

测试报告

No. SHAEC1806031224

日期: 2018年04月13日

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MARABU GMBH & CO.KG

ASPERGER STREET 4, TAMM, 71732

以下测试之样品是由申请者所提供及确认: Marapol PY

SGS工作编号: SP18-009408 - SH

客户参考信息: 020,021,022,026,031,032,033,035,036,037,045,055,056,057,058,059,064,067,068,070,073,170,910

样品接收日期: 2018年03月29日

测试周期: 2018年03月29日 - 2018年04月09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。

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Dora Hu胡敏
批准签署人

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测试结果:

测试样品描述:

样品编号	SGS样品ID	描述
SN1	SHA18-060312.012	深绿色液体

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	限值	单位	MDL	012
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
五溴二苯醚	-	mg/kg	5	ND
六溴二苯醚	-	mg/kg	5	ND



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测试项目	限值	单位	MDL	012
七溴二苯醚	-	mg/kg	5	ND
八溴二苯醚	-	mg/kg	5	ND
九溴二苯醚	-	mg/kg	5	ND
十溴二苯醚	-	mg/kg	5	ND
邻苯二甲酸二丁酯 (DBP)	1000	mg/kg	50	ND
邻苯二甲酸丁苄酯(BBP)	1000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯(DEHP)	1000	mg/kg	50	ND
邻苯二甲酸二异丁酯(DIBP)	1000	mg/kg	50	ND

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:1258637,25

(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	限值	单位	MDL	012
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)	18750	mg/kg	50	ND
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
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



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测试项目	限值	单位	MDL	012
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 (Al)	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*	12	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。

美国材料与测试协会-ASTM F 963-17 - 油墨或涂层中的可溶性重金属含量

测试方法: 参考ASTM F 963-17 (目录8.3)方法测试, 采用ICP-OES进行分析。

测试项目	限值	单位	MDL	012
可溶性铅(Pb)	90	mg/kg	5	ND
可溶性铈 (Sb)	60	mg/kg	5	ND
可溶性砷 (As)	25	mg/kg	2.5	ND
可溶性钡 (Ba)	1000	mg/kg	10	ND
可溶性镉(Cd)	75	mg/kg	5	ND
可溶性铬 (Cr)	60	mg/kg	5	ND
可溶性汞 (Hg)	60	mg/kg	5	ND
可溶性硒 (Se)	500	mg/kg	10	ND

备注:

- (1) 结果经分析调整

美国材料与测试协会-ASTM F 963-17 - 基材中的总铅含量

测试方法: 参照CPSC-CH-E1002-08.3, 采用AAS进行分析。



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测试项目	限值	单位	MDL	012
铅 (Pb)	100	mg/kg	20	ND

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.

测试项目	CAS NO.	单位	MDL	012
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/ 68515-49-1	%	0.01	ND
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
邻苯二甲酸二环己酯 (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
邻苯二甲酸二正己酯(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。



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详细信息请参见Regulation (EC) No 552/2009

