Test Report

Report No.: TS24040094

Verify authenticity

Applicant	Fullriver Battery Manufacture Co.,Ltd.
Address	Guikeng Industrial Area,Zhishan Town,Heshan City,Guangdong Province, China
Report Date	2024-04-17

Hangzhou C&K Testing Technic Co., Ltd.

Hangzhou C&K Testing Technic Co., Ltd
Add:1/F,No.4 Building, Huaye Hi-Tech Industrial Park, No.1180, Bin'an Road, Binjiang District, Hangzhou 310052, China
Lab Add: 4/F No.3 and 1/F No.4 Building, Huaye Hi-Tech Industrial Park, No.1180, Bin'an Road, Binjiang District, Hangzhou 310052, China
Hotline:4006-721-723 Tel:+86 571-8720 6535 Fax:+86 571-8990 0719 E-mail:test@cirs-group.com Website:www.cirs-ck.com

Test Report

Applicant	Fullriver Battery Manufacture Co.,Ltd.
Address	Guikeng Industrial Area,Zhishan Town,Heshan City,Guangdong Province, China
Sample Name	Valve Regulated Sealed Lead-Acid Battery
Type/ Model	/
Material/Colour	/
Other Info.	/
The sample information included above and test component(s) are provided and confirmed by the applicant	
Sample Received Date	2024-04-01
Test Period	2024-04-01~2024-04-11
Test Requirement	According to the requirements of RoHS Directive 2011/65/EU (the European Parliament and the Council′s Restriction on the use of certain Hazardous Substances in electrical and electronic equipment) and its amendment (EU) 2015/863.

Test Item(s)	**Test Result(s)**
Lead（Pb）, Cadmium（Cd）, Mercury（Hg）, Hexavalent Chromium（CrVI）, Polybrominated biphenyl（PBBs）, Polybrominated diphenyl ether（PBDEs）, Butylbenzylphthalate（BBP）, Di-（2-ethylhexyl）phthalate（DEHP）,Di-n-butyl phthalat（DBP）,Di-isobutyl phthalate（DIBP）Content	012~014: See Test Result(s); Others: Pass

Prepared by: Meng Qi Reviewed by: Li Xuefeng Accredited Signatory by: Zhang Yangyang

Meng Qi Li Xuefeng Zhang Yangyang

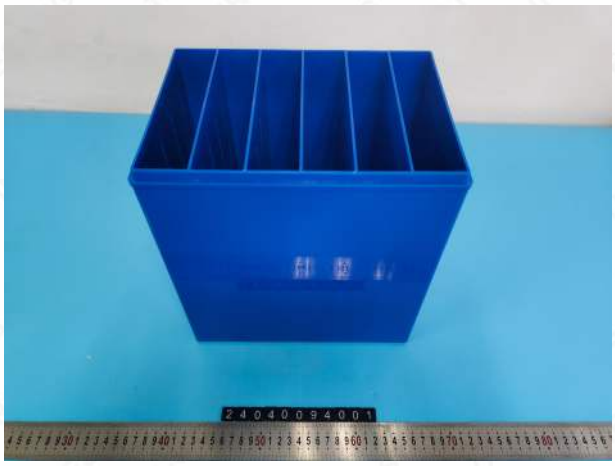
Issue date: 2024-04-17

Test Component(s):

No.	Sample Serial No.	Test Component(s)	Type/Model	Material/Colour	Other Info.
001	TS24040094001	Battery case	/	ABS/300C blue	/
002	TS24040094002	Battery case	/	ABS/0041 yellow	/
003	TS24040094003	Battery case	/	ABS/8050 grey	/
004	TS24040094004	Battery case	/	ABS/1688 black	/
005	TS24040094005	Battery case	/	ABS/2945C blue	/
006	TS24040094006	Battery case	/	ABS/8033 red	/
007	TS24040094007	Battery case	/	ABS/1688 black shell /429C grey lid	/
008	TS24040094008	Battery case	/	Pearl silver shell /REL7015 cover pool shell	/
009	TS24040094009	Diaphragm paper	/	AGM	/
010	TS24040094010	Safety valve	/	EPDM	/
011	TS24040094011	O-ring	/	/	/
012	TS24040094012	Copper head	/	/	/
013	TS24040094013	Positive plate	/	/	/
014	TS24040094014	Negative plate	/	/	/
015	TS24040094015	Black end glue	/	Epoxy resin	/
016	TS24040094016	Middle cover glue	/	Epoxy resin	/
017	TS24040094017	Red end glue	/	Epoxy resin	/

