



# Verification Report

Report No. A2230240731102

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## CENTRE TESTING INTERNATIONAL



**Company Name** GUANGZHOU TSUNAMI INDUSTRIAL EQUIPMENT CO.,LTD.  
**shown on Report**  
**Address** NO.58 BUILDING 22,1ST FLOOR,GAOZENG STREET,RENHE TOWN,BAIYUN DISTRICT,  
 GUANGZHOU,CHINA 510470

### Conclusion

Tested Sample	According to standard/directive	Result
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	PASS

PASS means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.



Approved by Anso Fang  
 Anso Fang  
 Lab Authorized Signatory

Date Jun. 13, 2023

No. R177731462

Centre Testing International Group Co.,Ltd.  
 CTI Building, Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

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**The following sample(s) and sample information was/were submitted and identified by/on the behalf of the applicant**

Product Name	hard cases
Product Part No.	393109
Sample Received Date	May 24, 2023
Testing Period	May 24, 2023 to Jun. 13, 2023

**Test Requested** With reference to RoHS Directive 2011/65/EU with amendment (EU) 2015/863, to conduct verification test for Lead (Pb), Cadmium (Cd), Mercury (Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs) and Phthalates (Dibutyl phthalate (DBP), Benzylbutyl phthalate (BBP), Di-2-ethylhexyl phthalate (DEHP), Diisobutyl phthalate (DIBP)) in the submitted samples.

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## Test Method

### A. Screening limits for regulated elements according to IEC 62321-3-1:2013 (Unit: mg/kg)

Element	Polymers	Metals	Composite material
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	N/A	$BL \leq (250-3\sigma) < X$

### B. Screening limits for Phthalates

Test Item(s)	Screening limits (Unit: mg/kg)
Dibutyl phthalate(DBP)	$BL \leq 600 < X$
Benzylbutyl phthalate(BBP)	$BL \leq 600 < X$
Di-2-ethylhexyl phthalate(DEHP)	$BL \leq 600 < X$
Diisobutyl phthalate(DIBP)	$BL \leq 600 < X$

### C. Chemical Test

Tested Item(s)	Test Method	Measured Equipment(s)	MDL	Limit
Lead (Pb)	IEC 62321-5:2013	ICP-OES	10 mg/kg	1000 mg/kg
	Refer to IEC 62321-5:2013		10 mg/kg	
Cadmium (Cd)	IEC 62321-5:2013	ICP-OES	10 mg/kg	100 mg/kg
	Refer to IEC 62321-5:2013		10 mg/kg	
Mercury (Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES	10 mg/kg	1000 mg/kg
	Refer to IEC 62321-4:2013+AMD1:2017 CSV		10 mg/kg	
Hexavalent Chromium (Cr(VI))	IEC 62321-7-2:2017	UV-Vis	20 mg/kg	1000 mg/kg
	IEC 62321-7-1:2015		0.10 $\mu\text{g}/\text{cm}^2$ (LOQ)	
Polybrominated Biphenyls (PBBs)	IEC 62321-6:2015	GC-MS	100 mg/kg	1000 mg/kg
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS	100 mg/kg	1000 mg/kg
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS	50 mg/kg	1000 mg/kg for each

#### Remark:

- BL = Under the screening limit
- OL = Above the screening limit
- X = The range of needing to do further testing
- $3\sigma$  = The reproducibility of analytical instruments
- N/A = Not applicable
- LOD = Detection limit
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10  $\mu\text{g}/\text{cm}^2$

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## Test Result(s)

CTI Sample ID	Same material No.	Sample Description	Tested Items	XRF Screening Test	Phthalates Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
1.1	1.2	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.3	-	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.4	-	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
DIBP	N/A	BL	/					

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CTI Sample ID	Same material No.	Sample Description	Tested Items	XRF Screening Test	Phthalates Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
1.5	-	Black soft plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.6	-	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.7	1.8, 1.9	Black sponge	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
DIBP	N/A	BL	/					

