

IG Unit Frost Points, Internal Condensation and LoE™ & LoE²® Corrosion Potential

In well-constructed IG units with active, functioning desiccant, frost points below -100° F have been observed. Upon IG unit assembly, ambient moisture will be trapped inside the IG unit. The frost point suppression time will vary depending on a number of factors including but not limited to the unit size, airspace width, desiccant capacity, and materials in the airspace i.e. plastics that contain moisture, spacer type and argon filling vs. air filling. Cardinal CG Company's Limited Warranty for Monolithic LoE™ Glass states that "The frost point of the sealed insulating glass unit in which the Monolithic LoE™ Glass is used is and remains 0° F or lower" etc. Metal spacer systems using molecular sieve or silica gel can be tested to determine their desiccating capacity by using the industry accepted Temperature Rise Test. This test can be used as a QC test for incoming desiccant and/or to determine the capacity of the desiccant after in plant storage and prior to fabricating the insulating glass unit.

The Temperature Rise Test cannot be used with powdered desiccants used in matrix materials, butyl or silicone foam spacers, making it extremely difficult to measure the desiccating capacity of these products. In addition, the dew point suppression with these products can take much longer to achieve than with a typical metal spacer with desiccant beads. For large insulating glass units with wide airspaces having a large amount of initial moisture in the airspace, the time frame for dew point suppression can be additionally extended and if the IG unit is installed, conditions may promote corrosion of the low emissivity coating. It is strongly recommended that IG manufacturers using matrix materials, butyl spacers, or silicone foam spacers make certain that these incoming materials are active and stored and handled properly in order to assure low initial IG frost points. It is also recommended that IG manufacturers work with the desiccating/spacer material suppliers to assure the adequacy of the activity level to produce IG units having airspace frost points of 0° F and below. This is important, since if the frost point of IG units with Cardinal's LoE™ coated glasses is not 0° F or below, Cardinal CG's Coated Glass Warranty is null and void.

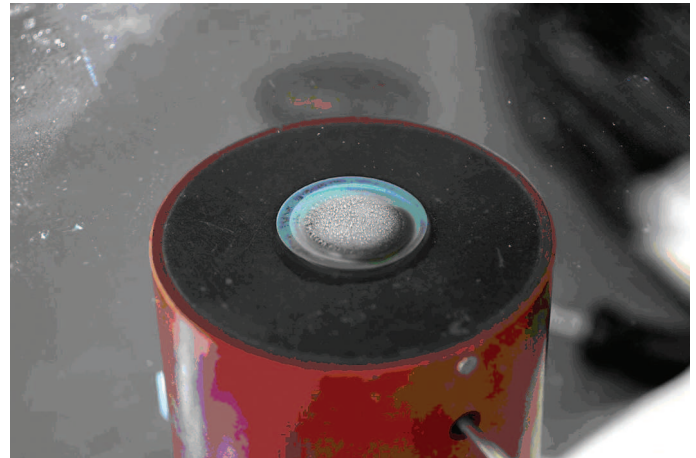


Fig. CG03-1: Frost Point Testing Apparatus

The information in this Technical Service Bulletin is subject to the disclaimers and other limitations appearing in the DISCLAIMER that accompanies this Bulletin and at www.cardinalcorp.com.

©Copyright 2008 Cardinal CG Company