

What is Nanoflex®?

Nanoflex® is a product of nano-scale advanced material research. It is a high reflective and diffusive optical coating. Its total reflectance (SCI) and diffuse reflectance (SCE) are measured to be up to 95% and 94% respectively in visible spectrum.

Nanoflex® Optical Reflector

Nanoflex® optical reflector is a result of advanced material research in Hong Kong. The optical coating on Nanoflex® provides ideal diffusive and reflective surface to capture light rays from any light source to enhance illumination.

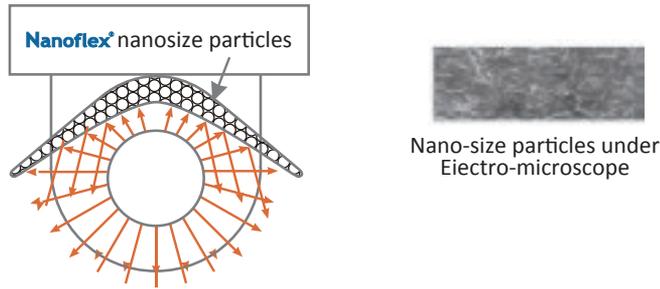
Nanoflex® Optical Reflector is designed to cater the needs of end users to perform energy-efficient lighting retrofits, which enables energy savings while fulfilling the luminous standards.

Benefits

- Cost Effective and reduce lighting energy consumption by up to 50%.
- Can be used with existing luminaire without the need for further capital expenditure.
- Capture light loss from luminaire's design limitations and efficiently reflect the light back to workspace.
- Enhance the efficiency of existing fluorescent tube by up to 40%.
- Up to 10 years of performance consistency.
- Enhance luminance in climate controlled environments without increasing heat source from electrical parts, thus further reduce air-conditioning load to enhance energy savings.
- Safe and simple installation, minimal maintenance required.
- Perfectly complement energy-efficient lighting solutions such as induction, T5, T8, and T10 fluorescent lamps, which are commonly used in commercial buildings and offices, industrial building and factories, hotels, government buildings and schools, hospitals and healthcare centers.

Technical Details

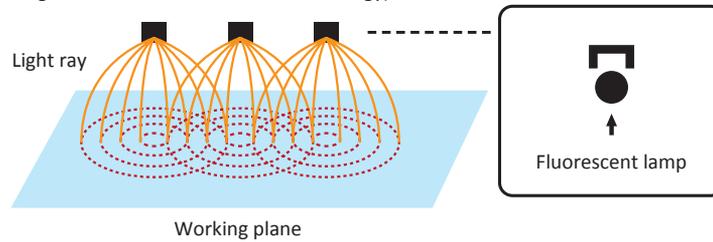
How does **Nanoflex®** enhance diffuse reflectance?



How does **Nanoflex®** save energy? (via de-lamping)

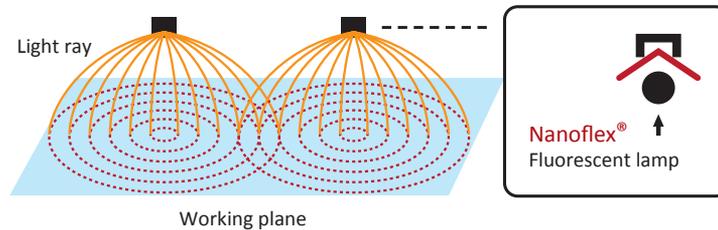
Luminaire only

(lower diffuse reflectance, narrow spread of light rays, smaller lighting coverage, use more luminaire, waste of energy)



Luminaire with Nanoflex®

(higher diffuse reflectance, wider spread of light rays, wider lighting coverage but still maintain the lighting level, use fewer luminaire, save energy)



- Nanoflex® is coated with efficient photometric diffusing material on molded metal alloy that maximizes photometric performance.
- Nanoflex® has total reflectance of 95% while the distinguished diffuse reflectance is 94% in visible wavelength. While combined with high performance light source such as induction, light performance is significantly enhanced.
- Nanoflex® is heated resistant up to 400°C and does not contain any hazardous substance.
- Nanoflex® has been tested for its durability, safety, eco-friendliness and photometric performance.