Photo(s):


DC150-12
DC150-12
FULLRIVER
24040094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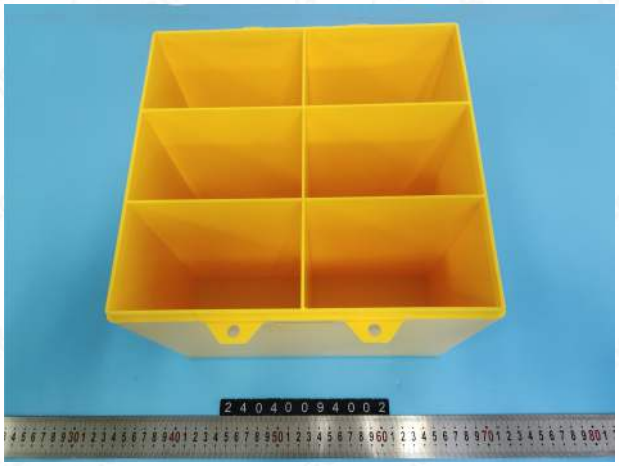
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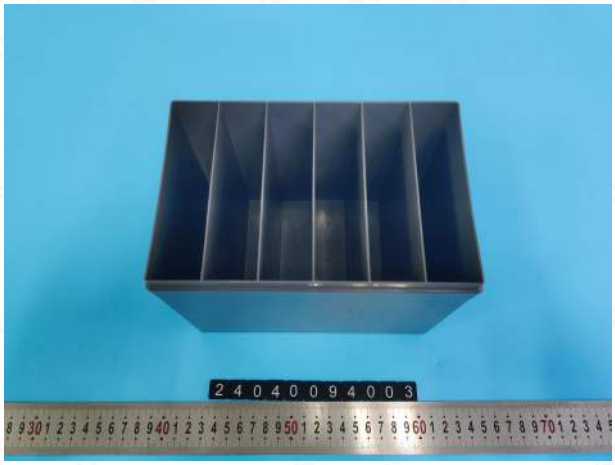
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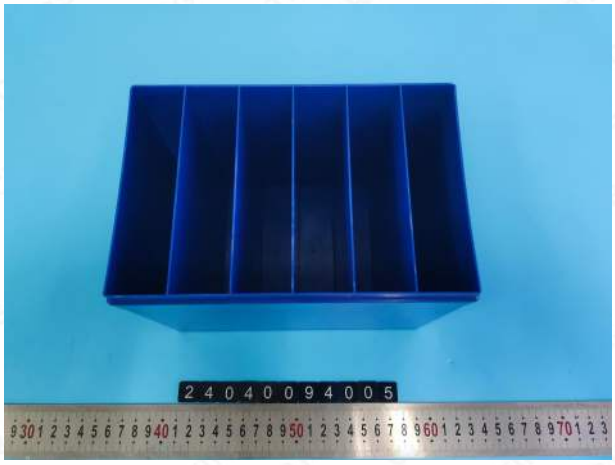
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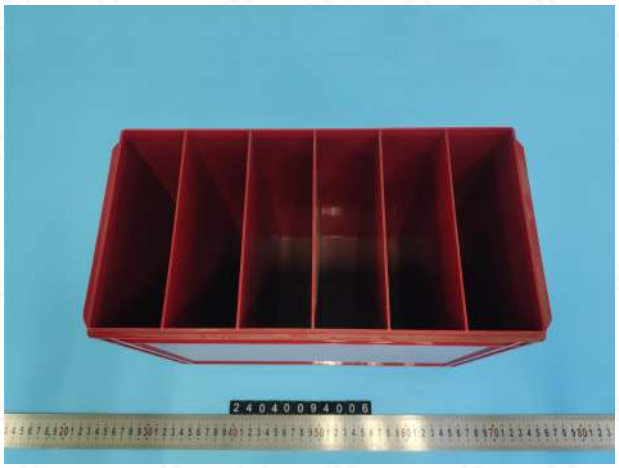
