Test Report

Applicant: Haven Technologies, Inc.

Contact information: 873 W Carmel Drive, Carmel, IN, 46032 USA

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

Sample Description	:	Wireless earbuds
Model No.	:	ISOtunes FREE Aware IT-15, ISOtunes FREE Aware IT-16, ISOtunes Sport CALIBER IT-17, ISOtunes Sport CALIBER IT-18, ISOtunes Sport CALIBER IT-24
Sample Received Date	:	Nov. 17, 2021
Testing Period	:	From Nov. 17, 2021 to Nov. 24, 2021
Test Request	:	Please refer to next page(s).
Test Result(s)	:	Please refer to next page(s).

Shen Zhen UONE Test Co., LTD.

Prepared by	Checked by	Approved by
Max Wu	Lin Zhu	Levent Liang

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Summary of test results:

TEST REQUEST	CONCLUSION
RoHS Directive 2011/65/EU and its subsequent amendments Directive (EU) 2015/863	
(1) To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs) content by screening test and chemical test	**PASS**
(2) To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test	**PASS**

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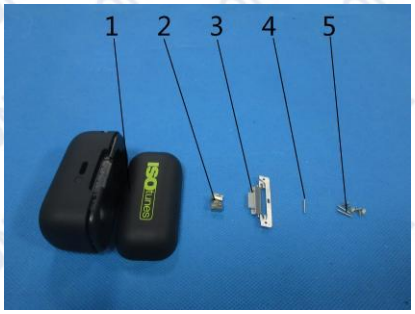
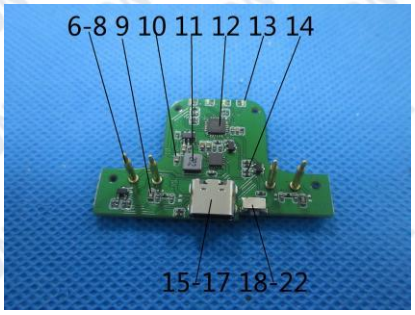
Test Material List

Material No.	Description (Location)	Photo(s) of tested materials
1	Black plastic with green print (shell)	
2	Silvery magnet block (shell)	
3	Silvery metal (hinge)	
4	Silvery metal (rod)	
5	Silvery metal (screw)	
6	Golden metal base (charging connector,PCB)	
7	Silvery metal spring (charging connector,PCB)	
8	Golden metal pin (charging connector,PCB)	
9	Black body (resistance,PCB)	
10	Brown body (capacitance,PCB)	
11	Black body (inductance,PCB)	
12	Black body (IC,PCB)	
13	Yellow body (LED,PCB)	
14	Black body (inductance,PCB)	
15	Silvery metal shell (type-c,PCB)	
16	Black plastic pin holder (type-c,PCB)	
17	Silvery metal pin (type-c,PCB)	
18	Black plastic button (button switch,PCB)	
19	Silvery metal sheet (button switch,PCB)	
20	White plastic shell (button switch,PCB)	
21	Silvery metal sheet (button switch,PCB)	
22	Silvery metal pin (button switch,PCB)	

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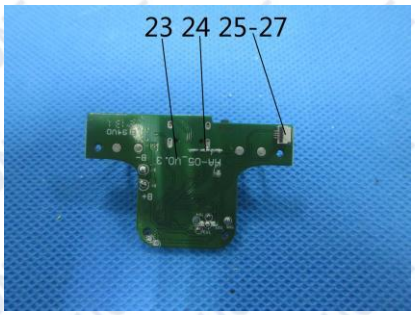
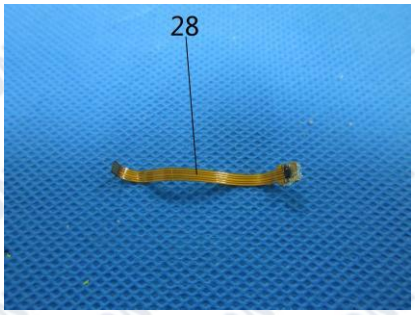
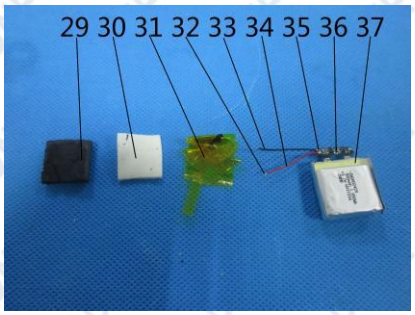
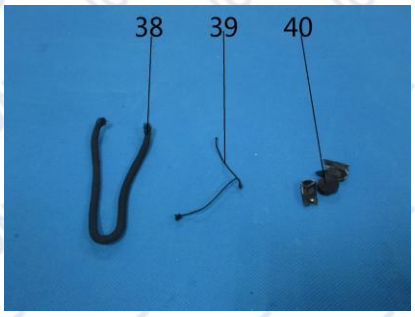
Material No.	Description (Location)	Photo(s) of tested materials
23	Green PCB	
24	Silvery solder (PCB)	
25	White plastic base (socket,PCB)	
26	Black plastic buckle (socket,PCB)	
27	Silvery metal pin (socket,PCB)	
28	Brown FPC	
29	Black foam with adhesive (battery)	
30	White foam with adhesive (battery)	
31	Yellow translucent plastic tape (battery)	
32	Silvery metal wire (battery)	
33	Black soft plastic wire jacket (battery)	
34	Red soft plastic wire jacket (battery)	
35	Silvery solder (battery)	
36	Black PCB (battery)	
37	Beige paper with adhesive (battery)	
38	Black cloth rope (lanyards)	
39	Black cloth rope (lanyards)	
40	Black plastic buckle (lanyards)	

