



TEST REPORT

REPORT No.: DTI2025MC020109-1

Date: 2025-01-14

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Applicant Company Name: Nanjing Kemision Chemicals Co.,Ltd

Applicant Company Address: Room 508 Hongyun Mansion No.185 Hanzhong Road Nanjing City Jiangsu China

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

Sample Name : Copolymer coated Electrolytic Chromium Coated Steel
 Manufacturer : Jiangsu Kemision New Material Technology Co.,Ltd
 Manufacturer Address : No.8 Minqi er lu Huaxi Village Huashi town Jiangyin City Jiangsu China
 Sample Receiving Date : January 09,2025
 Testing Period : From January 09,2025 to January 14,2025
 Results : Please refer to next page(s).

Summary of Test Results:

TEST REQUEST

CONCLUSION

A EU RoHS Directive 2011/65/EU and its amendment directives 2015/863/EU (**RoHS**)

Pass

Shenzhen Deesev Testing International Corp

Approved by: Tom J. Jiang
lab manager

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Results:

1. EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

Seq. No.	Tested Part(s)	Results				
		Pb	Cd	Hg	Cr	Br
1	Green Coating	BL	BL	BL	BL	BL
2	Silver Metal Substrate	BL	BL	BL	BL	N/A

Remark:

- (1) Results were obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X < 130 + 3\sigma \leq OL$	$BL \leq 50 - 3\sigma < X < 150 + 3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X < 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X < 1500 + 3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700 - 3\sigma < X$	$BL \leq 700 - 3\sigma < X$	$BL \leq 500 - 3\sigma < X$
Br	mg/kg	$BL \leq 300 - 3\sigma < X$	--	$BL \leq 250 - 3\sigma < X$

Note:

- BL = Below Limit
 OL = Over Limit
 X = Inconclusive
 N/A = Not Applicable

- (2) The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

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(3) The maximum permissible limit is quoted from the document 2011/65/EU and its amendment directives 2015/863/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	≤100
Lead (Pb)	≤1000
Mercury (Hg)	≤1000
Hexavalent Chromium (Cr(VI))	≤1000
Polybrominated biphenyls (PBBs)	≤1000
Polybrominate ddiphenylethers (PBDEs)	≤1000
Di-2-ethylhexyl phthalate (DEHP)	≤1000
Benzyl-n-butyl phthalate (BBP)	≤1000
Di-n-butyl phthalate (DBP)	≤1000
Di-iso-butyl phthalate (DIBP)	≤1000

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2、 The Test Results of Chemical Method:

Test method:

Lead, Cadmium, Mercury Content:

With reference to IEC 62321-5:2013 and IEC 62321-4:2013+AMD1:2017, by acid digestion and analysis was performed by Inductively Coupled Plasma- Optical Emission Spectrophotometer (ICP-OES)

Hexavalent Chromium Content (For metal material):

With reference to IEC 62321-7-1:2015, by boiling-water-extraction and analysis was performed by UV-visible spectrophotometer (UV-Vis)

Hexavalent Chromium Content (For non-metal material):

With reference to IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic/ mass spectrometer (GC-MS)

DEHP, BBP, DBP&.DIBP content:

With reference to IEC 62321-8:2017 by solvent extraction and analysis was performed by gas chromatographic -mass spectrometer (GC-MS)

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1) The test results of DEHP, BBP, DBP & DIBP

Item	Unit	MDL	Results	Limit
			1	
Di-2-ethylhexyl phthalate (DEHP)	mg/kg	30	ND	≤1000
Benzyl-n-butyl phthalate (BBP)	mg/kg	30	ND	≤1000
Di-n-butyl phthalate (DBP)	mg/kg	30	ND	≤1000
Di-iso-butyl phthalate (DIBP)	mg/kg	30	ND	≤1000
Conclusion	/	/	Pass	/

Note:

- ND = Not Detected
- 0.1%=1000mg/kg
- mg/kg = ppm
- MDL = Method Detection Limit
- Decision rule: According to DTI-CX-39-2022 《Decision rule for conformity of the test results》
- Flow chart appendix is included.
- Photo appendix is included.

