



检测报告(Test Report)

检测报告编号(Report No.): SZC15092880983-2

日期(Date): 2015/11/23

页数(Page): 1 of 12

委托单位: 深圳秋田微电子有限公司

Applicant: SHENZHEN AV-DISPLAY CO.,LTD

单位地址: 广东省深圳市龙岗区横岗荷坳金源工业区金源路 39 号

Address: No.39,Jin Yuan Road, He Ao Jin Yuan Industrial Park, HengGang, Shenzhen 518115,China

样品信息(Sample information)

样品名称(Sample Name): COB

样品描述(Sample Description): 请参见后续页(Please refer to following page(s).)

样品编号(Sample No.): QT1509288098302

委托日期(Sample Received Date): 2015/11/6

检测日期(Testing Period): 2015/11/6 - 2015/11/23

检测要求(Test Requested):

根据客户要求, 检测其送检样品中的铅、镉、汞、六价铬、多溴联苯、多溴二苯醚、DBP、BBP、DEHP、DIBP 的含量(As specified by client, to determine the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the submitted sample.)

检测方法(Test Method):

请参见后续页(Please refer to following page(s).)

检测结果(Test Result):

请参见后续页(Please refer to following page(s).)

结论(Conclusion):

基于所送样品进行的检测, 铅、镉、汞、六价铬、多溴联苯、多溴二苯醚、DBP、BBP、DEHP、DIBP 的检测结果显示符合欧盟 RoHS 指令 2011/65/EU 及其修订指令 EU 2015/863 的限值要求(Based on the performed tests on submitted samples, the results of Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP comply with the limits as set by EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863.)

审核人

Checked by

Angela

Angela

授权签字人

Signed for and on behalf of HCT

Michael

Michael
实验室经理

Laboratory Manager





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序号(No.)	样品描述	Sample Description
1	米色 PCB 连绿色,白色印连铜色金属片	Cream PCB with green, white printing, copper metal plate
2	银色面灰色压膜塑胶(表面)	Silvery surfaced gray laminated plastic (Surface)
3	黑色环氧树脂(PCB)	Black epoxy resin (PCB)
4	黑色贴片电阻(PCB,RL1)	Black SMD resistor (PCB, RL1)
5	黑色贴片电阻(PCB,R1,R2,R3 等)	Black SMD resistor (PCB, R1, R2, R3)
6	棕色贴片电容(PCB,C2)	Brown SMD capacitor (PCB, C2)
7	银色金属焊锡(PCB,LEDA,LEDK)	Silvery metal solder (PCB, LEDA, LEDK)
8	白色塑胶(PCB,LED 外壳)	White plastic (PCB, shell of LED)
9	透明双面胶(PCB,LED 外壳背面)	Transparent double side adhesive tape (PCB, backing of LED)
10	白色塑胶皮连背面粘胶(PCB,LED 外壳)	White plastic sheet with adhesive backing (PCB, shell of LED)
11	透明软胶(PCB,LED)	Transparent soft plastic (PCB, LED)
12	米色 PCB 连棕色印,银色金属片(PCB,LED)	Cream PCB with brown printing, silvery metal plate (PCB, LED)
13	透明塑胶膜(屏幕表面)	Transparent plastic film (Surface of screen)
14	透明干胶(玻璃侧边)	Transparent glue (Side of glass)
15	透明玻璃	Transparent glass
16	灰色连黑色软胶(屏幕边缘)	Gray with black soft plastic (Side of screen)
17	黑色涂层(框架)	Black coating (Frame)
18	银色金属(框架)	Silvery metal (Frame)





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检测结果(Test Results):

