

验证报告 编号: SHAEC24005375602 日期: 2024年04月22日 第1页,共12页

客户名称: 伊振達(香港)電子有限公司

客户地址: 香港,灣仔,莊士敦道 181 號大有大廈 21 樓

样品名称: 扁平线性马达

以上样品及信息由客户提供。

SGS 工作编号: SHP24-008421

样品接收时间: 2024年03月22日

2024年03月22日~2024年04月19日 验证周期:

验证要求: 参考欧盟 RoHS 指令 2011/65/EU 的修正指令(EU) 2015/863。

验证方法: 见后续页。 验证程序和结果: 见后续页。

检测结果总结:

检测项目	结论
欧盟 RoHS 指令 2011/65/EU 附录 II 的修正指令(EU) 2015/863-铅、汞、镉、六	
价铬、多溴联苯 (PBB)、多溴二苯醚 (PBDE)、邻苯二甲酸二(2-乙基己基)酯	符合
(DEHP)、邻苯二甲酸丁苄酯 (BBP)、邻苯二甲酸二丁酯 (DBP)和邻苯二甲酸二	付百
异丁酯 (DIBP)	

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陈告欢

Jessica Chen 陈皆欢 批准签署人





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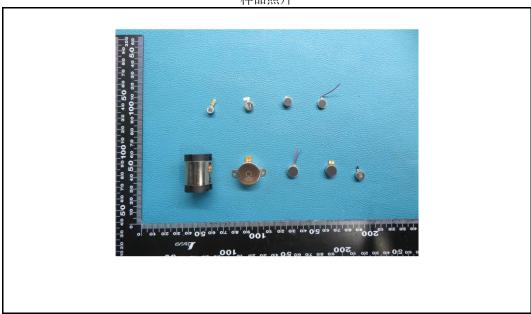


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验证方法:

- 1. 参考 IEC 62321-2:2021, 拆分申请者提供的成品。
- 2. 参考 IEC 62321-1:2013, 仅对本报告照片中标识的样品进行了下列测试分析。
- (1) 参考 IEC 62321-3-1: 2013, 用能量色散型 X 射线荧光分析仪器进行筛选。
- (2) 湿法化学检测方法:参考 IEC 62321-4:2013+A1:2017, IEC 62321-5:2013, IEC 62321-7-1:2015, IEC 62321-7-2:2017, IEC 62321-12:2023, IEC 62321-6:2015 和 IEC 62321-8:2017, 采用 ICP-OES,UV-Vis 和 GC-MS进行分析。



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验证部件外观描述:

样品序号	样品编号	SGS 样品 ID	样品描述
SN1	A1	SHA24-0053756-0001.C001	银色金属外壳
SN2	A2	SHA24-0053756-0001.C002	银色磁铁
SN3	А3	SHA24-0053756-0001.C003	外壳上黑色塑料
SN4	A4	SHA24-0053756-0001.C004	外壳上铜色金属
SN5	A5	SHA24-0053756-0001.C005	银色金属垫片
SN6	A6	SHA24-0053756-0001.C006	银色金属销
SN7	A7	SHA24-0053756-0001.C007	黄色 FPC 本体
SN8	A8	SHA24-0053756-0001.C008	FPC 上银色金属焊锡
SN9	B1	SHA24-0053756-0002.C001	银色金属外壳
SN10	B2	SHA24-0053756-0002.C002	黑色塑料外壳
SN11	B3	SHA24-0053756-0002.C003	银色金属衬套
SN12	B4	SHA24-0053756-0002.C004	银色金属销
SN13	B5	SHA24-0053756-0002.C005	银色金属衬套
SN14	C1	SHA24-0053756-0003.C001	银色金属外壳
SN15	C2	SHA24-0053756-0003.C002	银色金属外壳
SN16	D1	SHA24-0053756-0004.C001	黑色粘性塑料垫片
SN17	D2	SHA24-0053756-0004.C002	银色金属外壳
SN18	D3	SHA24-0053756-0004.C003	银色金属衬套
SN19	E1	SHA24-0053756-0005.C001	银色金属外壳
SN20	E2	SHA24-0053756-0005.C002	银色金属衬套
SN21	F1	SHA24-0053756-0006.C001	银色金属外壳
SN22	F2	SHA24-0053756-0006.C002	铜色金属销
SN23	F3	SHA24-0053756-0006.C003	银色金属衬套
SN24	G1	SHA24-0053756-0007.C001	银色金属外壳
SN25	G2	SHA24-0053756-0007.C002	银色金属衬套