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CTI Sample ID	Same material No.	Sample Description	Tested Items	XRF Screening Test	Phthalates Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
1.10	-	Black silicone rubber	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.11	-	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.12	-	Silvery metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
DIBP	N/A	/	/					

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CTI Sample ID	Same material No.	Sample Description	Tested Items	XRF Screening Test	Phthalates Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
1.13	-	Silvery metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
1.14	-	Black silicone rubber	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
1.15	-	Silvery metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
DIBP	N/A	/	/					



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CTI Sample ID	Same material No.	Sample Description	Tested Items	XRF Screening Test	Phthalates Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
1.16	-	Silvery metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
1.17	-	Silvery metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
1.18	-	Silvery metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
DIBP	N/A	/	/					

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CTI Sample ID	Same material No.	Sample Description	Tested Items	XRF Screening Test	Phthalates Screening Test	Chemical Test (mg/kg)	Conclusion	Sample Received/ Resubmitted Date
1.19	-	Golden metal	Pb	OL	/	15321 <sup>#1</sup>	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
2.1	-	Brown paper board with black printing	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	BL	/	/		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
2.2	-	Cupreous metal	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	IN	/	N.D.▼		
			Br(PBBs&PBDEs)	N/A	/	/		
			DBP	N/A	/	/		
			BBP	N/A	/	/		
			DEHP	N/A	/	/		
DIBP	N/A	/	/					

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**Remark:**

- N.D. = Not Detected (<MDL or LOQ)
- MDL = Method Detection Limit
- mg/kg = ppm = parts per million
- 1000 mg/kg = 0.1%
- / = Not tested
- IN = Uncertain, Further chemical test
- N/A = Not applicable
- BL = Under the screening limit
- OL = Further chemical test will be conducted while the result is above the screening limit.
- ▼The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 µg/cm<sup>2</sup>.  
The coating is considered a non-Cr(VI) based coating.
- When conducting the test for PBBs&PBDEs, XRF was introduced to screen Br Exclusively; When conducting the test for Hexavalent Chromium, XRF was introduced to screen Chromium exclusively.
- #1According to the client’s statement, the material of the sample(s) fall into exemption items 6(c) according to EU Directive 2011/65/EU: Copper alloy containing up to 4%(40000 mg/kg) lead by weight.
- Exemption list please see the official website  
<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:32011L0065>
- According to the client’s statement, the samples in the column “Same material No.” are of the same as the “CTI Sample ID”.