单位(Unit): mg/kg

检测项目 (Test Items)	检测方法/仪器 (Test Method/ Equipment)	方法检出限 (MDL)	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
铅 Lead(Pb)	参考(Refer to) IEC62321-5:2013. ICP-AES/AAS	2	1000
镉 Cadmium(Cd)		2	100
汞 Mercury(Hg)	参考(Refer to) IEC62321-4:2013. ICP-AES	2	1000
六价铬 Hexavalent Chromium(Cr(VI)) 通过碱液萃取 by Alkaline extraction	参考(Refer to) IEC 62321:2008. UV-VIS	2	1000
一溴联苯 Mono-bromobiphenyl		5	—
二溴联苯 Di-bromobiphenyl		5	
三溴联苯 Tri-bromobiphenyl		5	
四溴联苯 Tetra-bromobiphenyl		5	
五溴联苯 Penta-bromobiphenyl		5	
六溴联苯 Hexa-bromobiphenyl		5	
七溴联苯 Hepta-bromobiphenyl		5	
八溴联苯 Octa-bromobiphenyl		5	
九溴联苯 Nona-bromobiphenyl		5	
十溴联苯 Deca-bromobiphenyl		5	
多溴联苯 Polybrominated Biphenyls(PBBs)	参考(Refer to) IEC 62321:2008. GC-MS	—	1000
一溴二苯醚 Mono-bromodiphenyl ether		5	—
二溴二苯醚 Di-bromodiphenyl ether		5	
三溴二苯醚 Tri-bromodiphenyl ether		5	
四溴二苯醚 Tetra-bromodiphenyl ether		5	
五溴二苯醚 Penta-bromodiphenyl ether		5	
六溴二苯醚 Hexa-bromodiphenyl ether		5	
七溴二苯醚 Hepta-bromodiphenyl ether		5	
八溴二苯醚 Octa-bromodiphenyl ether		5	
九溴二苯醚 Nona-bromodiphenyl ether		5	
十溴二苯醚 Deca-bromodiphenyl ether		5	
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)		—	1000





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检测项目 (Test Items)	含量 (Content)								
	1*	2*	3	4	5	6	8	9	10*
铅 Lead(Pb)	N.D.	N.D.	N.D.	566	566	N.D.	N.D.	N.D.	N.D.
镉 Cadmium(Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
汞 Mercury(Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
六价铬 Hexavalent Chromium(Cr(VI)) 通过碱液萃取 by Alkaline extraction	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
一溴联苯 Mono-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
二溴联苯 Di-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
三溴联苯 Tri-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
四溴联苯 Tetra-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
五溴联苯 Penta-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
六溴联苯 Hexa-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
七溴联苯 Hepta-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
八溴联苯 Octa-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
九溴联苯 Nona-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
十溴联苯 Deca-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
多溴联苯 Polybrominated Biphenyls(PBBs)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
一溴二苯醚 Mono-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
二溴二苯醚 Di-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
三溴二苯醚 Tri-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
四溴二苯醚 Tetra-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
五溴二苯醚 Penta-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
六溴二苯醚 Hexa-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
七溴二苯醚 Hepta-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
八溴二苯醚 Octa-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
九溴二苯醚 Nona-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
十溴二苯醚 Deca-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.





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	11	12*	13	14	15	16*	17
铅 Lead(Pb)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
镉 Cadmium(Cd)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
汞 Mercury(Hg)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
六价铬 Hexavalent Chromium(Cr(VI)) 通过碱液萃取 by Alkaline extraction	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
一溴联苯 Mono-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
二溴联苯 Di-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
三溴联苯 Tri-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
四溴联苯 Tetra-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
五溴联苯 Penta-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
六溴联苯 Hexa-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
七溴联苯 Hepta-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
八溴联苯 Octa-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
九溴联苯 Nona-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
十溴联苯 Deca-bromobiphenyl	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
多溴联苯 Polybrominated Biphenyls(PBBs)	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
一溴二苯醚 Mono-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
二溴二苯醚 Di-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
三溴二苯醚 Tri-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
四溴二苯醚 Tetra-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
五溴二苯醚 Penta-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
六溴二苯醚 Hexa-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
七溴二苯醚 Hepta-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
八溴二苯醚 Octa-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
九溴二苯醚 Nona-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
十溴二苯醚 Deca-bromodiphenyl ether	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.
多溴二苯醚 Polybrominated Diphenyl Ethers(PBDEs)	N.D.	N.D.	N.D.	N.D.	/	N.D.	N.D.





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邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP)	参考(Refer to) BS EN 14372:2004, GC-MS	30	1000
邻苯二甲酸丁苄酯 Butylbenzyl phthalate (BBP)		30	1000
邻苯二甲酸二(2-乙基己基)酯 Di-(2-ethylhexyl) Phthalate (DEHP)		30	1000
邻苯二甲酸二异丁酯 Di-iso-butyl phthalate (DIBP)		30	1000

检测项目 (Test Items)	含量 (Content)							
	1*	2*	3	4	5	6	8	9
邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸丁苄酯 Butylbenzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸二(2-乙基己基)酯 Di-(2-ethylhexyl) Phthalate (DEHP)	N.D.	N.D.	40	N.D.	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸二异丁酯 Di-iso-butyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.

