

Test Report

Report No.: U00905210924606E

Query Password: QW5231

Date: Sep. 28, 2021

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Applicant: Dongguan YINYAN Electric Tech.LTD**Contact information:** EMAX Industrial Park, Gao-long Industrial Zone, Huanzhuli Village, Changping Town, Dongguan City, Guangdong Province, China**The following sample(s) was (were) submitted and identified by client as:**

Sample Name : EMAX E8 Transmitter
Model No. : EMAX E8 Transmitter
Trade mark : EMAX
Manufacturer : Dongguan YINYAN Electric Tech.LTD
Address : EMAX Industrial Park, Gao-long Industrial Zone, Huanzhuli Village, Changping Town, Dongguan City, Guangdong Province, China
Sample Received Date : Sep. 24, 2021
Testing Period : From Sep. 24, 2021 to Sep. 28, 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



Max Wu

Checked by



Lin Zhu

Approved by



Levent Liang

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Summary of test results:**TEST REQUEST**

RoHS Directive 2011/65/EU and its subsequent amendments Directive (EU) 2015/863

To determine Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)),

(1) Polybrominated Biphenyls (PBBs) and Polybrominated DiphenylEthers (PBDEs)
content by screening test and chemical test

(2) To determine Phthalates (DBP, BBP, DEHP, DIBP) content by chemical test

CONCLUSION**PASS****PASS**

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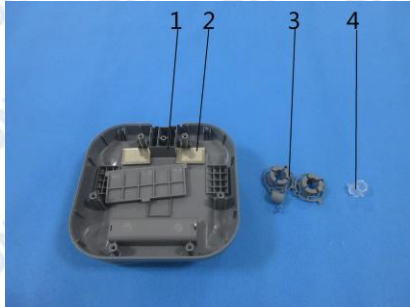

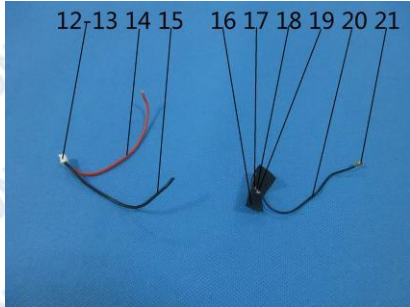
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Test Material List

Material No.	Description (Location)	Photo(s) of tested materials
1	Brown plastic(shell)	
2	Silvery metal sheet	
3	Brown plastic(button)	
4	Translucent plastic(fixed)	
5	Silvery metal with black coating(screw)	
6	Silvery metal(nut)	
7	Silvery metal(screw)	
8	Silvery metal(screw)	
9	Silvery metal(connector)	
10	Silvery metal(spring)	
11	Translucent plastic(nut)	
12	White plastic(terminal holder)	
13	Silvery metal(terminal)	
14	Red soft plastic(wire jacket)	
15	Black soft plastic(wire jacket)	
16	Black FPC	
17	Silvery metal(solder)	
18	Translucent soft plastic(wire jacket)	
19	Silvery metal(wire)	
20	Black soft plastic(wire jacket)	
21	Gold metal(terminal)	

