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国际互认
检测
TESTING
CNAS L5772

Test Report

Report No.: PTC18120400101C-EN01

Issue Date: Dec. 25, 2018

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Applicant: RAY-TECH International Limited

Address: Block A,2013 Culture Maker Park, Henggang,Shenzhen,China

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

Sample Name: LILEAD Easy to start

Model: Auto Starter

Number of samples: 5 sets

Manufacturer: RAY-TECH International Limited

Address: Block A,2013 Culture Maker Park, Henggang,Shenzhen,China

Sample Received Date: Dec. 18, 2018

Completed Date: Dec. 25, 2018

Test Requested and Conclusion(s):

No.	Test Sample	Standard and Requirement	Conclusion(s)
1	Submitted sample	RoHS Directive 2011/65/EU and its subsequent amendments regulation EU No.2015/863. - Lead (Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr ⁶⁺), PBBs and PBDEs, Phthalates (DBP, BBP,DEHP,DIBP)	PASS

Test Result(s): Please refer to next page(s).

Signed for and on Behalf of PTC



Raul Cheng / P & C Department General Manager
DongGuan Precise Testing and Certification Corp. Ltd.

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Test Result(s):

RoHS - Lead (Pb)/Cadmium(Cd)/Mercury(Hg)/Hexavalent Chromium(Cr⁶⁺)/PBBs/PBDEs

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

No.	Material Description	EDXRF Result					Chemical Result (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
1	Black plastic with red printing(shell)	BL	BL	BL	BL	BL	--	PASS
2	Silvery metal(metal piece)	BL	BL	BL	BL	--	--	PASS
3	Silvery metal(gasket)	BL	BL	BL	BL	--	--	PASS
4	Coppery metal(core)	BL	BL	BL	BL	--	--	PASS
5	White plastic(sleeve)	BL	BL	BL	BL	BL	--	PASS
6	Blue PCB(PCB"Bluetoot")	BL	BL	BL	BL	OL	PBBs:N.D. PBDEs:N.D.	PASS
7	Black body(chip capacitor)	BL	BL	BL	BL	BL	--	PASS
8	Black body(IC)	BL	BL	BL	BL	BL	--	PASS
9	Black body (diode)	BL	BL	BL	BL	BL	--	PASS
10	Black body with white printing(chip resistor)	BL	BL	BL	BL	BL	--	PASS
11	White plastic(socket)	BL	BL	BL	BL	BL	--	PASS
12	Silvery metal(pin)	BL	BL	BL	BL	--	--	PASS
13	Black body(K1)	BL	BL	BL	BL	BL	--	PASS
14	Blue plastic(switch button)	BL	BL	BL	BL	BL	--	PASS

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No.	Material Description	EDXRF Result					Chemical Result (mg/kg)	Conclusion
		Pb	Cd	Hg	Cr	Br		
15	Silvery metal(switch gasket)	BL	BL	BL	BL	--	--	PASS
16	Black plastic(switch shell)	BL	BL	BL	BL	BL	--	PASS
17	White plastic(switch shell)	BL	BL	BL	BL	BL	--	PASS
18	Silvery metal(foil)	BL	BL	BL	BL	--	--	PASS
19	Silvery solder(PCB"Bluetooth")	361	BL	BL	BL	--	--	PASS
20	Black plastic with white printing(wire)	BL	BL	BL	BL	BL	--	PASS
21	Silvery metal(terminal)	BL	BL	BL	BL	--	--	PASS
22	White paper with red printing(terminal)	BL	BL	BL	BL	BL	--	PASS
23	Silvery metal(shrapnel)	BL	BL	BL	BL	--	--	PASS
24	Black plastic with glue(terminal)	BL	BL	BL	BL	BL	--	PASS
25	Silvery metal(screw)	BL	BL	BL	BL	--	--	PASS
26	Black plastic (Electrical line)	BL	BL	BL	BL	--	--	PASS
27	Silvery metal (plug)	BL	BL	BL	BL	--	--	PASS

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- Note:**
1. mg/kg = milligram per kilogram (ppm).
 2. N.D. = Not Detected (<RL).
 3. Negative = Absence of Cr⁶⁺.
 4. Positive = Presence of Cr⁶⁺: the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² sample surface area.
 5. The result are obtained by EDXRF for primary screening, if the result exceeds the below limit (BL), and further chemical testing.

