

## North American Sealant Testing

### Longevity of IG Units in Accelerated Testing Chamber

Continuous Conditions Test Environment: 60°C, Water Spray,  
Ultraviolet radiation (average 2500  
microwatts/cm<sup>2</sup>)

Unit Type	Longevity	Failure Mode
Single Seal PIB only	24 Hours	Ruptured Seal, unit filled with water
Single Seal, Butyl Spacer	2 weeks	Ruptured Seal, unit filled with water
Single Seal, Silicone	3 weeks	Dew Point Failure
Single Seal, Polysulfide or Polyurethane	6 - 8 weeks	Bond loss to glass, unit filled with water
Single Seal Hot Melt Butyl	6 - 8 weeks	Ruptured Seal, unit filled with water
Dual Seal Polysulfide or Polyurethane	12 - 18 weeks	Bond loss to glass, unit filled with water
Dual Seal Silicone, unsealed corners	15 - 20 weeks	Dew Point Failure
Dual Seal Butyl Spacer, silicone secondary	25 + weeks	Dew Point Failure
Dual Seal Silicone	40 + weeks	Dew Point Failure

Note:

Dew Point Failure - When Condensation appears in the airspace at a temperature of -18°C or above.

#### Summary

Butyl type materials (Polyisobutylene, Hot Melt Butyl and Organic Seals) have low permeability but lack the structural characteristics to hold the unit together.

Polysulfide and polyurethane sealants age badly when exposed to weathering, thereby creating leaks in the edge seal.

Silicones have excellent weatherability and structural performance, but require a primary seal and impervious spacer frame.

**Delchem D-2000 had no failed units in the above chamber after completing 85 Weeks.**