所示结果为烘干样品总重量中的含量

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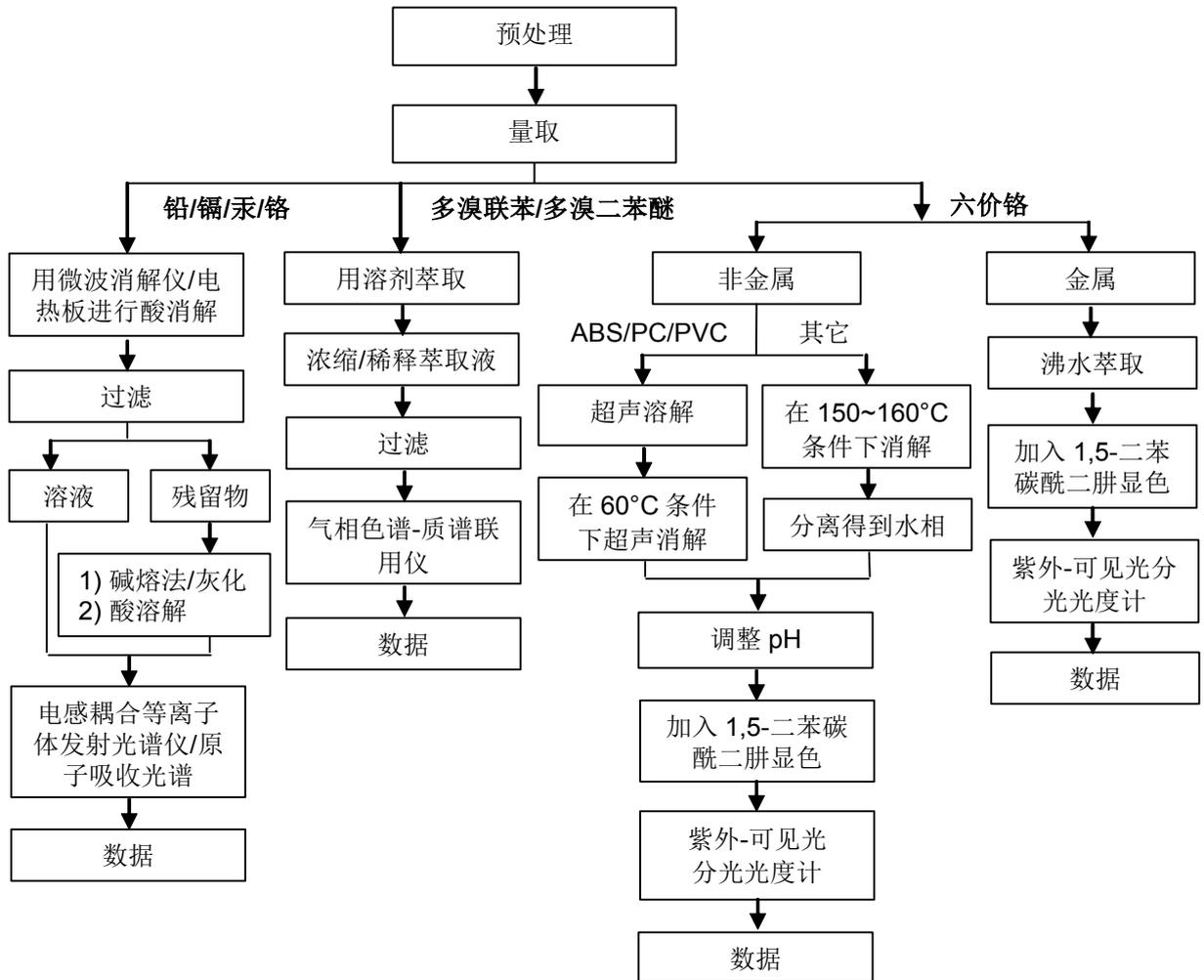
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附件

Pb/Cd/Hg/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)。



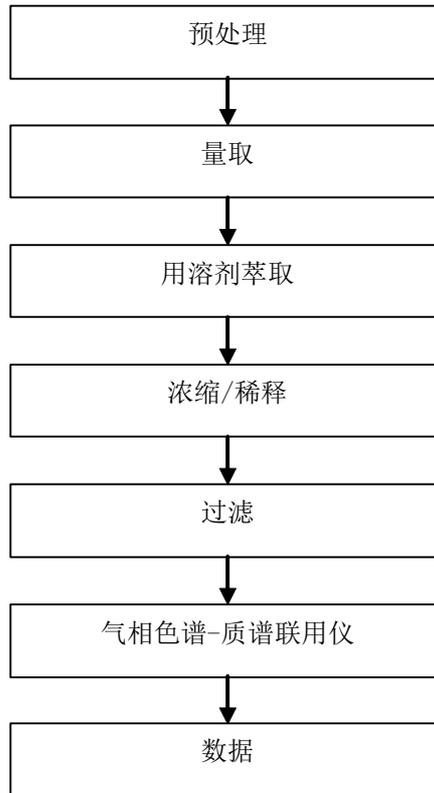
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附件

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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