

Handling and Fabrication Guide

INTRODUCTION

Guardian Neutral 70 low-E is a durable, neutral color low-emissivity coating that is intended for use in insulated or laminated glass applications. This Product Application Note is intended to provide guidelines for the proper handling and fabrication of Guardian Neutral 70 low-E glass.

STORAGE AND UNPACKING

Guardian recommends that glass be unloaded under dry, indoor conditions. If outdoor unloading is required, care should be taken to avoid exposure to rain and snow, and glass should be moved indoors as soon as is practical.

Do not mark the coated surface with adhesive labels or wax crayons, and do not drag suction cups or metal objects across the surface. The coating is resistant to damage by such materials, but handling practices that are more aggressive than those used with uncoated glass must be avoided. Case tags should remain with the original packaging and case tag numbers should be traceable to work-in-process, and finished goods.

Although the coated surface of Guardian Neutral 70 is resistant to staining and chemical degradation, Guardian's customer assumes responsibility for as-coated inventory that is held beyond 12-months from the original date of receipt from Guardian. Guardian Neutral 70 should be insulated or laminated within 30-days of heat-treatment.

SURFACE IDENTIFICATION

When opening incoming packaging, the packing tags will indicate the orientation of the coated surface; however, formal detection using an approved detection method is required. Guardian recommends using a coating detector (such as those offered by EDTM, Inc. in Toledo, OH) that does not incorporate metal contacts.



INSPECTION

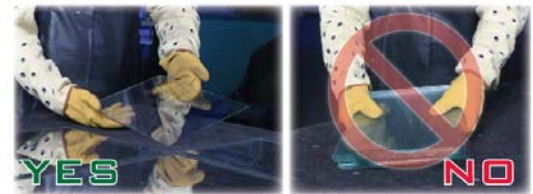
Guardian Neutral 70 can be inspected, in reflection, for uniformity of coating by placing it in front of a black, non-reflective background with a diffuse light source located above or behind the inspector. This simulates the viewing condition where a person outside looks at the daytime reflection of an overcast sky in the low-E residential glazing.

Inspections should also be performed in transmitted light by placing the glass in front of a white, non-reflective background with a diffuse light source located behind the glass (light board). This simulates daytime viewing of the glass from the outside looking through the glass with white interior blinds or drapes.

CUTTING

Guardian Neutral 70 should be cut with the coating side up to minimize the risk of scratching or marking of the coating. Cutting wheel pressures will be very similar to those for uncoated glass.

When the glass is moved across rollers or over an air-float table, the coated surface should face up to avoid abrasion or rub marks. Special care is advised when metal tape measures, straight edges or cutting bars come into contact with the coated surface, as abrasion or marking may occur. Multi-lite stacking should also be avoided to minimize abrasion or marking of the coated surface. The coating is resistant to damage, but handling practices that are more aggressive than those used with uncoated glass must be avoided.



Edge preparation such as seaming or polishing should be done coated side up, as the rotation of the seaming table casters could cause a swirling pattern where the caster touches the coating if it were facing down.

WASHING

As with uncoated glass, automatic washing machines using hot water and detergents can be used with Guardian Neutral 70. To avoid abrasion or marking of the coated surface, Guardian recommends that coated products

should be washed with the coated surface facing up. When spot cleaning is required, use mild, fast-drying household glass cleaners with a clean, soft cloth. Guardian recommends maintaining detergent wash water tank temperature between 120-140°F (49-60°C) during operation. Razor blades and steel wool must not be used on the low-E coated surface.



HEAT-TREATING

Guardian Neutral 70 is a single-product solution for annealed and heat-treated applications; as such, there is no separate heat-treatable (HT) version of this product. As with all low-E glasses, the coating will reflect some radiant heat and so it will require a somewhat longer furnace cycle to achieve the same uniform temperature as uncoated glass of the same thickness (note that Guardian uses 3.2mm nominal thickness for traditional 1/8" substrate). Guardian Neutral 70 must be tempered with the coated side up to minimize the risk of scratching or marking of the coating. In testing, Guardian Neutral 70 was successfully heat-treated at furnace settings and cycle times similar to pyrolytic coated low-E glass.

INSULATING GLASS

Guardian Neutral 70 is intended for use in insulating glass units, with the coated surface facing the air space. The coating may be placed on either the number 2 surface or the number 3 surface depending on the application requirements. Guardian Neutral 70 should not be used in monolithic or non-sealed applications.

It is important to confirm that the glass is effectively cleaned and that full sealant adhesion is developed to the coated surface. Guardian Neutral 70 low-E has been tested, and found compatible, for IG construction, without edge deletion, with a variety of Hot Melt Butyls, Polyisobutylenes, Polysulphides, Urethanes and One and Two Part Silicones. Please contact Guardian to confirm sealant compatibility or for any questions. Guardian Neutral 70 should not be used without edge deletion in any structurally glazed application. For any application where the spacer frame is exposed from the outside, there may be a color shift at the point where the coating comes in contact with the sealant. The customer is responsible to determine if this color shift is acceptable.

LAMINATING

Guardian Neutral 70 low-E may be used in embedded (facing the PVB) or exposed (facing the airspace) laminated applications. Guardian Neutral 70 may only be laminated with an exposed coated surface if the final glazing package will be an insulating glass unit with the coated surface facing the air space.

The Guardian Neutral 70 low-E coating is not damaged by normal laminating processes. Care should be taken to minimize excess PVB remaining around the edge of the glass prior to autoclaving, as this can be difficult to remove from the coated surface. Do not use razor blades or steel wool to remove deposits from the coated surface. Edge deletion of the coated surface is not required for embedded or exposed laminated configurations of Guardian Neutral 70 that incorporate approved sealant materials. Impact testing on laminated glass should be performed to ensure compliance with safety glazing requirements.

PACKING

When packing Guardian Neutral 70 low-E coated glass for shipping with the coating exposed, it is preferable to use a slot-racking system that prevents glass-to-glass contact. It is acceptable to stack individual lites of Guardian Neutral 70; however, care should be taken to ensure proper interleaving is used to minimize the potential for abrasion to the coated and uncoated surfaces.

Recommended	Not Recommended
Foam Pads	Newsprint
Cork Pads (static foam against coating)	Silver Saver and Kraft Papers
Polyfoam Sheets	Cardboard
Lucite Beads	Powder Separators Containing Acid
	Nut Powders

Over long distances, powder separators may become non-uniformly distributed, creating pressure points that could mark the coated or uncoated glass surface.

For additional information regarding storage, handling, fabrication, Limited Warranty coverage or use of any Guardian glass product, please contact the Guardian Customer Engineering Group at (888) 521-9734.