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样品序号	样品编号	SGS 样品 ID	样品描述
SN26	H1	SHA24-0053756-0008.C001	银色金属外壳
SN27	H2	SHA24-0053756-0008.C002	银色金属衬套
SN28	I1	SHA24-0053756-0009.C001	银色金属外壳
SN29	12	SHA24-0053756-0009.C002	银色金属衬套



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验证结果:

根据物料风险评估的结果,验证送测样品中的以下材料。(除特别标注,单位均为: mg/kg)

	1448 1411 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1							
检测项目	A1	A2	A3	A4	A5	A6	A7	A8
Cd	BL	BL	BL	BL	BL	BL	BL	BL
Pb	BL	BL	BL	BL	BL	BL	BL	BL
Hg	BL	BL	BL	BL	BL	BL	BL	BL
Cr(VI)▼	BL	BL	BL	BL	BL	ND	BL	BL
PBB		BL	BL				BL	
PBDE		BL	BL				BL	
DBP			ND				ND	
DEHP			ND				ND	
BBP			ND				ND	
DIBP			ND				ND	
结论	符合	符合	符合	符合	符合	符合	符合	符合

检测项目	B1	B2	B3	B4	B5	C1	C2	D1
Cd	BL							
Pb	BL	BL	BL	BL	BL	ND	BL	BL
Hg	BL							
Cr(VI)▼	BL	BL	BL	ND	BL	ND	ND	BL
PBB		BL						BL
PBDE		BL						BL
DBP		ND						ND
DEHP		ND						ND
BBP		ND						ND
DIBP		ND						ND
结论	符合							

检测项目	D2	D3	E1	E2	F1	F2	F3	G1
Cd	BL							
Pb	ND	BL						
Hg	BL							
Cr(VI)▼	ND	BL	ND	BL	ND	BL	ND	ND
PBB								
PBDE								
DBP								
DEHP								
BBP								
DIBP								
结论	符合							

检测项目	G2	H1	H2	I1	12
Cd	BL	BL	BL	BL	BL
Pb	BL	BL	BL	ND	BL
Hg	BL	BL	BL	BL	BL



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检测项目	G2	H1	H2	I1	l2
Cr(VI)▼	BL	BL	BL	ND	BL
PBB					
PBDE					
DBP					
DEHP					
BBP					
DIBP					
结论	符合	符合	符合	符合	符合



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备注:

(1) X 射线荧光光谱法(XRF)筛选结果说明:

(a)下表为 IEC62321-3-1: 2013 附录 A 不同基体材料中以 mg/kg 表示的筛选元素限值:

		<u> </u>	
元素	聚合物	金属	复合材料
Cd	BL≤(70-3σ) <x<(130+3σ)≤ol< td=""><td>BL≤(70-3σ)<x<(130+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(130+3σ)≤ol<></td></x<(130+3σ)≤ol<>	BL≤(70-3σ) <x<(130+3σ)≤ol< td=""><td>LOD<x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<></td></x<(130+3σ)≤ol<>	LOD <x<(150+3σ)≤ol< td=""></x<(150+3σ)≤ol<>
Pb	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(500-3σ) <x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<>
Hg	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(700-3σ)<x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(700-3σ) <x<(1300+3σ)≤ol< td=""><td>BL≤(500-3σ)<x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<></td></x<(1300+3σ)≤ol<>	BL≤(500-3σ) <x<(1500+3σ)≤ol< td=""></x<(1500+3σ)≤ol<>
Br	BL ≤ (300-3σ)< X	不适用	BL ≤ (250-3σ)< X
Cr	BL ≤ (700-3σ)< X	BL ≤ (700-3σ)< X	BL ≤ (500-3σ)< X