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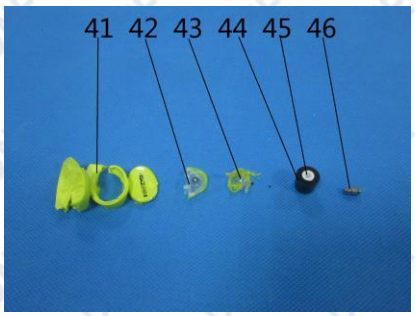
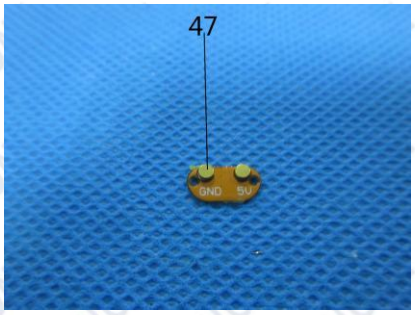
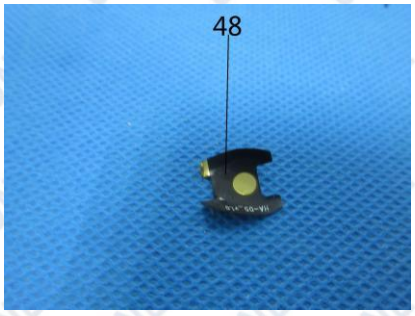
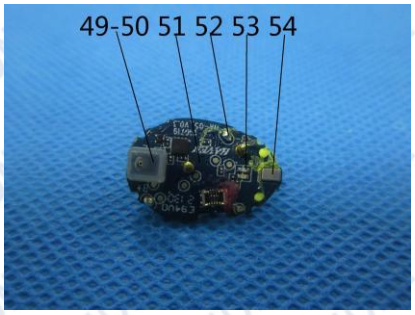
Material No.	Description (Location)	Photo(s) of tested materials
41	Yellow green plastic shell (earphone)	
42	Transparent plastic block (earphone)	
43	Yellow green translucent dry glue (earphone)	
44	Black foam (earplug)	
45	White soft plastic (earplug)	
46	Silvery metal (tube)	
47	Golden metal (charging connector)	
48	Black FPC	
49	White translucent soft plastic shell (EC,PCB)	
50	Black body (EC,PCB)	
51	Blue PCB	
52	Silvery solder (PCB)	
53	Transparent body (LED,PCB)	
54	Silvery body (crystal oscillator,PCB)	

