TEST REPORT

REPORT No.: DTI2025MC020109-1 Date: 2025-01-14

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).

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Summary of Test Results:

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

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Approved by: _____ Lab manager

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≤70-3σ< X <130+3σ≤OL	BL≤70-3σ< X <130+3σ≤OL	BL≤50-3σ< X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤ OL	BL≤500-3σ< X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ< X <1300+3σ≤OL	BL≤700-3σ< X <1300+3σ≤OL	BL≤500-3σ< X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ< X	BL≤700-3σ< X	BL≤500-3σ< X
Br	mg/kg	BL≤300-3σ< X	--	BL≤250-3σ< 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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TEST REPORT

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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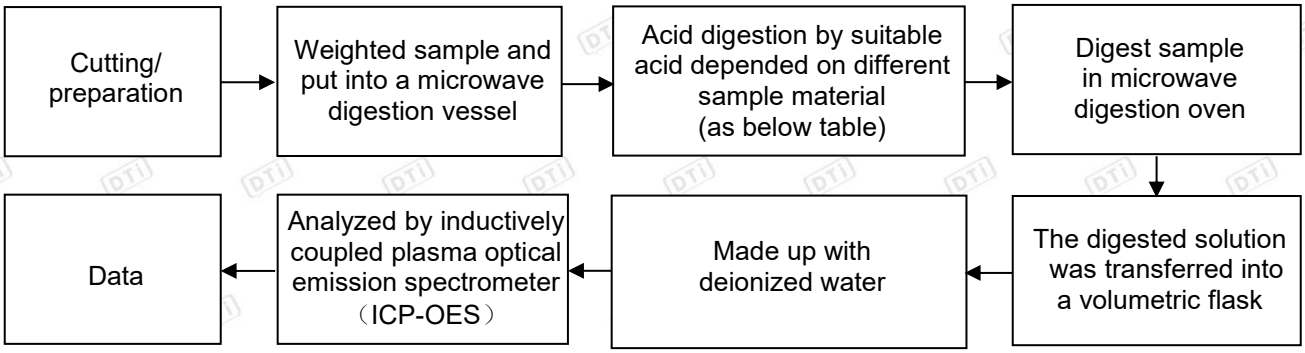
Appendix I

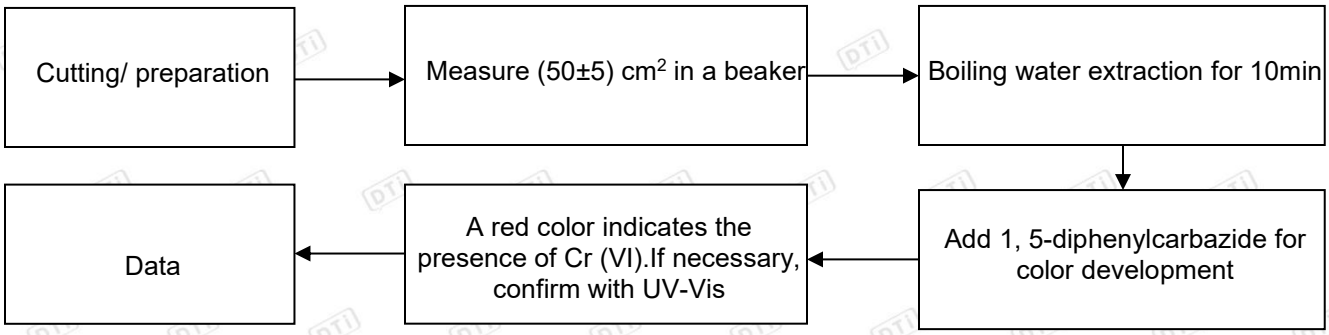
Test Flow chart

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 Cr^{6+} content (Metal material)



