

测试报告 No. SHAEC1809653110 日期: 2018年05月16日 第1页,共14页

江苏广信感光新材料股份有限公司 江阴市青阳镇工业集中区华澄路18号

以下测试之样品是由申请者所提供及确认:液态感光阻焊油墨

SGS工作编号: SP18-015295 - SUZ

型号: KSM-S6189/KSM-19

样品接收日期: 2018年05月10日

测试周期: 2018年05月10日 - 2018年05月16日

测试要求: 根据客户要求测试

测试方法: 请参见下一页

测试结果: 请参见下一页

结论: 基于所送样品进行的测试,镉、铅、汞、六价铬、多溴联苯(PBBs)、多溴二苯

醚(PBDEs)、邻苯二甲酸酯(如邻苯二甲酸二丁酯 (DBP)、邻苯二甲酸丁苄酯(BBP)、邻苯二甲酸二(2-乙基己基)酯(DEHP)和邻苯二甲酸二异丁酯(DIBP))的测试结果符合欧盟RoHS指令2011/65/EU附录Ⅱ的修正指令(EU) 2015/863的限值

要求。

通标标准技术服务(上海)有限公司 授权签名

Jenny Yao姚娜 批准签署人

本报告是编号为SHAEC1809653109报告的中文版本.



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t E&E (86–21) 61402553 f E&E (86–21)64953679 ww t HL (86–21) 61402594 f HL (86–21)61156899 e s



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测试结果:

测试样品描述:

样品编号 SGS样品ID 描述 绿色液体 SN1 SHA18-096531.005

备注:

(1) 1 mg/kg = 0.0001%

(2) MDL = 方法检测限

(3) ND = 未检出 (< MDL)

(4) "-" = 未规定

RoHS指令2011/65/EU附录II的修正指令(EU) 2015/863

测试方法: 参考IEC 62321-4:2013+AMD1:2017, IEC 62321-5:2013, IEC 62321-7-2:2017, IEC 62321-6:2015和IEC 62321-8:2017, 采用ICP-OES, UV-Vis和GC-MS进行分析。

测试项目	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>005</u>
镉(Cd)	100	mg/kg	2	ND
铅(Pb)	1000	mg/kg	2	ND
汞(Hg)	1000	mg/kg	2	ND
六价铬 (Cr(VI))	1000	mg/kg	8	ND
多溴联苯之和(PBBs)	1000	mg/kg	-	ND
一溴联苯	-	mg/kg	5	ND
二溴联苯	-	mg/kg	5	ND
三溴联苯	-	mg/kg	5	ND
四溴联苯	-	mg/kg	5	ND
五溴联苯	-	mg/kg	5	ND
六溴联苯	-	mg/kg	5	ND
七溴联苯	-	mg/kg	5	ND
八溴联苯	-	mg/kg	5	ND
九溴联苯	-	mg/kg	5	ND
十溴联苯	-	mg/kg	5	ND
多溴二苯醚之和(PBDEs)	1000	mg/kg	-	ND
一溴二苯醚	-	mg/kg	5	ND
二溴二苯醚	-	mg/kg	5	ND
三溴二苯醚	-	mg/kg	5	ND
四溴二苯醚	-	mg/kg	5	ND



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<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>005</u>
-	mg/kg	5	ND
-	mg/kg	5	ND
-	mg/kg	5	ND
-	mg/kg	5	ND
-	mg/kg	5	ND
-	mg/kg	5	ND
1000	mg/kg	50	ND
1000	mg/kg	50	ND
1000	mg/kg	50	ND
1000	mg/kg	50	ND
	- - - - 1000 1000 1000	- mg/kg - mg/kg - mg/kg - mg/kg - mg/kg - mg/kg 1000 mg/kg 1000 mg/kg 1000 mg/kg	- mg/kg 5 1000 mg/kg 50 1000 mg/kg 50

备注:

(1) 最大允许极限值引用自RoHS指令(EU) 2015/863。

IEC 62321系列等同于 EN 62321系列

http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG_ID:125863

- (2) 2015年6月4号发表在欧盟官方杂志(官方公报)上的RoHS指令(EU) 2015/863附录II限值中还包括邻苯 二甲酸酯BBP,DBP,DEHP和DIBP。新的指令限制了电子电器产品的每一个均一材质中邻苯二甲酸酯含 量不得超过0.1%。
- (3) 2021年7月22号开始, DEHP, BBP, DBP 和 DIBP的限制适用于医疗器械,包括体外医疗器械,监控仪 表,包括工业监测和控制仪器。
- (4) DEHP, BBP, DBP 和 DIBP的限制不适用于2019年7月22日前投放市场的电缆及电子电气产品中用于维 修、重复利用、功能更新及容量提升的备用配件以及2021年7月22日前投放市场的医疗器械,包括体外医 疗器械, 监控仪表, 包括工业监测和控制仪器。
- (5) DEHP、BBP 和 DBP的限制不适用于玩具产品,因为No.1907/2006附录XVII第51条已对玩具产品中 的DEHP、BBP 和 DBP含量进行了限制。

欧盟玩具指令2009/48/EC协调标准 EN71-3:2013+ A2:2017(针对第三类:可以刮取玩具材料)

测试方法: 参照EN 71-3:2013+ A2:2017, 采用ICP-MS进行分析。

测试项目	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>005</u>
可溶性六价铬 (CrVI)	0.2	mg/kg	0.18	ND
可溶性铅 (Pb)	160	mg/kg	10	ND
可溶性锑 (Sb)	560	mg/kg	10	ND
可溶性砷 (As)	47	mg/kg	10	ND
可溶性钡 (Ba)	56000	mg/kg	50	144
可溶性镉 (Cd)	17	mg/kg	5	ND
可溶性三价铬 (CrIII)	460	mg/kg	5	ND
可溶性汞 (Hg)	94	mg/kg	10	ND



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测试项目	<u>限值</u>	<u>单位</u>	<u>MDL</u>	<u>005</u>	
可溶性硒 (Se)	460	mg/kg	10	ND	
可溶性硼 (B)	15000	mg/kg	50	ND	
可溶性钴 (Co)	130	mg/kg	10	ND	
可溶性锰 (Mn)	15000	mg/kg	50	ND	
可溶性锶 (Sr)	56000	mg/kg	50	ND	
可溶性锌 (Zn)	46000	mg/kg	50	ND	
可溶性铜 (Cu)	7700	mg/kg	50	ND	
可溶性铝 (AI)	70000	mg/kg	50	ND	
可溶性镍 (Ni)	930	mg/kg	10	ND	
可溶性锡 (Sn)	180000	mg/kg	4.9	ND	
可溶性有机锡*	-	mg/kg	-	ND	

备注:

- (1) 溶出总铬含量没有超过 EN71-3:2013+A2:2017中相应限量,根据EN 71-3:2013+A2:2017的要求,不 需要额外分别测试溶出铬(III)和溶出铬(VI)的含量。
- (2)*可溶性锡转化为可溶性有机锡后的含量没有超过EN71-3:2013+A2:2017中相应限量,根据EN 71-3: 2013+ A2:2017的要求,不需要额外测试可溶性有机锡的含量。

元素

测试方法: 参照US EPA 方法3052:1996测定, 采用ICP-OES进行分析.

测试项目 单位 MDL 005 砷 (As) mg/kg 10 ND

四溴双酚-A

测试方法: 参照 IEC 62321:2008方法测定, 采用GC-MS进行分析,

测试项目 单位 MDL 005 四溴双酚-A mg/kg 10 ND

辛基酚聚氧乙烯醚(OPEOs), 壬基酚聚氧乙烯醚(NPEOs), 壬基酚 (NP) 和辛基酚(OP)

测试方法: 溶剂萃取,采用HPLC-MS进行分析。



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测试项目	单位	<u>MDL</u>	<u>005</u>
壬基酚聚氧乙烯醚(NPEOs)	mg/kg	50	ND
辛基酚聚氧乙烯醚(OPEOs)	mg/kg	50	ND
壬基酚(NP)	mg/kg	50	ND
辛基酚(OP)	mg/kg	50	ND

备注:

(1) NP和NPEOs参考信息:1907/2006/EC Reach附录XVII的修正指令——552/2009/EC第46条(前身为2003/53/EC): 当用于下属用途时,不允许NP、NPEOs质量浓度等于或高于0.1%的物料或者配置品投放市场:工业和公共机构清洁,家用清洗,纺织品和皮革加工,农用动物乳房清洗/浸润剂的乳化剂,金属加工,纸浆和纸张的制造,化妆品,其他个人护理用品和杀虫剂和生物农药中的复合赋形剂

详细信息请参见Regulation (EC) No 552/2009

(2) 需要时采用GC-MS进行确认

全氟辛烷磺酸 (PFOS)和全氟辛酸(PFOA)

测试方法: 参照US EPA 3550C: 2007. 采用HPLC-MS测试.

