



Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 1 of 13

Applicant : SUNTAN TECHNOLOGY COMPANY LIMITED

Address : Unit H, 4/F., Dormind Industrial Building, 13 Yip Fung Street, Fanling, N.T. , Hong Kong

Manufacturer : SUNTAN TECHNOLOGY COMPANY LIMITED

Address : Unit H, 4/F., Dormind Industrial Building, 13 Yip Fung Street, Fanling, N.T., Hong Kong

The following sample(s) was /were submitted and identified on behalf of the clients as :

Sample Name : Polymer Solid Aluminum Electrolytic Capacitors

Sample Model : Polymer Solid Aluminum Electrolytic Capacitors

Sample Received Date : Apr.01, 2025

Testing Period : Apr.01, 2025 To Apr.03, 2025

Test requirements and conclusions : Please refer to next page(s).



Scan QR code
verification of authenticity

Security Code : NR13LY4GF

Signed for and on behalf of

Andy Zheng

Andy Zheng
Technical Director



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Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 2 of 13

Test Requested and Conclusion(s):

No.	Standard and Requirement	Conclusion(s)
1	RoHS Directive 2011/65/EU - XRF scanning	PASS
2	RoHS Directive 2011/65/EU and its subsequent amendments (EU) 2015/863 - Pb/Cd/Hg/CrVI Content - Polybrominated diphenyl ethers(PBDEs) - Polybrominated biphenyls (PBBs) - Phthalates	PASS



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Test Report

Report No TST20250400388E

Date:Apr.03, 2025

Page 3 of 13

Sample description

Sample No	Sample description	Test photo group
1	Silver metal (capacitor)	
2	Black plastic	
3	Black Rubber	
4	Silver metal (connector)	
5	Silver metal (pin)	
6	Grey metal foil	
7	Silver metal foil	
8	white paper	
9	Black liquid	

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Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 4 of 13

1.Test results:

XRF Scanning - RoHS Directive 2011/65 / EU

Methods: IEC 62321-3-1:2013 analysis by X-ray fluorescence spectrometry (XRF).

No.	Sample description	Results of XRF					Chemical confirmation results (mg/kg) Cr(VI) (Metal) (µg/cm ²)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	Silver metal (capacitor)	BL	BL	BL	BL	---	---	Pass
2	Black plastic	BL	BL	BL	BL	BL	---	Pass
3	Black Rubber	BL	BL	BL	BL	BL	---	Pass
4	Silver metal (connector)	BL	BL	BL	BL	---	---	Pass
5	Silver metal (pin)	BL	BL	BL	BL	---	---	Pass
6	Grey metal foil	BL	BL	BL	BL	---	---	Pass
7	Silver metal foil	BL	BL	BL	BL	---	---	Pass
8	white paper	BL	BL	BL	BL	BL	---	Pass
9	Black liquid	BL	BL	BL	BL	BL	---	Pass

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Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 5 of 13

Remark:

- a. It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).
- b. The XRF screening test for RoHS elements-The reading may be different to the actual content in the sample be of non-uniformity composition.
- c. Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Pb, Cd, Hg), UV-VIS for Cr(VI) and GC-MS (for PBBs/PBDEs) is recommended to be performed if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

XRF Screening limits for different matrices :

Materials	Concentration (mg/kg)				
	Cd	Cr	Pb	Hg	Br
Polymeric	BL≤60<X<140≤OL	BL≤640<X	BL≤670<X<1330≤OL	BL≤660<X<1340≤OL	BL≤290<X
Metallic	BL≤60<X<140≤OL	BL≤640<X	BL≤670<X<1330≤OL	BL≤660<X<1340≤OL	---
Composite materials	BL≤40<X<160≤OL	BL≤440<X	BL≤470<X<1530≤OL	BL≤460<X<1540≤OL	BL≤240<X

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Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 6 of 13

- Note:**
- BL= Below Limit
 - OL=Over Limit
 - X = inconclusive, the region where need further chemical testing by ICP-OES (for Pb, Cd, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs).
 - --- = Not Applicable
 - mg/kg=milligrams per kilogram
 - N.D.=Not Detected(<MDL)
 - MDL= Method Detection Limit
 - Negative = Absence of Cr(VI), the detected Cr(VI) concentration in the boiling water extraction solution is less than 0.02 mg/kg with 50cm² sample surface area used.
 - *=According to 2011/65/EU Annex,point *Lead as an alloying element is steel containing up to 0.35% lead by weight, aluminum containing up to 0.4% lead by weight and as a copper alloy, containing up to 4% lead by weight can be exempted.



