



Verification Report

Report No. A2230240731103

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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 *Hill Zheng*

Hill Zheng
Technical Manager

Date

Jun. 13, 2023

No. R177731242

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	rotomolded cases
Product Part No.	R493231
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
- 3σ = 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	-	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	-	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	/	/		
3	-	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
4	5	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	/	/		
6	8	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	/	/		
7	-	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
9	10, 11, 16, 18, 19	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	/	/		
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	/	/		
13	20	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
14	-	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	/	/		
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	/	/		
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	/	/		
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
21	-	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	/	/		
22	-	Golden metal	Pb	OL	/	31220#1	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	/	/		
23	-	Black foam with adhesive paste	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
24	-	Black silicone rubber with adhesive paste	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	/		
25	26, 27	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	/		
28	29	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
30	-	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	/	/		
31	-	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	/	/		
32	-	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
33	-	Black 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	/	/		
34	-	Transparent yellow 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	/		
35	-	Semi-transparent 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	/		
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
36	37	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	/		
38	-	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	/	/		
39	-	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	IN	/	N.D.		
			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
40	-	Semi-transparent 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	/		
41	-	Black plastic	Pb	BL	/	/	PASS	May 24, 2023
			Cd	BL	/	/		
			Hg	BL	/	/		
			Cr(Cr(VI))	BL	/	/		
			Br(PBBs&PBDEs)	IN	/	N.D.		
			DBP	N/A	BL	/		
			BBP	N/A	BL	/		
			DEHP	N/A	BL	/		
DIBP	N/A	BL	/					

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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/cm².
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 % 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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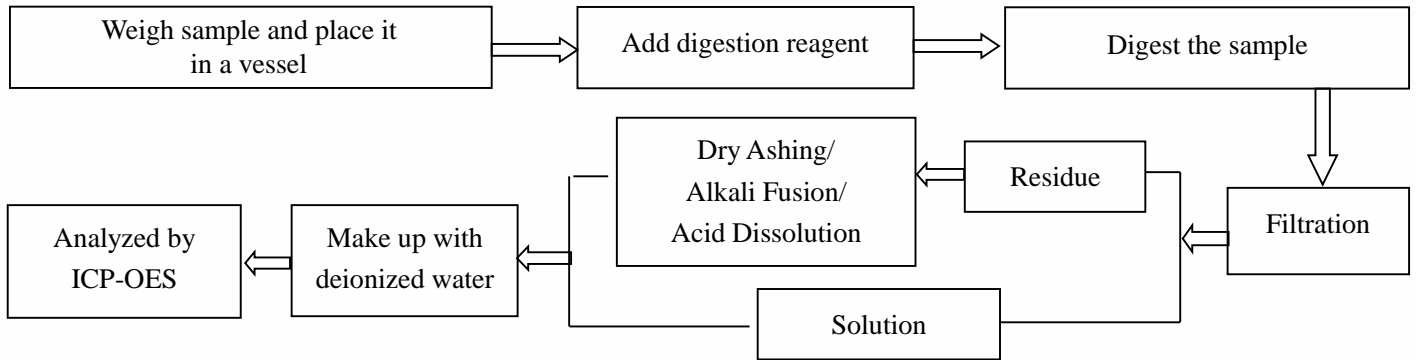
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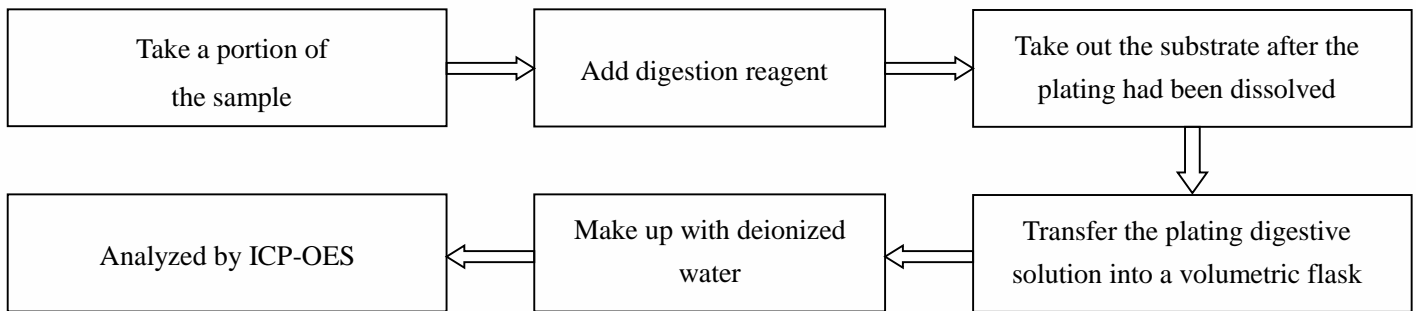
Test Process