- (b) 现行法规限制的最大允许值是对 PBB/PBDE 和 Cr(VI) 而不是对 Br 和 Cr 的, 而 XRF 测定的是 Br 和 Cr。如果元素 Br 和或 Cr 的定量结果均高于限值(Br 计算基于在常见物质中 PBB/PBDE 的组成的理论计 算),则样品的筛选结果为"不确定"。
- (c) EDXRF 的结果用于初步筛选,LOD=检出限,BL=低于限值,OL=超出限值,IN (符号"X"标记的区域) =不确定,需要进一步研究,我们建议客户用更精确的化学检测方法测试样品,如用 ICP-OES 测试 Cd/Pb/Hg; 用 UV-Vis 测试 Cr(VI); 用 GC-MS 测试 PBB/PBDE。
- (d) 对于复合材料, EDXRF 筛选检测 RoHS 元素所得数据可能与样品中实际含量不同。
- (2) 邻苯二甲酸酯(PHTH)筛分结果只作初步筛选,如果检测结果超出下表所规定的警戒范围,我们采用更精确 的化学检测方法检测样品,用 GC-MS 检测 DBP、BBP、DEHP 和 DIBP (单位: mg/kg)。

检测项目	CAS No.	聚合物/复合材料
邻苯二甲酸二丁酯 (DBP)	84-74-2	BL ≤ 600< X
邻苯二甲酸丁苄酯 (BBP)	85-68-7	BL ≤ 600< X
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	117-81-7	BL ≤ 600< X
邻苯二甲酸二异丁酯 (DIBP)	84-69-5	BL ≤ 600< X

- (3) 化学检测方法结果说明:
 - (a) mg/kg = 0.0001%, MDL=方法检测限, ND =未检出(低于 MDL), --- =不适用。
 - (b) 化学检测方法的表达单位和方法检测限

检测项目	Pb	Cd	Hg	DBP	BBP	DEHP	DIBP
单位	mg/kg						
方法检测限	10	10	10	100	100	100	100

任何一种 PBB 和 PBDE 的方法检测限是 100 mg/kg;

聚合物,复合材料和皮革样品中 Cr(VI)的方法检测限是 10 mg/kg。

金属样品中 Cr(VI)的方法检测限是 0.10 µg/cm²。

- (c) ▼ = 金属样品中
 - a. 当六价铬的浓度高于 0.13 μg/cm²时,样品为阳性,即含有六价铬;
 - b. 当六价铬的浓度为 ND(低于 0.10 μg/cm²)时,样品为阴性,即未检测到六价铬;
 - c. 当六价铬的浓度介于 0.10 μg/cm²与 0.13 μg/cm²之间时,无法直接判定是否检测到六价铬,因不同 个体的样品表面差异可能会影响测定结果;

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能代表检测时样品含六价铬的状态。

(4) RoHS 指令中限制物质及均质材料中最大允许浓度值: Cd: 0.01%, Pb/Hg/Cr(VI)/PBB/PBDE/ DEHP /DBP/BBP/DIBP: 0.1%, 限值引用自 RoHS 指令(EU) 2015/863。



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(5) IEC 62321 系列等同于 EN 62321 系列。

