

OPTICAL FILM ENHANCEMENTS

GenGard™ Film Enhanced Displays

For those cases which do not require the ruggedization provided by bonded glass panels, General Digital™ Optical Bonding Laboratories™ recommends the use of GenGard™ film enhancements. GenGard™ films improve the readability of electronic displays by reducing the reflection of ambient lighting. In addition, GenGard™ resists fingerprints and other distracting artifacts commonly a problem with antireflection coatings.

General Digital™ Optical Bonding Laboratories™ offers three grades of GenGard™ films: **P**, **A** and **M**. All grades are coated with a hard coat to resist scratches and a vacuum deposited multi-layer antireflection coating to reduce specular reflections to less than 0.75% over the entire visible spectrum. Over the antireflection coating and forming a part of the optical layers is a fluorocarbon-based hydrophobic coating which reduces the surface tension and resists degradation from fingerprints and other surface contaminants.

The three grades differ in the degree of surface gloss which the material exhibits; **P** has the highest gloss at 92, and so is best suited for applications where a high level of diffuse light is present; an example would be outdoors with the display facing a light colored south wall. **A** is antiglare coated before the vacuum processes and has a gloss of 60. This will reduce the degree of mirror-like reflections observed when the display is located in front of a user in a lighting situation in which the user's clothing would cause significant reflections. **M** is a very matte appearing surface having a gloss of 30 and will show the highest level of diffuse reflections, while further breaking up the mirror like reflections. Image quality may also be adversely affected by the low gloss of **M**-grade film.

SPECIFICATIONS

Optical Properties

AR Coating: Multi-layer broadband AR coating with total reflectivity <0.75% max.; average integrated value <0.5% over the spectral range of 450 to 650 nm.

Reflection Color: The film will typically exhibit a light purplish hue by reflected light.

Durability

Meets the requirements of MIL-C-675C.

Hardcoating will resist abrasion, scratching and chemicals. Typically exceeds 3H pencil hardness test.

Chemical Resistance

<u>Reagent</u>	<u>Resistance Test Result</u>
Distilled water	no effect
Soap solution	no effect
Lubricating oil	passes
Coffee	passes
Windex® window cleaner	no effect
Isopropyl alcohol (70% V/V)	no effect
Vinegar (5% acetic acid)	no effect
Unleaded gasoline	passes
Butyl acetate	passes
Butyl cellosolve acetate	passes
Methyl ethyl ketone (MEK)	passes
Toluene	passes
Acetone	passes

Humidity Exposure

After exposure for 24 hours to an atmosphere of 120° ±4° F (49 ±2.2° C) and 95 to 100% relative humidity, the coating surface shall meet the requirements of MIL-C-675C.

Adhesion

The coating shall show no evidence of coating removal when cellophane tape is pressed firmly against the coating and quickly removed at a right angle to the surface.

For More Information

GenGard™ surface coatings can be applied to other substrates besides displays. Determining the best solution for your particular application can be a daunting task. We invite you to visit our web site, <http://www.GDOptiLabs.com>, for the latest information available on LCD, OLED and Plasma display optical enhancements. Or call 800.952.2535 to speak with a Sales Engineer.