测试项目	限值	<u>单位</u>	<u>MDL</u>	<u>005</u>
全氟辛烷磺酸(PFOS)及衍生物^	10	mg/kg	10	ND
全氟辛酸 (PFOA)	-	mg/kg	10	ND

备注:

- (1) 最大允许限制引用自(EC) No. 850/2004的修订指令欧盟决议(EU) No. 757/2010.
- (2) ^= PFOS包含全氟辛烷磺酸(PFOS), 全氟辛基磺酰胺(PFOSA), 2-(N-乙基全氟辛基磺酰胺)乙醇(EtFOSE), N-甲基全氟辛烷磺酰胺(MeFOSA), N-乙基全氟辛烷磺酰胺(EtFOSA)和2-(N-甲基全氟辛基磺酰胺)乙醇(MeFOSE)。

六溴环十二烷(HBCDD)

测试方法: 参照US EPA 3550C: 2007方法测定, 采用GC-MS进行分析.

<u>测试项目</u>	CAS NO.	<u>单位</u>	<u>MDL</u>	<u>005</u>
六溴环十二烷 (HBCDD)	25637-99-4,	mg/kg	10	ND
	2104 55 6			

邻苯二甲酸盐(或酯)

测试方法: 参照EN 14372: 2004的方法测定, 采用GC-MS进行分析.



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测试项目	CAS NO.	<u>单位</u>	MDL	<u>005</u>
邻苯二甲酸二丁酯(DBP)	84-74-2	%	0.003	ND
邻苯二甲酸丁苄酯 (BBP)	85-68-7	%	0.003	ND
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	117-81-7	%	0.003	ND
邻苯二甲酸二异壬酯 (DINP)	28553-12-0/ 68515-48-0	%	0.01	ND
邻苯二甲酸二正辛酯 (DNOP)	117-84-0	%	0.003	ND
邻苯二甲酸二异癸酯 (DIDP)	26761-40-0/	%	0.01	ND
	68515-49-1			
邻苯二甲酸二甲酯 (DMP)	131-11-3	%	0.003	ND
邻苯二甲酸二乙酯 (DEP)	84-66-2	%	0.003	ND
邻苯二甲酸二异丁酯(DIBP)	84-69-5	%	0.003	ND
邻苯二甲酸二戊酯(DnPP)	131-18-0	%	0.003	ND
邻苯二甲酸二环已酯 (DCHP)	84-61-7	%	0.003	ND
邻苯二甲酸二苯酯 (DPhP)	84-62-8	%	0.003	ND
邻苯二甲酸二苄酯(DBzP)	523-31-9	%	0.003	ND
邻苯二甲酸二异辛酯 (DiOP)	27554-26-3	%	0.01	ND
邻苯二甲酸二丙酯 (DPrP)	131-16-8	%	0.003	ND
邻苯二甲酸二壬酯 (DNP)	84-76-4	%	0.003	ND
邻苯二甲酸二正已酯(DnHP)	84-75-3	%	0.003	ND

备注:

- (1) DBP, BBP, DEHP参考信息: 1907/2006/EC Reach附录XVII的修正指令——552/2009/EC第51条 (前身 为2005/84/EC) 的要求:
- i) 不允许DBP, BBP, DEHP质量浓度高于0.1%的可塑性物料用于玩具和儿童护理品
- ii) 当玩具和儿童护理品中的可塑性物料含DBP, BBP, DEHP质量浓度高于0.1%时,不得投放市场 详细信息请参见Regulation (EC) No 552/2009
- DINP, DNOP, DIDP参考信息: 1907/2006/EC Reach附录XVII的修正指令——552/2009/EC第52条 (前身 为2005/84/EC) 的要求:
- i) 不允许DINP, DNOP, DIDP质量浓度高于0.1%的可塑性物料用于可放入儿童口中的玩具和儿童护理品 ii) 当可放入儿童口中的玩具和儿童护理品中的可塑性物料含DINP, DNOP, DIDP质量浓度高于0.1%时, 不得 投放市场。
- 详细信息请参见Regulation (EC) No 552/2009

备注:

EN71-3测试项目: 所示结果为烘干样品总重量中的含量。

其他测试项目: 所示结果为湿样品总重量中的含量。

检测报告仅用于客户科研、教学、内部质量控制、产品研发等目的,仅供内部参考。



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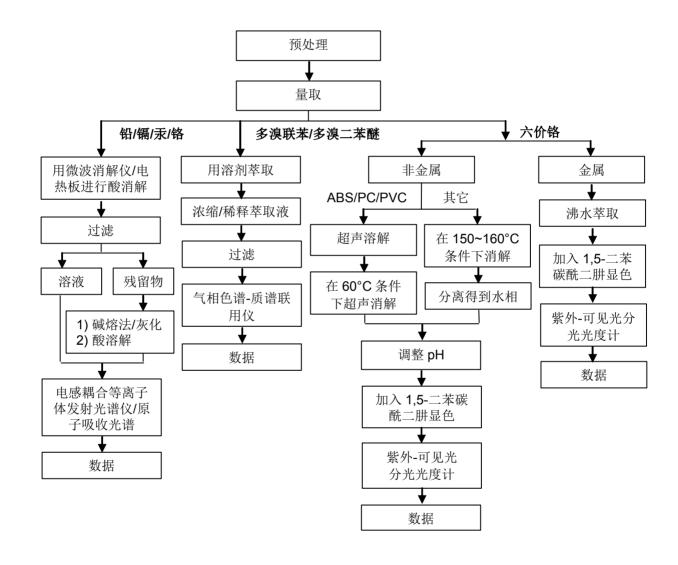
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附件

Pb/Cd/Hq/Cr⁶⁺/PBBs/PBDEs 测试流程图

- 1) 分析人员: 金叶/徐刚/杨小龙/宋珂静
- 2) 项目负责人:施青/马永存/徐亮/王晓艳
- 3) 样品按照下述流程被完全消解(六价铬和多溴联苯/多溴二苯醚测试除外)。





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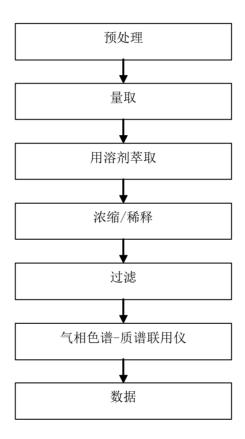
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附件

Phthalates 测试流程图

1) 分析人员: 高仰景 2) 项目负责人: 黄婷





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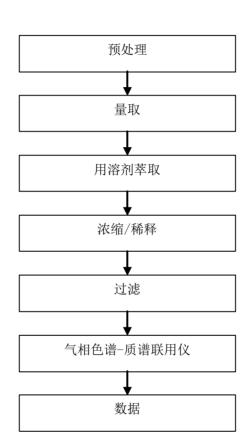
No. SHAEC1809653110

日期: 2018年05月16日 第9页,共14页

附件

HBCDD 测试流程图

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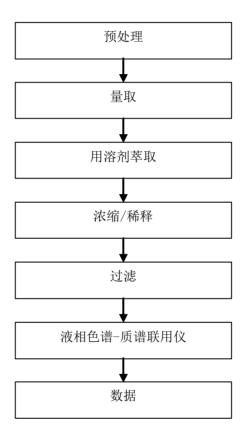
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附件

PFOS/PFOA 测试流程图

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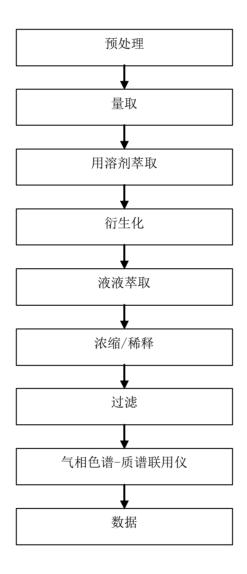
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TBBP-A测试流程图

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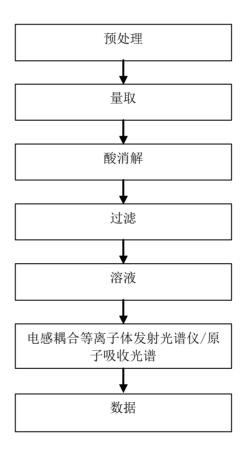
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元素测试流程图

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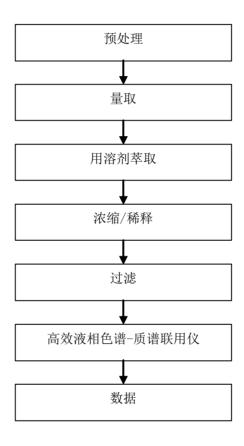
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附件

NP / OP / NPEOs / OPEOs 测试流程图

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