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Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 7 of 13

2.Pb, Cd, Cr(VI), Hg, PBBs&PBDEs

Test Method:

A.Disassembly, disjointment and mechanical sample preparation

—Ref. to IEC 62321-2:2021, Disassembly, disjointment and mechanical sample preparation.

B.With reference to IEC 62321-1:2013, tests were performed for the samples indicated by the photos in this report.

(1)Screening – Lead, mercury, cadmium, total chromium and total bromine

—Ref. to IEC 62321-3-1:2013, Screening for Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.

(2)Wet chemical test method

Test Item(s)	Test Method	Test Equipment	Unit	MDL	Limit
Pb	IEC62321-5:2013	ICP-OES	mg/kg	10	1000
Cd	IEC62321-5:2013	ICP-OES	mg/kg	10	100
Hg	IEC 62321-4:2013/AMD1:2017	ICP-OES	mg/kg	10	1000
Cr(VI) (Metal)	IEC62321-7-1:2015	UV-Vis	µg/cm ²	0.10	0.13
Cr(VI) (Nonmetal)	IEC62321-7-2:2017	UV-Vis	mg/kg	10	1000
PBBs	IEC62321-6:2015	GC-MS	mg/kg	10	1000
PBDEs	IEC62321-6:2015	GC-MS	mg/kg	10	1000

PBBs		PBDEs	
Monobromobiphenyl	Hexabromobiphenyl	Monobromodiphenyl ether	Hexabromodiphenyl ether
Dibromobiphenyl	Heptabromobiphenyl	Dibromodiphenyl ether	Heptabromodiphenyl ether
Tribromobiphenyl	Octabromobiphenyl	Tribromodiphenyl ether	Octabromodiphenyl ether
Tetrabromobiphenyl	Nonabromobiphenyl	Tetrabromodiphenyl ether	Nonabromodiphenyl ether
Pentabromobiphenyl	Decabromobiphenyl	Pentabromodiphenyl ether	Decabromodiphenyl ether

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Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 8 of 13

3. Phthalates—DBP, BBP, DEHP & DIBP

Test Item(s)	Test Method	Test Equipment	Unit	MDL	Limit
Dibutyl Phthalate(DBP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000
Benzylbutyl Phthalate (BBP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000
Di-(2-ethylhexyl)Phthalate (DEHP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000
Diisobutyl phthalate(DIBP)	IEC62321-8:2017	GC-MS	mg/kg	30	1000

Test result(s):

Part No.	Test Item (mg/kg)				Conclusion
	DBP	BBP	DEHP	DIBP	
2	N.D.	N.D.	N.D.	N.D.	Pass
3	N.D.	N.D.	N.D.	N.D.	Pass
8	N.D.	N.D.	N.D.	N.D.	Pass
9	N.D.	N.D.	N.D.	N.D.	Pass

Note: - mg/kg=milligrams per kilogram
 -N.D.=Not Detected(<MDL)