检测项目 (Test Items)	含量 (Content)						
	10*	11	12*	13	14	16*	17
邻苯二甲酸二正丁酯 Dibutyl phthalate (DBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸丁苄酯 Butylbenzyl phthalate (BBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸二(2-乙基己基)酯 Di-(2-ethylhexyl) Phthalate (DEHP)	47	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
邻苯二甲酸二异丁酯 Di-iso-butyl phthalate (DIBP)	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.





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检测项目 (Test Items)	检测方法/仪器 (Test Method/ Equipment)	方法检出限 (MDL)	EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863
铅 Lead(Pb)	参考(Refer to) IEC62321-5:2013. ICP-AES/AAS	2	1000
镉 Cadmium(Cd)		2	100
汞 Mercury(Hg)	参考(Refer to) IEC62321-4:2013. ICP-AES	2	1000
六价铬 Hexavalent Chromium(Cr(VI)) 通过斑点检测/沸水萃取 by Spot-test/ boiling water extraction	参考(Refer to) IEC 62321:2008. UV-VIS	◇	#

检测项目 (Test Items)	含量(Content)	
	7	18
铅 Lead(Pb)	33	N.D.
镉 Cadmium(Cd)	N.D.	N.D.
汞 Mercury(Hg)	N.D.	N.D.
六价铬 Hexavalent Chromium(Cr(VI)) 通过斑点检测/沸水萃取 by Spot-test/ boiling water extraction	阴性(Negative)	阴性(Negative)

备注(Note):

mg/kg = ppm=parts per million

MDL=Method Detection Limit 方法检出限

N.D.=Not Detected(less than method detection limit), 未检出 (小于方法检出限)

“—”=Not regulated 无规定

The specimen(s) 4,6 was(were) submitted on Nov. 20, 2015.

样品 4,6 于 2015 年 11 月 20 日送检。

Result(s) of specimen(s) 5 is(are) quoted from specimen(s) 4.

样品 5 的数据是引自样品 4 的数据。

Result(s) of specimen(s) 9,17 is(are) quoted from HCT report No. SZC15092880983-4.

样品 9,17 的数据是引自 HCT 报告号为 SZC15092880983-4 的数据。

Result(s) of specimen(s) 14 is(are) quoted from HCT report No. SZC15092880983-3.

样品 14 的数据是引自 HCT 报告号为 SZC15092880983-3 的数据。





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Result(s) of specimen(s) 15 is(are) quoted from HCT report No. SZC15092880983-1.

样品 15 的数据是引自 HCT 报告号为 SZC15092880983-1 的数据。

*= The specimen is tested as a whole (part) which according to the applicant's request.

根据客户要求, 对送检样品进行整体检测。

◇=Spot-test (斑点检测):

Negative= Absence of Cr(VI) coating /surface layer (阴性=不存在六价铬涂层/表面层)

Positive = Presence of Cr(VI) coating /surface layer (阳性=存在六价铬涂层/表面层)

The tested sample should be further verified by boiling -water -extraction method if the spot-test result cannot be confirmed (经检测的样品如果斑点检测的结果不能得到证实则需采用沸水提取方法进一步核实).

Boiling-water-extraction (沸水提取):

Negative = The detected Cr(VI) concentration in boiling solution is less than 0.02mg/kg with 50 cm² sample surface area (阴性=表面积为 50 cm² 的样品溶解到沸水中的六价铬的浓度小于 0.02mg/kg).

Positive = The detected Cr(VI) concentration in boiling solution is equal or greater than 0.02mg/kg with 50 cm² sample

surface area (阳性=表面积为 50 cm² 的样品溶解到沸水中的六价铬的浓度大于或等于 0.02mg/kg).

#= Positive indicates the presence of Cr(VI) on the tested areas (阳性表示检测样品中存在六价铬).

Negative indicates the absence of Cr(VI) on the tested areas (阴性表示检测样品中不存在六价铬).

由于未获知样品的存储条件和生产日期、样品的六价铬检测结果仅代表检测时样品的状态。

Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.