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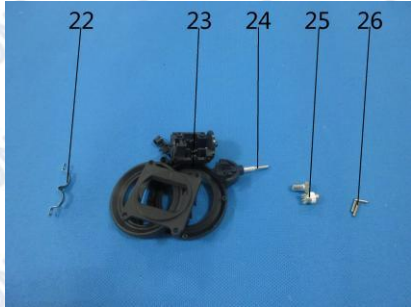
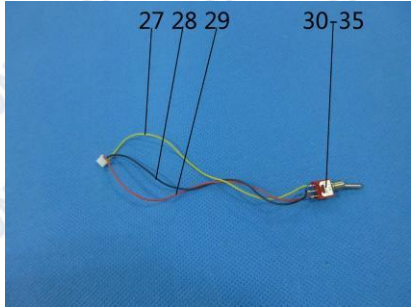
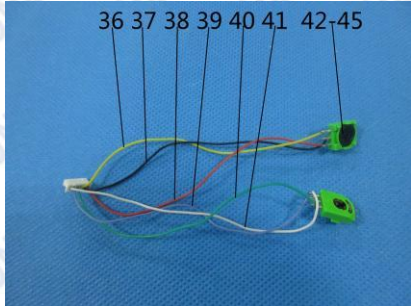
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Material No.	Description (Location)	Photo(s) of tested materials
22	Silvery metal(connector)	
23	Gray plastic(shell)	
24	Silvery metal(axle)	
25	Silvery metal(nut)	
26	Silvery metal(axle)	
27	Yellow soft plastic(wire jacket)	
28	Black soft plastic(wire jacket)	
29	Red soft plastic(wire jacket)	
30	Silvery metal(button,switch)	
31	Silvery metal(shell,switch)	
32	Silvery metal(axle,motor)	
33	Black plastic(fixed,switch)	
34	Silvery metal(connector,switch)	
35	Silvery metal(pedestal,switch)	
36	Yellow soft plastic(wire jacket)	
37	Black soft plastic(wire jacket)	
38	Red soft plastic(wire jacket)	
39	Blue soft plastic(wire jacket)	
40	Green soft plastic(wire jacket)	
41	White soft plastic(wire jacket)	
42	Green plastic(pedestal)	
43	Black plastic(fixed)	
44	Brown PCB	
45	Silvery metal(connector)	

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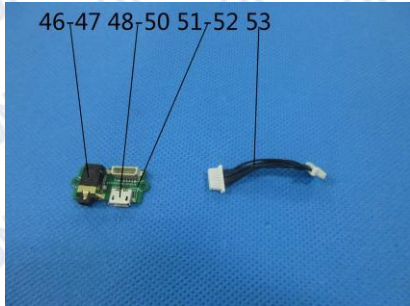
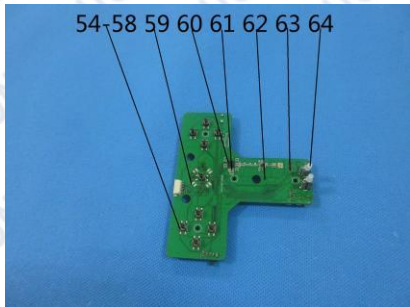
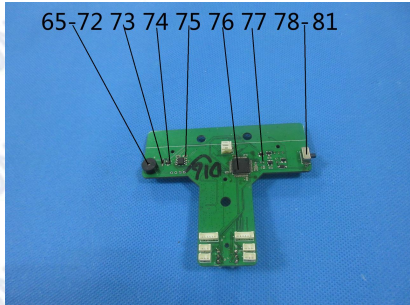
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Material No.	Description (Location)	Photo(s) of tested materials
46	Black plastic(power socket)	 <p>46-47 48-50 51-52 53</p>
47	Gold metal(connector)	
48	Silvery metal(socket)	
49	Black plastic(fixed)	
50	Silvery metal(pin)	
51	Green PCB	
52	Silvery metal(solder)	
53	Black soft plastic(wire jacket)	
54	Black plastic(button,switch)	 <p>54-58 59 60 61 62 63 64</p>
55	Silvery metal(shell,switch)	
56	Silvery metal sheet(switch)	
57	Silvery metal(connector,switch)	
58	Black plastic(pedestal,switch)	
59	White body(LED)	
60	Black body(IC)	
61	Silvery body(crystal)	
62	Green PCB	
63	Silvery metal(solder)	
64	Translucent body(LED)	
65	Black plastic(shell, buzzer)	 <p>65-72 73 74 75 76 77 78-81</p>
66	Black magnet(core, buzzer)	
67	Silvery metal(foil, buzzer)	
68	Silvery metal(contact, buzzer)	
69	Silvery metal(bobbin, buzzer)	
70	Coppery metal(coil, buzzer)	
71	Green micro PCB(buzzer)	
72	Silvery solder(PCB, buzzer)	
73	Black body(diode)	

