THONAUER
ENGINEERING – MECHATRONICS

Anti-Reflective (AR) Coatings For Polymer

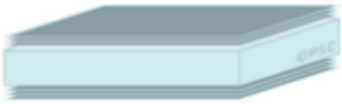
A range of very effective AR (anti-reflective) surface treatments

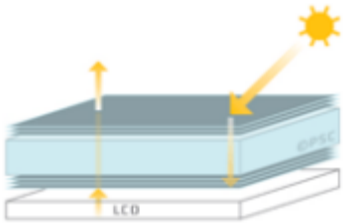
In some applications like medical equipment and navigation computers display readability is extremely important. Displays in these applications must be easy to read from all angles and under all possible ambient light conditions.

For these applications PSC has developed a range of very effective AR (anti reflective) surface treatments, which can all be applied to PMMA and Polycarbonate. They reduce reflections to an absolute minimum and increase undisturbed light transmission.

AR

The AR coating works by applying series of very thin layers of metal and mineral oxides in a vacuum deposition process. By careful design of these layers, light hitting the surface will not be reflected but transmitted through the material, resulting in an improvement of clarity and light transmissions, and total reduction of unwanted reflections.





The AR surface treatment is a high quality coating offering the very best optical characteristics due to an advanced vacuum deposition process.

The AR coating provides you with the best reproduction of the original colours, and combined with Anti Finger Print (AFP) top coating, the AR coating is close to optical perfection. Moreover, it offers exceptional abrasion, impact and smudge resistance.

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WET AR

The WET AR surface treatment is a cost effective alternative to the exclusive vacuum deposited AR. The performance of WET AR regarding light trans-mission and reflectance is good, is has a precise colour reproduction and is easy to clean. Furthermore, it has great chemical and abrasion resistance. It is an excellent choice for a wide range of applications e.g. large window applications like information displays.

Marine AR

The Marine AR is an advanced AR coating specially developed for the harsh environment which is found on ships and offshore environments. The Marine AR coating reduces light reflections to an absolute minimum and has an exceptional UV and saltwater resistance. Typical applications are radars, fish finders, navigation and communication systems exposed to saltwater and sunlight.

The Marine AR is also widely used in hospital environments due to its great resistance to disinfectants and cleaning agents.

Optimised AR Coatings for Light Sensing & Scanning

Optimised AR Coatings

The spectral properties of anti reflective coatings for display applications are optimised for the wavelengths visible to the human eye. However, most machine vision applications only benefit from specific wavelengths within the VIS range (red), or longer wavelengths than those of visible light (NIR).

For these applications PSC has developed a range of unique and very effective Anti Reflective surface treatments called Optimised AR Coatings. The Optimised AR is applied to our acrylic sheet material.

The Optimised AR Coatings are designed to obtain maximum AR performance in the exact application-specific wavelength range. It reduces reflections to an absolute minimum and increases undisturbed transmission in the desired range. This is highly relevant in certain camera, scanner, and sensor applications.

Red AR

PSC offers Red AR specially designed for barcode readers and the like. An Optimised AR Coating is applied to one of our red colour filters materials (i.e. Solaris S706). This means that the filter's transmission is improved to almost 100 % in the red range, eliminating almost all signal degradations caused by surface reflections.