1. Lead (Pb), Cadmium (Cd)

(1) IEC 62321-5:2013

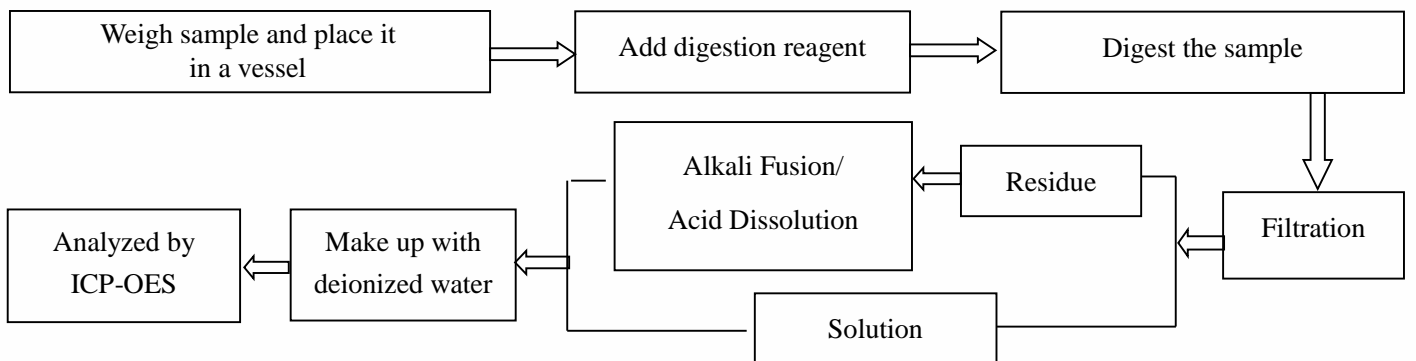


(2) Refer to IEC 62321-5:2013

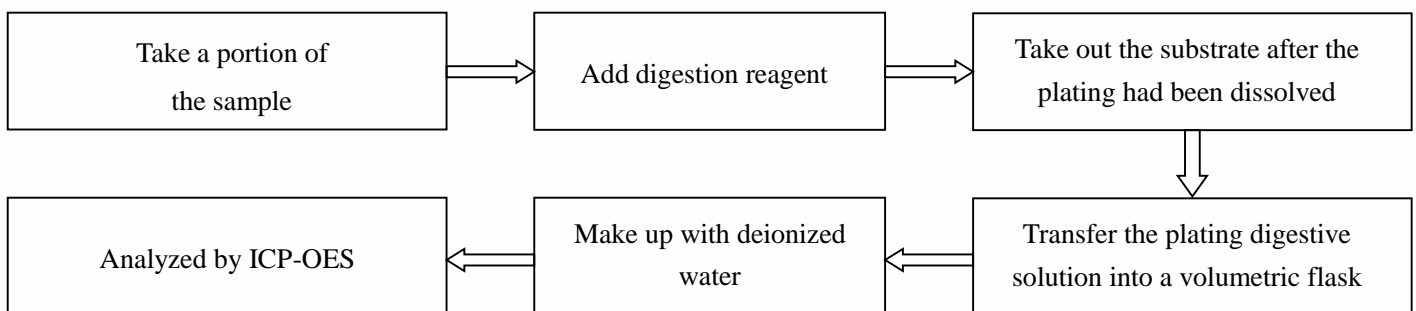


2. Mercury (Hg)

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



