



A Merger of Exotic Electro-Optics & LightWorks Optics

COATING PRODUCT #40127

Variant of Standard Hard Carbon Coating 40107

EXTREME DURABILITY HARD CARBON COATING

Description

Similar to design #40107, this durable anti-reflection coating is designed to withstand the most severe environmental conditions likely to be encountered in military or industrial operational applications.

This coating will remain undamaged under conditions such as:

- Exposed exterior surfaces of thermal imaging systems used on ARMY tracked vehicles and man portable thermal night sights.
- Exposed optical surfaces of Air Force and NAVY FLIR systems, including underwater applications.
- Exposed infrared windows where windscreen wipers are required or chemical attack is to be endured

The minimum transmission values when one surface of a polished Germanium substrate 1mm thick is coated with EMI 40127 and the other surface with high efficiency coating EMI 40101 shall be:

$$8.0\text{—}11.5\mu\text{m} \geq 90\% \text{ Average}$$

Reflection from a single surface at near normal incidence shall be:

$$8.0\text{—}11.5\mu\text{m} \leq 2.5\% \text{ Average}$$

This coating will show no signs of removal when exposed to 40,000 revolutions of a wiper blade under 40 grams load using a sand & water mixture consisting of 1cc of sand to DEF STAN 07-55 Type C, in 10ml of water equivalent

Note: this coating has all the same performance attributes of 40107 but with enhanced wiper blade durability of 40,000 revolutions

This coating will show no evidence of deterioration when subject to the salt spray fog test per MIL-C-675, severe abrasion and adhesion test per MIL-C-48497, and the windscreen wiper test in the sequence listed. Following this test, the coating shall be exposed to a relative humidity between 95 & 100% at a temperature of $120^{\circ}\text{F} \pm 4^{\circ}\text{F}$ for a period of 672 hours. After this test, the coating shall again be subjected to the severe abrasion and adhesion test of MIL-C-48497 in the sequence listed here and shall conform to the requirements of paragraphs: Physical, Environmental and Solubility. Blemishes, Spatter & Holes, and Surface Defects.

Other related specifications:

The coating is unaffected by immersion in

- Dilute HCL for 10 minutes
- Salt solution for seven days
- Water for 28 days

Testing is performed on 1mm thick witness pieces from each coating lot unless otherwise specified.

Coatings are tested to ensure specification compliance and certification can be provided. Customer specified lot-testing is available upon request. Please email us for additional information at sales@exotic-eo.com or call 951-926-7666

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