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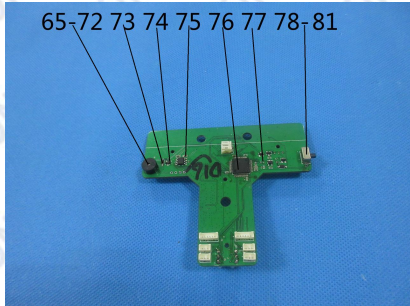
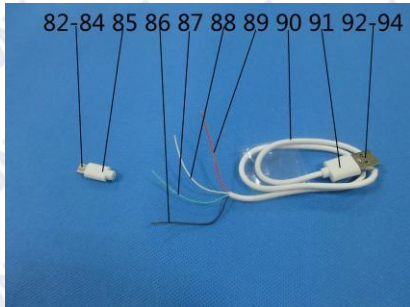
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Material No.	Description (Location)	Photo(s) of tested materials
74	Black body(triode)	
75	Brown body(capacitor)	
76	Black body(IC)	
77	Black body(resistor)	
78	Black plastic(button,switch)	
79	Silvery metal(shell,switch)	
80	Silvery metal(connector,switch)	
81	Brown PCB(switch)	
82	Silvery metal(plug)	
83	Black plastic(fixed)	
84	Silvery metal(pin)	
85	White plastic(handle)	
86	Black soft plastic(wire jacket)	
87	Green soft plastic(wire jacket)	
88	White soft plastic(wire jacket)	
89	Red soft plastic(wire jacket)	
90	White soft plastic(wire jacket)	
91	White plastic(handle)	
92	Silvery metal(USB plug)	
93	White plastic(fixed)	
94	Silvery metal(pin)	