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Test Report

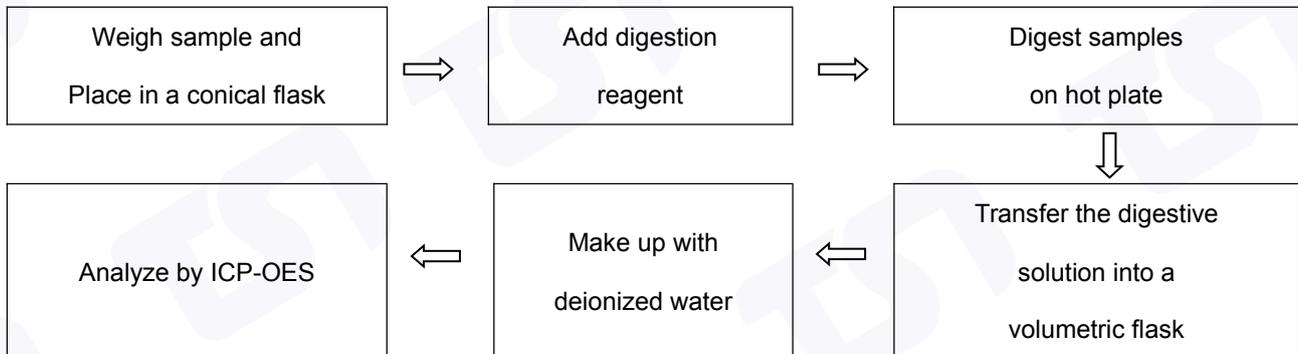
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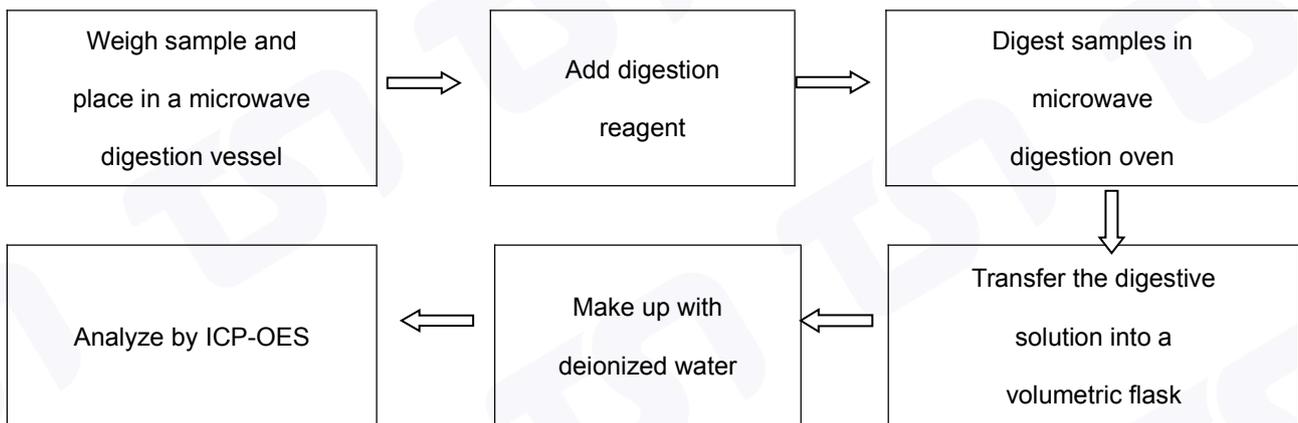
Page 9 of 13

Chemical Test Process:

1. Test for Cd/Pb Content



2. Test for Hg Content



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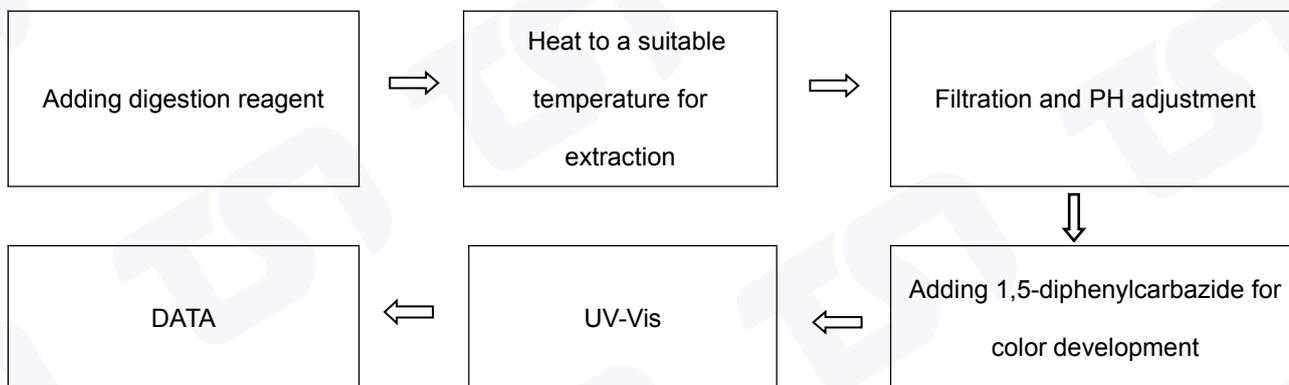
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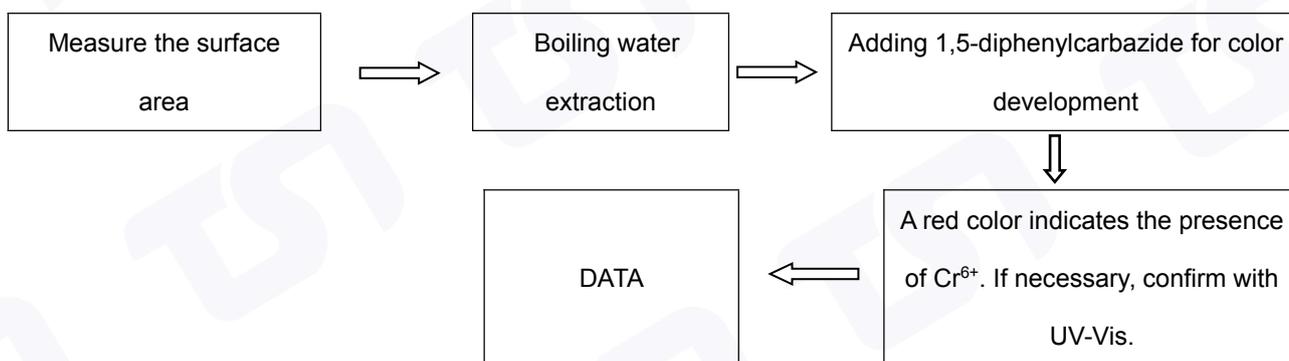
Page 10 of 13