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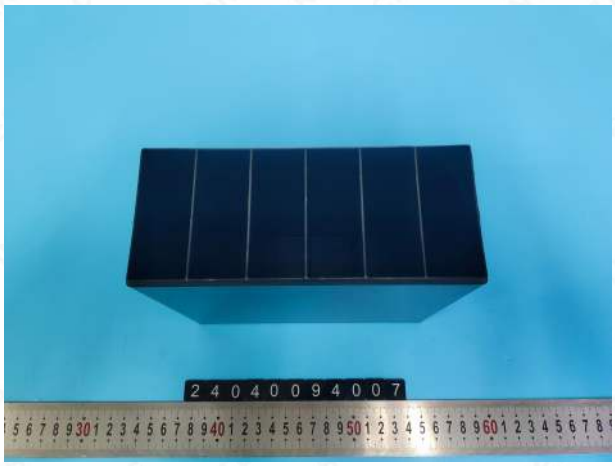
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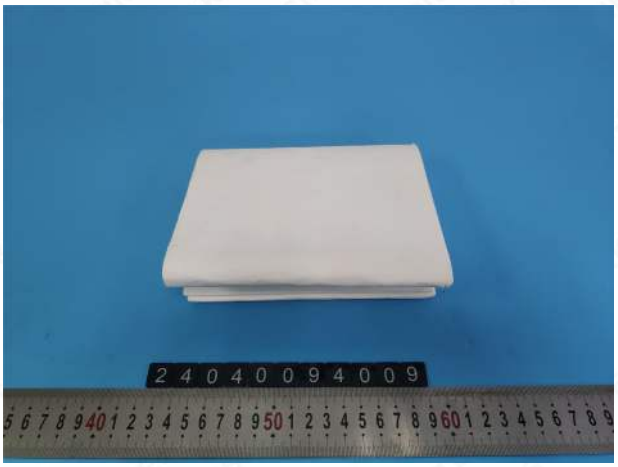
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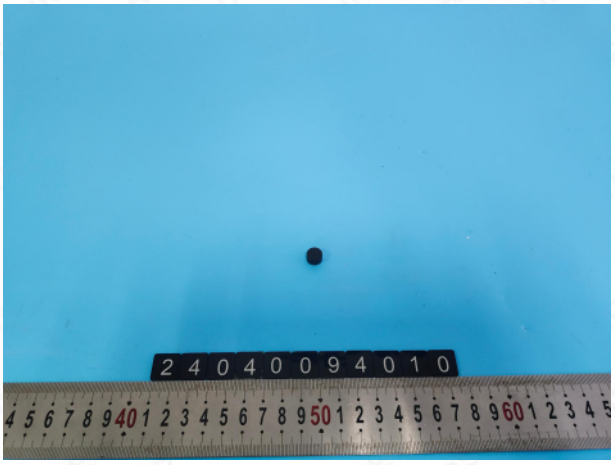
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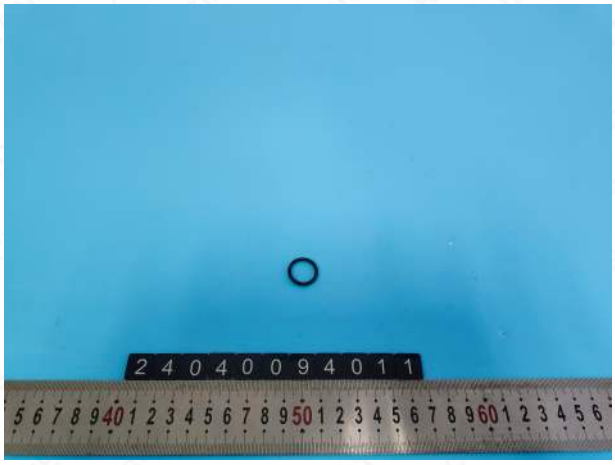