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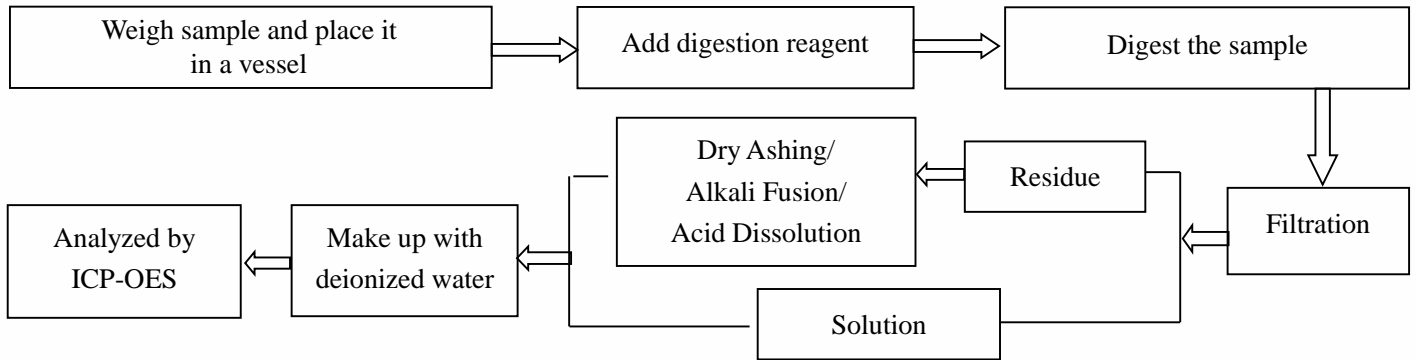
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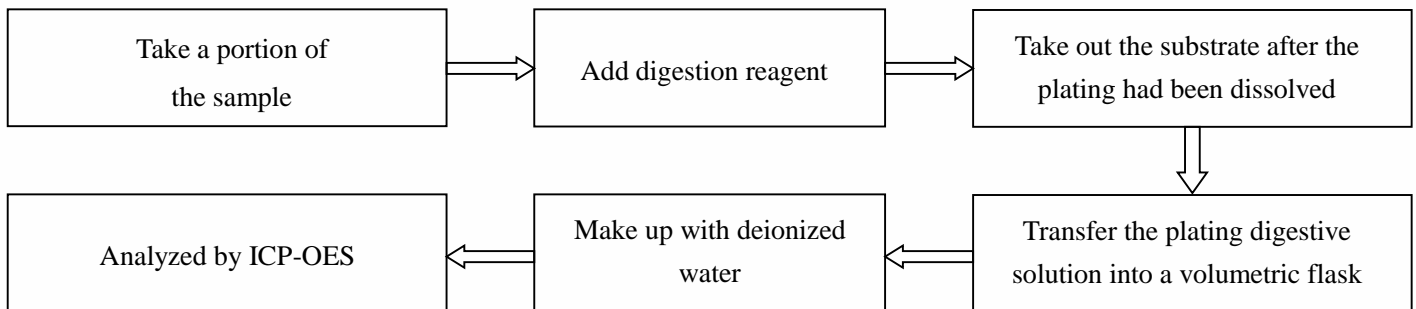
**Test Process**

