



**CENTRE OF TESTING SERVICE
INTERNATIONAL**

OPERATE ACCORDING TO ISO/IEC 17025

TEST REPORT

RoHS 2011/65/EU

Test Report Number : CGZ3160908-02931-C



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CTS

CENTRE OF TESTING SERVICE

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The measurement results only apply to the submitted samples.
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1 General Information

1.1 Application Details

Name :
Address :

Contact :
Telephone :
Fax :
Mobile telephone :
Email :

1.2 Manufacturer & Buyer

Manufacturer name :
Address :

Contact :
Telephone :
Fax :
Mobile telephone :
Email :
Buyer name :

1.3 Description of the Test Item

Sample name : Water Powered Clock
Model No. : ST-1000AL; ST-1000R; IT3828
Brand name : /
Condition of sample(s) : EFFECTIVE

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2 Test results

2.1 Sample Receiving Date

Sep. 06, 2016

2.2 Testing Period

Sep. 06, 2016 to Sep. 08, 2016

2.3 Test Requested

In accordance with the RoHS Directive 2011/65/EU Annex II.

2.4 Test Method

1. X-Ray Fluorescence Spectrometry method in reference to IEC 62321-3-1:2013.
2. Chemical test method

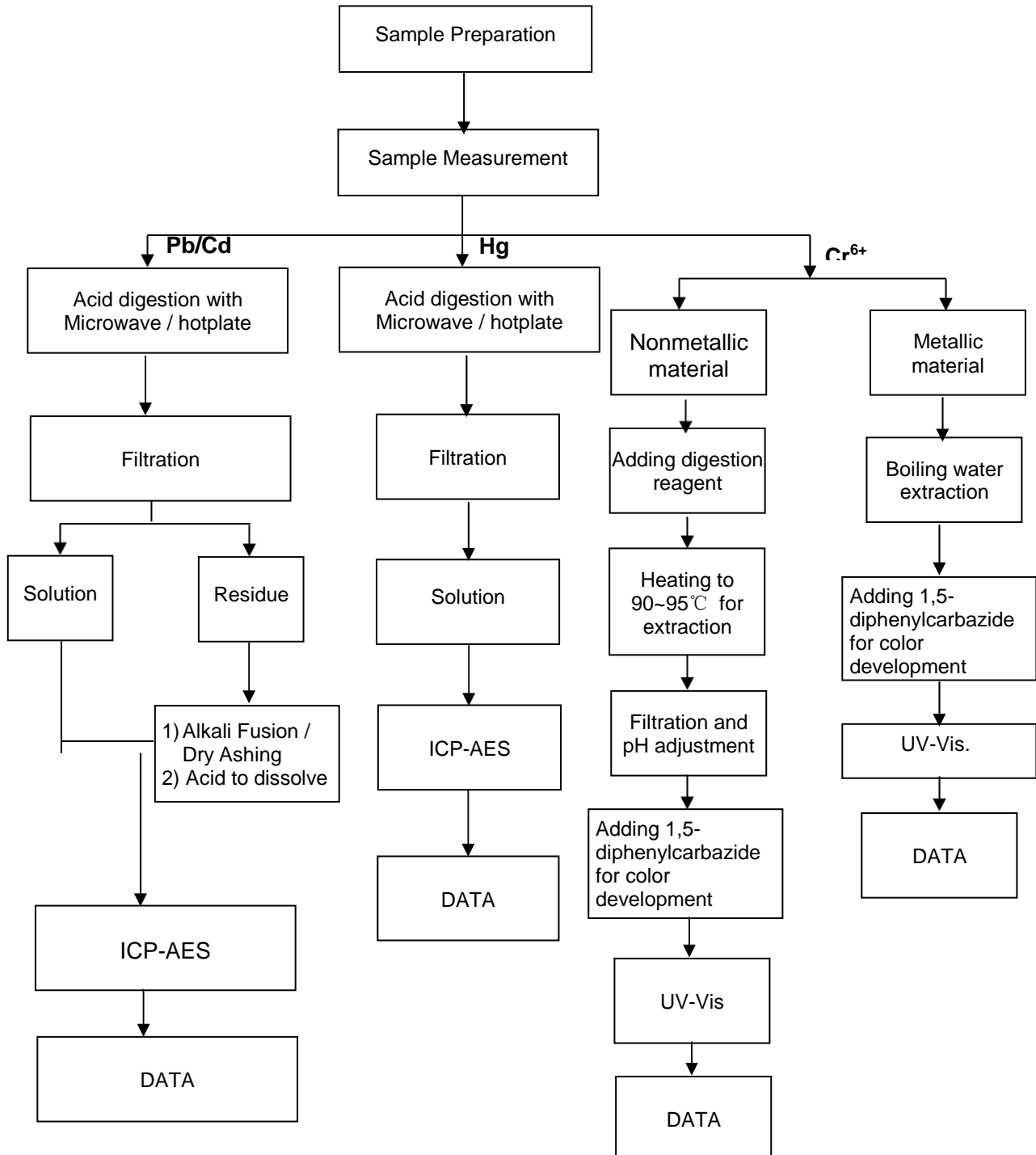
Test Item(s)	Sample preparation	Test Method	Test Instrument
Lead (Pb)	With reference to IEC 62321-2:2013	With reference to IEC 62321-5:2013	ICP-AES
Cadmium (Cd)		With reference to IEC 62321-5:2013	ICP-AES
Mercury (Hg)		With reference to IEC 62321-4:2013	ICP-AES
Chromium VI (Cr VI)		With reference to IEC 62321:2008 IEC 62321-7-1:2015	UV-Vis
PBBs		With reference to IEC 62321-6:2015	GC-MS
PBDEs			

