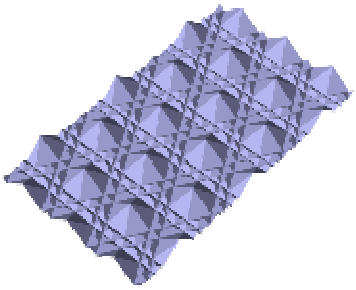
Microprism Technology for Luminaires

For nearly 40 years, Reflexite has been a world leader in the manufacture of microstructured polymer optics. Reflexite is an integrated supplier providing system solutions from optical design to master tool fabrication to polymer replication and through to a finished optical component or subassembly.

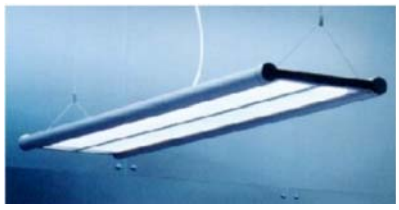
Reflexite Display Optics manufactures microstructured optical components and assembles subsystems for a diverse array of lighting applications. We have the capability to manufacture prism sheets, light guides, collimating diffusers, collimating Fresnel lenses, lens arrays, microlens arrays, diffractive optics, moth-eye microstructures and other optical components for the lighting industry.



Precision crossed linear microprisms

Reflexite's luminaire technology consists of microreplicated prisms or crossed prisms that are optically bonded to a waveguide or microstructures on a thin film substrate mounted within a light fixture to direct and distribute light in a specified manner.

Waveguide-Based Luminaires



New products that utilize waveguide technology with precision microstructures manage light from luminaries powered by high output florescent lamps. The optical system can be optimized to control glare while maintaining exceptional photometrics and aesthetics.

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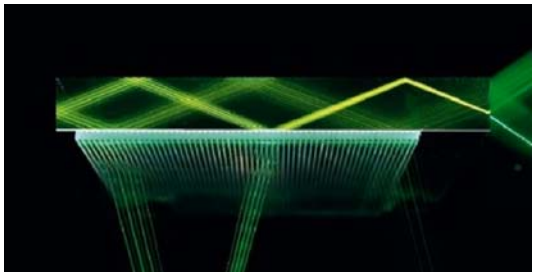
The Reflexite product consists of microreplicated prisms or crossed prisms that are optically bonded to a solid acrylic waveguide. The waveguide is edge lit, where the light bounces around the waveguide by **T**otal **I**nternal **R**eflection (TIR) and refraction, until the light rays enter the microprisms. These light rays are then redirected out of the waveguide in a precise manner, as a function of the prism angles.



Film-Based Luminaires

Film-based luminaries work similar to waveguide-based luminaries, without the waveguide. Here, air is used in place of the waveguide. These can utilize prismatic structures or engineered diffuse microstructures to produce the desired photometrics.

Benefits of Microstructure Technology for Luminaires

- Unique and Distinctive Design Freedom
- "Signature" Style Fixture
- Low Profile Appearance
- Tailored Photometrics
- Non Glare
- Lamp Obscuration

Design Considerations

- Efficiency
- Proportion of Uplight vs. Downlight
- Cutoff Angles

Challenges

- Tight Manufacturing Tolerances
- Fixture Design and Film Mounting
- Component Costs
- System Costs

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