

Shenzhen Center for Analysis and Measurement of Material Surface

Test Report

Report No.: SAC2014-8456E

Date: Nov.19, 2014

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Customer :

Address :

Sample Information:

Sample Name : Bluetooth earphone

Sample Description : Please refer to the next page(s)

Model/P.O. No. : BTH-040, BTH-042, BTH-026

Trade mark : /

Item/Lot No. : /

Material : /

Buyer : /

Supplier :

Manufacturer : /

Received Date : Nov.13, 2014

Test Period : Nov.13, 2014~Nov.19, 2014

 Test Requested : As specified by customer, to screen Pb, Cd, Hg, Cr, Br content by XRF
 and test its accurate content with Chemical method.

Test Method:

Test Item	Test Method	Equipment	MDL
Pb, Cd, Hg, Cr, Br	IEC62321-3-1:2013	XRF	5mg/kg
Pb, Cd	IEC 62321-5:2013	ICP-OES	2mg/kg
Hg	IEC 62321-4:2013	ICP-OES	2mg/kg
Cr ⁶⁺	IEC62321:2008	UV-Vis	2mg/kg
PBBs, PBDEs	IEC62321:2008	GC-MS	5mg/kg

Test Result(s): Please refer to the following page(s)

Test Conclusion: To test according to the requirements of the customer, the test results of the sample shown
 in this report do not exceed the required limit of EU RoHS 2011/65/EU.

 Edited by: Jing

 Audited by: Allen

 Approved by: Sunny

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Test Result(s):

No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.1	Gray rubber sleeve (earphone head)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.2	White rubber sleeve (earphone head)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.3	Blue plastic cover (earphone head)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.4	Green plastic cover (earphone head)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.5	Grey plastic (earphone head)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.6	White plastic (earphone head)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.7	Blue/white earphone wire	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.8	Green/white earphone wire	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.9	Gray button	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.10	White button	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.11	Gray plastic shell (switch)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.12	White plastic shell (switch)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.13	Gray plastic cover (USB interface)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.14	White plastic cover (USB interface)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.15	Grey metal (USB interface)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P
No.16	Green PCB	Cd	D	N.D.	<100	P
		Cr(VI)	D	N.D.	<1000	P
		Hg	P	/	<1000	P
		Pb	D	N.D.	<1000	P
		PBBs	D	N.D.	<1000	P
		PBDEs	D	N.D.	<1000	P
No.17	Black inductance	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.18	SMD resistor	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.19	Black chip	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.20	Blue LED light	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.21	Solder tin	Cd	D	N.D.	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	D	N.D.	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P
No.22	Black cotton cushion (microphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.23	Black rubber sleeve (microphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.24	Yellow metal outer ring (microphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.25	Red PCB (microphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.26	Black plastic wire jacket (microphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.27	Red plastic wire jacket (microphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.28	Silver metal wire (microphone)	Cd	D	N.D.	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	D	N.D.	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P
No.29	Black rubber sleeve (earphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.30	Silver metal shell (earphone)	Cd	D	N.D.	<100	P
		Cr(VI)	D	Negative	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.31	Blue wire (earphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.32	Green wire (earphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.33	Red wire (earphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.34	Copper wire (earphone)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.35	Gray plastic base (battery)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.36	Gray battery	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.37	Green PCB	Cd	P	/	<100	P
		Cr(VI)	D	N.D.	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	D	N.D.	<1000	P
		PBDEs	D	N.D.	<1000	P
No.38	Silver metal	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P
No.39	Black inductance	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.40	White plastic	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.41	Yellow tape	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.42	Light yellow tape	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.43	Silver metal shell (USB connector)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P
No.44	White plastic (USB connector)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.45	Silver metal shell(USB connector)	Cd	D	N.D.	<100	P
		Cr(VI)	P	Negative	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P
No.46	White plastic (earphone connector)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.47	Black thick plastic wire jacket (data line)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.48	Black thin plastic wire jacket (data line)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P

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No.	Sample Name	Test Items	Results of XRF (P/F/D)	Results of testing (mg/kg)	Limit (mg/kg)	Conclusion (P/F)
No.49	Red thin plastic wire jacket (data line)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	P	/	<1000	P
		PBDEs	P	/	<1000	P
No.50	Yellow metal wire (data line)	Cd	P	/	<100	P
		Cr(VI)	P	/	<1000	P
		Hg	P	/	<1000	P
		Pb	P	/	<1000	P
		PBBs	/	/	<1000	P
		PBDEs	/	/	<1000	P

Remark:

(1) It is the result on total Br while test PBBs and PBDEs by XRF. It is the result on total Cr while test Hexavalent Chromium by XRF.