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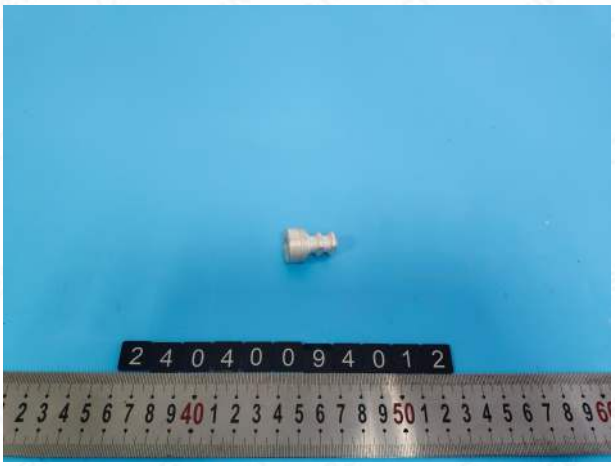
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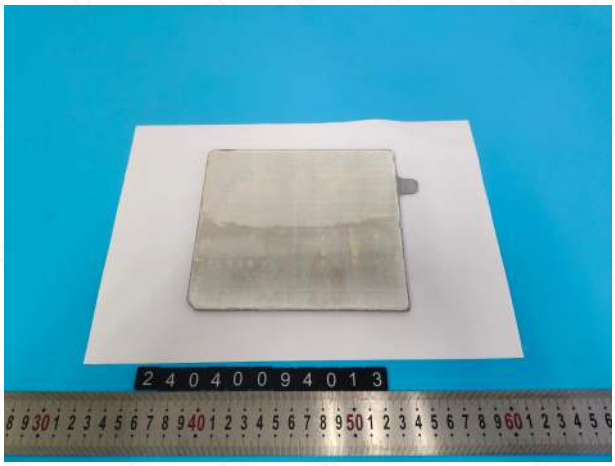
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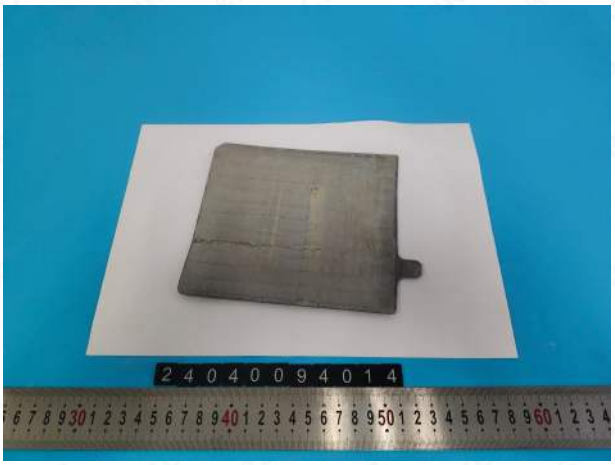
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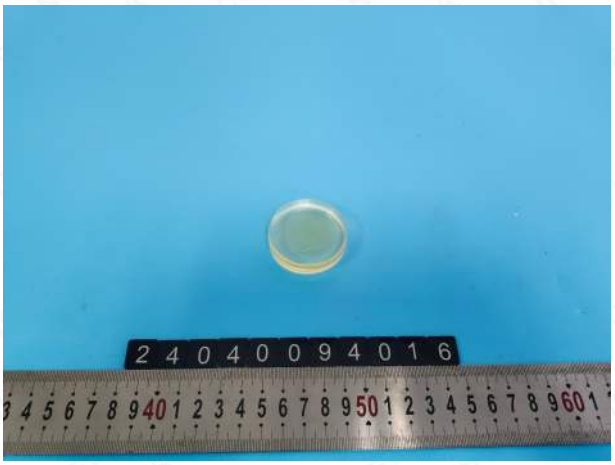

