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TUFFAK® LS (Laser Safety) FAQ's

WHAT IS TUFFAK LS POLYCARBONATE?

TUFFAK LS sheet is a tinted, transparent, high impact resistance polycarbonate sheet which is designed with high Optical Density (OD) at targeted wavelengths for laser shielding applications. The color tints can be categorized into Light Gray with 70% LT for IR light blocking panels, Amber tint with 28% LT or visible spectrum lasers and Light Yellow with 28% LT for UV emitting lasers.

APPLICATIONS APPLICABLE TO TUFFAK LS SHEETS?

TUFFAK LS sheets can offer physical shielding and eye protection against common lasers operating at 10600nm, 9300nm, 532nm, 355nm, 308nm and 266nm. Specific uses include laboratory viewing windows, portable safety screens, tabletop laser enclosures and viewing ports. TUFFAK LS should be used to protect from stray or incidental laser light and should not be placed directly in the path of a laser. Absorption of laser light produces heat that can lead to damage to TUFFAK LS or even result in a fire.

WHAT DOES OPTICAL DENSITY MEAN?

Optical Density (OD) is a measure of light transmission attenuation (i.e. blocking light through the sheet). Higher OD values blocks more laser light and thus offers more eye protection. This means that for a LS panel with an optical density of 5 for a specific wavelength, only 0.001% (1/10,000) of the light at that wavelength will pass through that sheet..

DOES TUFFAK LS BLOCK ALL TYPES OF LASERS?

No, each tint of TUFFAK LS has a high OD against one or more very specific types of lasers and laser wavelengths, mainly associated with laser cutting operations, medical/dermatological and research applications. The Technical Service department maintain a full spectrum of wavelengths for each tinted sheet. Contact the service center to see if we have a recommendation for your laser not listed on the datasheet.

HOW DO I FIND THE EMISSION WAVELENGTH OF MY LASER AND WHAT OD IS REQUIRED TO PROTECT USERS FROM ITS LIGHT?

Information on laser safety and emission wavelength can be found on the manufacturer's sticker on the laser itself or in the operator's owner manual. *It's crucial that both the laser's emitting wavelength and recommended OD is needed for us to select the proper tint for your application.*

WHY ARE TUFFAK LS SHEETS TINTED AND CAN I PURCHASE THEM IN CLEAR SHEETS?

Each TUFFAK LS tint has been developed to block light at specific wavelengths. Clear sheets do not have the appropriate OD (allows too much light to pass through) and thus do not provide the proper eye protection to the user.

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CAN YOU PROVIDE A SHEET THAT PROTECTS AGAINST EVERY TYPE OF LASER?

There are thousands of types of lasers available for research, medical, industrial, and commercial uses, but most of them are used only for specialized research. Lasers are often described by the kind of lasing medium they use - solid state, gas, excimer, dye, or semiconductor. By providing one tinted sheet that could block the entire UV/Visible/IR light spectrum, you would ensure that no light could pass through the sheet and therefore the panel would be opaque and have no visibility which would defeat the purpose of having a transparent laser safety panel.

HAVE TUFFAK LS SHEETS BEEN TESTED TO A LASER SAFETY STANDARD?

TUFFAK LS sheets are compliant to ANSI Z136.7 Appendix C - Procedure for Laser Based Testing of Optical Density for Absorptive Filters by the American National Standard for Laser Protective Equipment.

WHERE CAN I FIND MORE INFORMATION ON TUFFAK LS?

Additional information can be obtained by visiting the links below or at www.plaskolite.com.

[TUFFAK LS DATASHEET](#) [TUFFAK LS PRODUCT INFORMATION](#)

[TUFFAK LS LITERATURE](#) [TUFFAK POLYCARBONATE FABRICATION GUIDE](#)

[TUFFAK POLYCARBONATE SDS](#)

DOES TUFFAK LS SHEETS COME WITH A WARRANTY?

Yes, TUFFAK LS sheets are offered with a five (5) year Limited Product Warranty against breakage. The terms of the warranty are available upon request.

HOW DO I CLEAN TUFFAK LS POLYCARBONATE SHEET?

The best way to clean TUFFAK polycarbonate sheet is to use mild dishwashing soap and warm water with a soft microfiber or cotton cloth, followed by a lukewarm water rinse. Do not scrub the panel as PC has a soft surface which will lead to fine line scratches if scrubbed too hard. For detailed information, please refer to the cleaning instructions for polycarbonate located at www.plaskolite.com under Resources.

HOW DO I CUT TUFFAK LS POLYCARBONATE SHEETS?

TUFFAK LS polycarbonate sheet can be cut using conventional carpentry tools. Always use proper safety equipment when working with power tools. For best results use sharp cutting tools and minimize vibration of the material. For specific instructions on cutting polycarbonate, please refer to the TUFFAK Fabrication Guide www.plaskolite.com under Resources.

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CAN TUFFAK SHEETS BE BENT OR CURVED?

Yes. Frequently referred as “cold bending”, a non-hard coated product such as TUFFAK LS sheets can be cold-bent to a minimum radius based upon the sheet’s thickness. As a guideline, the material can be curved to a minimum bend radius equal to 100 times the sheet’s thickness: ($R=T \times 100$). Solid sheets can be cold-bent in either direction. For example, a 2’x4’ or 4’x8’ panel at 0.118” thickness can be cold radiused to 11.8”.

CAN TUFFAK SHEETS BE THERMOFORMED?

No. Thermoforming TUFFAK LS stretches and thins the sheet, reducing the OD and eye protection properties of the sheet.

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