TEST REPORT
IEC 60695-2-11:2021 (ED 3.0)
Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)

Report Reference No ..... :	M2503023-2
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Test specification:	
Standard ..... :	IEC 60695-2-11:2021 (ED 3.0)
Test Report Proforma No. ..... :	TRP-SAF-IEC-60695-2-11_2021_v2
Test Engineer (s) (+ signature)..... :	Ethan Tekis .....
Authorised Signatory (+ signature):	Brian Do .....

General disclaimer:
EMC Technologies Pty Ltd reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. EMC Technologies Pty Ltd shall have no liability for any deductions, inferences or generalisations drawn by the customer or others from EMC Technologies Pty Ltd issued reports. This report shall not be used to claim, constitute or imply product endorsement by EMC Technologies Pty Ltd.

Test item description..... :	Insulator
Trademark ..... :	Selectlok
Manufacturer ..... :	Selectlok
Model/Type reference..... :	I050GN-E
Rating..... :	---

List of Attachments:

This report contains a total of 12 Pages, and also including the following attachments:

- Appendix 1: Photo documentation

☒ **The product fulfils the requirements of**

- **IEC 60695-2-11:2021 (ED 3.0), at GWEPT of 960ºC.**

Use of uncertainty of measurement for decision on conformity (decision rule):

☒ No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decision on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

☐ Other:… (to be specified, for example when required by the standard or customer, or if national accreditation requirements apply)

Possible test case verdicts:	
- test case does not apply to the test object.....:	N/A
- test object does meet the requirement.....:	P (Pass)
- test object does not meet the requirement.....:	F (Fail)
- test object clause is not a requirement. It is either explanatory test or is referenced by other clauses:	Noted
- test object does not test.....:	Not tested
Testing:	
Date of receipt of test item .....:	25 March 2025
Date (s) of performance of tests.....:	14 April 2025

General remarks:

(a) This test report is based on assessment and tests applied to the specific test item(s) as submitted by the customer. EMC Technologies Pty Ltd disclaims any and all responsibility or obligation for any other item.

(b) Results are reported taking Uncertainty of Measurements (MU) into account.
   (i) For minimum limits - Where measurement is on the limit or above the limit it is deemed to comply. Where measurement is below the limit it is deemed not to comply.
   (ii) For maximum limits - Where measurement is on the limit or below the limit it is deemed to comply. Where measurement is above the limit it is deemed not to comply.

(c) Activities related to risk assessment (if applicable) are not assessed and not accredited. Refer to Manufacturer risk assessment documentation (if applicable).

(d) This safety test report was based on common test procedure and testing method with Glow-wire apparatus according to EN IEC 60695-2-10:2021.

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

General product information:
(Description provided by the customer)

The EUT (Equipment Under Test) Insulator, part: I050GN-E is used to mount and insulate bus bars.

1 RESULTS

IEC 60695-2-11			
Clause	**Requirement + Test**	**Result - Remark**	**Verdict**
4	**Test specimens**		**Noted**
4.1	It is not necessary to test end products or parts of end products which have insignificant mass.		Noted
	Additionally, this test method is not suitable for testing small parts		Noted
4.2	**Complete end product**		Noted
	It is preferred that the test specimen should be a complete end product- as opposed to a partial end product		Noted
	The test specimen shall be chosen so that the conditions of the test will not be significantly different from those occurring in normal use with regard to shape, ventilation, effect of thermal stresses, and, eventually the effects of burning or glowing particles falling from the test specimen.		Noted
4.3	**Partial end product (alternative)**		Noted
	If the test cannot be made on a complete end product, then, unless otherwise specified by the relevant product standard, it is acceptable to		Noted
	a) cut a piece containing the part under examination from it a complete and assembled end product, or		Noted
	b) cut an aperture in the complete end product to allow the glow-wire access, or		Noted
	c) remove the part under examination in its entirety and test it separately.		Noted
4.4	**Test considerations and limitations associated with the specimen configuration**		Noted
	Test considerations and limitations associated with the specimen configuration		Noted
5	**Test apparatus**		**Noted**
	The test apparatus is specified in IEC 60695-2-10.		Noted
6	**Verification of the temperature measuring system**		**Noted**
	The method of verification of the temperature measuring system is specified in IEC 60695-2-10.		Noted
7	**Conditioning**		**P**