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



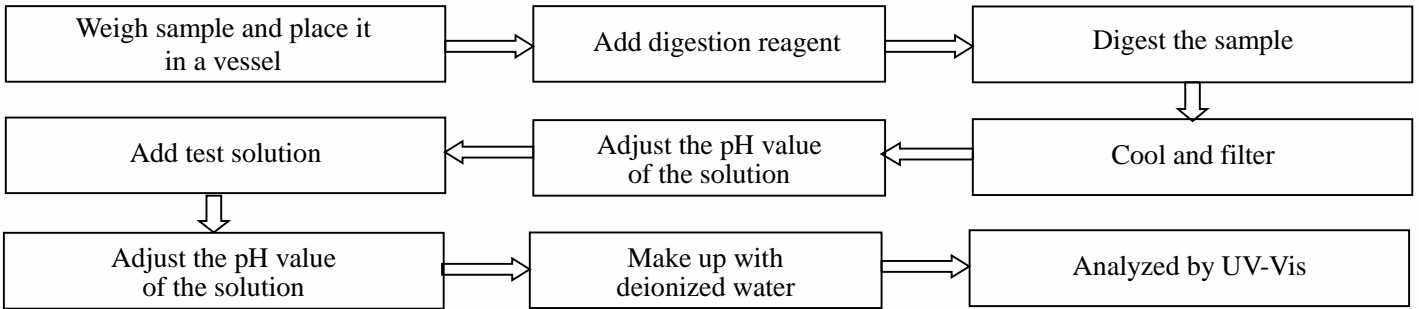
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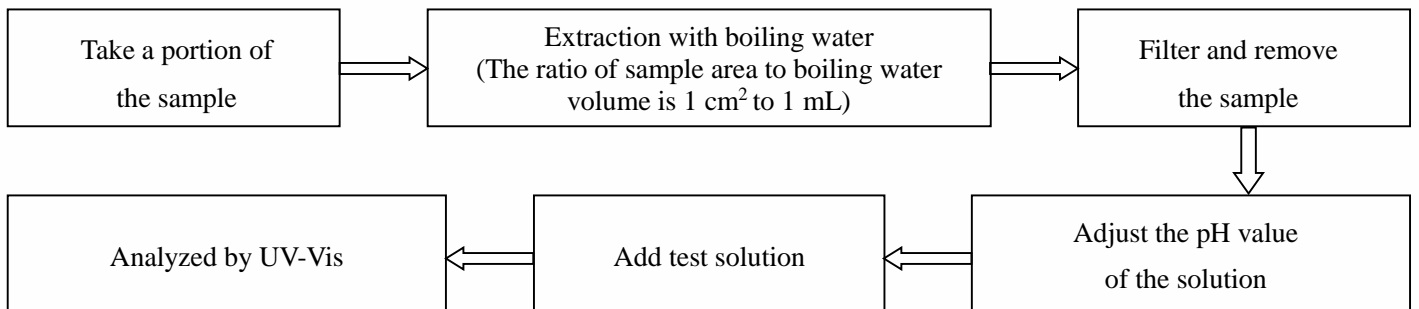
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3. Hexavalent Chromium (Cr(VI))