Application on Induction Streetlight



Annual lighting energy savings (kWh) can be up to 50% while fulfilling the lighting quality standard

Nanoflex® Optical Coating

Small Particles, Big Impact

Nanoflex® Optical Coating is a proprietary UV-resistant eco-friendly material giving ideal reflective and diffusive surface for enhancing illumination efficiency and uniformity. Nanoflex® Optical Coating possesses the properties of weathering and acid resistance, improving service life and reduces life-cycle material costs.

Features

High Reflectance and Diffusion

Nanoflex® Optical Coating has distinguished property toward reflection of visible light source. Its 95% Total Reflectance and 94% Diffuse Reflectance in visible light range represents a new choice of reflective material for conventional and contemporary lighting applications.

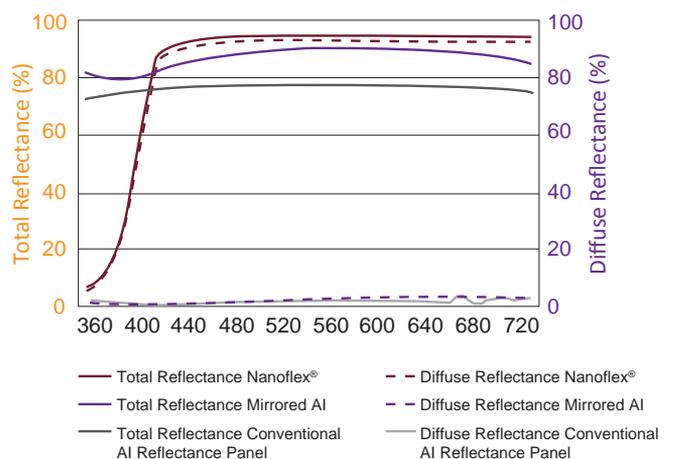
The comparison of Total Reflectance and Diffuse Reflectance of the Coating and Conventional Aluminum Reflection Panel is shown as follows:

	Total Reflectance (%)	Diffuse Reflectance (%)
Nanoflex® Optical Coating	95	94
Conventional Al Reflection Panel	78	8

The Total Reflectance refers to the total amount of light reflected from a surface as a percentage of the incoming light. High Total Reflectance means a low reflectance loss as Nanoflex® Optical Coating can reflect almost 95% of total amount of incoming light with only 5% of reflectance loss. On the other hand, Conventional Aluminum Reflection Panel can have light loss of more than 20%.

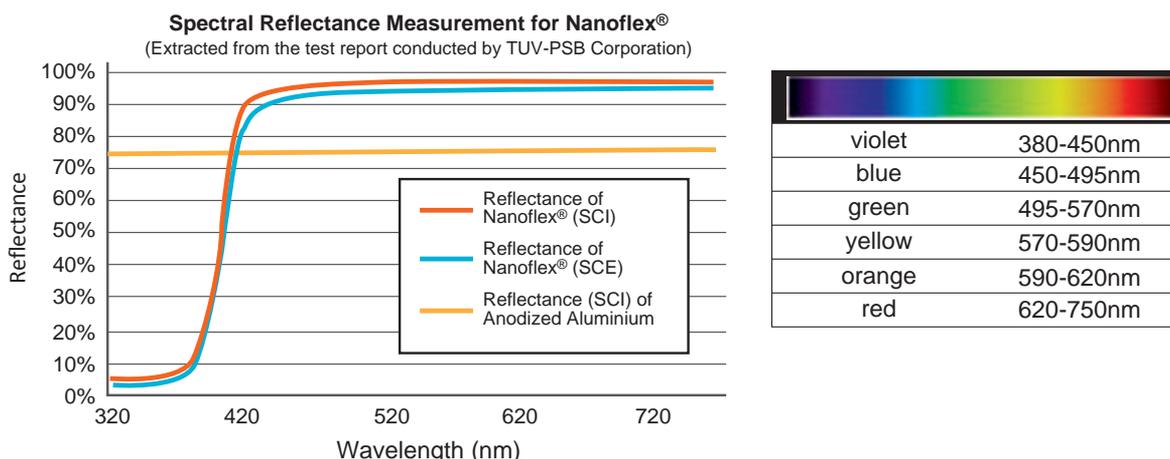
Nanoflex® Optical Coating generates better lighting quality on uniformity and color rendering due to its excellent high Diffuse Reflectance and steady performance over the visible light range. A coating with High Diffuse Reflectance will reflect light in broader directions, thus better uniformity. Nanoflex® Optical Coating can provide a broader angle of illumination for luminaire and better uniformity for the environment. Conventional Aluminum Reflection Panel reflects light with narrow angles because of its single digit Diffuse Reflectance of 8% or less.