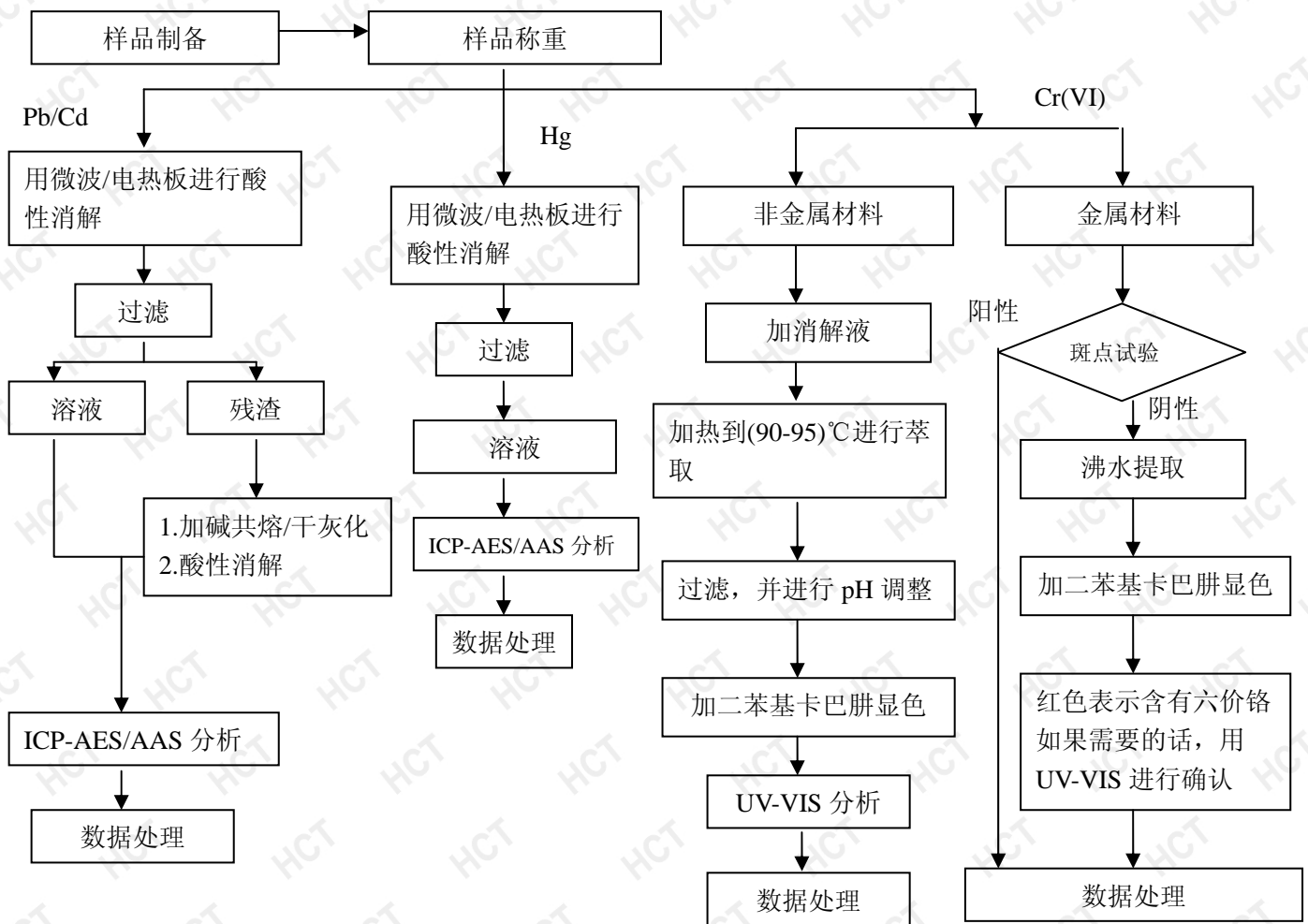
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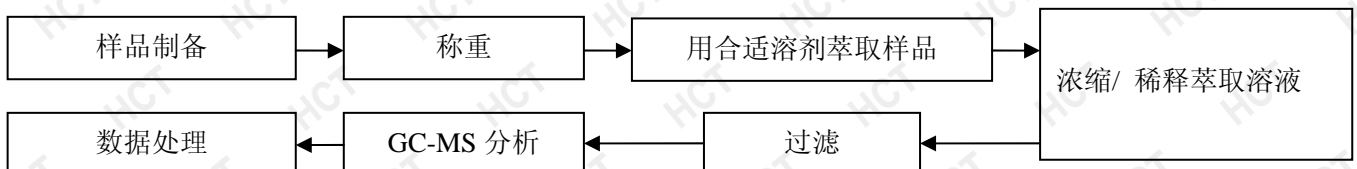
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铅、镉、汞、六价铬、多溴联苯、多溴二苯醚的检测流程图