IEC 60695-2-11			
Clause	**Requirement + Test**	**Result - Remark**	**Verdict**
7.1	Unless otherwise specified in the relevant product standard, the test specimens shall be conditioned for 24 h in an atmosphere having a temperature between 15 °C and 35 °C and a relative humidity between 45 % and 75 %.		P
7.2	**Conditioning of specified layers**		P
	If the wrapping tissue / wooden board specified layer is used, the conditioning shall be carried out according to IEC 60695-2-10. If the material or components normally surrounding or situated underneath the test specimen is used, the material or components shall be conditioned in the same way as the test specimen		P
7.3	**Testing conditions**		P
	The test specimens shall be tested in a laboratory atmosphere having a temperature between 15 °C and 35 °C and a relative humidity less than or equal to 75 %. Testing shall be completed within 30 minutes after the specimen is removed from the conditions specified in 7.1.		P
8	**Test procedure**		**P**
8.1	**General**		P
	In addition to clause 8 of the common test procedure specified in IEC 60695-2-10,		P
	if not otherwise specified, the test specimen shall be so arranged that the tip of the glow-wire is applied to the part of the surface of the test specimen which is likely to be subjected to thermal stresses in normal use.		P
	The glow-wire shall be maintained as close to the horizontal as is practicable.		P
8.2	**Test temperatures**		P
	The glow-wire is heated to the test temperature specified in the relevant product standard. This temperature should preferably be one of the temperatures shown in Table 1	(See appended table 10)	P
8.3	**Number of test specimens**		P
	If not otherwise specified by the relevant product standard, the test is made on one test specimen.	One test sample.	P
9	**Observations and measurements**		**Noted**

IEC 60695-2-11			
Clause	**Requirement + Test**	**Result - Remark**	**Verdict**
	During the time of application of the glow-wire, *t*aA (30 s ± 1 s), and during a further period of 30 s, the test specimen, the parts surrounding the test specimen and the specified layer placed below it shall be observed and the following shall be reported:		Noted
10	**Evaluation of test results**		**P**
	The test specimen is considered to have a GWEPT test if the following criteria have been met:	(See appended table 10)	P
	a) There is no ignition, or		N/A
	b) All of the following situations apply when ignition has occurred:		P
	i) Flame or glowing combustion of the test specimen extinguish within 30s after removal of the glow-wire, ie. t_R ≤ 30s: and		P
	ii) The specified layer placed underneath the test specimen does not ignite		P
11	**Test report**		**P**
	The test report shall include the following information:		P
	A reference to IEC 60695-2-11;		P
	A description of the test specimen including type and manufacturer	Selectlok	P
	A description of the method for preparation of the test specimen	Small sample cut from provided sample.	P
	The conditioning of the test specimens and the specified layers	Sample conditioned at room temperature 20±5ºC on arrival.	P
	The number of test specimens tested	One sample	P
	The surface tested and the points of application of the glow-wire	(See Appendix 1 – Photo documentation)	P
	The specified layer used to evaluate the effect of flaming particles and its vertical distance to the glow wire point of application		P
	The test temperature	960ºC (See appended table 10)	P
	All applicable observations and measurements from Clause 9; and	(See appended table 10)	P
	The GWEPT as determined in Clause 10 shall be reported in the following manner, for example, for a test specimen tested at 850 °C:	GWEPT: 960ºC (See appended table 10)	P
13	**Information to be given in the relevant specification**		**N/A**
	a) The type and description of the test specimen		N/A

IEC 60695-2-11			
Clause	**Requirement + Test**	**Result - Remark**	**Verdict**
	b) The method of preparation		N/A
	c) Any conditioning of the test specimens		N/A
	d) The number of test specimens and the specified layers		N/A
	e) The surface to be tested and the point of application of the glow-wire		N/A
	f) The specified layer to be used to evaluate the effect of flaming particles		N/A
	g) the GWEPT (see Clause 10) and test temperature (see table 1 8.2), for example, “GWEPT of 850 °C in accordance with IEC 60695-2-11”;		N/A
	h) the relevant part(s) or zone(s) of the product subjected to the test on the same test specimen		N/A
	i) whether the criteria specified are sufficient to check compliance with the safety requirements, or whether other criteria should be used and		N/A
	j) whether consequential testing needs to be considered to cover residual risks and, if so, which test method and what requirements should be specified.		N/A

IEC 60695-2-11

10	TABLE: Glowing / hot wire test							P
Test Specimen	Colour	Test Temp. (°C)	ti (s)	t_E (s)	Flame or glow time ($t_E \leq t_A$+30s)?	Specified layer is ignited?	Specimen is totally burned?	Verdict
Insulator	Red	960	0	10	10s	No	No	Pass

Legend:

TS-Thermosetting; TP-Thermoplastic; CE-Complete Equipment; SA-Sub-Assembly; SC-Separate Component; NI-No Ignition,

1. t_A – The time of application of the glow-wire: 30 s
2. t_i - The duration from the beginning of tip application up to the time at which the test specimen or the specified layer placed below it ignites;
3. t_E - The duration from the beginning of tip application up to the time when flames extinguish, during or after the period of application.
4. Test criteria:
    a. there is no ignition, or
    b. all the following situations apply when ignition has occurred:
        i. If flames or glowing combustion of the test specimen extinguish within 30s after removal of the glow-wire, i.e. $t_E \leq t_A$+30s; and
        ii. The specified layer placed underneath the test specimen does not ignite.
5. The specified layer was the wrapping tissue.