3. Test for Chromium (VI) Content

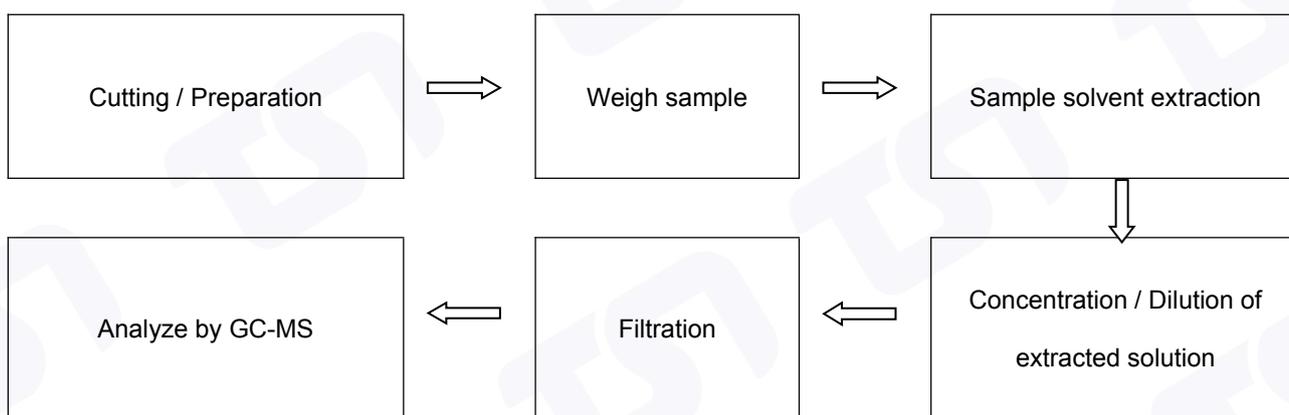
Nonmetal material



Metal material



4. Test for DBP, BBP, DEHP, DIBP, PBB, PBDE Content



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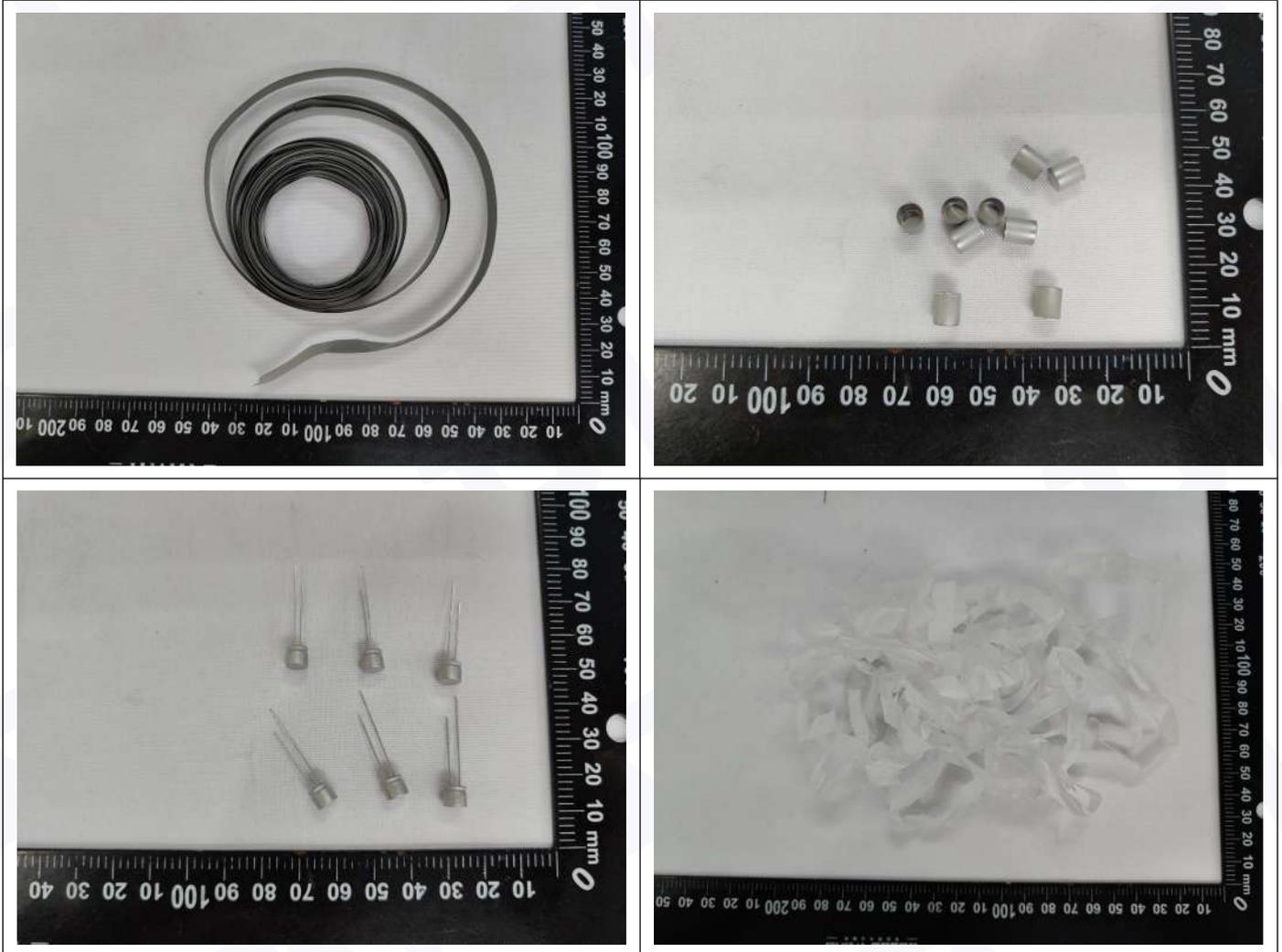
Test Report

Report No TST20250400388E

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Page 11 of 13

Sample pictures:



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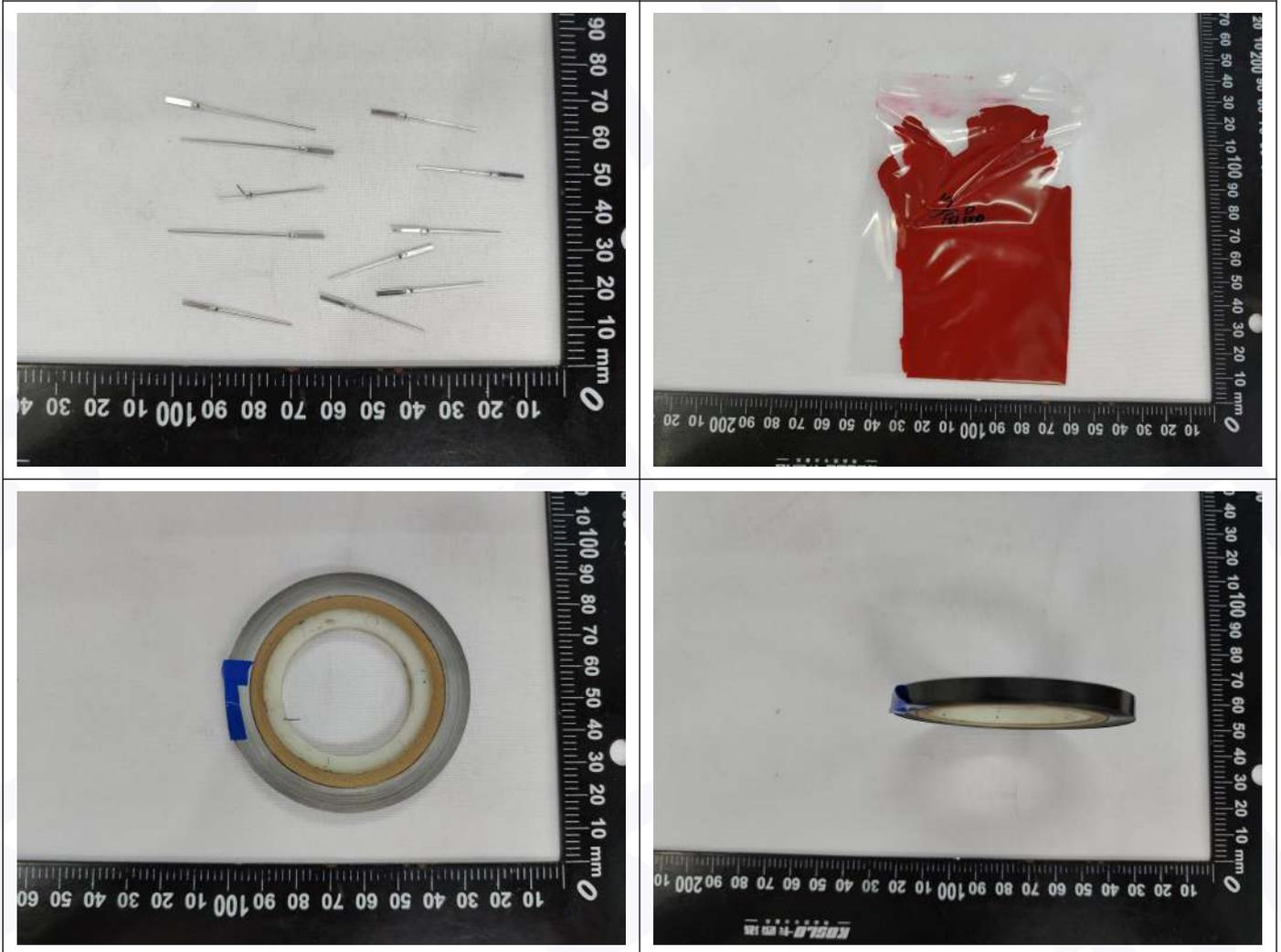


