



North American Coating Laboratories Conductive Anti-reflective Coating Technical Data Sheet

North American Coating Laboratories conductive anti-reflective coating treatment is designed to reduce visible light reflectance by using transparent thin film structures with alternating layers of contrasting refractive indexes. As an added benefit this coating solution contains a transparent conductive oxide layer that makes the film conductive for a variety of benefits. Among the benefits of a conductive anti-reflective coating are EMI (Electro-Magnetic Interference)/RFI (Radio-Frequency Interference) shielding for LCD displays. Additionally, conductive anti-reflective coatings can be used as heaters for display glass in avionic displays, vehicle displays and numerous computing applications that occur in varying atmospheric conditions.

The layers in the conductive anti-reflective coating are deposited via vacuum coating technology to produce destructive interference in the beams reflected from the interfaces, and constructive interference in the corresponding transmitted beams.

North American Coating Laboratories conductive anti-reflective coating treatment reduces up to 99% of reflection in the visible light spectrum. This reduction in reflection also improves the contrast of the image by elimination of stray light. North American Coating Laboratories conductive anti-reflective coating is perfect for touch screens, optical windows, display clusters, and most substrates that will display an image or transmit light waves.

North American Coating Laboratories can customize the conductive anti-reflective coating structure's performance to change with wavelength and incident angle, so that color effects can appear at oblique angles. A wavelength range must be specified when ordering such coatings, but outstanding performance can often be achieved for a relatively wide range of frequencies across the visible spectrum and into the near infra-red spectrum.



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When compared to competitive coating solutions available in the market, North American Coating Laboratories conductive proved to be an excellent performer through rigors such as:

Temperature: The coating withstands exposure over a temperature range of -65°C to $+125^{\circ}\text{C}$ with no degradation in performance on appearance.

Thermal Shock: The coating withstands exposure to surrounding air temperatures increasing or decreasing at a rate as high as 1.7°C per second within the range -55°C to $+125^{\circ}\text{C}$.

Solar Radiation: The coating withstands 100 hours of exposure to sunlight equivalent radiant energy at an irradiance of 120 watts per square foot, without deterioration in performance.

Humidity: The coating withstands exposure for period of 24 hours to the atmosphere having a relative humidity of between 95 and 100% at a temperature of $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, without any deterioration in performance.

Durability: The coating shows no damage after a rubber pumice eraser shall is rubbed across the surface of the coated element from one point to another over the same path for 20 complete cycles, with the force of 2.0 to 2.5 pounds continuously applied.

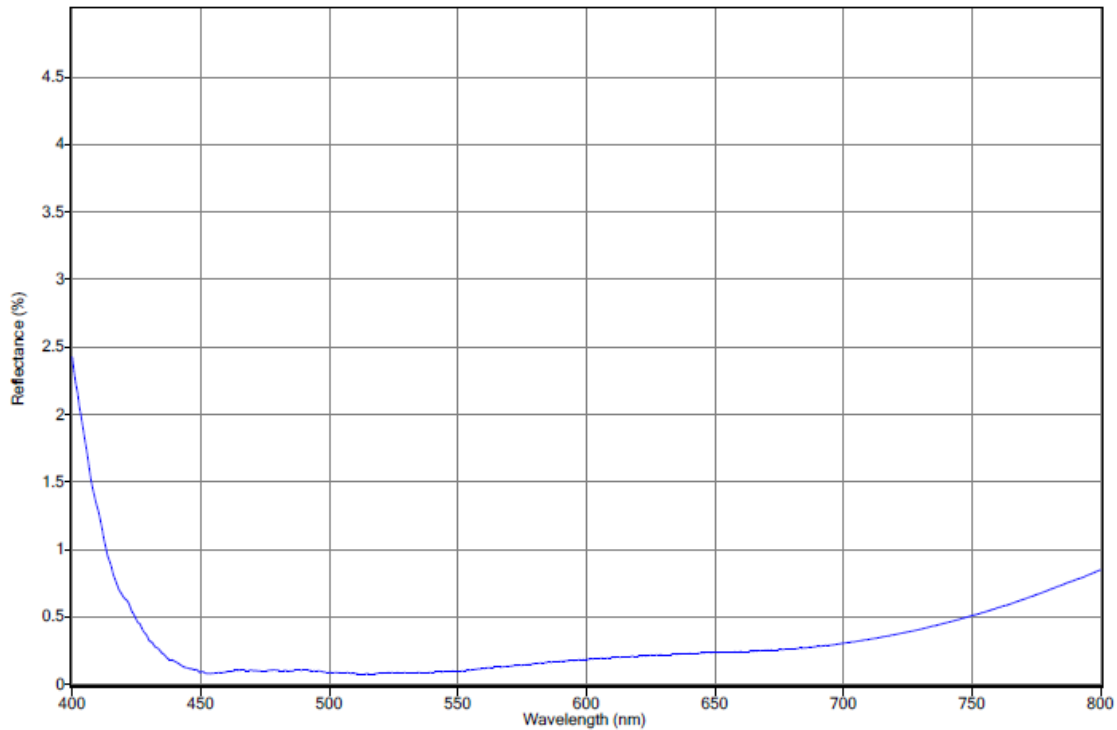
Adhesion: The coating withstands a tape adhesion test in accordance with MIL-M-13508.

Salt Spray: The coating withstands exposure to a salt spray atmosphere in accordance with Procedure 1, Method 509 of MIL-STD-810B



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Spectral Performance



North American Coating Laboratories provides specialized optical coatings for a wide variety of customers in both the polymer and glass optics markets. Our specialized knowledge and experience in both dip-applied and vacuum-applied processes make NACL one of the most respected and trusted organizations in the optical coatings field. Our coating competencies include Protective, Scratch-resistant, Reflective, Anti-reflective, Hydrophobic, Filter, Conductive, ITO, and Chemically Resistive coatings. North American Coating Laboratories is certified to ISO: 9001 quality standards and has been in business since 1974.

Currently North American Coating Laboratories services clients in the automotive, aeronautic, consumer electronic, military, medical, and ophthalmologic fields as well as many others. Our customers range from high end sunglass manufacturers to military attack planes. Because of the ubiquitous nature of our technology we are able to add value and increase the performance of virtually any optical element that light passes through or that images are viewed through.

For more information on North American Coating Laboratories broadband anti-reflective coating treatment please contact Dan Fiore, Director of Business Development for North American Coating Laboratories at 866-216-6225, or visit our website at www.nacl.com.