2404009401 6


2404009401 7

Test Method(s):

IEC 62321-3-1:2013Screening- Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry.
IEC62321-4:2013+AMD1:2017 Mercury in polymers, metals and electronics by ICP-OES.
IEC 62321-5:2013 Cadmium, lead and chromium in polymers and electronics and cadmium and lead in metals by ICP-OES.
IEC 62321-6:2015 Polybrominated biphenyls and polybrominated diphenyl ethers in polymers by gas chromatography-mass spectrometry (GC-MS).
IEC 62321-7-1:2015Hexavalent chromium - Presence of hexavalent chromium (Cr(VI)) in colourless and coloured corrosion-protected coatings on metals by the colorimetric method.
IEC 62321-7-2:2017Hexavalent chromium-Determination of hexavalent chromium (Cr(VI))in polymers and electronics by the colorimetric method.
IEC 62321-8:2017Phthalates in polymers by gas chromatography-mass spectrometry(GC-MS).

Test Result(s):

Test Item(s)	Limit	MDL	Unit	Test Result(s)		
				012	013	014
Lead（Pb）	≤1000	5	mg/kg	68200	935000	923000
Cadmium（Cd）	≤100	5	mg/kg	41	N.D.	N.D.
Mercury（Hg）	≤1000	5	mg/kg	N.D.	N.D.	N.D.
Hexavalent Chromium（CrVI）	Negative	/	/	Negative (<0.02μg/cm^2)	Negative (<0.02μg/cm^2)	Negative (<0.02μg/cm^2)

Remarks:
1. MDL = Method Detection Limit; N.D. = Not detected (<MDL)
2. a.The sample is negative when theconcentration of hexavalent chromium is less than 0.10μg/cm^2;
   b. The sample is positive when the concentration of hexavalent chromium is higher than 0.13μg/cm^2;
   c. It is impossible to directly determine when the concentration of hexavalent chromium is between 0.10μg/cm^2 and 0.13μg/cm^2;
   Since the storage conditions and production date of the sample are unknown, the hexavalent chromium test results of the sample can only represent the hexavalent chromium status of the sample at the time of testing.

Test Result(s):

Test Item(s)	Limit	MDL	Unit	Test Result(s)				
				001	002	003	004	005
Lead（Pb）	≤1000	5	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium（Cd）	≤100	5	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury（Hg）	≤1000	5	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Hexavalent Chromium（CrVI）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Polybrominated biphenyl（PBBs）	≤1000	100	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Polybrominated diphenyl ether（PBDEs）	≤1000	100	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Butylbenzylphthalate（BBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Di-（2-ethylhexyl）-phthalate（DEHP）	≤1000	10	mg/kg	N.D.	16	N.D.	N.D.	N.D.
Dibutylphthalate（DBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate（DIBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.

Remarks:
1. MDL = Method Detection Limit; N.D. = Not detected (<MDL)

Test Result(s):

Test Item(s)	Limit	MDL	Unit	Test Result(s)				
				006	007	008	009	010
Lead（Pb）	≤1000	5	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Cadmium（Cd）	≤100	5	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Mercury（Hg）	≤1000	5	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Hexavalent Chromium（CrVI）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Polybrominated biphenyl（PBBs）	≤1000	100	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Polybrominated diphenyl ether（PBDEs）	≤1000	100	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Butylbenzylphthalate（BBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Di-（2-ethylhexyl）-phthalate（DEHP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Dibutylphthalate（DBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate（DIBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.	N.D.

Remarks:
1. MDL = Method Detection Limit; N.D. = Not detected (<MDL)

