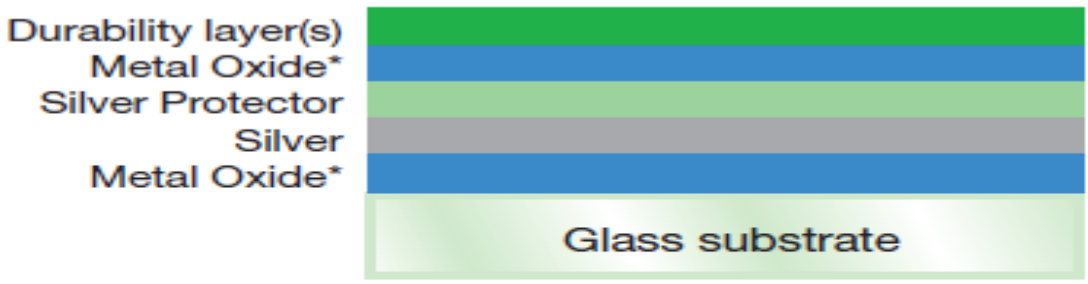
TECHNICAL SALES BULLETIN 013

EDGE-DELETION OF SOFT-COATED LOW E GLASS

Low emissivity coatings were initially developed to increase the thermal insulation of double-glazed units, and have been successfully used since 1983.
Although pyrolitic hard-coated Low E products initially proved popular due to their durability, their limited performance left the market lacking.
This brought about the advent of soft-coated "sputter" Low E coatings, offering vastly superior thermal performance when correctly glazed into double-glazed units.
These off-line soft-coats are produced by a vacuum deposition process called Reactive Magnetron Sputtering (RMS), and are made up of multiple coating layers, one or more of which is pure silver. These coatings are protected by proprietry durability layers of metal oxides, applied onto the silver, primarily to protect it during shipping, handling, washing and SIGU fabrication, see examples CG01-1 & CG01-2 below.



Approximately 1/200,000 inch thick

*or Metal Nitride

Fig. CG01-1: Typical Low-E Coating – Single Silver Layer

Approximately 1/200,000 inch thick

*or Metal Nitride

Fig. CG01-2: Typical Low-E Coating – Double Silver Layer

However, these protective layers are on the face of the coating, and not on the coating edge. Therefore, when the stock sheet is cut and processed to its finished size, the

silver at the glass edge is directly exposed to the environment, greatly increasing the risk of coating degradation (corrosion & oxidation).
Coating degradation always begins at the edge, and propagates from this point.
Past experience has shown that edge corrosion can occur anytime from 3 months to 6 years after manufacture.
In order to significantly reduce the risk of coating degradation, all “single-silver” and “double-silver” Low E products must be edge-deleted prior to SIGU fabrication.
This edge-deletion removes the silver coating from around the entire periphery of the glass, normally in a band 10 to 12mm wide, . Apart from promoting better secondary sealant adhesion to the glass substrate, the primary purpose of edge-deletion is to prevent the coating/glass substrate interface from being exposed to the environment.
The edge-deletion is usually calculated such that the coating would begin midway in the P.I.B. primary seal. Fig. CG01-4 shows this diagrammatically.

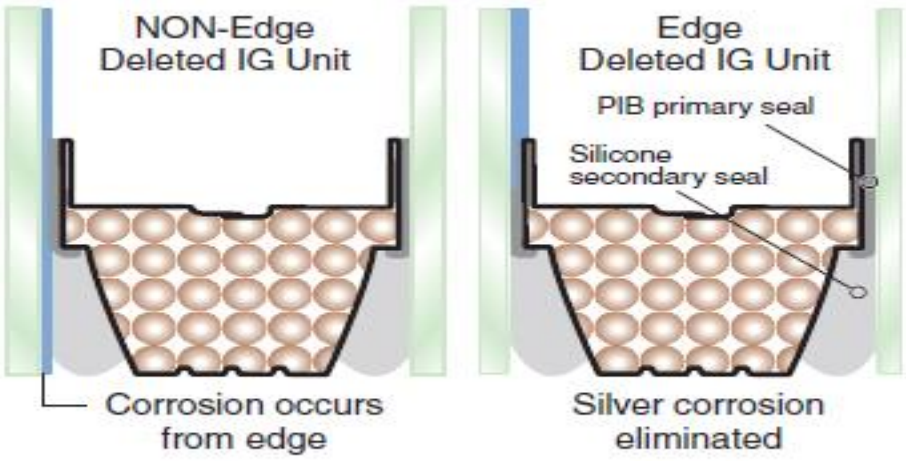


Fig. CG01-4 = Low-E coating

An example of coating degradation is shown in Fig. CG01-3

Fig. CG01-3: Coating Corrosion at Edge

The products currently used by the PG Group that require edge-deleting include, but are not limited too, the following :-

St Gobain KNT range
St Gobain SKN range
St Gobain Planitherm range
St Gobain Planistar range

Should you be uncertain if a particular product requires edge deletion, please contact the
undersigned before proceeding with the SIGU assembly.

Yours sincerely,

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