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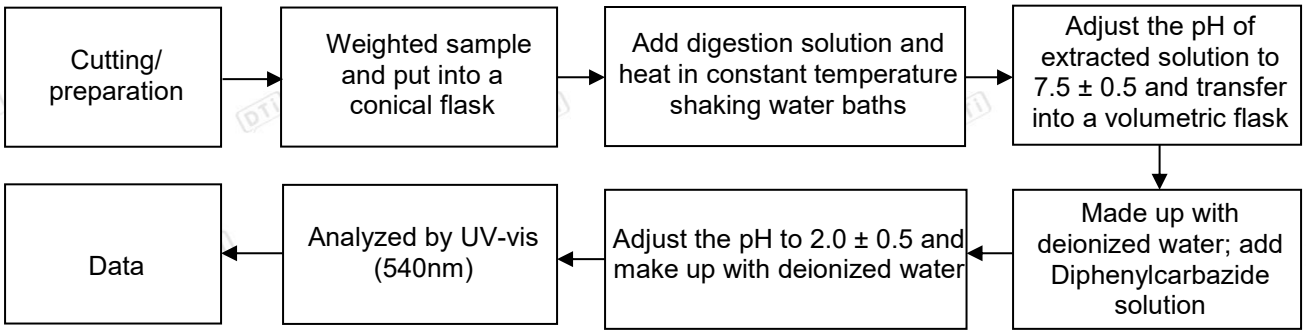
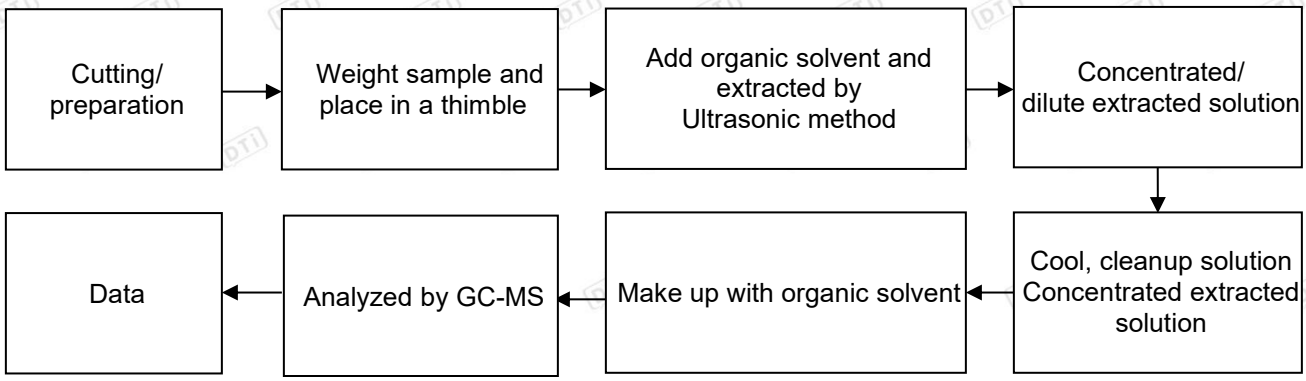
3. Test Flowchart for Cr^{6+} content (Non-metal material)



4. Test Flowchart for PBBs & PBDEs content



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

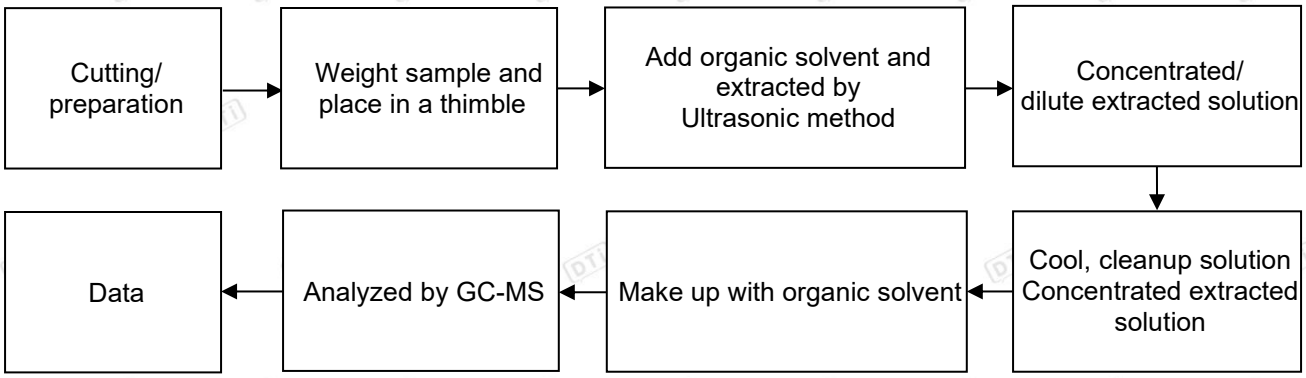


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Table:

Sample material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

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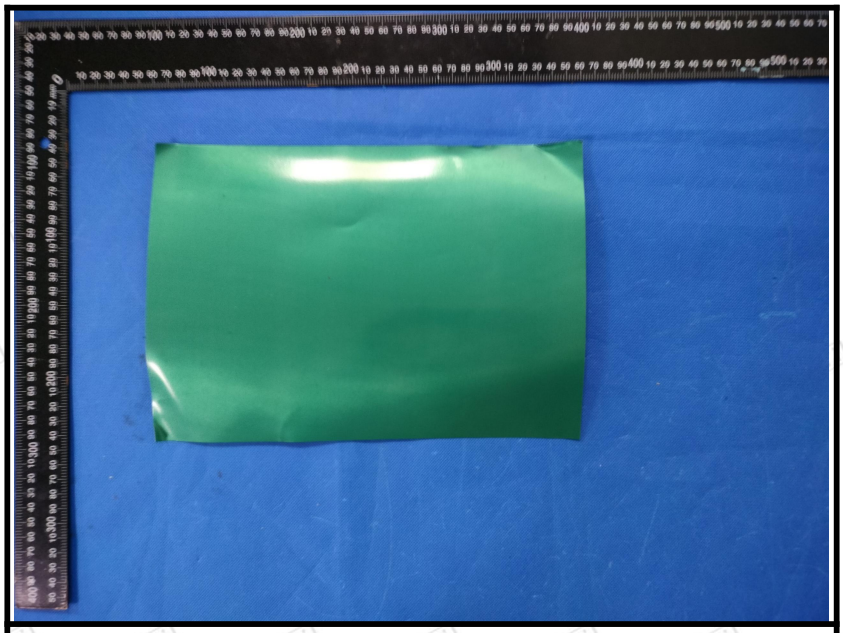
Shenzhen Deesev Testing International Corp.

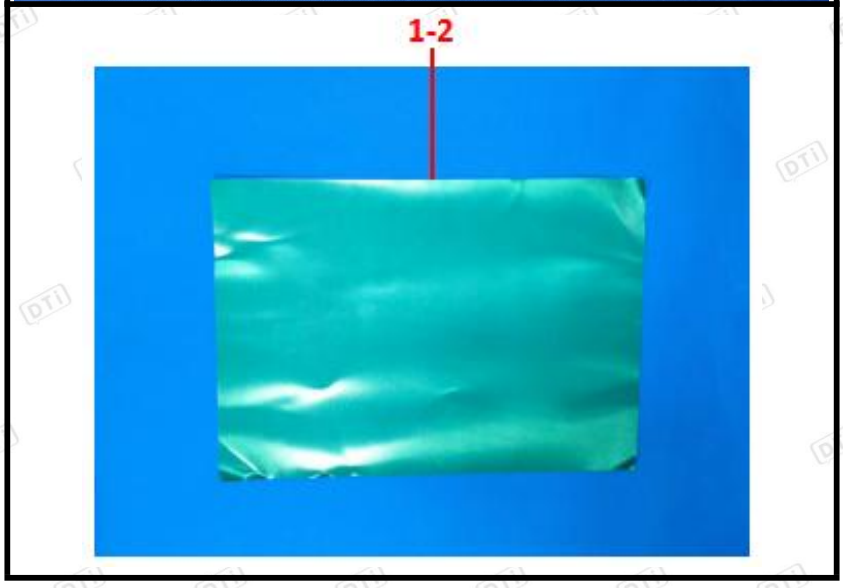
Address: 9th Flr., Building B, Feiyang Science & Technology Park, Longchang Rd.No.8,Bao'an,Shenzhen,Guangdong, China

Tel: +86-755-32936716 E-mail:DTI@deesev.cn URL:www.deesev.com

Appendix II

Photograph of Sample





*** End of Report ***

Shenzhen Deesev Testing International Corp.

Address: 9th Flr., Building B, Feiyang Science & Technology Park, Longchang Rd.No.8,Bao'an,Shenzhen,Guangdong, China

Tel: +86-755-32936716 E-mail:DTI@deesev.cn URL:www.deesev.com