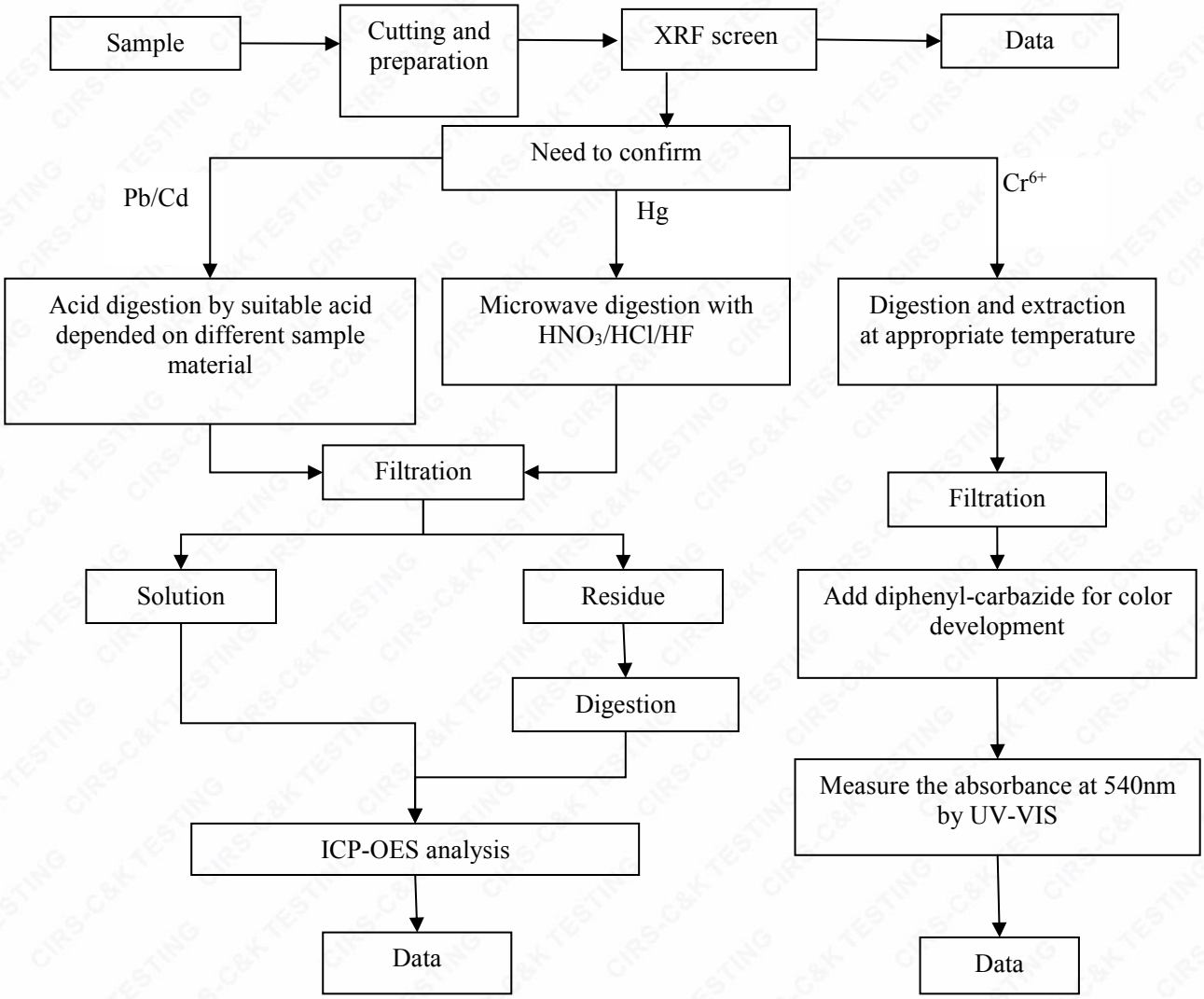
Test Result(s):

Test Item(s)	Limit	MDL	Unit	Test Result(s)			
				011	015	016	017
Lead（Pb）	≤1000	5	mg/kg	N.D.	N.D.	N.D.	N.D.
Cadmium（Cd）	≤100	5	mg/kg	N.D.	N.D.	N.D.	N.D.
Mercury（Hg）	≤1000	5	mg/kg	N.D.	N.D.	N.D.	N.D.
Hexavalent Chromium（CrVI）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Polybrominated biphenyl（PBBs）	≤1000	100	mg/kg	N.D.	N.D.	N.D.	N.D.
Monobromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Dibromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Tribromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Tetrabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Pentabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Hexabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Heptabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Octabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Nonabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Decabromobiphenyl	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Polybrominated diphenyl ether（PBDEs）	≤1000	100	mg/kg	N.D.	N.D.	N.D.	N.D.
Monobromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Dibromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Tribromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Tetrabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Pentabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Hexabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Heptabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Octabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Nonabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Decabromodiphenyl ether	/	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Butylbenzylphthalate（BBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Di-（2-ethylhexyl）-phthalate（DEHP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Dibutylphthalate（DBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.
Diisobutyl phthalate（DIBP）	≤1000	10	mg/kg	N.D.	N.D.	N.D.	N.D.