根据以上的流程图之条件, 样品已经完全溶解(六价铬检测方法除外)。

PBBs/PBDEs



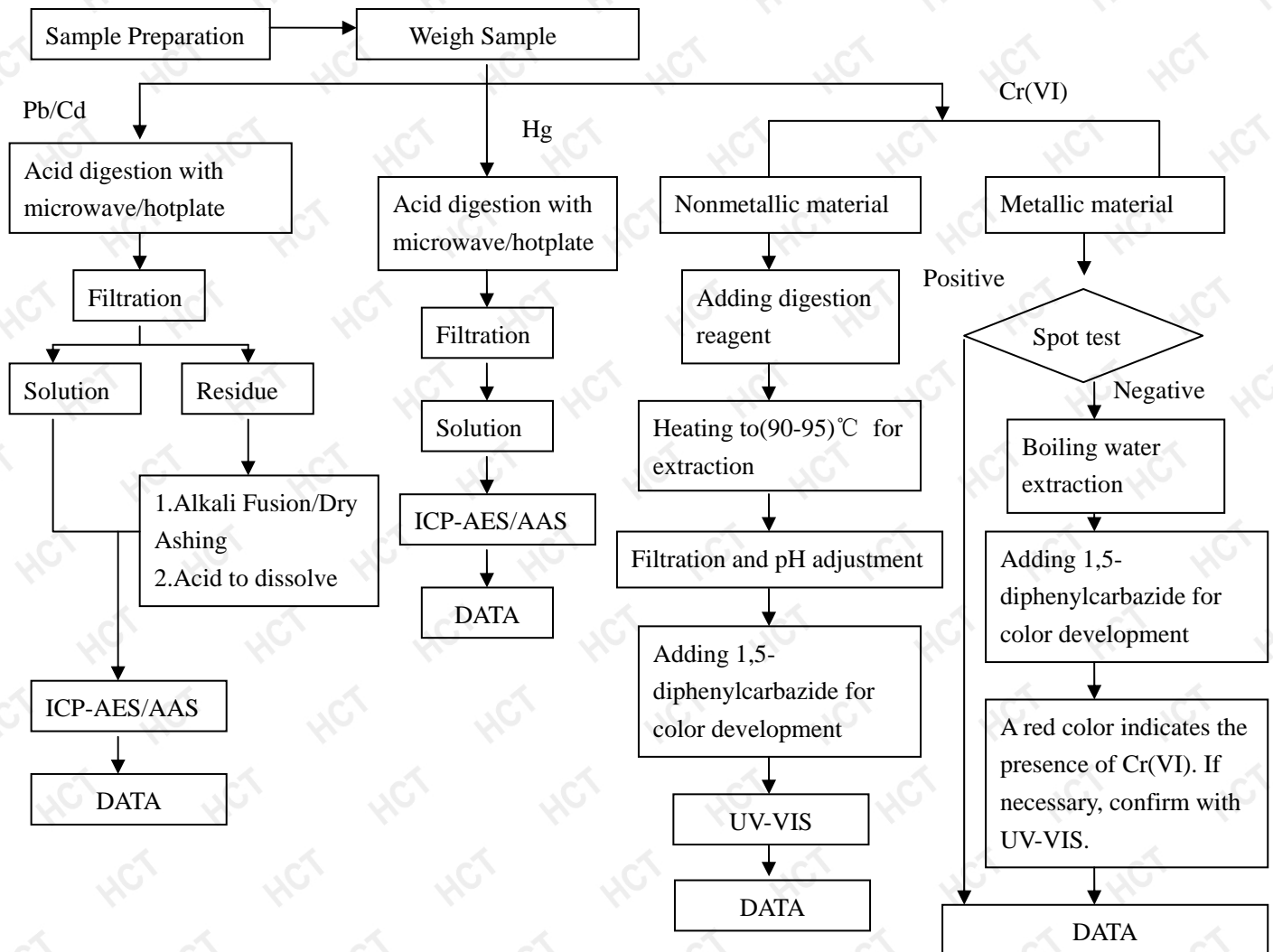
检测报告(Test Report)