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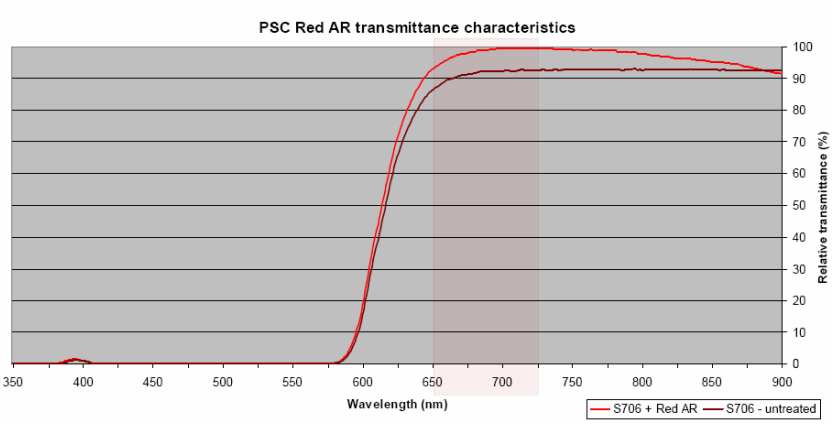
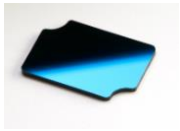
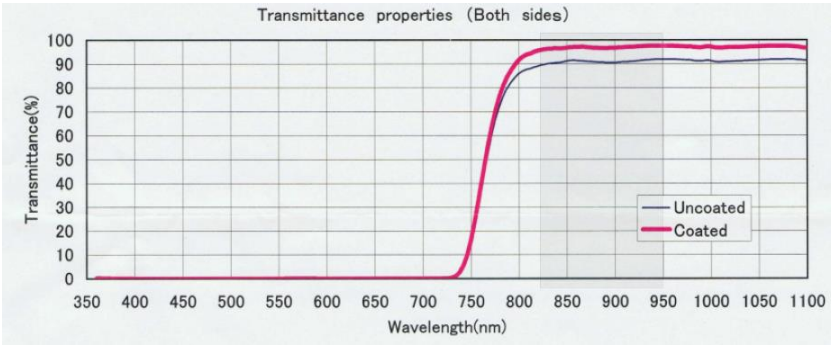


NIR AR

The NIR AR is often applied to our Solaris™ IR 306 filter. This means that the filter's transmission is improved to almost 100 % in the NIR range. Certain traffic cameras and iris recognition applications apply our NIR AR solution for faster and more precise detections, maximizing the signal-to-noise ratio in the signal detection.





1550 AR

The 1550 AR applied on Solaris acrylic provides a filter transmission up to 98 % in the 1550 nm range combined with only 0.5 % reflectance (double-sided measurement). The topcoat is Hydrophobic and abrasion resistant, and the acrylic base material makes the filter lightweight and much more impact resistant than glass. These properties make 1550 AR perfect for filter and cover lens solutions in 1550 nm LIDAR camera applications.

The 1550 AR is for applications such as ‘eye-safe’ infrared laser rangefinders using 1550 nm lasers and other LIDAR derived products for robotics, archaeology, geology, military or surveying purposes.

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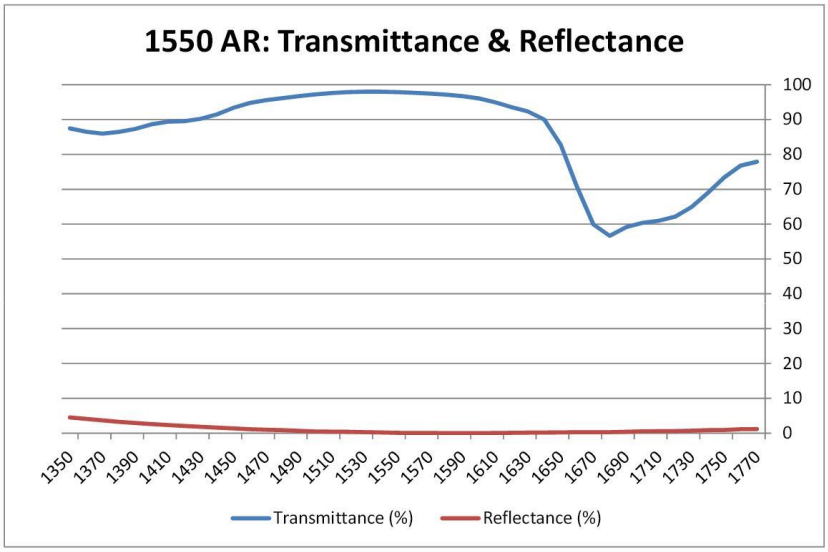

We manufacture the optimised AR coated materials in sheet formats, from which we then machine the individual parts. This provides full geometric design freedom for our customers. Besides the design freedom our processing capabilities also make us able to create and offer innovative handling solutions, such as Easy-Pick™, which provide maximum cost efficiency at our customers' assembly line.

RED AR, NIR AR and 1550 AR are not standard products, why the availability often depends on the concrete customer project.

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