Screening limits in mg/kg for regulated elements in various matrices

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

BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection

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Chemical Testing - Detection Limit & 2011/65/EU Limit:

No	Name of Chemicals	Detection Limit (mg/kg)	2011/65/EU Limit (mg/kg)
1	Lead (Pb)	5	1000
2	Cadmium (Cd)	5	100
3	Mercury (Hg)	5	1000
4	Chromium VI (Cr VI)	Non-metal: 10 Metal: Negative	Non-metal: 1000 Metal: Negative
5	Polybromobiphenyls (PBBs) -Bromobiphenyl (MonoBB) -Dibromobiphenyl (DiBB) -Tribromobiphenyl (TriBB) -Tetrabromobiphenyl (TetraBB) -Pentabromobiphenyl (PentaBB) -Hexabromobiphenyl (HexaBB) -Heptabromobiphenyl (HeptaBB) -Octabromobiphenyl (OctaBB) -Nonabromobiphenyl (NonaBB) -Decabromobiphenyl (DecaBB)	Each 5	Sum: 1 000
6	Polybromodiphenyl ethers (PBDEs) -Bromodiphenyl ether (MonoBDE) -Dibromodiphenyl ether (DiBDE) -Tribromodiphenyl ether (TriBDE) -Tetrabromodiphenyl ether (TetraBDE) -Pentabromodiphenyl ether (PentaBDE) -Hexabromodiphenyl ether (HexaBDE) -Heptabromodiphenyl ether (HeptaBDE) -Octabromodiphenyl ether (OctaBDE) -Nonabromodiphenyl ether (NonaBDE) -Decabromodiphenyl ether (DecaBDE)	Each 5	Sum: 1 000

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Test Result(s):

ROHS - Phthalates DIBP, DBP, BBP, DEHP

Method: IEC 62321-8: 2017, analyzed by Gas Chromatograph-Mass Spectrometry (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	
RL (mg/kg)	50	50	50	50	
Material No.	Result (mg/kg)				
1+20	N.D.	N.D.	N.D.	N.D.	PASS
5+26	N.D.	N.D.	N.D.	N.D.	PASS
6	N.D.	N.D.	N.D.	N.D.	PASS
11	N.D.	N.D.	N.D.	N.D.	PASS
14+16+17	N.D.	N.D.	N.D.	N.D.	PASS
22	N.D.	N.D.	N.D.	N.D.	PASS
24	N.D.	N.D.	N.D.	N.D.	PASS

- Note:**
1. mg/kg = milligram per kilogram (ppm).
 2. N.D. = Not Detected (<RL).
 3. RL=Reporting Limit.

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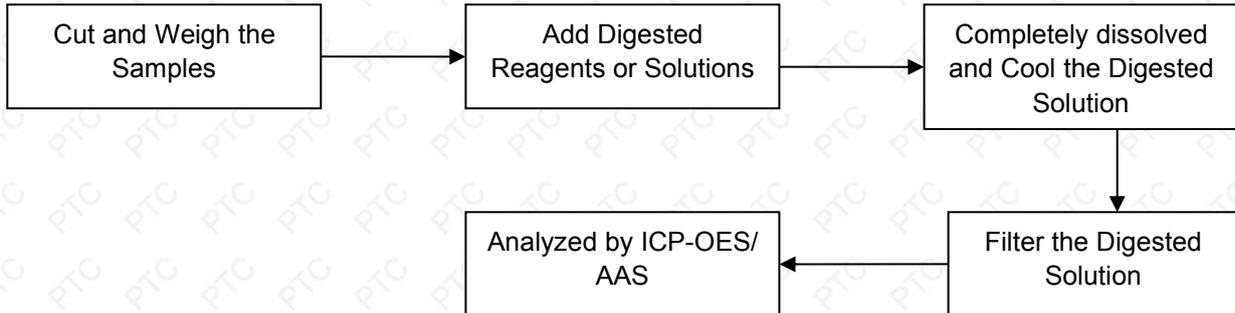
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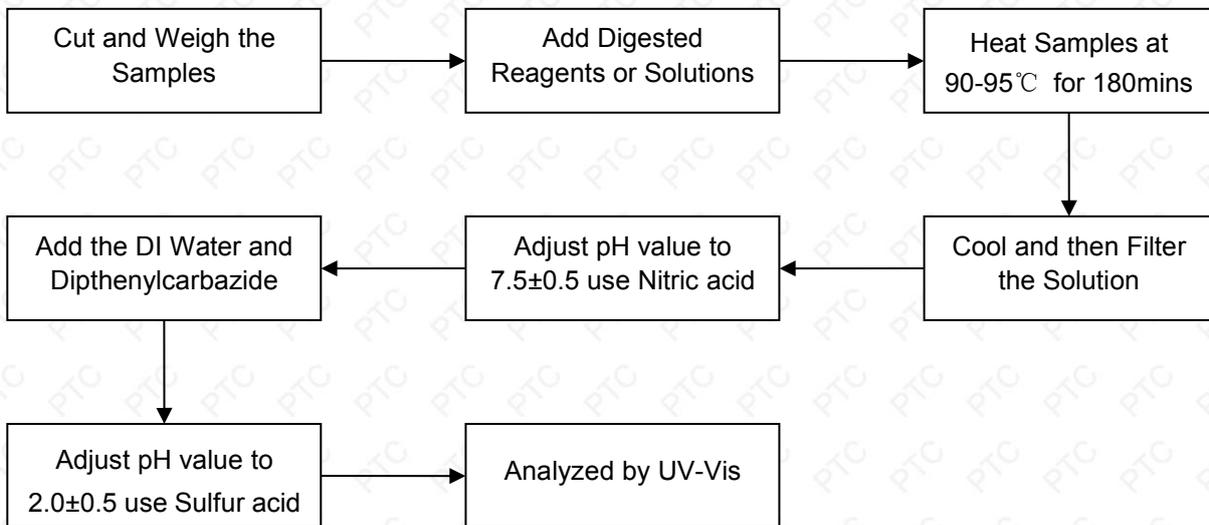
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Test Process Flow:

1. Lead, Cadmium, Mercury



2. Hexavalent Chromium (Non-metal)



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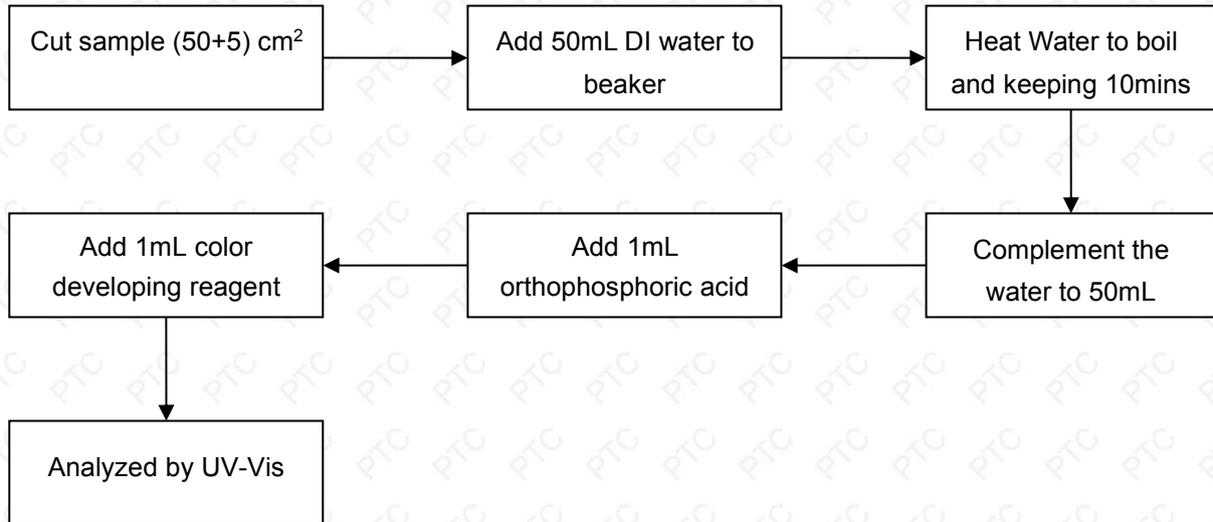
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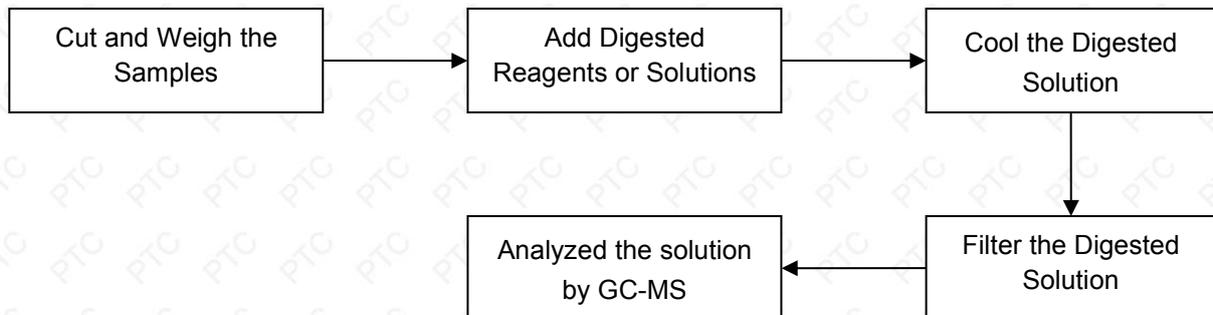
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Hexavalent Chromium (Metal)