检测报告编号(Report No.): SZC15092880983-2

日期(Date): 2015/11/23

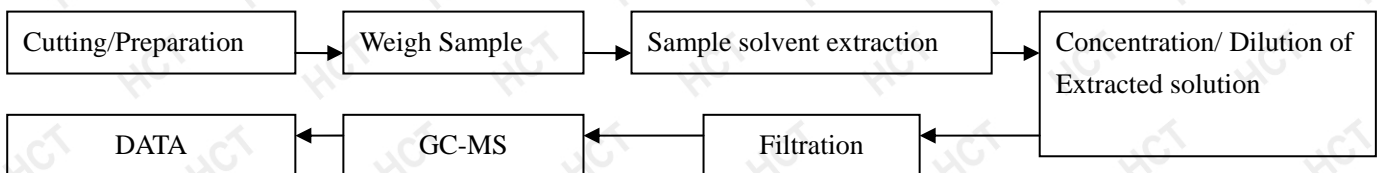
页数(Page): 10 of 12

Test Flow Chart for Pb, Cd, Hg, Cr(VI), PBBs, PBDEs



These sample were dissolved totally by pre-conditioning method according to above flow chart(Cr(VI) test method excluded)

PBBs/PBDEs



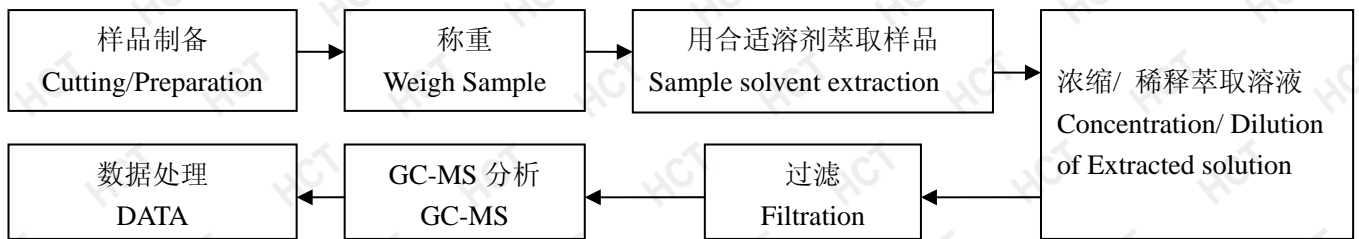
检测报告(Test Report)

检测报告编号(Report No.): SZC15092880983-2

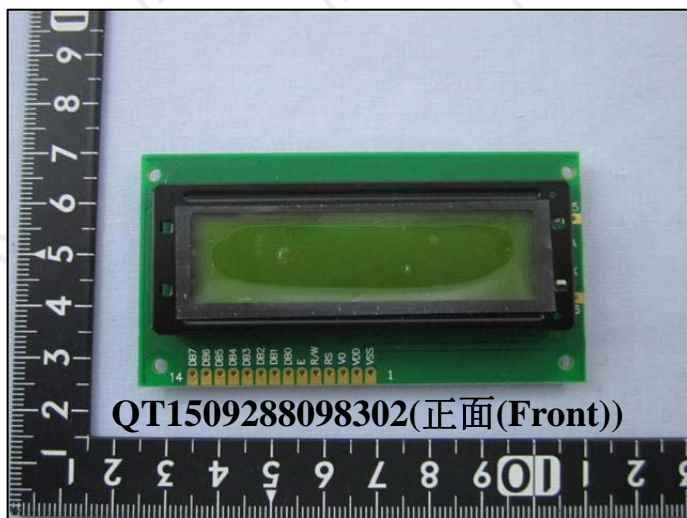
日期(Date): 2015/11/23

页数(Page): 11 of 12

DBP, BBP, DEHP, DIBP 的检测流程图 (Test Flow Chart for DBP, BBP, DEHP, DIBP)



样品附图(The photo of the sample)



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