

STANDARD INFORMATION

Standard: CSA C22.2 No. 31

Standard ID: Switchgear Assemblies [CSA C22.2#31:2018 Ed.11]

Previous Standard ID: Switchgear Assemblies CSA C22.2#31:2014 Ed.10+E1

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **April 20, 2023**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

Overview of Changes:

- New Section with requirements for Viewing Windows
- New requirement for marking instructions for cleaning of polycarbonate windows
- New test requirement for ultraviolet resistance for polycarbonate windows
- New test requirement for impact resistance for all windows
- New requirement for public access switchgear to comply with IEEE C57.12.28
- New tamper resistant marking added, if applicable per 8.2.1.11

Specific details of new/revise requirements are found in table below.

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.



STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
4	Info	Construction
		<i>New section added;</i>
4.17		Viewing windows
4.17.1		When an opening in the enclosure is required for observation, indication, or infrared (IR) scanning, a transparent material covering the opening and forming a part of the enclosure shall be secured to the equipment in such a manner that it cannot be readily displaced in service and shall meet the requirements in Clauses 4.17.2 to 4.17.8.
4.17.2		Windows installed for observation or indication purposes shall be of a clear material in accordance with Clause 4.17.3. Windows installed for infrared scanning may carry a tint inherent to the specific type of IR window material supplied.
4.17.3		If the observation or scanning window material is glass, it shall be of the safety or wire reinforced type, and if polymeric, it shall be polycarbonate.
4.17.4		Windows installed for infrared scanning shall be covered with a permanently mounted protective cover that is either hinged, swiveled, or bolted. If hinged or swiveled, there shall be a means provided to retain the cover in the closed position. Protective covers are optional for other applications. Notes: 1) Infrared viewing windows are fabricated of softer crystal-based materials and require protection from direct impact and damage from scratching. 2) Protective covers could be used to reduce potential arc-flash exposure to personnel.
4.17.5		Windows shall be mounted and secured in such a way that they can be replaced during maintenance using only standard tools.
4.17.6		Polycarbonate materials shall pass the UV test in Clause 6.3.
4.17.7		All window installations shall pass the impact tests in Clause 6.4.
5.17.8		Windows fabricated from polycarbonate material shall include cleaning instructions in accordance with Clause 5.16.
5	Info	Marking



CLAUSE	VERDICT	COMMENT
		<i>New clause added;</i>
5.16		Where required by Clause 4.17.8, cleaning instructions for polycarbonate viewing windows shall be included in the installation and maintenance instructions. Information shall include permitted cleaning liquids, if any, and any other pertinent information to ensure the transparency of the window is not altered by cleaning.
6	Info	Tests
		<i>New section added;</i>
6.3		Polycarbonate window UV resistance test
6.3.1		Polycarbonate window material (see Clause 4.17.6) shall be tested for resistance to UV light. Polycarbonate material which has already been tested need not be tested again.
6.3.2		Material shall be tested in accordance with the weatherometer test of CAN/CSA-C22.2 No. 0.17. Material that is only intended to be used indoors need not include the water spray portion of the test.
6.3.3		The weatherometer test in CAN/CSA-C22.2 No. 0.17 is based on ASTM G151 and ASTM G155, and tests performed in accordance with these ASTM standards are also acceptable, provided the same post-test evaluation measurements according to CAN/CSA-C22.2 No. 0.17 are applied.
		<i>New section added;</i>
6.4		Window impact testing
6.4.1		All window installations (see Clause 4.17.7) shall undergo impact testing.
6.4.2		The window shall be mounted as it will be in service. Where the window installation includes a permanently mounted protective cover (see Clause 4.17.4), the cover shall be in place for the impact test.
6.4.3		The test shall be conducted from outside the switchgear. Separate test samples may be used for the test in Clause 6.4.4 and the test in Clause 6.4.6.
6.4.4		A force of 445 N shall be applied for 1 min perpendicular to the window surface. The force shall be applied in the centre of the window and be applied to be evenly distributed over a square area of not more than 10,500 mm ² . If the viewing window area is less than 10,000 mm ² , then the test force shall be distributed over the entire window area
6.4.5		Following the completion of the test specified in Clause 6.4.4, the window shall not have cracked, shattered, or become dislodged.
6.4.6		The viewing window shall be impacted by a steel ball of approximately 50 mm diameter and not less than 0.535 kg in weight and arranged to impact the window with an energy of 3.4 J.
6.4.7		Following the completion of the test specified in Clause 6.4.6, the window shall not have cracked, shattered, or become dislodged.



CLAUSE	VERDICT	COMMENT
8	Info	High-voltage switchgear assemblies
8.2	Info	Construction
8.2.1	Info	General
		<i>New clause added;</i>
8.2.1.11		Switchgear intended for installation where the public will have direct access shall be tamper-resistant switchgear and be built and evaluated in accordance with IEEE C57.12.28. The equipment shall be marked in accordance with Clause 8.4.7.
8.4	Info	Marking
		<i>New clause added;</i>
8.4.7		Tamper resistant switchgear designed in accordance with Clause 8.2.1.11 shall include the following bi- lingual marking on the equipment nameplate: TAMPER-RESISTANT.