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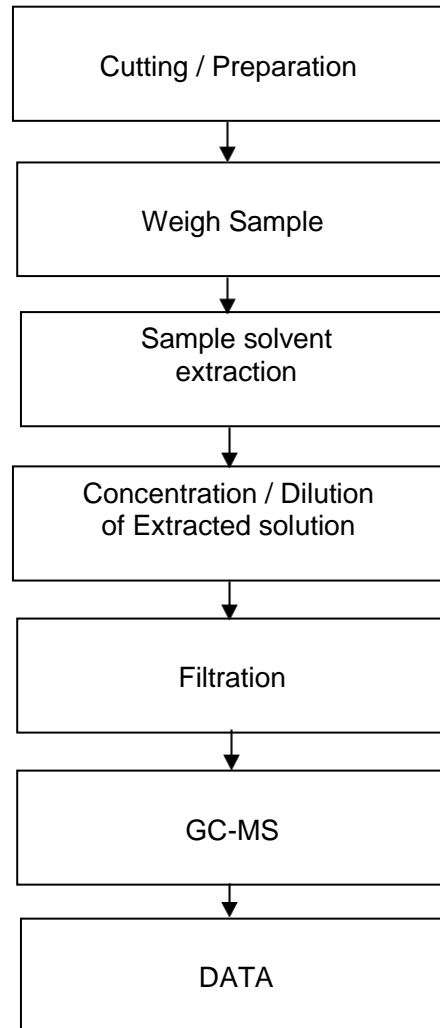
2.5 Chemical Test Method Flow Chart



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PBBs / PBDEs**2.6 Conclusion**

Based on the performed tests on submitted samples, the results of Lead, Cadmium, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

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2.7 Test Results

2.7.1 Test results of all parts by EDXRF and chemical confirmation

No.	Sample Description		Results					Chemical Confirmation Result (Unit=mg/kg)	
			Pb	Cd	Hg	Cr	Br		
1	Blue transparent plastic cover		P	P	P	P	P	/	
2	Red transparent plastic cover		P	P	P	P	P	/	
3	White plastic cover		P	P	P	P	P	/	
4	Black plastic cover		P	P	P	P	P	/	
5	Black rubber plug		P	P	P	P	P	/	
6	Grey rubber plug		P	P	P	P	P	/	
7	Silvery coating		P	P	P	P	P	/	
8	Black ink		P	P	P	P	P	/	
9	Silvery metal screw		P	P	P	P	/	/	
10	Black metal screw		P	P	P	P	/	/	
11	Black metal screw		P	P	P	P	/	/	
12	Silvery metal nut		P	P	P	X	/	CrVI =N.D.	
13	Display screen	Transparent glass	P	P	P	P	P	/	
14	PCB	Khaki fibreboard	P	P	P	P	X	PBBs,PBDEs=N.D.	
15		White fibreboard	P	P	P	P	X	PBBs,PBDEs=N.D.	
16		Color wheel inductance	Blue body	P	P	P	P	P	/
17		Chip IC	Black body	P	P	P	P	X	PBBs,PBDEs=N.D.