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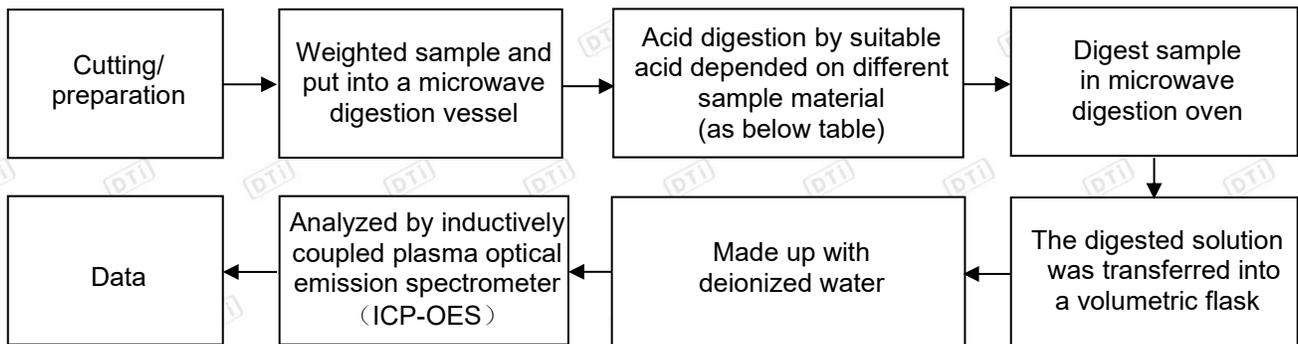
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Appendix I

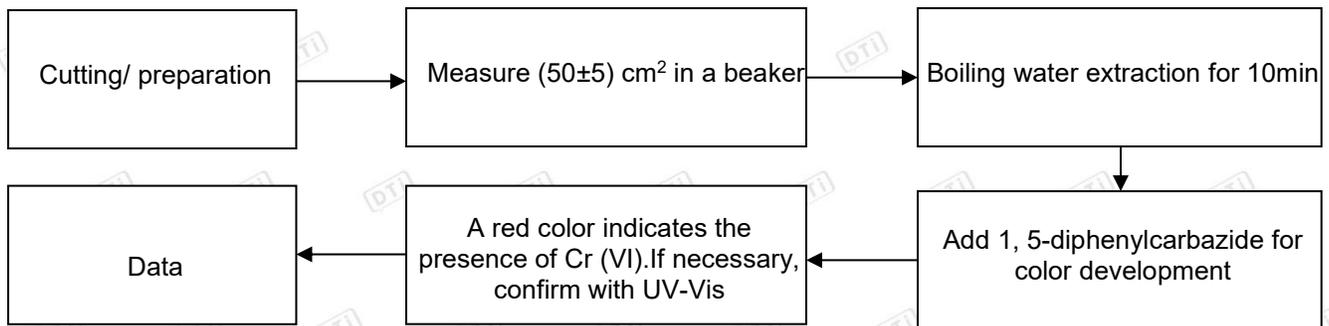
Test Flow chart

1. Test Flowchart for Cd / Pb /Hg content

These samples were dissolved totally by pre-conditioning method according to below flow chart.



