



# Test Report

**Report No.:** PTC20071302001C-EN01

**Issue Date:** Jul. 17, 2020

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**Applicant:** SHENZHEN TUANLI TECHNOLOGY CO.,LTD

**Address:** 5th Floor, Building C, Yunlizhigu Industrial Park, No. 9, Xincun Road, Xuexianxin Village,  
Bantian Street, Longgang District, Shenzhen

The following merchandise was (were) submitted and identified by client as:

**Sample Name:** Nano protective coating film

**Style No:** TL-07

**Colour:** Milk White

**Manufacturer:** SHENZHEN TUANLI TECHNOLOGY CO.,LTD

**Address:** 5th Floor, Building C, Yunlizhigu Industrial Park, No. 9, Xincun Road, Xuexianxin  
Village, Bantian Street, Longgang District, Shenzhen

**Sample Received Date:** Jul.14, 2020

**Completed Date:** Jul.17, 2020

## Test Requested and Conclusion(s):

No.	Test Sample	Standard and Requirement	Conclusion(s)
1	Tested materials of submitted samples	RoHS Directive 2011/65/EU and its subsequent amendments regulation EU No.2015/863. - Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr <sup>6+</sup> ), PBBs and PBDEs, Phthalates (DBP, BBP,DEHP,DIBP)	PASS

**Test Result(s):** Please refer to next page(s).

Signed for and on Behalf of PTC

Chaomei Dai

Chaomei Dai/ Laboratory Supervisor

Precise Testing & Certification (Guangdong) Co., Ltd.

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## Test Result(s):

RoHS - Lead (Pb)/Cadmium(Cd)/Mercury(Hg)/Hexavalent Chromium(Cr<sup>6+</sup>)/PBBs/PBDEs

Test Method: IEC62321-3-1: 2013, IEC62321-5: 2013, IEC62321-6:2015, IEC62321-4: 2013, IEC 62321-7-1:2015, IEC 62321-7-2: 2017, analyzed by EDXRF & AAS & ICP-AES & GC-MS & UV-Vis.

No.	Material Description	EDXRF Result					Chemical Result (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	Milk-white liquid ( whole )	BL	BL	BL	BL	BL	--	PASS
2	Bright black plastic ( bottle )	BL	BL	BL	BL	BL	--	PASS
3	Black plastic ( lid )	BL	BL	BL	BL	BL	--	PASS
4	Transparent plastic ( lid )	BL	BL	BL	BL	BL	--	PASS

- Note:**
1. mg/kg = milligram per kilogram (ppm).
  2. N.D. = Not Detected (<RL).
  3. Negative = Absence of Cr<sup>6+</sup>.
  4. Positive = Presence of Cr<sup>6+</sup>: the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.
  5. The result are obtained by EDXRF for primary screening, if the result exceeds the below limit (BL), and further chemical testing.
  6. "E"= This material is tin-lead solder or metal alloy proved by client, lead in tin-lead solder or copper alloy is exempted on the requirements of RoHS directive (EU Directive 2011/65/EU).

## Screening limits in mg/kg for regulated elements in various matrices

Elements	Polymer	Metal	Composite Materials
Pb	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(500-3σ)<X<(1500+3σ)≤ OL
Cd	BL≤(70-3σ)<X<(130+3σ)≤ OL	BL≤(70-3σ)<X<(130+3σ)≤ OL	LOD<X<(150+3σ)≤OL
Hg	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(700-3σ)<X<(1300+3σ)≤ OL	BL≤(500-3σ)<X<(1500+3σ)≤ OL
Cr	BL≤(700-3σ)<X	BL≤(700-3σ)<X	BL≤(500-3σ)<X
Br	BL≤(300-3σ)<X	--	BL≤(250-3σ)<X

BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection

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## Chemical Testing - Detection Limit & 2011/65/EU Limit:

No	Name of Chemicals	Detection Limit (mg/kg)	2011/65/EU Limit (mg/kg)
1	Lead (Pb)	5	1000
2	Cadmium (Cd)	5	100
3	Mercury (Hg)	5	1000
4	Chromium VI (Cr VI)	Non-metal: 10 Metal: Negative	Non-metal: 1000 Metal: Negative
5	Polybromobiphenyls (PBBs) -Bromobiphenyl (MonoBB) -Dibromobiphenyl (DiBB) -Tribromobiphenyl (TriBB) -Tetrabromobiphenyl (TetraBB) -Pentabromobiphenyl (PentaBB) -Hexabromobiphenyl (HexaBB) -Heptabromobiphenyl (HeptaBB) -Octabromobiphenyl (OctaBB) -Nonabromobiphenyl (NonaBB) -Decabromobiphenyl (DecaBB)	Each 5	Sum: 1 000
6	Polybromodiphenyl ethers (PBDEs) -Bromodiphenyl ether (MonoBDE) -Dibromodiphenyl ether (DiBDE) -Tribromodiphenyl ether (TriBDE) -Tetrabromodiphenyl ether (TetraBDE) -Pentabromodiphenyl ether (PentaBDE) -Hexabromodiphenyl ether (HexaBDE) -Heptabromodiphenyl ether (HeptaBDE) -Octabromodiphenyl ether (OctaBDE) -Nonabromodiphenyl ether (NonaBDE) -Decabromodiphenyl ether (DecaBDE)	Each 5	Sum: 1 000

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## Test Result(s):

ROHS - Phthalates DIBP, DBP, BBP, DEHP

Method: IEC 62321-8: 2017, analyzed by Gas Chromatograph-Mass Spectrometry (GC-MS).