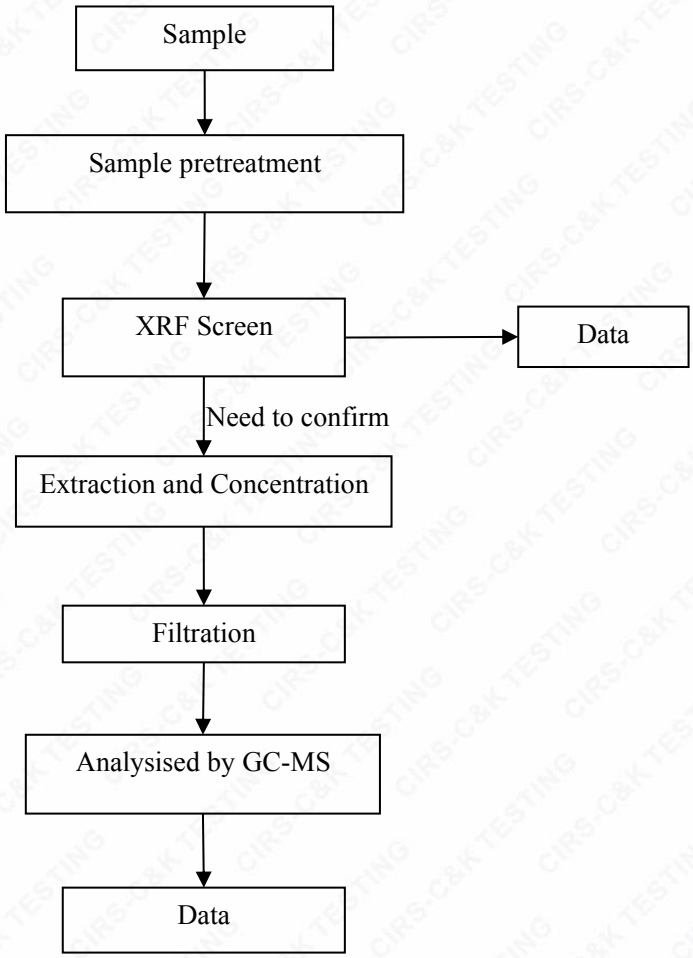
Remarks:

1. MDL = Method Detection Limit; N.D. = Not detected (<MDL)

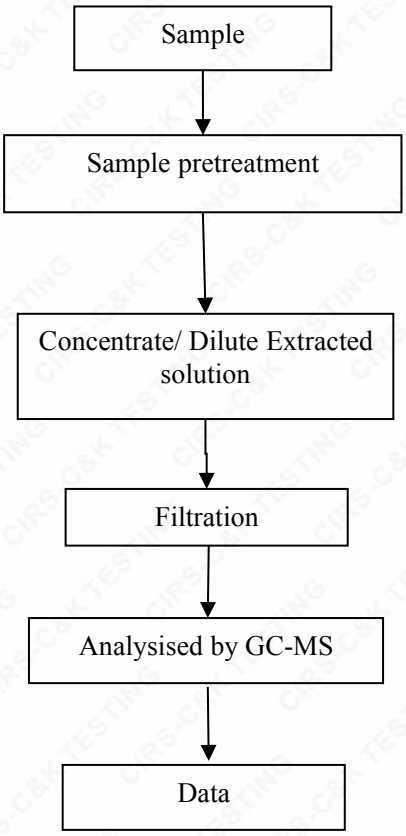
Test Flow Chart for the determination of Pb, Cd, Hg, Cr^{6+}



Test Flow Chart for the determination of PBBs/PBDEs



Test Flow Chart for the determination of Phthalates Content



Statement:

I This report is invalid without the signature of accredited signatory. Any alteration to this report is also invalid.
II This report is invalid without the special seal of inspection & testing.
III This report shall not be part copy without written approval of Hangzhou C&K Testing Technic Co., Ltd..
IV Any commercial activity such as advertising or propaganda is not allowed without authorization of Hangzhou C&K Testing Technic Co., Ltd..
V The test results shown in this report refer only to the sample submitted by applicant.
VI Please respond to Hangzhou C&K Testing Technic Co., Ltd. within fifteen working days upon receipt of this report if there is any objection.
VII Hangzhou C&K Testing Technic Co., Ltd. guarantee that we shall not disclose information such as the commercial information, technical documents or test report to any third party.
VIII The applicant should undertake the legal responsibility that result from providing untruth information.
IX This report is only for scientific research, teaching, internal quality control of enterprises, etc without the seal of China Metrology Accreditation.
X The quantity of the sample does not meet the requirements of retest and arbitration, it shall be regarded as the customer waiving the right of retest and arbitration.

The end of report