Nanoflex® Optical Coating has a better color rendering than Conventional Aluminum Reflection Panel. The figure to the right illustrates that Nanoflex® Optical Coating reflects light effectively with wavelength from 400nm to 760nm. Total Reflectance varies with wavelengths for Conventional Aluminum Reflection Panel, which will weaken the color rendering of objects under the same light source.



Substrate Material - Consistent Performance across Different Substrate Materials

The performance of Nanoflex® Optical Coating relies on its nano-scale surface structure. Hence it delivers consistent performance across various backing materials such as metals, fabrics, plastics and even water-proof papers.



Nanoflex® Optical Sheet

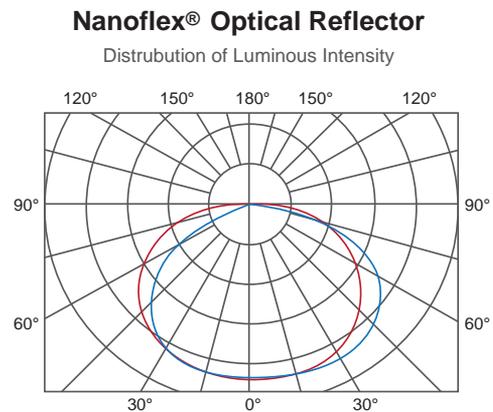
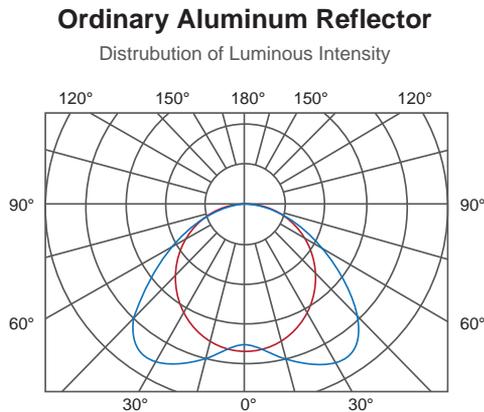
Nanoflex® - A95 combines aluminum sheet with Nanoflex® Optical Coating is an excellent material for all types of luminaire applications.

Characteristics

- Up to 95% of total reflectance and 94% diffuse reflectance
- Heat safety up to 400°C
- Weathering and acid resistant
- Resistant to yellowing, dirt and mold growth
- Water-resistant
- No residual odor
- Easy to clean, minimal maintenance required
- Eco-friendly

Photometric Performance

Nanoflex® Optical Reflector provides up to 20% better lumens and efficiency as well as 12% better diffusion than ordinary Aluminum Reflector.



ACCREDITATIONS

Nanoflex® is an eco-friendly material with the following international standards and recognitions:

- [Spectral Reflectance Measurement](#) - by TUV-PSB
- [Brifish Standard 476 Part 6&7](#) - by TUV-PSB
- [UV Aging Test](#) - by WELLAB
- [Restriction of Hazardous Substances Directive \(RoHS\)](#) - by Bureau Veritas
- [GREEN LABEL](#) - by Green Council of HKSAR

