

**Test Report**

No. SDFS210100005FF

Date: Jan.20, 2021

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**WÜRTH ELEKTRONIK GMBH & CO. KG**  
SALZSTRASSE 21 74676 NIEDERNHALL GERMANY

**Sample Description:** PCB

**BM Type:** SHENGYI S1150G(FR4)

**SM Type:** TAIYO PSR4000 - MPH

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**SGS Ref No.:** SZIN2012017374SC

**Sample Receiving Date:** Jan.02, 2021

**Test Performing Date:** Jan.02, 2021 to Jan.08, 2021

**Test Requested:**

EN 45545-2:2013+A1:2015 Railway applications—Fire protection on railway vehicles Part 2: Requirements for fire behaviour of materials and components, and testing according to Table 5 — Material requirement sets (R24&R25)

**Test Results:** -- See attached sheet --

Signed for and on behalf of  
Shunde Branch  
SGS-CSTC Co., Ltd.



Ada Liu  
Approved signatory



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I. Description of Test specimens

Sample Description	PCB
Size of specimens	T01 EN ISO 4589-2: About 100mm×10mm×1.2mm T16 EN60695-2-11: About 50mm×50mm×1.2mm

II. Summary of test results

Requirement set (used for)	Test method reference	Parameter Unit	Test results *
R24	T01 EN ISO 4589-2: OI	Oxygen content %	>60.0
R25	T16 EN 60695-2-11	Glow Wire Temperature °C	850

\* For the test details, please see the appendix of this test report.

III. Conclusion

According to the test results, the submitted sample **meets** the requirements of **R24&R25** (detailed in Table 5 of EN 45545-2:2013+A1:2015) for a **HL1, HL2, HL3** Hazard Level Classification.

Test Criteria for EN 45545-2:2013+A1:2015 Table 5 Material requirement sets (R24&R25)

Requirement set (used for)	Test method reference	Parameter Unit	Requirement Definition	HL1	HL2	HL3
R24	T01 EN ISO 4589-2: OI	Oxygen content %	Minimum	28	28	32
R25 (EL9)	T16 EN 60695-2-11	Glow Wire Temperature °C	Minimum	850	850	850

Statements:

The test results relate to the behaviour of the test specimens of a product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential fire hazard of the product in use.

The test results relate only to the specimens of the product in the form in which were tested.

The specimen was supplied by the sponsor and SGS-CSTC SHUNDE Branch was not involved in any selection or sampling procedure.



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**APPENDIX 1: T01 EN ISO 4589-2:2017 Determination of burning behaviour by oxygen Index Part 2:**

**Ambient temperature test**

**1. Conditioning**

T:(23±2)°C, R.H: (50±5)%, at least 88 h.

**2. Test results**

- a) Select initial oxygen concentration(in accordance with 8.1.3): 25.0%
- b) Determining the Preliminary Oxygen Concentration(Till pair of oxygen concentrations which gives opposite response differs by ≤1%, in accordance with 8.5)

Oxygen concentration, % (V/V)	25.0	45.0	55.0	60.0	60.0	60.0	
Length burnt (mm)	<50	<50	<50	<50	<50	<50	
Response, ("X" or "O")	O	O	O	O	O	O	

OI > 60.0%

Burning behavior: Charring



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**APPENDIX 2: T16 EN 60695-2-11 Fire hazard testing—Part 2-11:Glowing/hot-wire based test methods  
Glow-wire flammability test method for end-products**

**1. Conditioning**

Prior to testing, the sample was conditioned 24 hours at temperatures of 15~35°C and at a relative humidity of 45~75%.

At time to testing, Temperature between 15°C ~ 35°C and Relative humidity less than or equal to 75 %.

**2. Test results**

Temperature of the glow-wire (°C)	850
Duration (t <sub>i</sub> ) from the beginning of tip application up to the time at which the test specimen or the specified layer placed below it ignites (s)	NI
Duration (t <sub>e</sub> ) from the beginning of tip application up to the time when flames extinguish during or after the period of application (s)	NI
Whether the test specimen extinguishes by virtue of most of the flaming material being withdrawn with the glow-wire	NA
Whether ignite the specified layer placed underneath the test specimen or not	No
Whether the test specimen is totally burned	No
Observations: None	

Remark: NI--- Not ignition; NA---Not applicable

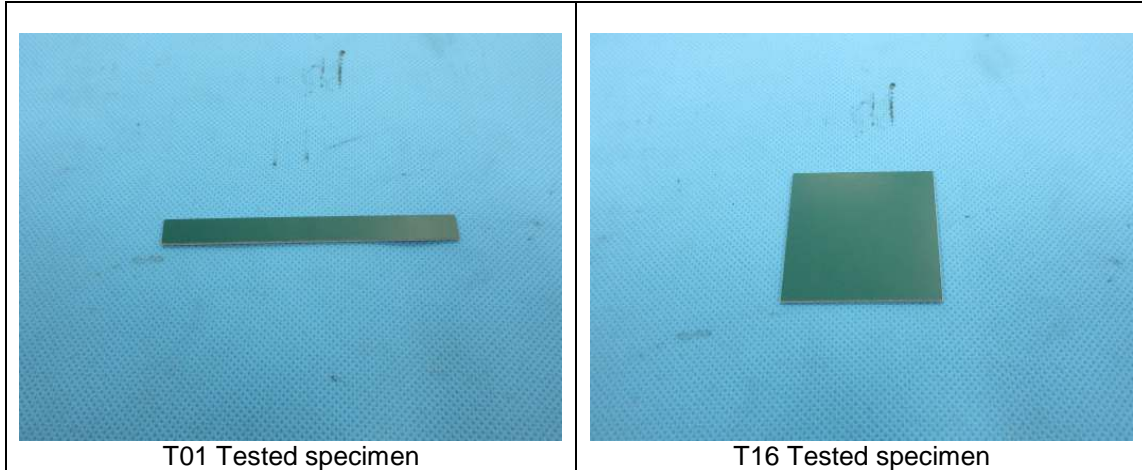
In accordance with test results, the submitted sample: **GWEPT: 850**



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### Photo Appendix:



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\*\*\*End of Report\*\*\*



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