

CAN/CGSB - 12.8-97 Insulating Glass Units

This standard applies to sealed IG units (doubles or triples) used in doors, windows and curtain walls in building envelopes. It includes requirements for testing of samples for integrity and durability of the unit's hermetic seal and if applicable, gas concentration. The requirements also apply to glass units that may be coated and/or have muntin bars within the cavities. The testing of permanently vented or capillary tube units is not included in this standard.

Unit Size:	14" x 20" ($\pm 1/4$ ")
Glass Thickness:	3/16" or 1/4"
Air Space:	1/4" through 1/2"
No. of units:	20

STEPS:

- 1. Initial Dew Point:**
Determine the initial dew point for 18 specimens. 14 of these 18 units shall be randomly selected for testing.
- 2. Initial Gas Concentration:**
2 units that are to be used for volatile fog test, 4 units to be used for weather cycle and 4 (of 8) units to be used for High Humidity test shall be tested for initial argon gas concentration. Average argon concentration in these 10 units must be minimum 90%.
- 3. Volatile Fogging:**
2 test specimens shall show no evidence of fogging or residue when viewed after testing.
- 4. Dew Point, after Weather Cycling:**
4 test units shall not show a dew point temperature warmer than -40°C (-40°F).
- 5. High Humidity Cycling Test:**
8 test units shall not show a dew point temperature warmer than -40°C (-40°F).
- 6. Final Gas Concentration:**
Test same units used for initial gas concentration test and compare difference.
- 7. Failure Analysis (Water Immersion Technique):**
If any units fail steps 3 to 6, the integrity of the unit or the Santoprene plug shall be determined using the Water Immersion Technique.

Volatile Fog Test: (1 week)

Procedure: 2 test specimens shall show no evidence of fogging or residue when viewed after testing.

Maximum air temperature in volatile fog box shall be maintained at $60 \pm 3^{\circ}\text{C}$ (140°F). Maintain the temperature of cooling water (cooling plate) at $22 \pm 3^{\circ}\text{C}$ (72°F). Expose the units for 7 days, then remove units from the fog box and mount the units in the specified viewing box. Stand about 2m in front of the test unit and look for any evidence of fogging or other residue on the interior glass surface.

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High Humidity Test: (4 weeks)

Procedure: 8 test specimens (not exposed to the weather cycling test) are placed in a humidity cabinet and exposed to humid air flow induced by water sprayed between the cabinet wall and a baffle.

224 total test cycles.
Each cycle is 180 ± 4 minutes and consists of the following:

1. 90 ± 2 min heating to 55 ± 3°C (131°F)
2. 50 ± 1 min hold at 55 ± 3°C (131°F)
3. 40 ± 1 min cooling to 22 ± 3°C (72°F)

Condition units for 72 hours at 22 ± 3°C (72°F) before measuring the final dew point temperatures.

Weather Cycling Test: (approx. 8 weeks)

Procedure: 4 test specimens (One exterior surface and the edges of the units are exposed to weather cycling conditions)

320 total test cycles.
Each cycle is 240 ± 7 minutes and consists of the following:

- a. 60 ± 1 min cooling: Decrease temperature from room to -32 ± 3°C (-25°F)
- b. 90 ± 2 min heating: From -32 ± 3°C (-25°F) to 50 ± 3°C (122°F)
- c. 25 ± 2 min Air Circulation
- d. 5 ± 1min water spray (Water temperature 24 ± 3°C (75°F)
- e. 60 ± 1 min Air Circulation alone

Remove units from apparatus and condition for 72 hours at 22 ± 3°C (72°F) before measuring final dew point.

Rev. #	Revisions Made	Rev. Date
2	Formatting	05-11
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