APPENDIX 1
PHOTO DOCUMENTATION

Figure 1.1: Front view of Insulator.

Figure 1.2: Side view.

Figure 1.3: Prepared sample for testing.

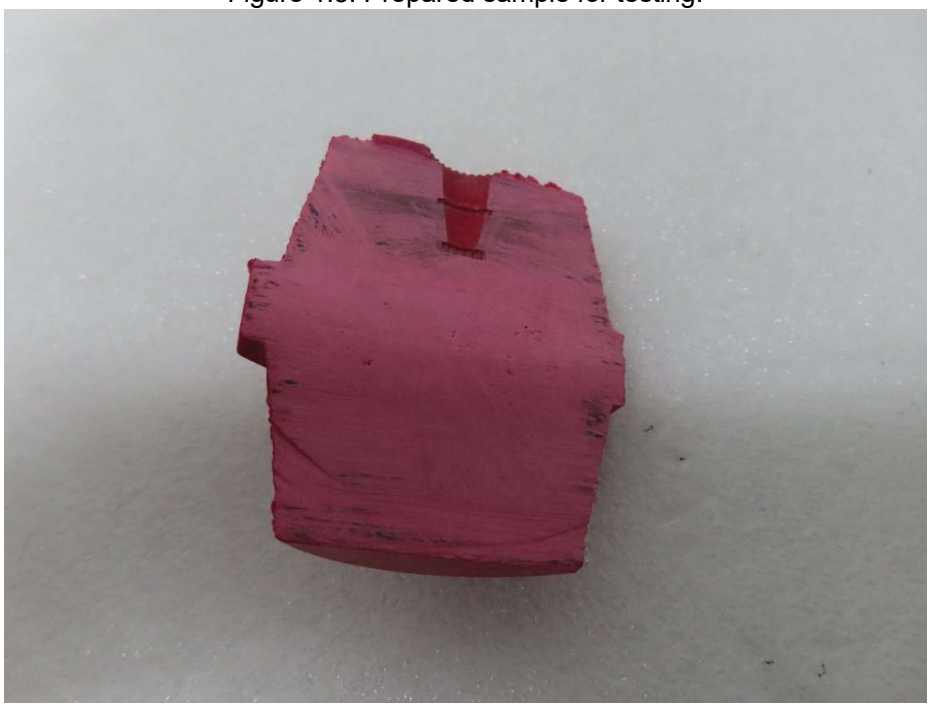


Figure 1.4: Other side of prepared sample.

Figure 1.5: Test setup at 960ºC.

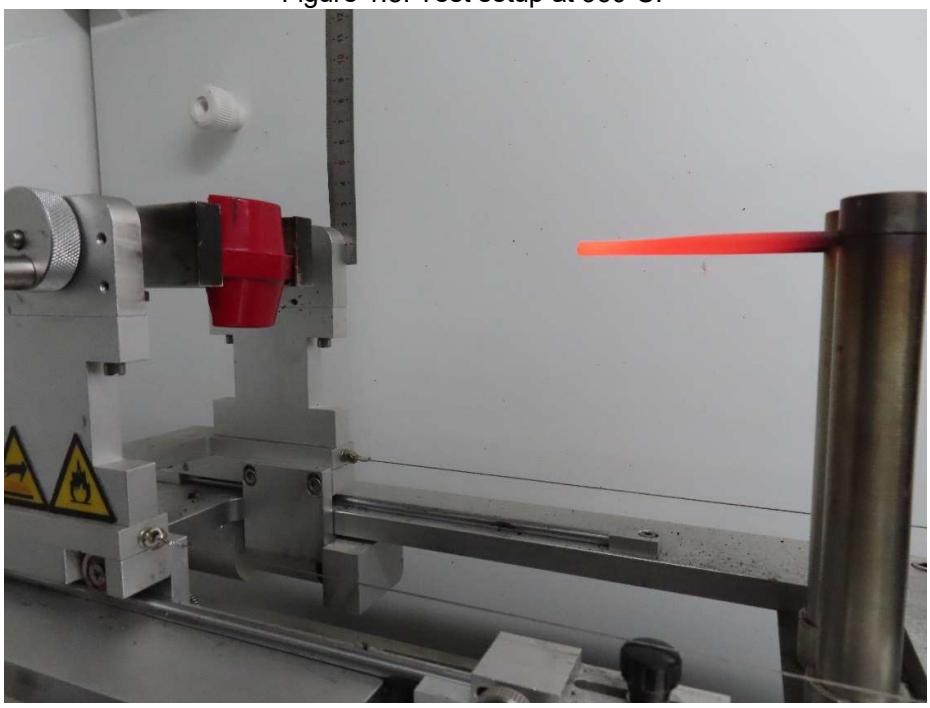


Figure 1.6: Small flame for 10s during test (see appended table 10 for full details).