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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	X	PBBs: N.D. PBDEs: N.D.	—	PASS
2	BL	BL	BL	BL	NA	—	—	PASS
3	BL	BL	BL	BL	BL	—	—	PASS
4	BL	BL	BL	BL	BL	—	—	PASS
5	BL	BL	BL	BL	NA	—	—	PASS
6	BL	BL	BL	BL	NA	—	—	PASS
7	BL	BL	BL	BL	NA	—	—	PASS
8	BL	BL	BL	BL	NA	—	—	PASS
9	BL	BL	BL	BL	NA	—	—	PASS
10	BL	BL	BL	BL	NA	—	—	PASS
11	BL	BL	BL	BL	BL	—	—	PASS
12	BL	BL	BL	BL	BL	—	—	PASS
13	BL	BL	BL	BL	NA	—	—	PASS
14	BL	BL	BL	BL	BL	—	—	PASS
15	BL	BL	BL	BL	BL	—	—	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	BL	—	—	PASS
24	BL	BL	BL	BL	NA	—	—	PASS
25	BL	BL	BL	BL	NA	—	—	PASS
26	BL	BL	BL	BL	NA	—	—	PASS
27	BL	BL	BL	BL	BL	—	—	PASS
28	BL	BL	BL	BL	BL	—	—	PASS
29	BL	BL	BL	BL	BL	—	—	PASS
30	BL	BL	BL	BL	NA	—	—	PASS
31	BL	BL	BL	BL	NA	—	—	PASS
32	BL	BL	BL	BL	NA	—	—	PASS
33	BL	BL	BL	BL	BL	—	—	PASS
34	BL	BL	BL	BL	NA	—	—	PASS
35	BL	BL	BL	BL	NA	—	—	PASS
36	BL	BL	BL	BL	BL	—	—	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	NA	—	—	PASS
46	BL	BL	BL	BL	BL	—	—	PASS
47	BL	BL	BL	BL	NA	—	—	PASS
48	BL	BL	BL	BL	NA	—	—	PASS
49	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			
50	BL	BL	BL	BL	NA	—	—	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	NA	—	—	PASS
56	BL	BL	BL	BL	NA	—	—	PASS
57	BL	BL	BL	BL	NA	—	—	PASS
58	BL	BL	BL	BL	BL	—	—	PASS
59	BL	BL	BL	BL	BL	—	—	PASS
60	BL	BL	BL	BL	BL	—	—	PASS
61	BL	BL	BL	BL	BL	—	—	PASS
62	BL	BL	BL	BL	X	PBBs: N.D. PBDEs: N.D.	—	PASS
63	BL	BL	BL	BL	NA	—	—	PASS
64	BL	BL	BL	BL	BL	—	—	PASS
65	BL	BL	BL	BL	BL	—	—	PASS
66	BL	BL	BL	BL	BL	—	—	PASS
67	BL	BL	BL	BL	NA	—	—	PASS
68	BL	BL	BL	BL	NA	—	—	PASS
69	BL	BL	BL	BL	NA	—	—	PASS
70	BL	BL	BL	BL	NA	—	—	PASS
71	BL	BL	BL	BL	BL	—	—	PASS
72	BL	BL	BL	BL	BL	—	—	PASS
73	BL	BL	BL	BL	BL	—	—	PASS
74	BL	BL	BL	BL	BL	—	—	PASS
75	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			
76	BL	BL	BL	BL	BL	—	—	PASS
77	BL	BL	BL	BL	BL	—	—	PASS
78	BL	BL	BL	BL	BL	—	—	PASS
79	BL	BL	BL	BL	NA	—	—	PASS
80	BL	BL	BL	BL	NA	—	—	PASS
81	BL	BL	BL	BL	BL	—	—	PASS
82	BL	BL	BL	BL	NA	—	—	PASS
83	BL	BL	BL	BL	BL	—	—	PASS
84	BL	BL	BL	BL	NA	—	—	PASS
85	BL	BL	BL	BL	BL	—	—	PASS
86	BL	BL	BL	BL	BL	—	—	PASS
87	BL	BL	BL	BL	BL	—	—	PASS
88	BL	BL	BL	BL	BL	—	—	PASS
89	BL	BL	BL	BL	BL	—	—	PASS
90	BL	BL	BL	BL	BL	—	—	PASS
91	BL	BL	BL	BL	BL	—	—	PASS
92	BL	BL	BL	BL	NA	—	—	PASS
93	BL	BL	BL	BL	BL	—	—	PASS
94	BL	BL	BL	BL	NA	—	—	PASS

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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	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	NA	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

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.

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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
3	N.D.	N.D.	N.D.	N.D.	PASS
4	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
14	N.D.	N.D.	N.D.	N.D.	PASS
15	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
27	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
33	N.D.	N.D.	N.D.	N.D.	PASS
36	N.D.	N.D.	N.D.	N.D.	PASS
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

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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)				
43	N.D.	N.D.	N.D.	N.D.	PASS
44	N.D.	N.D.	N.D.	N.D.	PASS
46	N.D.	N.D.	N.D.	N.D.	PASS
49	N.D.	N.D.	N.D.	N.D.	PASS
51	N.D.	N.D.	N.D.	N.D.	PASS
53	303	N.D.	N.D.	N.D.	PASS
54	N.D.	N.D.	N.D.	N.D.	PASS
58	N.D.	N.D.	N.D.	N.D.	PASS
59	N.D.	N.D.	N.D.	N.D.	PASS
60	N.D.	N.D.	N.D.	N.D.	PASS
61	N.D.	N.D.	N.D.	N.D.	PASS
62	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
66	N.D.	N.D.	N.D.	N.D.	PASS
71	N.D.	N.D.	N.D.	N.D.	PASS
72	N.D.	N.D.	N.D.	N.D.	PASS
73	N.D.	N.D.	N.D.	N.D.	PASS
74	N.D.	N.D.	N.D.	N.D.	PASS
75	N.D.	N.D.	N.D.	N.D.	PASS
76	N.D.	N.D.	N.D.	N.D.	PASS
77	N.D.	N.D.	N.D.	N.D.	PASS
78	N.D.	N.D.	N.D.	N.D.	PASS
81	N.D.	N.D.	N.D.	N.D.	PASS

