmful under normal conditions of use.

Inhalation:	Unlikely to be harmful by inhalation under ambient temperature. At high temperature, products of thermal decomposition can be irritating to the respiratory system.
Skin Contact:	Not a skin sensitizer, and is non-irritating to skin under ambient temperature. At high temperature, contact with the product can cause serious burns.
Ingestion:	Unlikely to be harmful by ingestion under ambient temperature.
Eye Contact:	This product in the form of dust can be irritating to the eyes. At high temperature, products of thermal decomposition can be irritating to the eyes.
Carcinogenicity:	Non-carcinogenic

**12. ECOLOGICAL INFORMATION**

This product is a solid, inert product with low volatility, and is essentially insoluble in water.

Ecotoxicity:	This product should have low toxicity to aquatic and terrestrial organisms.
Mobility:	Due to the solid nature of this product, it should have low mobility in soil.
Persistence & Degradability:	This product is non-biodegradable.

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Bioaccumulation: This solid product has a low potential for bioaccumulation.

Effect in Sewage Plants: May be separated mechanically.

### **13. DISPOSAL CONSIDERATIONS**

Waste disposal should be in accordance with all federal, state and local environmental laws and regulations.

### **14. TRANSPORT INFORMATION**

Not subject to national and international regulations on the transport of dangerous goods.

### **15. REGULATORY INFORMATION**

OSHA Hazard Communication: Non-hazardous


Toxic Substances Control Act: Listed

CERCLA Hazardous  
Substances (40 CFR 302): None

SARA Section 311/312: Non-hazardous

SARA Section 313 Toxic  
Chemicals (40 CFR 372.65): None

RCRA Hazardous Wastes  
(40 CFR 261): When this product becomes a waste, it is identified as a solid but NOT hazardous waste under RCRA criteria (40 CFR Part 261).

California Proposition 65:  **WARNING:** This product can expose you to chemicals including Bisphenol A, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

California Proposition 65 Safe Harbor Level(s):  
Maximum Allowable Dose Level (MADL) for Bisphenol A = 3 ug/day (dermal exposure from solid material)

### **16. OTHER INFORMATION**

SDS Prepared By: Plaskolite Environmental, Health & Safety  
SDS Original Date of Preparation: August 21, 2018  
SDS Revision Date:

The information presented herein is believed to be factual and reliable. It is offered in good faith, but without guarantee, since conditions and methods for the use of our products are beyond our control. We recommend that the prospective user determine the suitability of our products and these suggestions before adopting them on a commercial scale.