(2) Results are obtained by XRF for primary screening, and chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GCMS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321:2008 (unit: mg/kg).

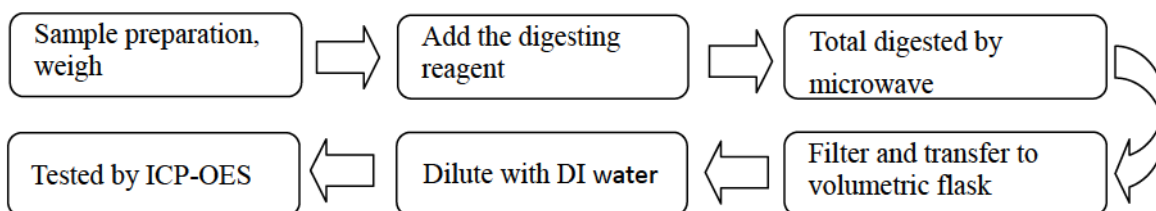
Element	Polymer	Metal	Composite Materials
Cd	$P \leq 70-3\sigma < D < 130+3\sigma \leq F$	$P \leq 70-3\sigma < D < 130+3\sigma \leq F$	$P \leq 50-3\sigma < D < 150+3\sigma \leq F$
Pb	$P \leq 700-3\sigma < D < 1300+3\sigma \leq F$	$P \leq 700-3\sigma < D < 1300+3\sigma \leq F$	$P \leq 500-3\sigma < D < 1500+3\sigma \leq F$
Hg	$P \leq 700-3\sigma < D < 1300+3\sigma \leq F$	$P \leq 700-3\sigma < D < 1300+3\sigma \leq F$	$P \leq 500-3\sigma < D < 1500+3\sigma \leq F$
Br	$P \leq 300-3\sigma < D$	----	$P \leq 250-3\sigma < D$
Cr	$P \leq 700-3\sigma < D$	$P \leq 700-3\sigma < D$	$P \leq 500-3\sigma < D$

P = PASS, F = FAIL, D = DETECTED

(3) mg/kg = ppm, N.D. = Not Detected (<MDL) Negative=Cr⁶⁺ Not Detected

Test Process:

1. Test Lead (Pb), Cadmium (Cd), Mercury(Hg) concentration for non-metallic samples:



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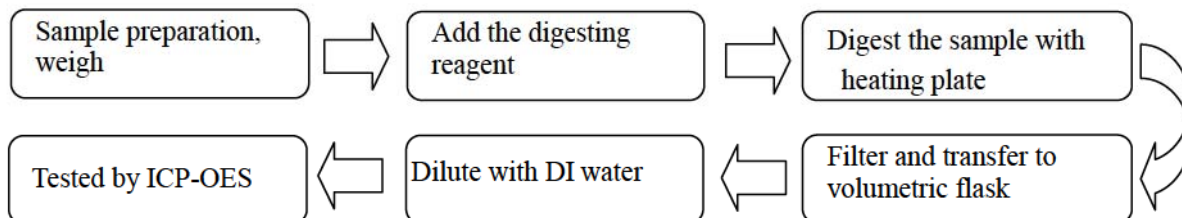
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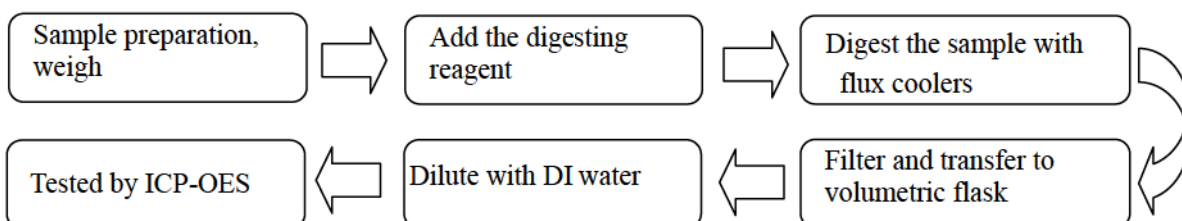
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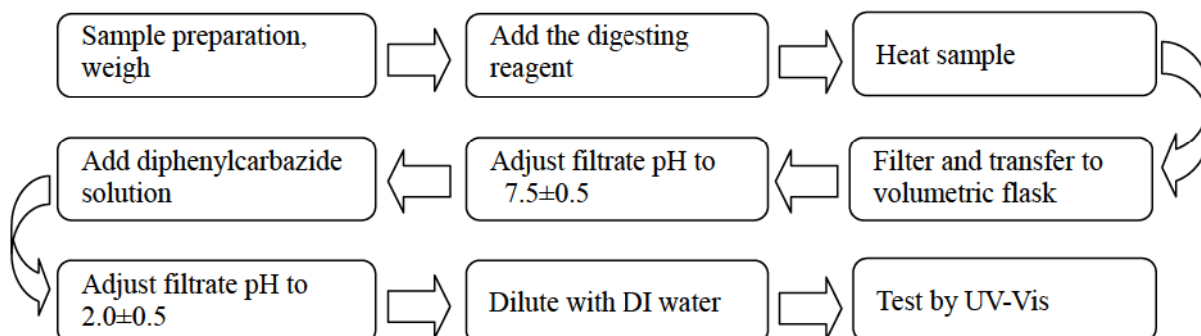
2. Test Lead(Pb), Cadmium(Cd) concentration for metallic samples:



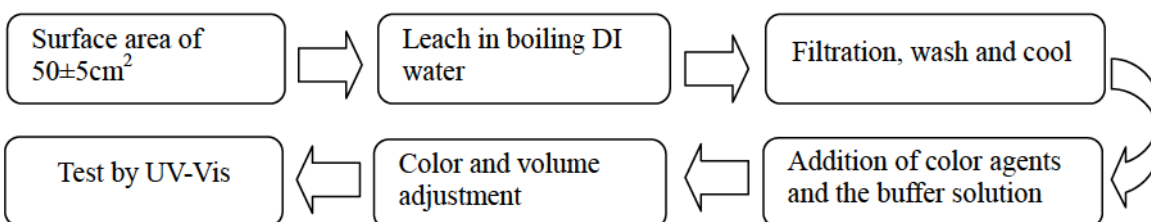
3. Test Mercury(Hg) concentration for metallic samples:



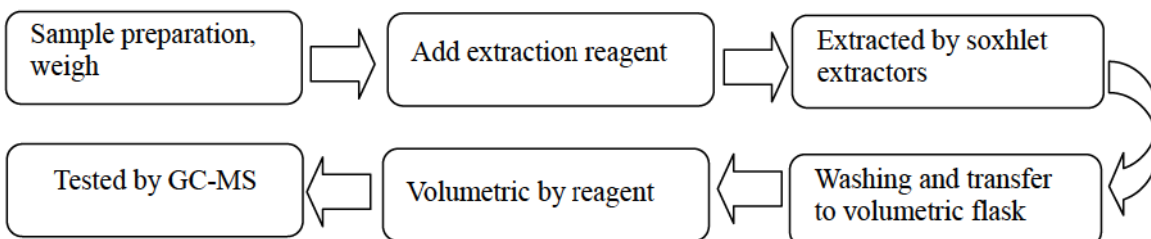
4. Test Hexavalent Chromium(Cr^{6+}) concentration for non-metallic samples:



5. Test Hexavalent Chromium(Cr^{6+}) concentration for metallic samples:



6. Test PBBs, PBDEs concentration:



—To be continued—

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Photo of the sample



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*** End of report ***

This report is invalid without the Special Seal of our Center. This report shall not be altered, increased or deleted. The results shown in this report refer only to the sample(s) tested.