2. Test Flowchart for Cr⁶⁺ content (Metal material)



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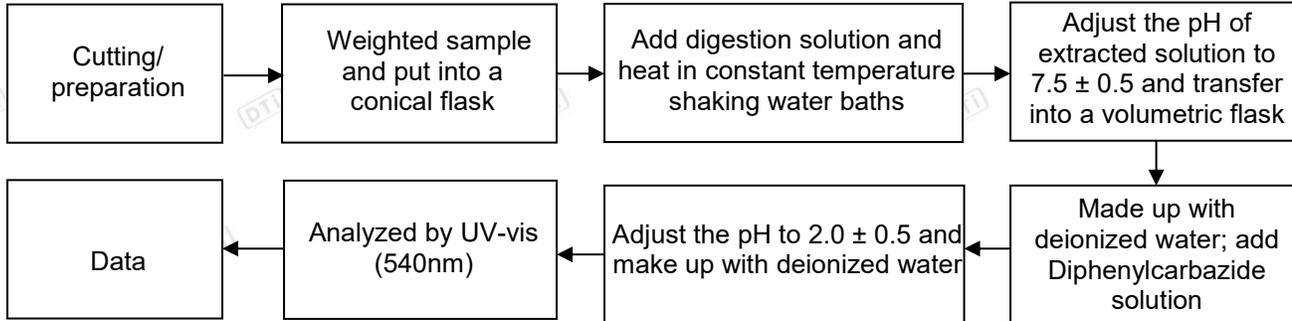
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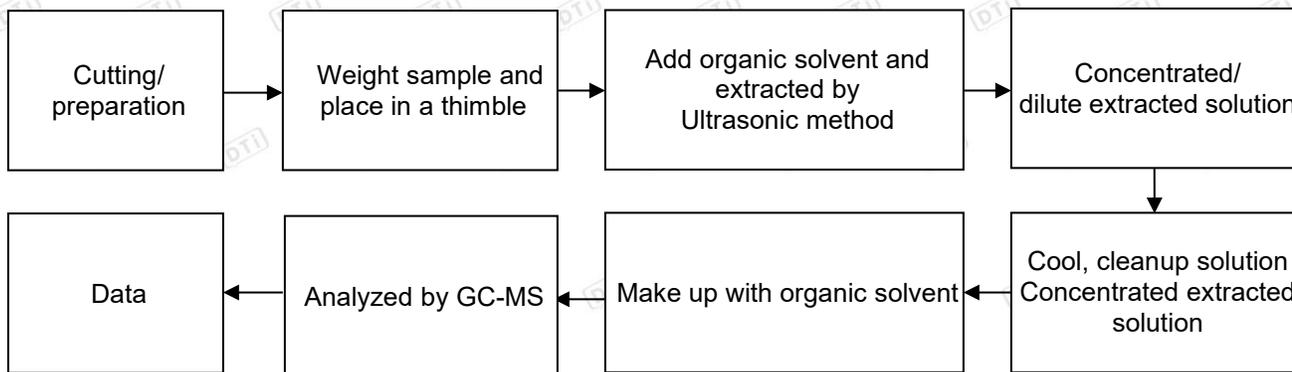
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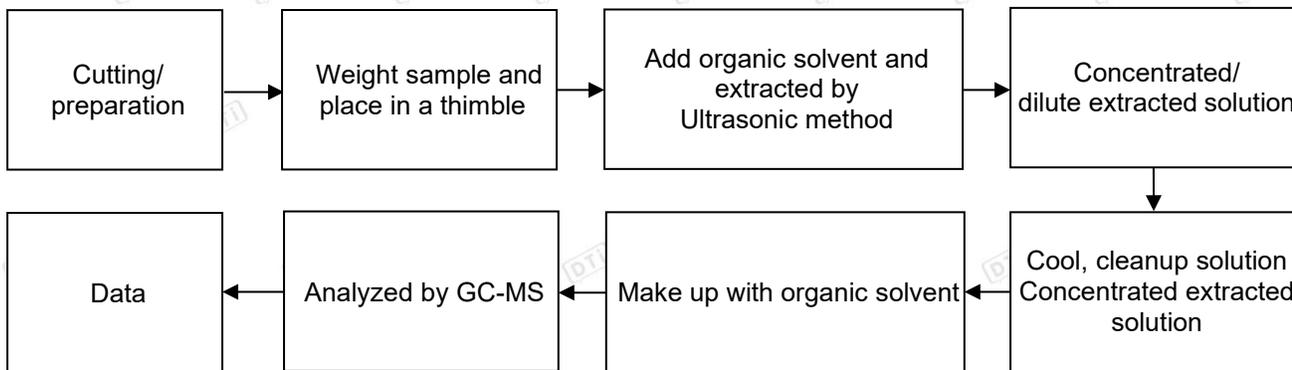
3. Test Flowchart for Cr⁶⁺ content (Non-metal material)



