



WTH24H05127244A1R1C



# 验证报告 Verification Report

报告编号/ Report No..... : WTH24H05127244A1R1C

委托方/ Applicant ..... : 广州铁盈弹簧科技有限公司  
Guangzhou Tieying Spring Technology Co., Ltd.

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Room 101, Building 1, Third Of No. 2 Guangzhu Road,  
Nansha District, Guangzhou City

样品名称/ Sample Name ..... : 气弹簧/ Gas spring

检测要求/ Test Requested ..... : 参照欧盟 RoHS 指令 2011/65/EU 及其修订指令 EU  
2015/863, 对样品中的铅、镉、汞、六价铬、多溴联苯、多溴  
二苯醚、DBP、BBP、DEHP、DIBP 的含量进行验证。/ Verify  
the Pb, Cd, Hg, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP,  
DIBP content in the sample with reference to EU RoHS  
Directive 2011/65/EU and its amendment Directive EU  
2015/863.

检测结论/ Test Conclusion ..... : 合格/ PASS

样品接收日期/ Date of Receipt sample ..... : 2024-06-01

检测周期/ Testing period ..... : 2024-06-01 ~ 2024-06-11

报告日期/ Date of Issue..... : 2024-06-27

检测结果/ Test Result..... : 参见报告下页/ Refer to next page (s)

报告制作/ Prepared By:  
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深圳市虹彩检测技术有限公司

授权签字人

Signed for and on behalf of  
Shenzhen Hongcai Testing Technology Co.,  
Ltd.



Michael Huang

黄胜明/ Michael Huang

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HCT/RF-23-19

**检测结果/ Test Result(s):**

序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
1-1	黑印银色塑胶贴 Black printed silver plastic sticker	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
1-2	黑色金属外壳 Black metal shell	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
1-3	银色金属轴 Silver metal shaft	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
1-4	白色塑胶块 White plastic block	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		



序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-5	银色金属块 Silver metal block	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-6	银色金属圈 Silver metal ring	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
1-7	黑色软胶圈 Black soft rubber ring	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		
		Br(PBBs&PBDEs)	BL	---		
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
1-8	黄色液体 Yellow liquid	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	BL	---		



序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
		Br(PBBs&PBDEs)	BL	---	2024-06-04	
		DBP	NA	ND		
		BBP	NA	ND		
		DEHP	NA	ND		
		DIBP	NA	ND		
2	黑色金属螺丝 Black metal screws	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
3-1	银色金属壳 Silver metal shell	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
3-2	银色金属螺丝 Silver metal screw	Pb	BL	---	2024-06-01	同/Same 3-1
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
4-1	银色金属壳 Silver metal shell	Pb	BL	---	2024-06-01	•
		Cd	BL	---		



序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
4-2	银色金属螺丝 Silver metal screw	Pb	BL	---	2024-06-01	同/Same 4-1
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
DEHP	NA	---				
5-1	黑色金属壳 Black metal shell	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
DEHP	NA	---				
5-2	黑色金属螺丝 Black metal screws	Pb	BL	---	2024-06-01	同/Same 5-1
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
DEHP	NA	---				
		DIBP	NA	---		



序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
6	浅蓝色金属块 Light blue metal block	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
7	银色金属块 Silver metal block	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
9	银色金属卡片 Silver metal card	Pb	BL	---	2024-06-01	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
10	浅蓝色金属块 Light blue metal block	Pb	BL	---	2024-06-07	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		



序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
		DEHP	NA	---		
		DIBP	NA	---		
11-1	银色金属壳 Silver metal shell	Pb	BL	---	2024-06-07	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
11-2	银色金属螺丝 Silver metal screw	Pb	BL	---	2024-06-07	同/Same 11-1
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
8	黑色金属块 Black metal block	Pb	BL	---	2024-06-07	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
12-1	银色金属固定片 Silver metal fixing plate	Pb	BL	---	2024-06-07	•
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		



序号 No.	样品描述 Sample Description	检测项目 Test Item(s)	XRF 结果 XRF Result(s) (1)	化学结果 Chemical Result(s) (2)	样品接收日期 Received Sample(s) Date	备注 Note
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		
12-2	银色金属块 Silver metal block	Pb	BL	---	2024-06-07	同/Same 12-1
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
12-3	银色金属铆钉 Silver metal rivets	Pb	BL	---	2024-06-07	同/Same 12-1
		Cd	BL	---		
		Hg	BL	---		
		Cr(Cr(VI))	IN	ND		
		Br(PBBs&PBDEs)	NA	---		
		DBP	NA	---		
		BBP	NA	---		
		DEHP	NA	---		
		DIBP	NA	---		

**备注 / Note:**

●=实际检测样品/●=Actual tested sample

"同"=表示该样品与实际检测样品为同材质,未测试。 / "Same" = It means that the sample and the actual tested sample are of the same material and have not been tested.