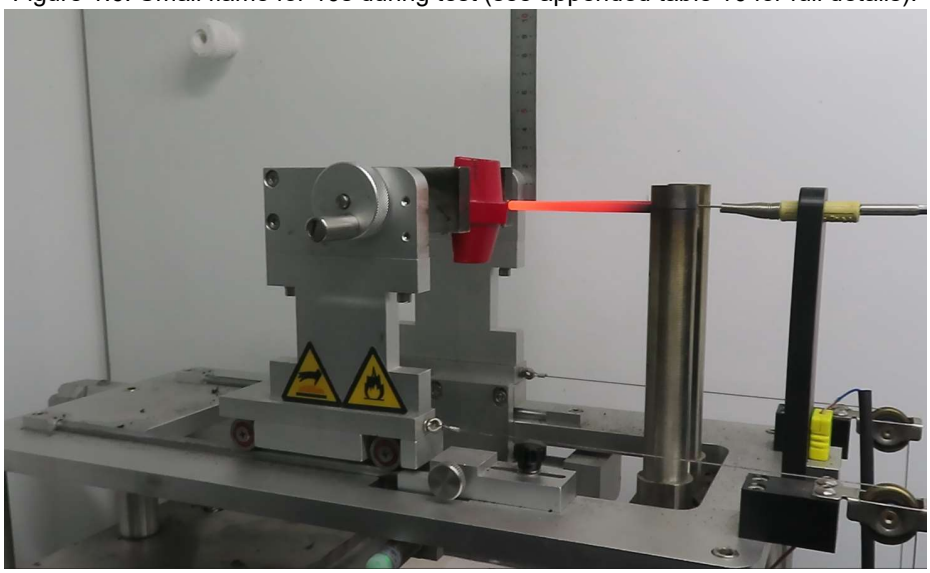
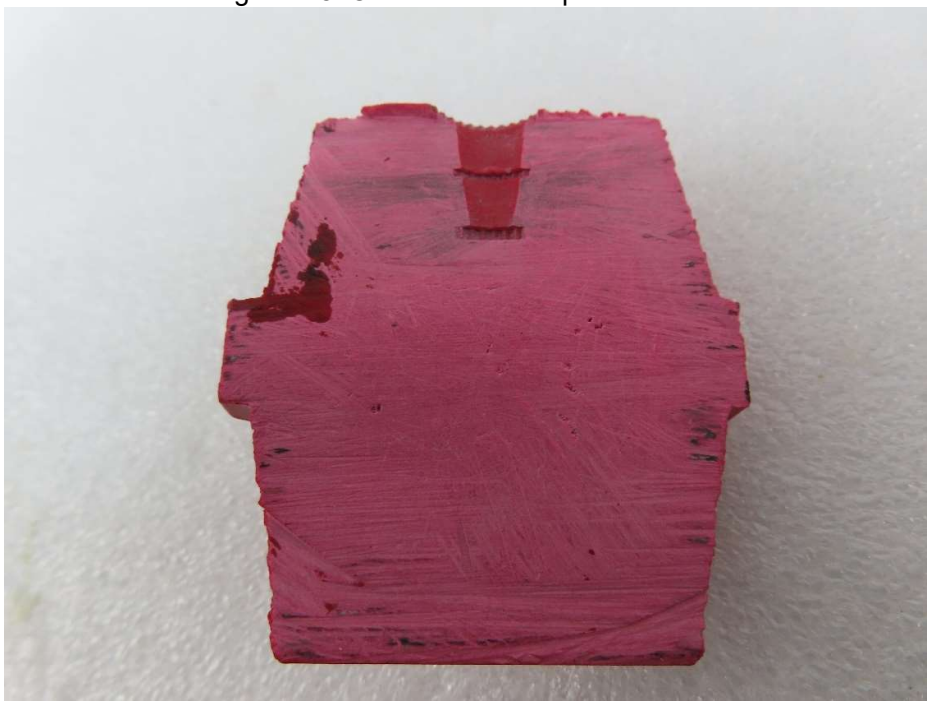


Figure 1.7: Prepared sample after testing.

Figure 1.8: Other side of sample after test.



--End of Test Report--