4. Test Flowchart for PBBs & PBDEs content



5. Test Flowchart for DEHP, BBP, DBP & DIBP content



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Table:

Sample material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

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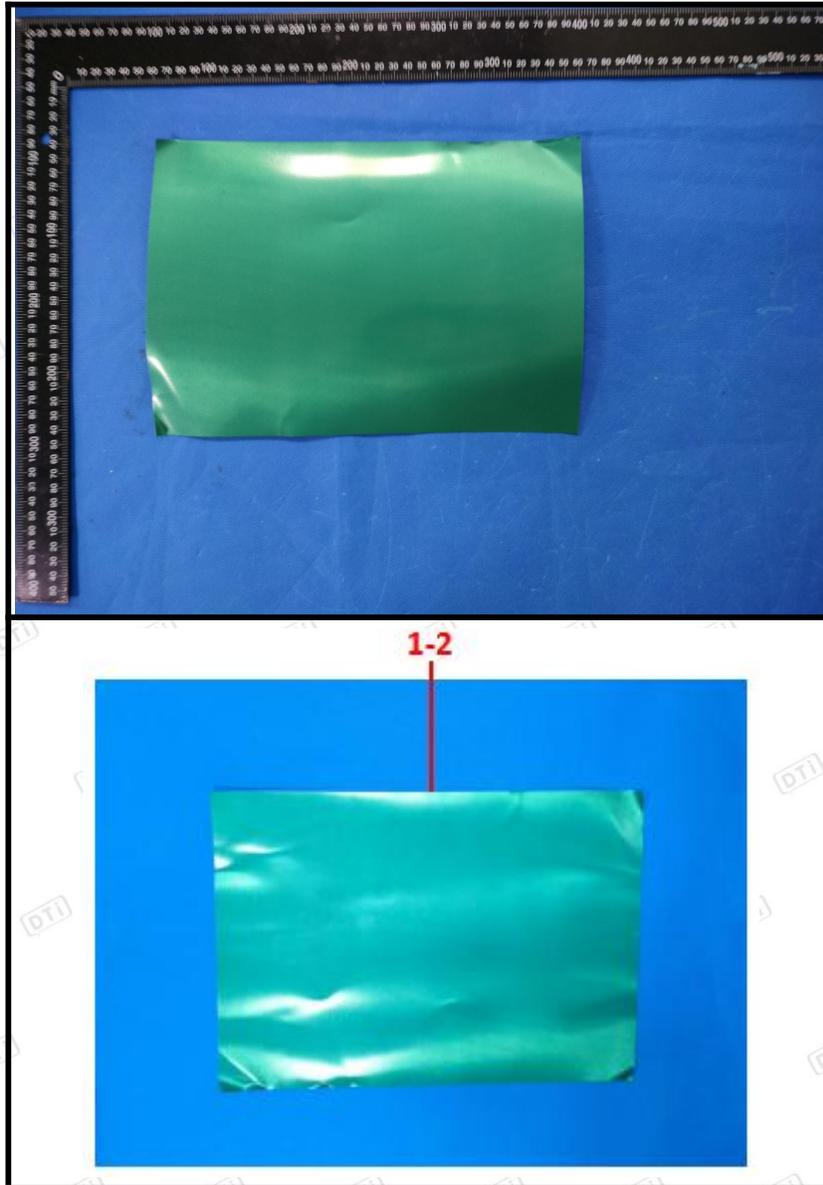
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Appendix II

Photograph of Sample



*** End of Report ***

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