TEST REPORT: 7191345215-CHM24-JC-Corr01

Revised date: 09 JAN 2025

Date: 12 DEC 2024 Email: Songbai.TANG@tuvsud.com

Client's Ref:

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SUBJECT

Testing for Lightning Protection System Components (LPSC)

CLIENT

Sankosha Corporation
18F Osaki Wiz Tower,2-11-1,Osaki,Shinagawa-ku,Tokyo,
Japan

Attn: Mr Toshikatsu Kawai

SAMPLE SUBMISSION / TEST DATE

01 Nov 2024 / 04 NOV 2022 – 12 Dec 2024, 07 Jan 2025

DESCRIPTION OF SAMPLE

One bag of sample labeled as "SANKOSHA BIO SAN-EARTH, GRADE BC1" was received for analysis.

TEST METHOD

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024 Lightning Protection System Components (LPSC), Part 7: Requirements for earthing enhancing compounds.

Note: revision on page 3 (criteria of leaching test) and page 4 (pH measurement).

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RESULT SUMMARY

Test Standard	Description	Pass/Fail
IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, **Clause 5.2**	Leaching test	Pass
IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, **Clause 5.3**	Sulphur determination	Pass
IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, **Clause 5.4**	Determination of resistivity	Pass
IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, **Clause 5.5**	pH measurement	NA
IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, **Clause 5.6**	Corrosion test	Pass
IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, **Clause 5.8**	Marking	Pass

NA - no acceptance criteria

RESULTS

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, Clause 5.2 Leaching test

The leaching test was performed according to BS EN 12457-2: 2002 and determination of concentrations of the metals by CEN/TR 16192.

S/N	Leachable Ions	Concentration, mg/L	Sewerage and Drainage (Trade Effluent) Regulations of Singapore, Third Schedule, Maximum Concentration of Metals in Trade Effluent, mg/L
1	Iron, Fe	Not Detected*	-
2	Copper, Cu	1.3	5
3	Zinc, Zn	Not Detected*	10
4	Nickel, Ni	Not Detected*	10
5	Cadmium, Cd	Not Detected*	1
6	Cobalt, Co	Not Detected*	-
7	Lead, Pb	Not Detected*	5

***Limit of Detection (LOD) is 1 mg/L.

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, Clause 5.3 Sulphur Determination

Sulphur content with reference to ISO 4689-3: 2017

Test Parameters	Sample	Passing Criteria
Sulphur, S %	0.37	< 2

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, Clause 5.4 Determination of Resistivity

Determination of resistivity using a four-electrode soil box as per ASTM G57-20.
Materials for the test are mixed in the following ratio as instruction from client and tested immediately

6 Parts BIO SAN-EARTH : 4 Parts ater

Resistivity (*R*)				**Criteria**
Test 1	**Test 2**	**Test 3**	**Average**	
36.49 Ω.cm	36.53 Ω.cm	36.52 Ω.cm	36.51 Ω.cm	≤ 50 Ω.cm

Remarks: The resistance R is determined to be 36.51 Ω.cm. The sample complies with the client's criteria of ≤ 50 Ω.cm (0.5 Ω.m).

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, Clause 5.5 pH Measurement

pH value is measured by a calibrated pH meter in a slurry prepared in the following ratio as instruction from client:

1 Parts BIO SAN-EARTH : 2 Parts water

pH Value				**Criteria**
Test 1	**Test 2**	**Test 3**	**Average**	
12.5	12.5	12.5	12.5	NA

NA – no acceptance criteria
Test Temperature: 23.7°C

Remarks: The pH value of the slurry is measured to be 12.5.

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, Clause 5.6 Corrosion Tests

Corrosion Tests by electrochemical system as per ASTM G 59-97 and ASTM G 102-89
Materials for the test are mixed in the following ratio and used as the electrolyte for the test:

6 Parts BIO SAN-EARTH : 4 Parts water

A rod electrode with an exposed surface of 4.68 cm^2 (working electrode), a graphite rod (active electrode) and a $Cu/CuSO_4$ (reference electrode) are inserted into the electrolyte and the electrolyte allowed to cure. The test is performed at 3rd day of curing (Curing period is at least 24 hours according to manufacturer instruction). This is tested in accordance to ASTM G59-97 as stated in IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024

Resistance of polarization (*R*p)	Criteria
13.6 Ω . m^2	> 4.0 Ω . m^2 for non-aggressive environments > 8.0 Ω . m^2 for aggressive environments

Remarks: The polarization resistance ***R***p at age 3 days is determined to be 13.6 Ω . m^2. The sample complies with the criteria of > 4.0 Ω . m^2 for non-aggressive environments and of 8 Ω . m^2 for aggressive environments.

IEC 62561-7: 2024 and BS EN IEC 62561-7: 2024, Clause 5.8 Marking

Packaging information checked	Remark
a) The name of the manufacturer or its trademark	Yes
b) Any idientifying symbol	Yes
c) The type or the serial number of the batch of earthing enhancing compound	Yes
d) The resistivity value	Yes
e) The pH value	Yes, refer to result in this report

Revision history: change the criteria of leaching test to Singapore regulation; retest pH value of slurry, based on the updated instruction from client. This report supersedes previous report 7191345215-CHM24-JC.

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Effective 27 March 2024