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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)				
83	N.D.	N.D.	N.D.	N.D.	PASS
85	N.D.	N.D.	N.D.	N.D.	PASS
86	N.D.	N.D.	N.D.	N.D.	PASS
87	N.D.	N.D.	N.D.	N.D.	PASS
88	N.D.	N.D.	N.D.	N.D.	PASS
89	N.D.	N.D.	N.D.	N.D.	PASS
90	N.D.	N.D.	N.D.	N.D.	PASS
91	N.D.	N.D.	N.D.	N.D.	PASS
93	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).

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Test Report

Report No.: U00905210924606E

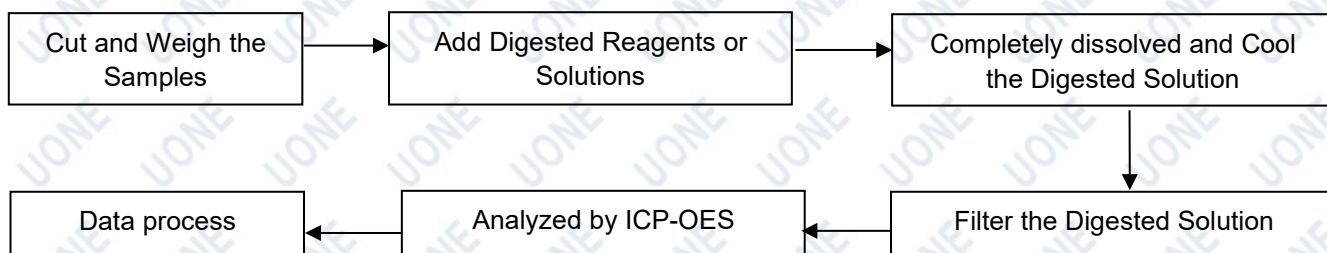
Query Password: QW5231

Date: Sep. 28, 2021

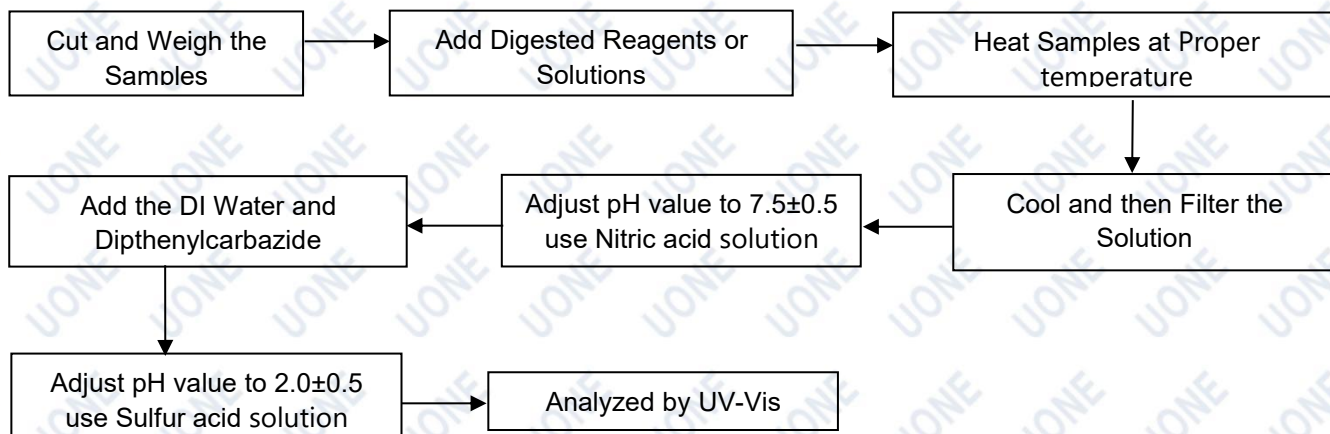
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Test Process Flow