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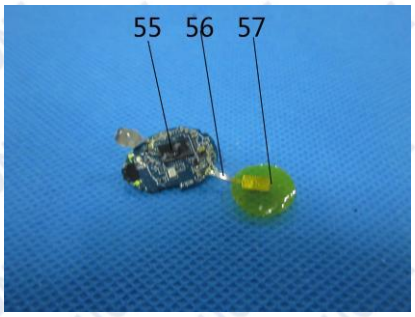
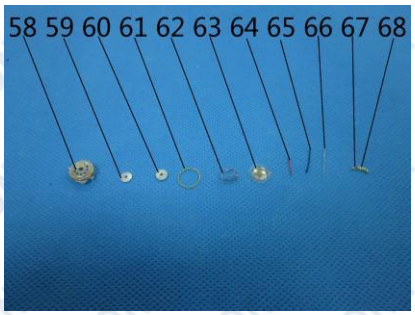
Material No.	Description (Location)	Photo(s) of tested materials
55	Black body (IC,PCB)	
56	Silvery metal sheet (PCB)	
57	Yellow translucent plastic tape (PCB)	
58	Silvery metal shell (speaker)	
59	Silvery metal gasket (speaker)	
60	Silvery magnet block (speaker)	
61	Golden metal ring (speaker)	
62	Coppery metal coil (speaker)	
63	Transparent plastic film (speaker)	
64	Red soft plastic wire jacket (speaker)	
65	Black soft plastic wire jacket (speaker)	
66	Silvery metal wire (speaker)	
67	Silvery solder (speaker)	
68	Green PCB (speaker)	

Test Result(s):

(1) Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)

Test Method: IEC62321-3-1: 2013, IEC62321-4: 2013+A1:2017, IEC62321-5: 2013, IEC62321-6: 2015,IEC 62321-7-1:2015, IEC 62321-7-2: 2017, analyzed by EDXRF & ICP-OES & GC-MS & UV-Vis.

No.	EDXRF Result (1)					Chemical Result (2) (mg/kg)	Remark(3)	Conclusion
	Pb	Cd	Hg	Cr	Br			
1	BL	BL	BL	BL	BL	—	—	PASS
2	BL	BL	BL	BL	BL	—	—	PASS
3	BL	BL	BL	BL	NA	—	—	PASS
4	BL	BL	BL	BL	NA	—	—	PASS
5	BL	BL	BL	BL	NA	—	—	PASS
6	OL	BL	BL	BL	NA	Pb: 29800#	Copper alloy	PASS
7	BL	BL	BL	BL	NA	—	—	PASS
8	OL	BL	BL	BL	NA	Pb: 28900#	Copper alloy	PASS
9	BL	BL	BL	BL	BL	—	—	PASS
10	BL	BL	BL	BL	BL	—	—	PASS
11	BL	BL	BL	BL	BL	—	—	PASS
12	BL	BL	BL	BL	BL	—	—	PASS
13	BL	BL	BL	BL	BL	—	—	PASS
14	BL	BL	BL	BL	BL	—	—	PASS
15	BL	BL	BL	BL	NA	—	—	PASS
16	BL	BL	BL	BL	BL	—	—	PASS
17	BL	BL	BL	BL	NA	—	—	PASS
18	BL	BL	BL	BL	BL	—	—	PASS
19	BL	BL	BL	BL	NA	—	—	PASS
20	BL	BL	BL	BL	BL	—	—	PASS
21	BL	BL	BL	BL	NA	—	—	PASS
22	BL	BL	BL	BL	NA	—	—	PASS

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No.	EDXRF Result (1)					Chemical Result (2) (mg/kg)	Remark(3)	Conclusion
	Pb	Cd	Hg	Cr	Br			
23	BL	BL	BL	BL	X	PBBs: N.D. PBDEs: N.D.	—	PASS
24	BL	BL	BL	BL	NA	—	—	PASS
25	BL	BL	BL	BL	BL	—	—	PASS
26	BL	BL	BL	BL	BL	—	—	PASS
27	BL	BL	BL	BL	NA	—	—	PASS
28	BL	BL	BL	BL	BL	—	—	PASS
29	BL	BL	BL	BL	BL	—	—	PASS
30	BL	BL	BL	BL	BL	—	—	PASS
31	BL	BL	BL	BL	BL	—	—	PASS
32	BL	BL	BL	BL	NA	—	—	PASS
33	BL	BL	BL	BL	BL	—	—	PASS
34	BL	BL	BL	BL	BL	—	—	PASS
35	BL	BL	BL	BL	NA	—	—	PASS
36	BL	BL	BL	BL	X	PBBs: N.D. PBDEs: N.D.	—	PASS
37	BL	BL	BL	BL	BL	—	—	PASS
38	BL	BL	BL	BL	BL	—	—	PASS
39	BL	BL	BL	BL	BL	—	—	PASS
40	BL	BL	BL	BL	BL	—	—	PASS
41	BL	BL	BL	BL	BL	—	—	PASS
42	BL	BL	BL	BL	BL	—	—	PASS
43	BL	BL	BL	BL	BL	—	—	PASS
44	BL	BL	BL	BL	BL	—	—	PASS
45	BL	BL	BL	BL	BL	—	—	PASS
46	OL	X	BL	BL	NA	Pb: 26800# Cd: 36	Copper alloy	PASS
47	BL	BL	BL	BL	NA	—	—	PASS
48	BL	BL	BL	BL	BL	—	—	PASS