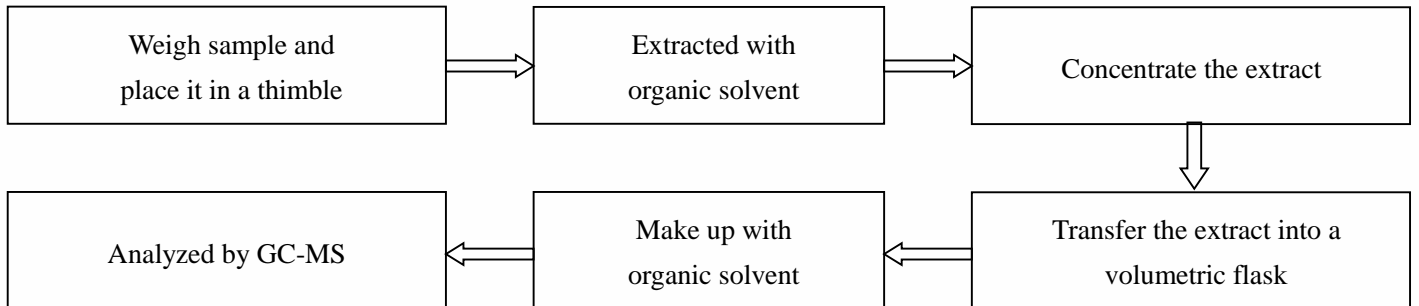
(1) IEC62321-7-2:2017



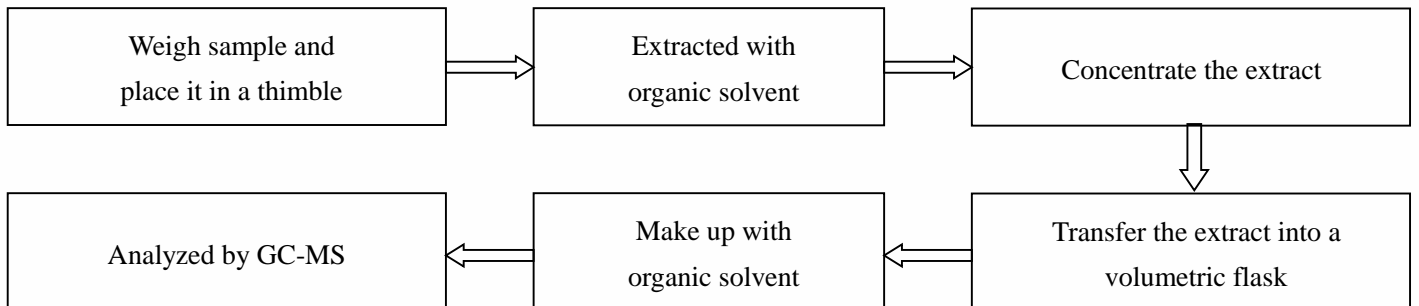
(2) IEC 62321-7-1:2015



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

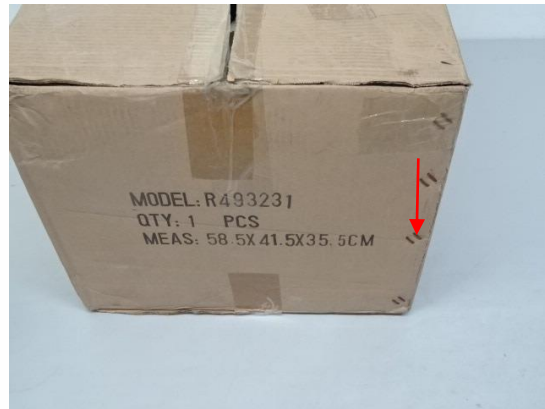
Final Product



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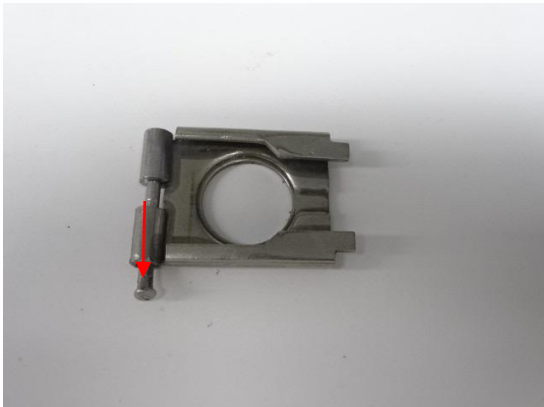
5(Client Reference Photo(Non-tested sample))



6



7



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



9



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



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



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



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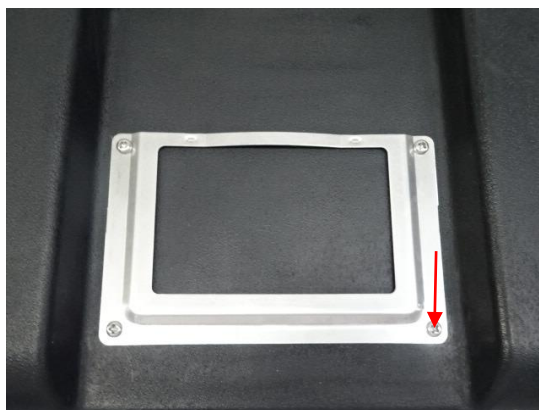
18(Client Reference Photo(Non-tested sample))