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No.	Sample Description		Results					Chemical Confirmation Result (Unit=mg/kg)
			Pb	Cd	Hg	Cr	Br	
18	Chip resistor		X	P	P	P	P	Pb=345
19	Chip capacitor		P	P	P	P	X	PBBs,PBDEs=N.D.
20	Quartz crystal oscillator	Silvery metal body	P	P	P	P	/	/
21	Chip audion		P	P	P	P	X	PBBs,PBDEs=N.D.
22	Diode		P	P	P	P	X	PBBs,PBDEs=N.D.
23	Buzzer	Golden metal vibration plate	P	P	P	P	/	/
24		Silvery metal cover	P	P	P	P	/	/
25	Black cable jacket		P	P	P	P	P	/
26	Red cable jacket		P	P	P	P	P	/
27	Dark red cable jacket		P	P	P	P	P	/
28	Brown cable jacket		P	P	P	P	P	/
29	Dark grey electrodes		P	P	P	P	P	/
30	Silvery metal electrodes		P	P	P	P	/	/

Note : P = Below Limit (Pass)
 F = Over Limit (Fail)
 X = Inconclusive
 N.D. = not detected (less than MDL)
 1mg/kg=1ppm=0.0001%

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Remarks:

- (1) Results are obtained by EDXRF for primary screening, and further chemical testing is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.

Element	Polymer Materials	Metallic Materials	Electronic Materials
Pb	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$
Cd	$P \leq 50 < X < 130 \leq F$	$P \leq 50 < X < 130 \leq F$	$X < 130 \leq F$
Hg	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$	$P \leq 500 < X < 1300 \leq F$
Cr	$P \leq 700 < X$	$P \leq 700 < X$	$P \leq 500 < X$
Br	$P \leq 250 < X$	/	$P \leq 250 < X$

- (2) Chemical Confirmation Result acceptable Limit and Method DetectLimit:

Test items	Lead (Pb)	Cadmium (Cd)	Mercury (Hg)	Chromium VI (CrVI) by alkaline extraction	Chromium VI (CrVI) by boiling water extraction#	PBBs	PBDEs
Unit	mg/kg	mg/kg	mg/kg	mg/kg	$\mu\text{g}/\text{cm}^2$	mg/kg	mg/kg
Method Detection Limit	2	2	2	2	0.10	5	5
Acceptable Limit	1000	100	1000	1000	---	1000	1000

- Note : 1. #=a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$. The sample coating is considered to contain CrVI.
 b. The sample is negative for CrVI if CrVI is N.D. (concentration less than 0.10 $\mu\text{g}/\text{cm}^2$). The coating is considered a non-CrVI based coating.
 c. The result between 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$ is considered to be inconclusive unavoidable coating variations may influence the determination.
 2. Cr(VI) results represent status of the sample at the time of testing.

- (3) The test results only apply to the materials requested by applicant.

Written by: *Amanda* Inspected by: *Annie* Approved by: *hyt*

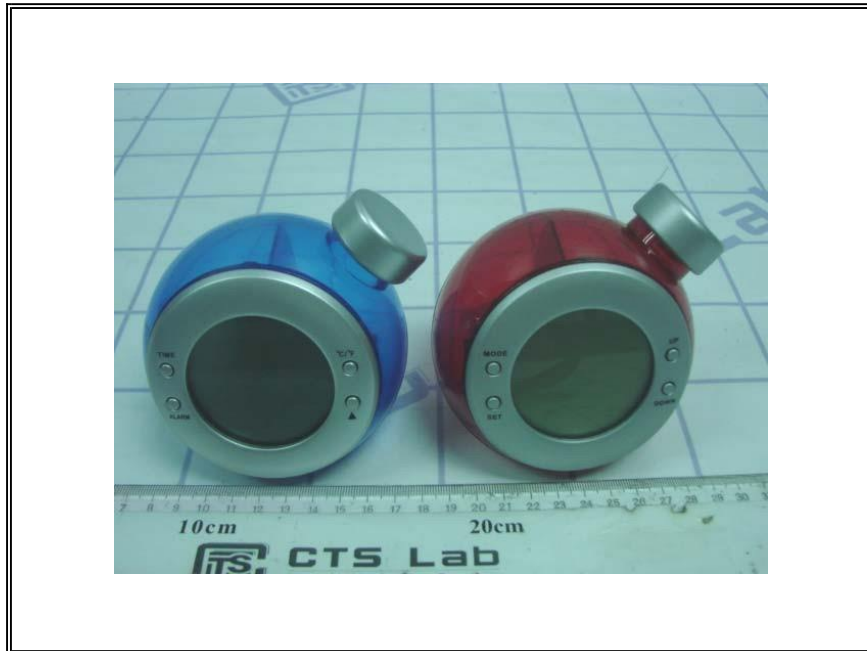
End of Report

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3 Sample Reference Photo



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