**1. Lead (Pb), Cadmium (Cd)**

**(1) IEC 62321-5:2013**

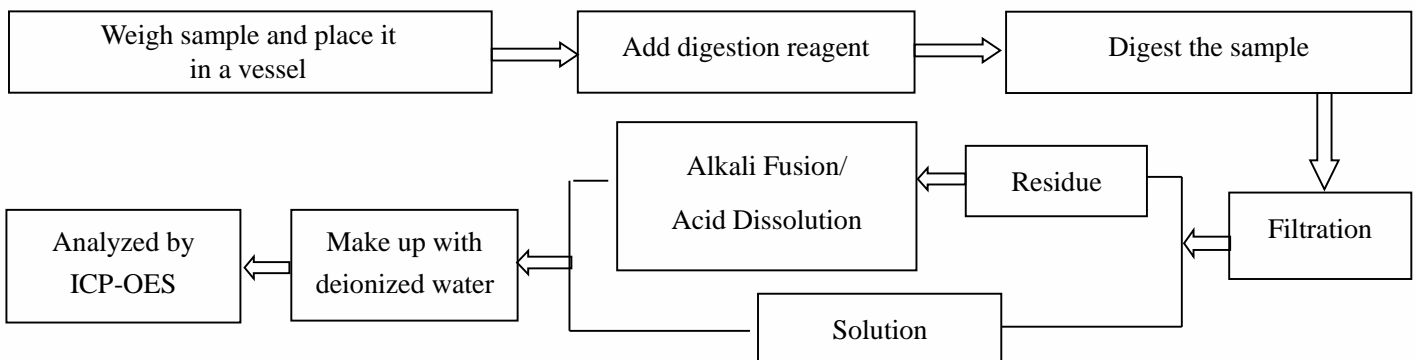


**(2) Refer to IEC 62321-5:2013**

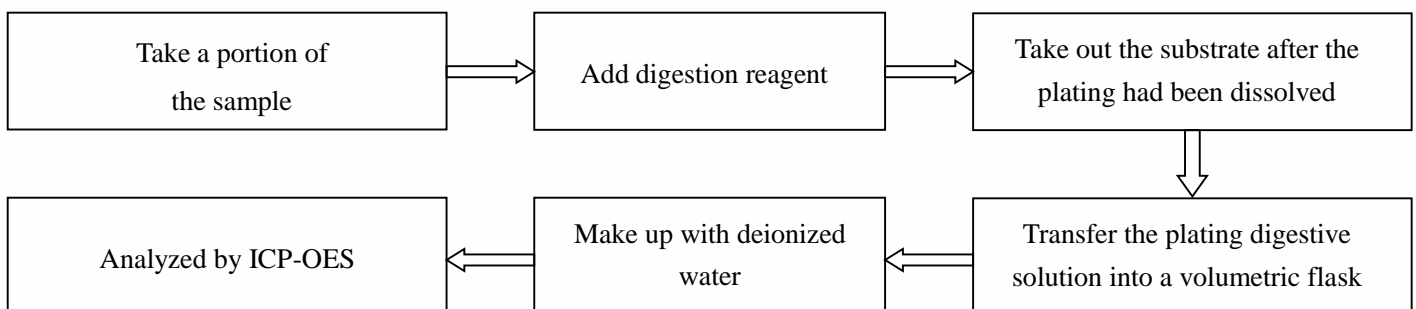


**2. Mercury (Hg)**

**(1) IEC 62321-4:2013+AMD1:2017 CSV**



**(2) Refer to IEC 62321-4:2013+AMD1:2017 CSV**



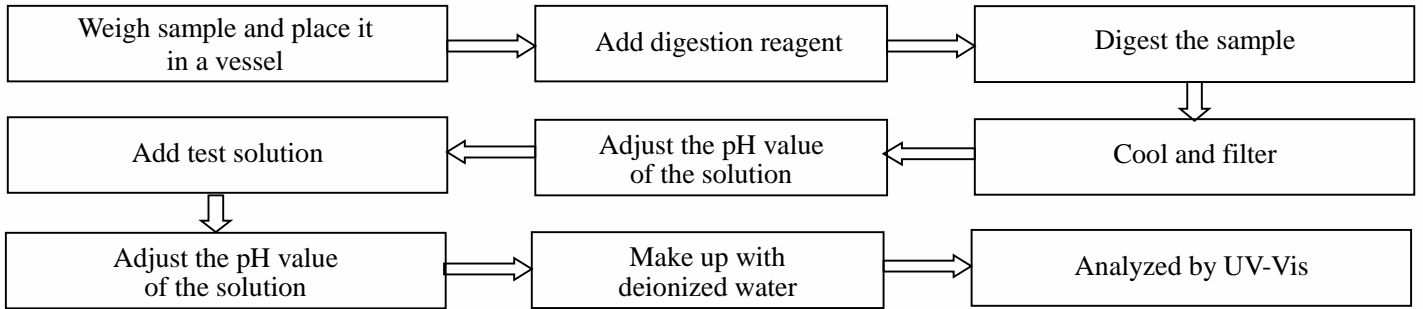
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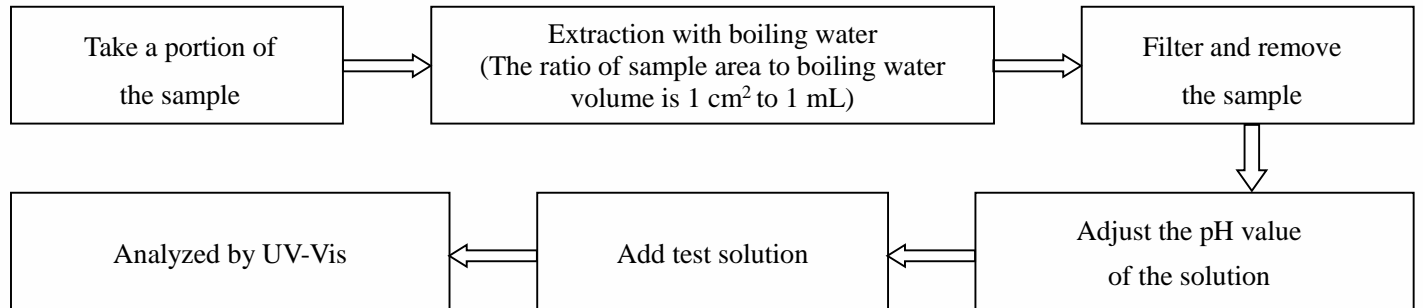
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### 3. Hexavalent Chromium (Cr(VI))