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



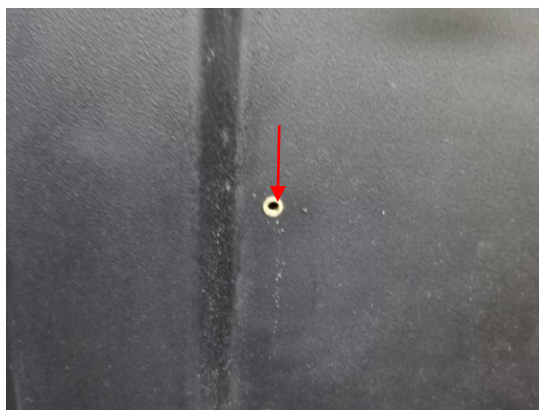
20(Client Reference Photo(Non-tested sample))



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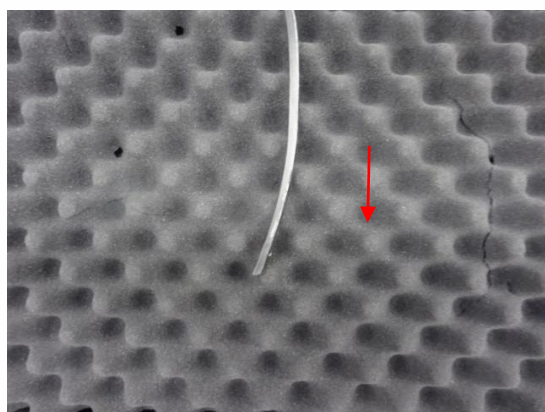


Verification Report

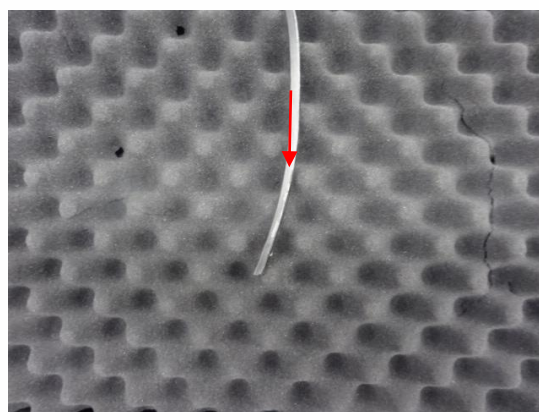
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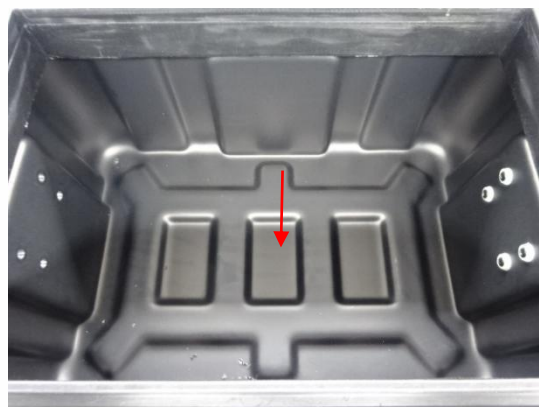
26(Client Reference Photo(Non-tested sample))



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



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

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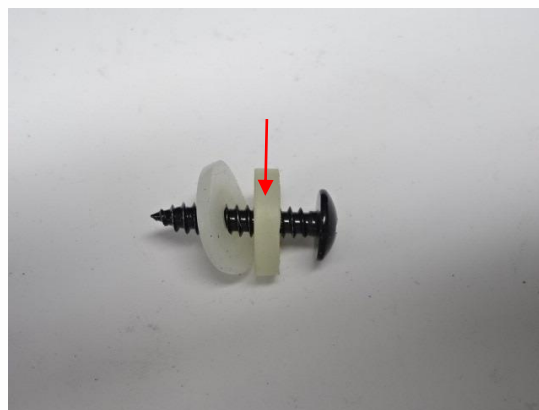
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37(Client Reference Photo(Non-tested sample))

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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： R312824, R422815, R493231, R523622, R534338, R724832, R735340, R796746, R804633, R764646, R1127254, R1606029, R1763138, R1604627, R806050, R606035, Field Desk.

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 A2230240731103.