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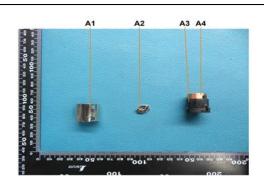
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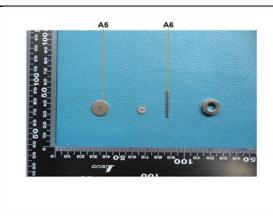
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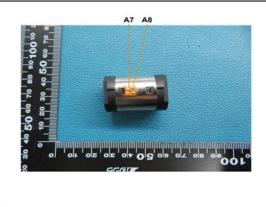














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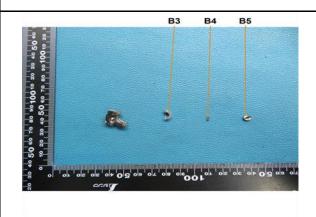
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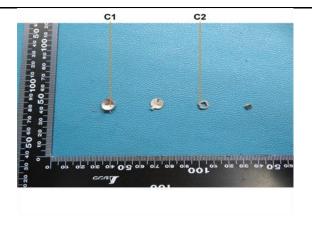














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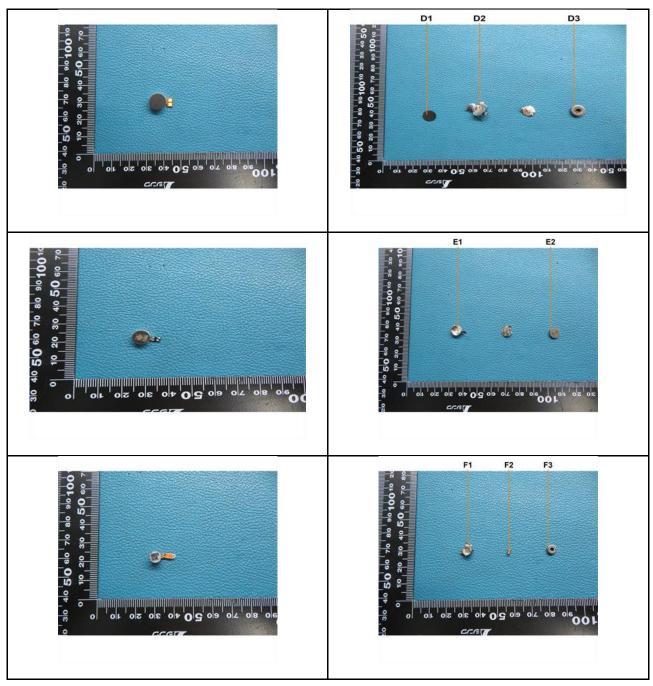
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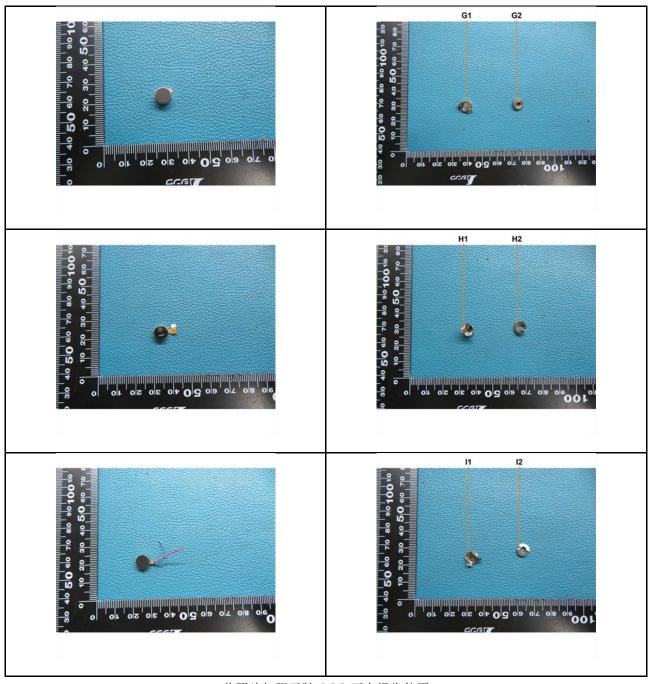
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