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No.	EDXRF Result (1)					Chemical Result (2) (mg/kg)	Remark(3)	Conclusion
	Pb	Cd	Hg	Cr	Br			
49	BL	BL	BL	BL	BL	—	—	PASS
50	BL	BL	BL	BL	BL	—	—	PASS
51	BL	BL	BL	BL	X	PBBs: N.D. PBDEs: N.D.	—	PASS
52	BL	BL	BL	BL	NA	—	—	PASS
53	BL	BL	BL	BL	BL	—	—	PASS
54	BL	BL	BL	BL	BL	—	—	PASS
55	BL	BL	BL	BL	BL	—	—	PASS
56	BL	BL	BL	BL	NA	—	—	PASS
57	BL	BL	BL	BL	BL	—	—	PASS
58	BL	BL	BL	BL	NA	—	—	PASS
59	BL	BL	BL	BL	NA	—	—	PASS
60	BL	BL	BL	BL	BL	—	—	PASS
61	BL	BL	BL	BL	NA	—	—	PASS
62	BL	BL	BL	BL	NA	—	—	PASS
63	BL	BL	BL	BL	BL	—	—	PASS
64	BL	BL	BL	BL	BL	—	—	PASS
65	BL	BL	BL	BL	BL	—	—	PASS
66	BL	BL	BL	BL	NA	—	—	PASS
67	BL	BL	BL	BL	NA	—	—	PASS
68	BL	BL	BL	BL	BL	—	—	PASS

Remark:

(1) ①Results are obtained by EDXRF for primary screening, and further wet chemical testing by ICP-OES (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if an inconclusive result was found (as "X" in below table) (unit: mg/kg).

②OL = Over Limit, BL = Below Limit, X = Inconclusive, NA = Not Applicable.

③The EDXRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

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

Units and limits in EU RoHS Directive 2011/65/EU:

Element	Pb	Cd	Hg	Cr(VI)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Limit	1000	100	1000	1000	1000	1000

(2) ① mg/kg = ppm = 0.0001%, N.D. = Not Detected (Less than MDL).

②Unit and MDL (Method detection limit) in wet chemical test.

Element	Pb	Cd	Hg	Cr(VI)	PBBs(single)	PBDEs(single)
Unit	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MDL	2	2	2	8	5	5

③According to IEC 62321-7-1:2015, result on Cr(VI) for metal sample is shown as Positive/Negative.
Negative = Absence of Cr(VI) coating, Positive = Presence of Cr(VI) coating.
Storage condition and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

④ According to IEC 62321-3-1:2013, this column represents the results of wet chem test.

(3) This column represents the exempted decoration of material or other related testing sample's information.
According to the declaration from the client, Lead in specimen(s) is exempted by RoHS Directive (2011/65 / EU) annex III and its amendment base on:

Copper alloy containing up to 4 % lead by weight.

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(2) Phthalates (DBP, BBP, DEHP, DIBP) content

Test Method: IEC 62321-8: 2017, analyzed by gas chromatographic- mass spectrometer (GC-MS).

