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Film Optics Ltd

Scattering-surface Diffuser

Developmental Product

RD/XXX

Technical Specification

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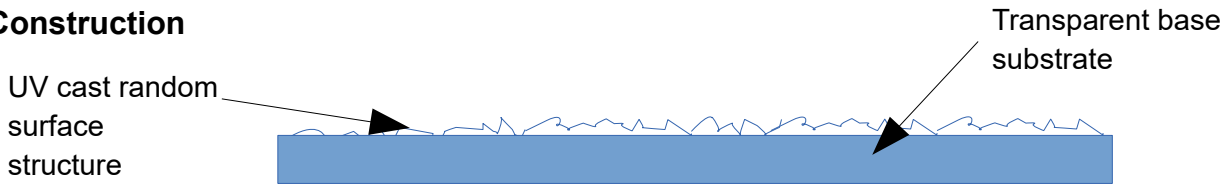
Description

A random textured surface coated on one side of a transparent base film (PET, PC or PMMA) which produces a high degree of surface refraction, creating an effective diffuser with high efficiency.

Construction



Applications

Used as a diffuser to homogenise a variety of light sources where a high degree of opacity and optical efficiency is required. This material may be laminated onto a thicker sheet to create a rigid diffuser. Laminating this film onto both sides of a rigid sheet will increase the effectiveness of the diffuser and increase its FWHM from 20 to 30°.

Parameter	Value	Tolerance	Remarks
Structure Height	2 - 5 microns	+/- 2 microns	Random surface structure
Transmittance	91%		Light incident on shiny side, total of light collected over +/-80° from the normal
Haze	92 units		Gardner
FWHM	20°		
Base film material			PET/PC/PMMA – can be selected
Total thickness	75 - 250 microns	+/- 10 microns	
Product format	On reel		Produced on reels (join every 800mm) or sheets
Film width	450mm	+/- 2mm	

Optical Properties

The optical behaviour of the diffuser is measured on an ELDIM EZContrast which measures the amount of light leaving the diffuser over +/180° from the normal and over 0-360° azimuthal angle. The 3D plot of this data is shown in Figure 1 and a cross section of this plot is shown in Figure 2. The incident light on the diffuser is collimated.

The diffuser has FWHM of 20°

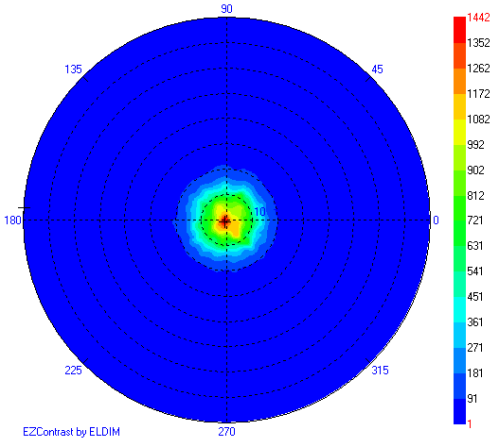
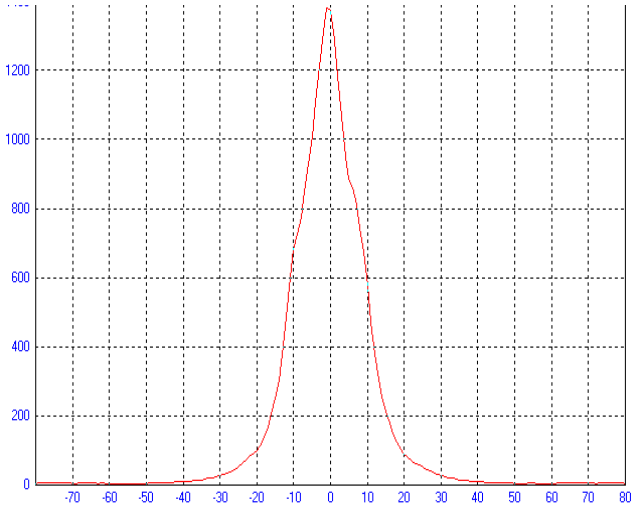
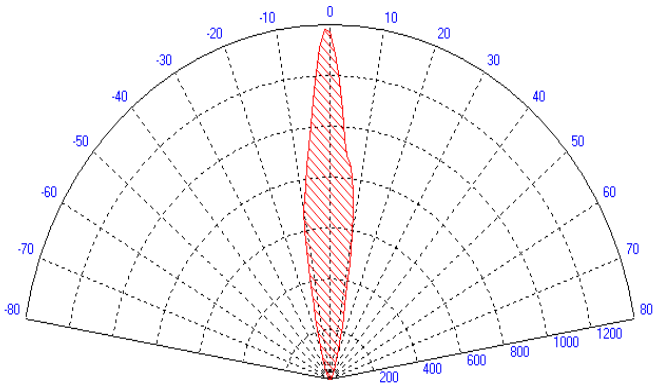


Figure 1: 3D plot of diffuser showing how the light spreads over all angles. The colour represents light intensity, and the concentric rings show the angle from the normal of the film.





(a) *(b)*

Figure 2: Cross section through x axis of Figure 1 – (a) as an X-Y plot and (b) as a polar plot

Handling

As with all precision optical films, care should be taken when handling. Surgical gloves should be worn to avoid fingerprinting. Care should be taken to avoid scratching the film surface. Films should be handled in a clean, dust free environment with a liner used on surfaces to protect the structure. The film can be easily cut using a guillotine, sharp bladed knife or scissors.

Storage

To maintain the quality of this product, store in a cool dry place (0-50°C) away from direct sunlight or heat.

Transportation

Not regulated

Disposal

This product is not considered as hazardous under current EPA hazardous waste regulations, and maybe disposed of by recycling, incineration or landfill. All disposal should be done in accordance with state and local regulations

Sales contact details

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Note

This product is a developmental product and as such may be subject to change. The specifications contained herein should be considered as guidelines.