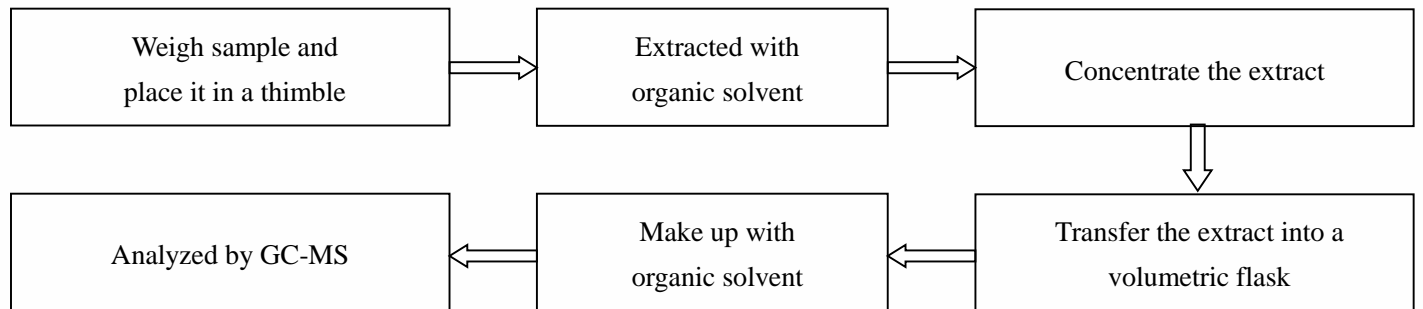
#### (1) IEC62321-7-2:2017



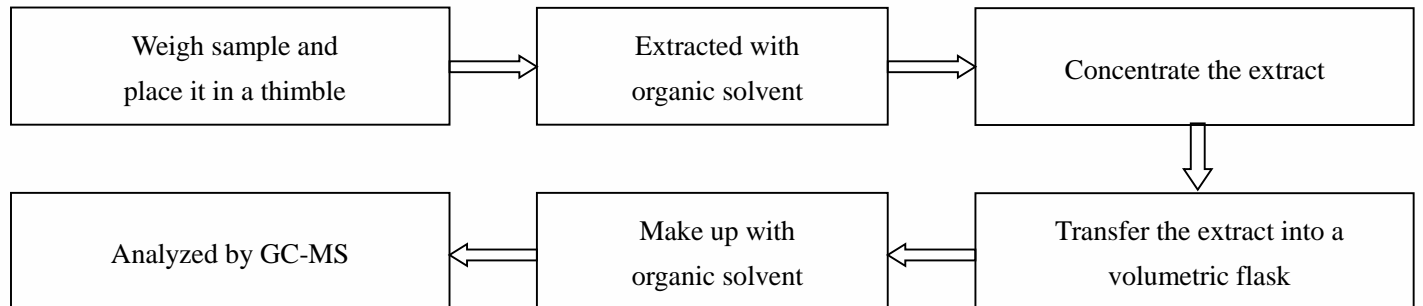
#### (2) IEC 62321-7-1:2015



### 4. Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs)



### 5. Phthalates (DBP, BBP, DEHP, DIBP)



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## Photo(s) of the sample(s)