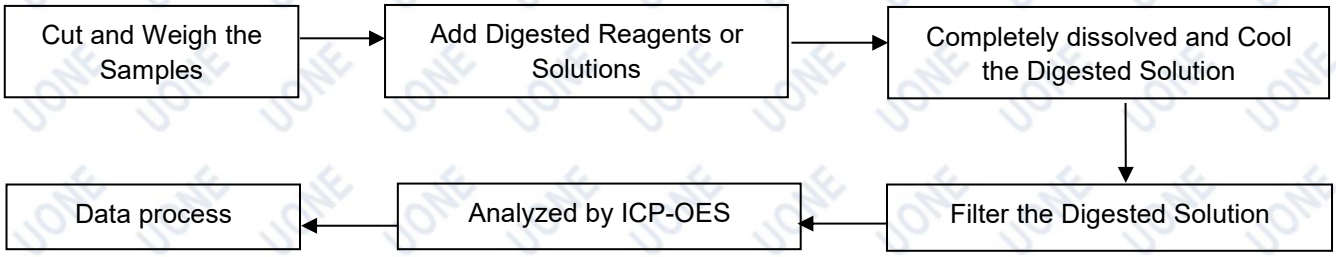
Substances	DBP	BBP	DEHP	DIBP	Conclusion
CAS No.	84-74-2	85-68-7	117-81-7	84-69-5	
Limit (mg/kg)	1000	1000	1000	1000	
MDL (mg/kg)	20	20	20	20	
Material No.	Result (mg/kg)				
1	N.D.	N.D.	N.D.	N.D.	PASS
2	N.D.	N.D.	N.D.	N.D.	PASS
9	N.D.	N.D.	N.D.	N.D.	PASS
10	N.D.	N.D.	N.D.	N.D.	PASS
11	N.D.	N.D.	N.D.	N.D.	PASS
12	N.D.	N.D.	N.D.	N.D.	PASS
13	N.D.	N.D.	N.D.	N.D.	PASS
14	N.D.	N.D.	N.D.	N.D.	PASS
16	N.D.	N.D.	N.D.	N.D.	PASS
18	N.D.	N.D.	N.D.	N.D.	PASS
20	N.D.	N.D.	N.D.	N.D.	PASS
23	N.D.	N.D.	N.D.	N.D.	PASS
25	N.D.	N.D.	N.D.	N.D.	PASS
26	N.D.	N.D.	N.D.	N.D.	PASS
28	N.D.	N.D.	N.D.	N.D.	PASS
29	N.D.	N.D.	N.D.	N.D.	PASS
30	N.D.	N.D.	N.D.	N.D.	PASS
31	N.D.	N.D.	N.D.	N.D.	PASS
33	N.D.	N.D.	111	N.D.	PASS
34	N.D.	N.D.	81	N.D.	PASS
36	N.D.	N.D.	N.D.	N.D.	PASS

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	
MDL (mg/kg)	20	20	20	20	
Material No.	Result (mg/kg)				
37	N.D.	N.D.	N.D.	N.D.	PASS
38	N.D.	N.D.	N.D.	N.D.	PASS
39	N.D.	N.D.	N.D.	N.D.	PASS
40	N.D.	N.D.	N.D.	N.D.	PASS
41	N.D.	N.D.	N.D.	N.D.	PASS
42	N.D.	N.D.	N.D.	N.D.	PASS
43	N.D.	N.D.	N.D.	N.D.	PASS
44	N.D.	N.D.	N.D.	N.D.	PASS
45	N.D.	N.D.	N.D.	N.D.	PASS
48	N.D.	N.D.	N.D.	N.D.	PASS
49	N.D.	N.D.	N.D.	N.D.	PASS
50	N.D.	N.D.	N.D.	N.D.	PASS
51	N.D.	N.D.	N.D.	N.D.	PASS
53	N.D.	N.D.	N.D.	N.D.	PASS
54	N.D.	N.D.	N.D.	N.D.	PASS
55	N.D.	N.D.	N.D.	N.D.	PASS
57	N.D.	N.D.	N.D.	N.D.	PASS
60	N.D.	N.D.	N.D.	N.D.	PASS
63	N.D.	N.D.	N.D.	N.D.	PASS
64	N.D.	N.D.	N.D.	N.D.	PASS
65	N.D.	N.D.	N.D.	N.D.	PASS
68	N.D.	N.D.	N.D.	N.D.	PASS

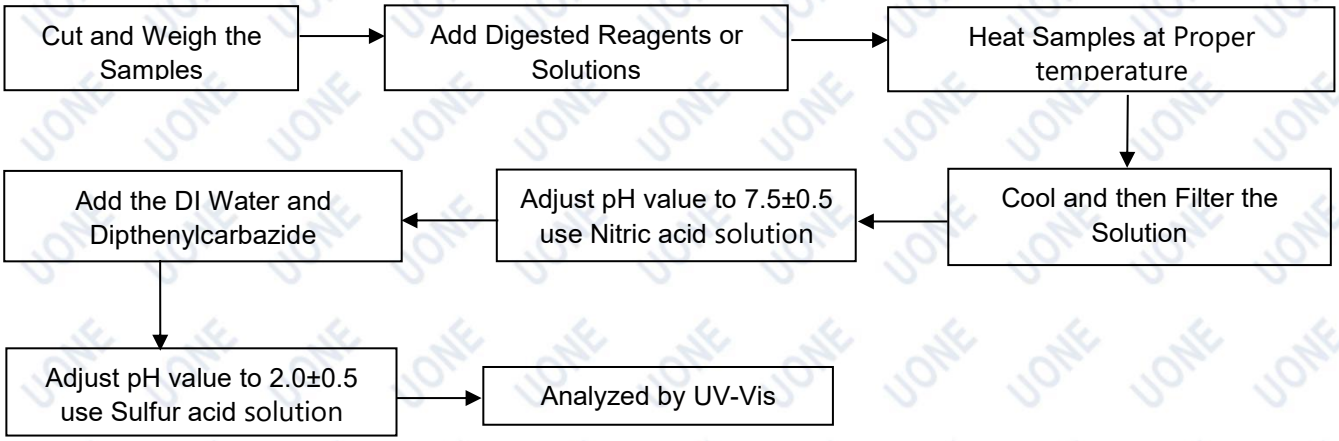
Note:
1. mg/kg = milligram per kilogram (ppm).
2. MDL= method detection limit.
3. N.D.=not detected(less than MDL).