3. PBBs & PBDEs, Phthalates



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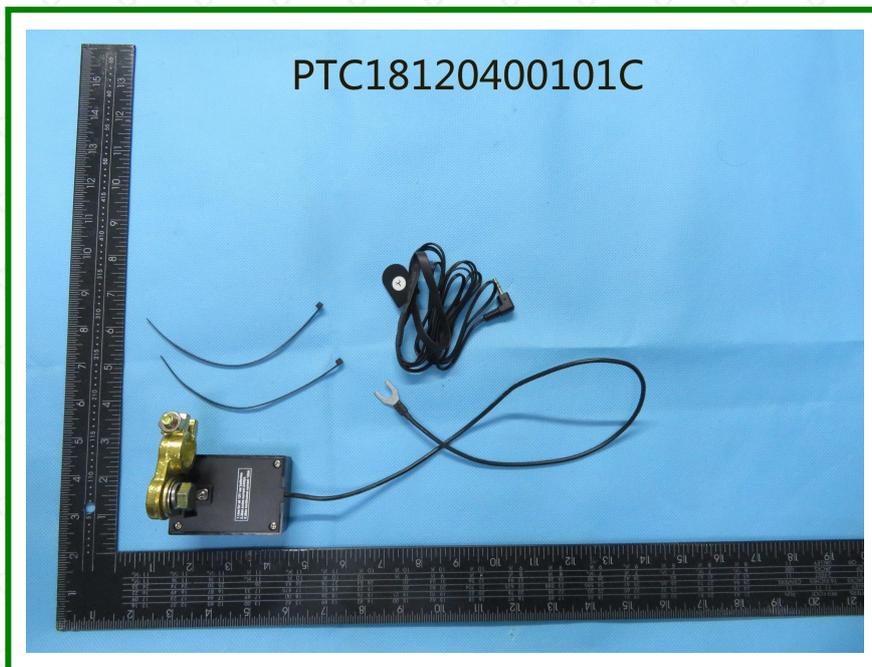
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Photo(s) of Sample:



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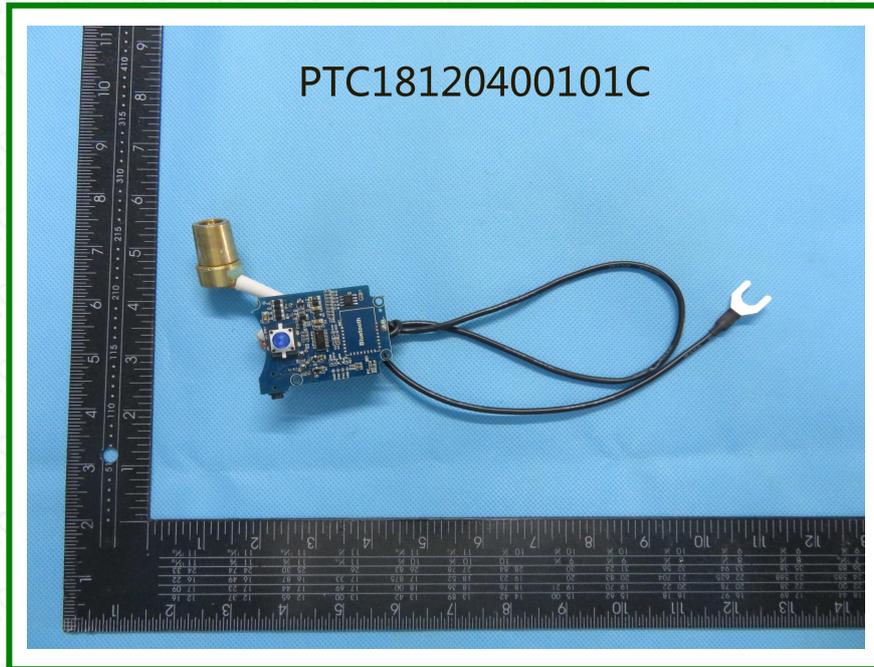


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