Final Product



1.1

Final Product



1.2

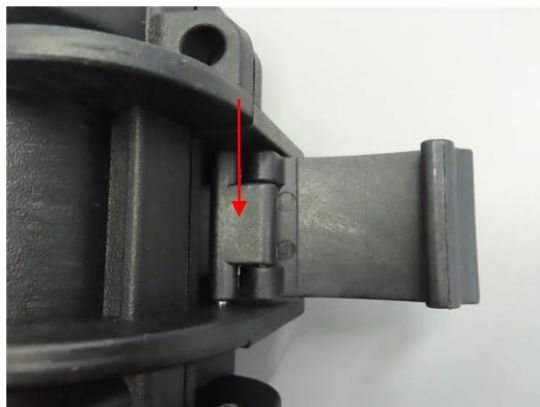
(Client Reference Photo(Non-tested sample))



1.3



1.4



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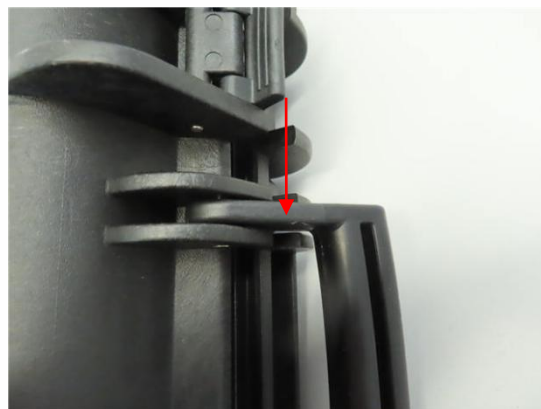
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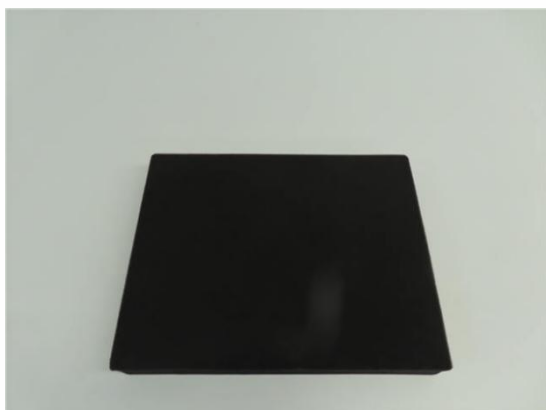
1.5