Test Process Flow

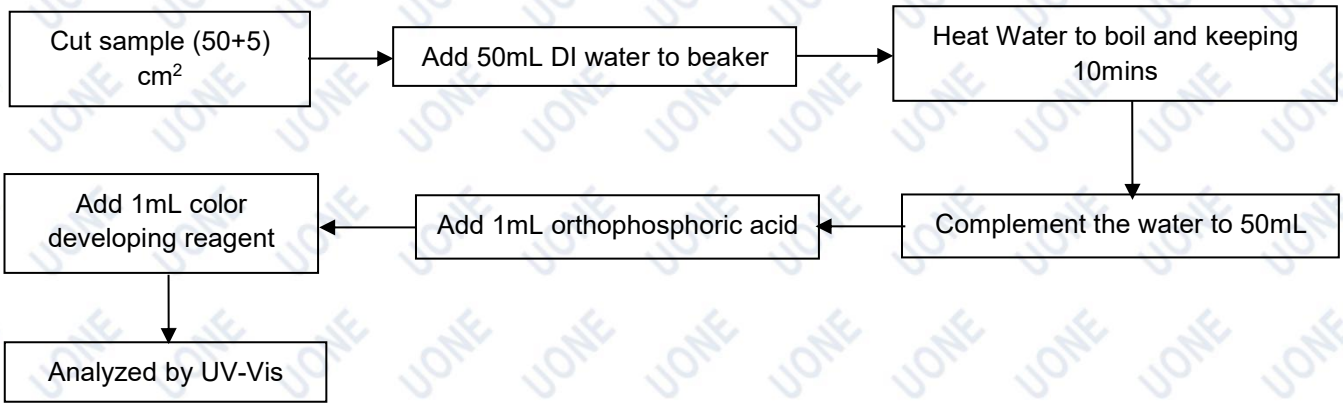
1. Lead, Cadmium, Mercury



2. Hexavalent Chromium (Non-metal)



Hexavalent Chromium (Metal)



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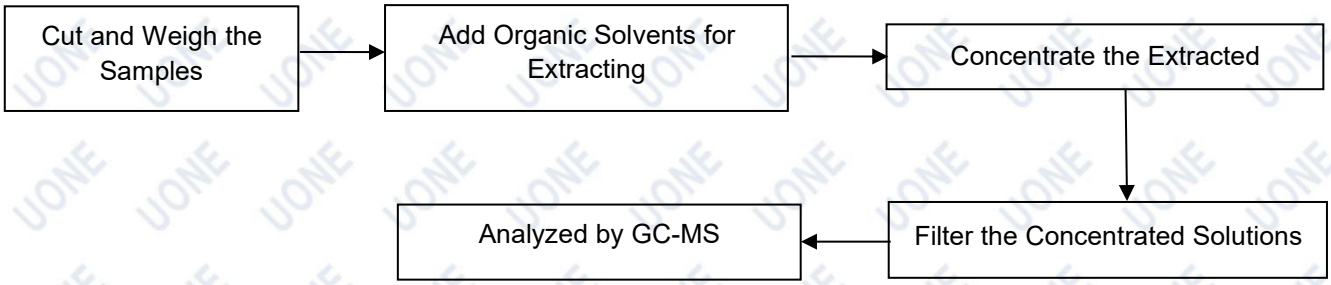
Test Process Flow (Continued):

3. PBBs & PBDEs, Phthalates



Photo(s) of Sample:

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