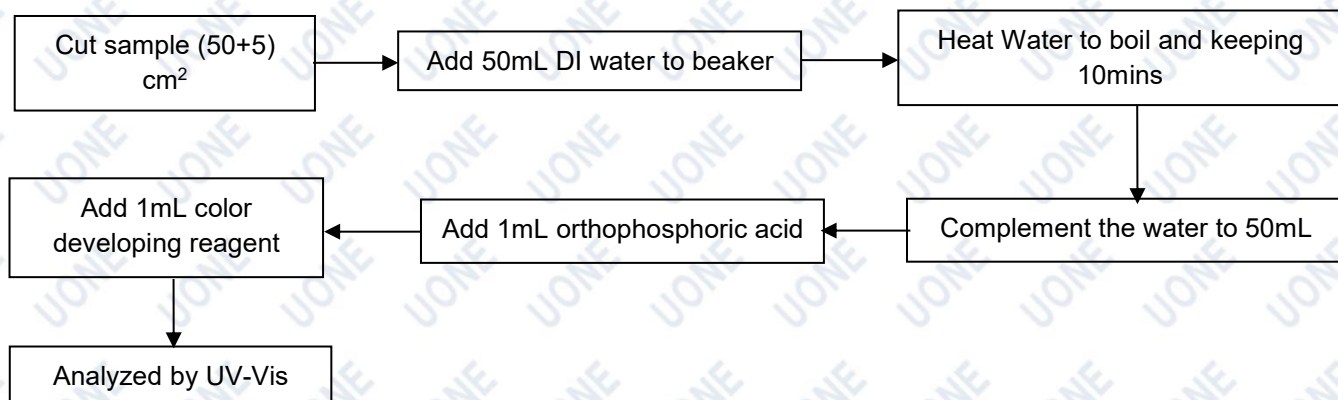
1. Lead, Cadmium, Mercury



2. Hexavalent Chromium (Non-metal)



Hexavalent Chromium (Metal)



This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

Test Report

Report No.: U00905210924606E

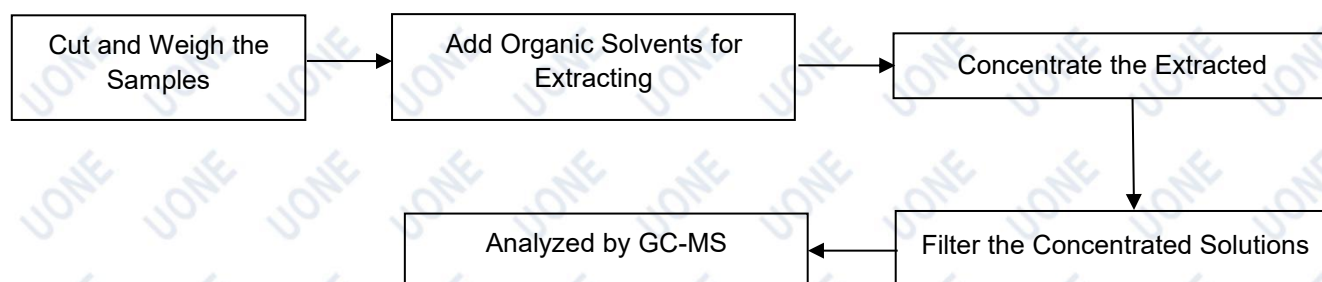
Query Password: QW5231

Date: Sep. 28, 2021

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Test Process Flow (Continued):

3. PBBs & PBDEs, Phthalates

**Photo(s) of Sample:*******End of Report*****

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