Substances	DBP	BBP	DEHP	DIBP	Conclusion
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	
Limit (mg/kg)	1000	1000	1000	1000	
RL (mg/kg)	50	50	50	50	
Material No.	Result (mg/kg)				
1	N.D.	N.D.	N.D.	N.D.	PASS
2+3+4	N.D.	N.D.	N.D.	N.D.	PASS

- Note:**
1. mg/kg = milligram per kilogram (ppm).
  2. N.D. = Not Detected (<RL).
  3. RL=Reporting Limit.

## Test Material List

The following materials apply only to the samples submitted for chemical testing.

Material No.	Description	Location
1	Light-blue liquid	whole
2	Bright black plastic	bottle
3	Black plastic	lid
4	Transparent plastic	lid

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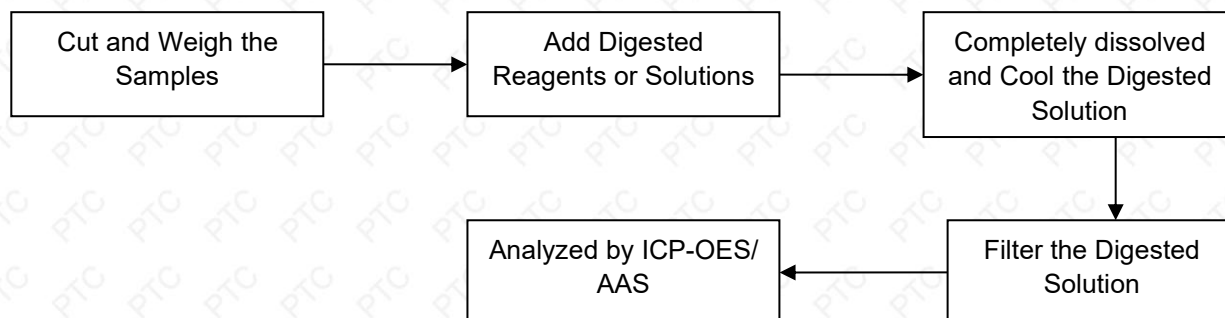
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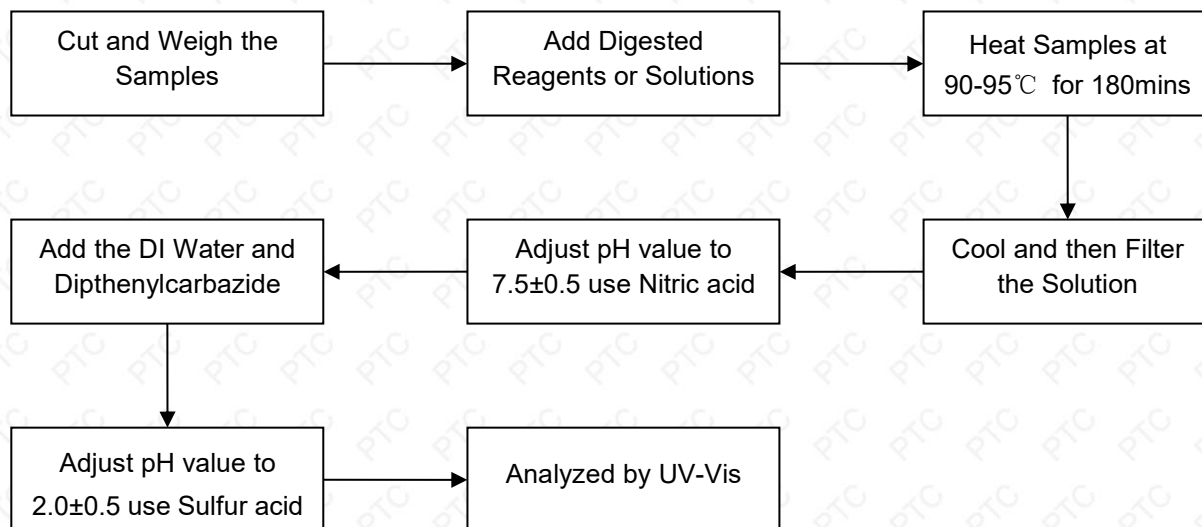
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## Test Process Flow:

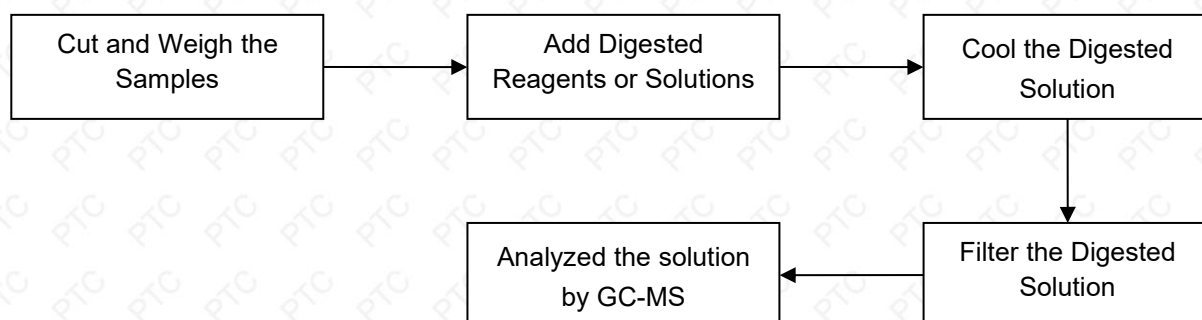
### 1. Lead, Cadmium, Mercury



### 2. Hexavalent Chromium (Non-metal)



### 3. PBBs & PBDEs, Phthalates



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Photo(s) of Sample:



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

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