Test Report

Report No : TST20250400388E

Date:Apr.03, 2025

Page 12 of 13



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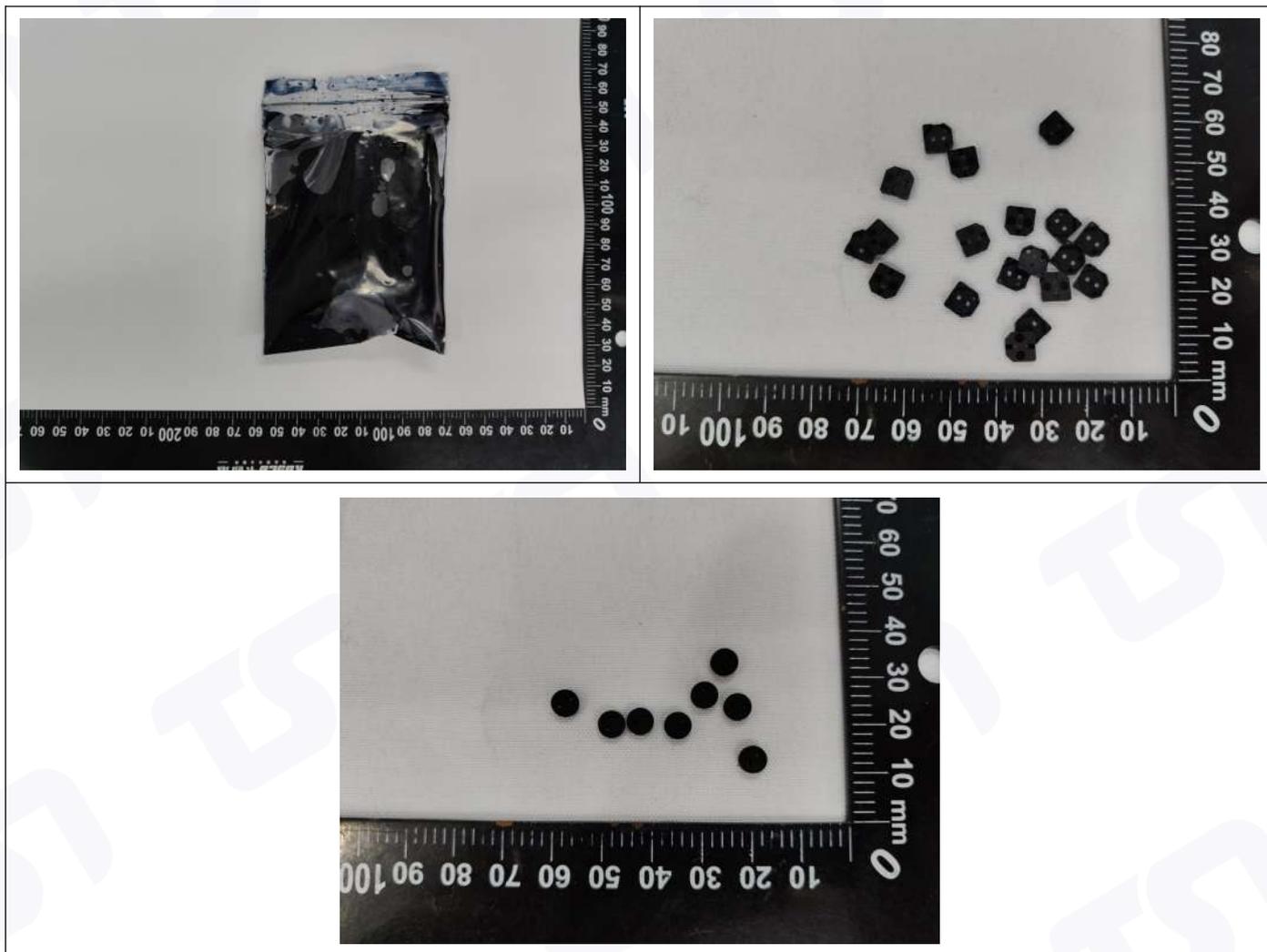


Test Report

Report No : TST20250400388E

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Page 13 of 13



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