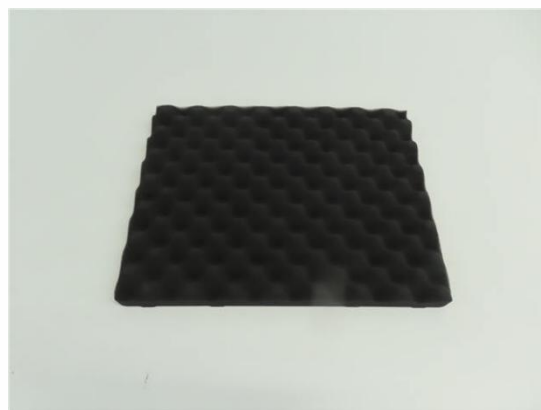
1.6



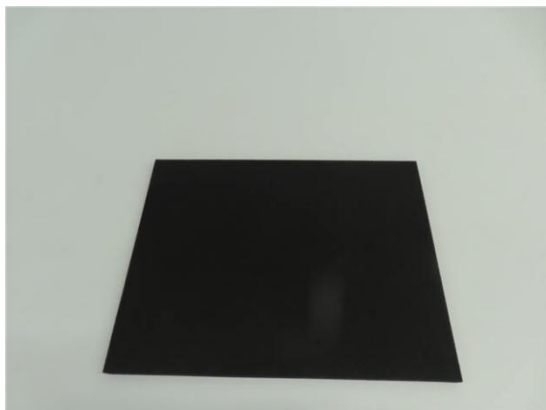
1.7



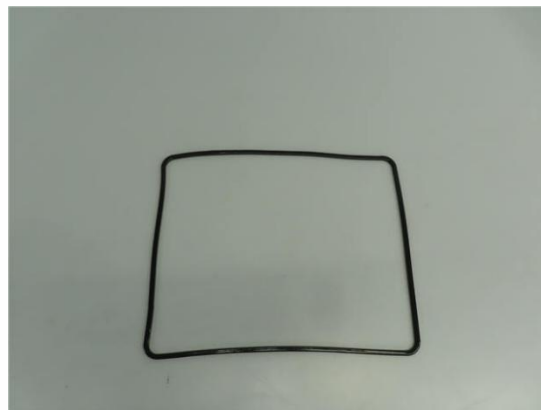
1.8  
(Client Reference Photo(Non-tested sample))



1.9  
(Client Reference Photo(Non-tested sample))



1.10

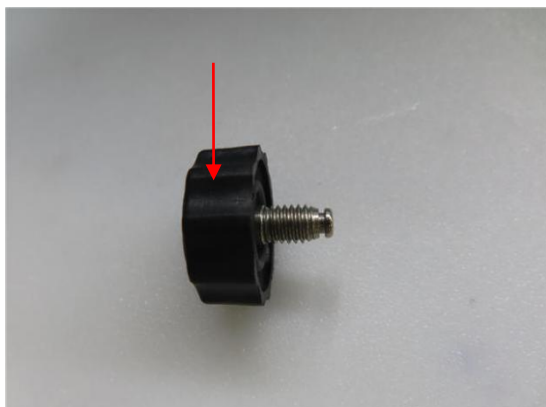


# Verification Report

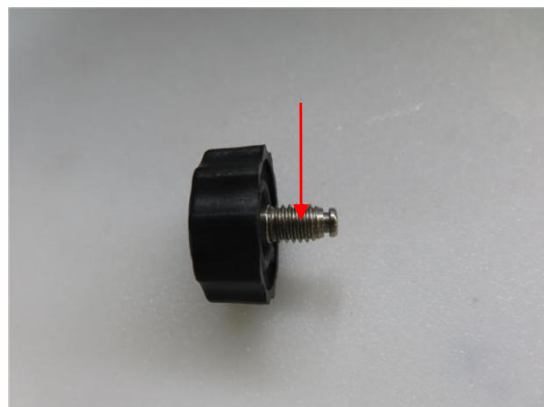
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1.11



1.12



1.13



1.14



1.15



1.16





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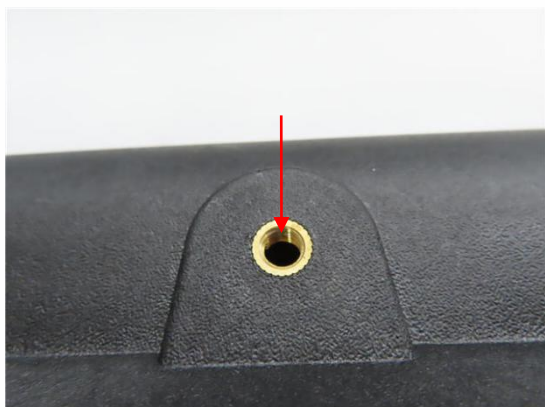
1.17



1.18



1.19



2.1



2.2



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Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The Company Name shown on Report and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.

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

## Appendix

### Client Reference Information

同系列产品:

130803,322616,332317,382718,301909,393109,433016,431616,453619,473321,512920,533120,504021,564320,713046,  
715430,744627,804050,786639,1124618,1303214,1222311,1043513, 1323313, 1203333, 933615

### Statement:

1. The Appendix Information was/were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.
2. The Appendix Information is/are the supplement(s) for the Report A2230240731102.