根据客户提供的申明,材质相同的样品(部位)清单见上表格。 / According to the client's declarations, see the above table for the list of samples (parts) of the same material.

对于样品 1-8: 结果为湿样品总重量中的含量。 / For specimen 1-8: The result(s) is(are) of total weight of wet sample.



**说明(Remark):**

(1): ED-XRF 检测(ED-XRF test):

(a) 对于限用物质 PBBs/PBDEs, ED-XRF 结果显示的是总 Br 含量; 对于限用物质 Cr(VI), ED-XRF 结果显示的是总 Cr 含量(For the restricted substances PBBs/PBDEs, the ED-XRF results show the total Br content; for the restricted substance Cr(VI), the ED-XRF results show the total Cr content.)。

(b) ED-XRF 所得的检测结果只作初步筛选, 如果 ED-XRF 结果超出 IEC 62321-3-1:2013 所规定的警戒范围, 建议客户用更精确的化学检测方法检测样品(Results were obtained by ED-XRF for primary screening, and further chemical testing are recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1:2013.)。

单位(Unit): mg/kg

元素 (Elements)	聚合物 (Polymers)	金属 (Metals)	复合材料 (Composite material)
Pb	BL ≤ 100 < X < 1200 ≤ OL	BL ≤ 100 < X < 1200 ≤ OL	BL ≤ 80 < X < 1300 ≤ OL
Cd	BL ≤ 30 < X < 120 ≤ OL	BL ≤ 30 < X < 120 ≤ OL	BL ≤ 30 < X < 120 ≤ OL
Hg	BL ≤ 100 < X < 1200 ≤ OL	BL ≤ 100 < X < 1200 ≤ OL	BL ≤ 80 < X < 1300 ≤ OL
Cr	BL ≤ 200 < X	BL ≤ 200 < X	BL ≤ 150 < X
Br	BL ≤ 200 < X	---	BL ≤ 200 < X

(c) BL=ED-XRF 分析低于限值(Below Limit by ED-XRF analysis),

OL=ED-XRF 分析高于限值(Over Limit by ED-XRF analysis), IN=不确定(Inconclusive),

NA=不适用(Not Applicable), --- =未规定(Not regulated), X=需要进一步检测(need further chemical analysis)

(d)对于复合材料, ED-XRF 筛选检测元素所得数据可能与样品中实际含量不同(For composite material,the ED-XRF results may be different to the actual content in the sample.)。

(2): 化学检测及法规限值(Chemical test and regulatory limits):

检测项目 (Test Items)	检测方法 (Test Method)	检测仪器 (Test Equipment)	方法检出限 (MDL)	限值(均一材质) (Limit(by weight in homogeneous materials))
Pb	IEC 62321-5:2013	ICP-OES/AAS	2mg/kg	1000mg/kg
Cd	IEC 62321-5:2013	ICP-OES/AAS	2mg/kg	100mg/kg
Hg	IEC 62321-4:2013+AMD1:2017	ICP-OES	2mg/kg	1000mg/kg
Cr(VI)	金属(Metal)	IEC 62321-7-1:2015	0.10µg/cm <sup>2</sup>	1000mg/kg
	其它(Others)	IEC 62321-7-2:2017	8mg/kg	
PBBs	IEC 62321-6:2015	GC-MS	5mg/kg(Each)	1000mg/kg(Sum)
PBDEs	IEC 62321-6:2015	GC-MS	5mg/kg(Each)	1000mg/kg(Sum)
DBP	IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg
BBP	IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg
DEHP	IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg
DIBP	IEC 62321-8:2017	GC-MS	30mg/kg	1000mg/kg

(a) 化学检测结果的单位: 金属的 Cr(VI)是 µg/cm<sup>2</sup>; 其余均为 mg/kg(Unit of Chemical test result: Cr(VI) of metal:µg/cm<sup>2</sup>, Other:mg/kg); µg/cm<sup>2</sup> (microgram per square centimeter 微克每平方厘米), 1mg/kg=1ppm=0.0001%, mg/kg (milligram per kilogram 毫克每千克) = ppm (parts per million 百万分之), ND =未检出(低于方法检出限)(not

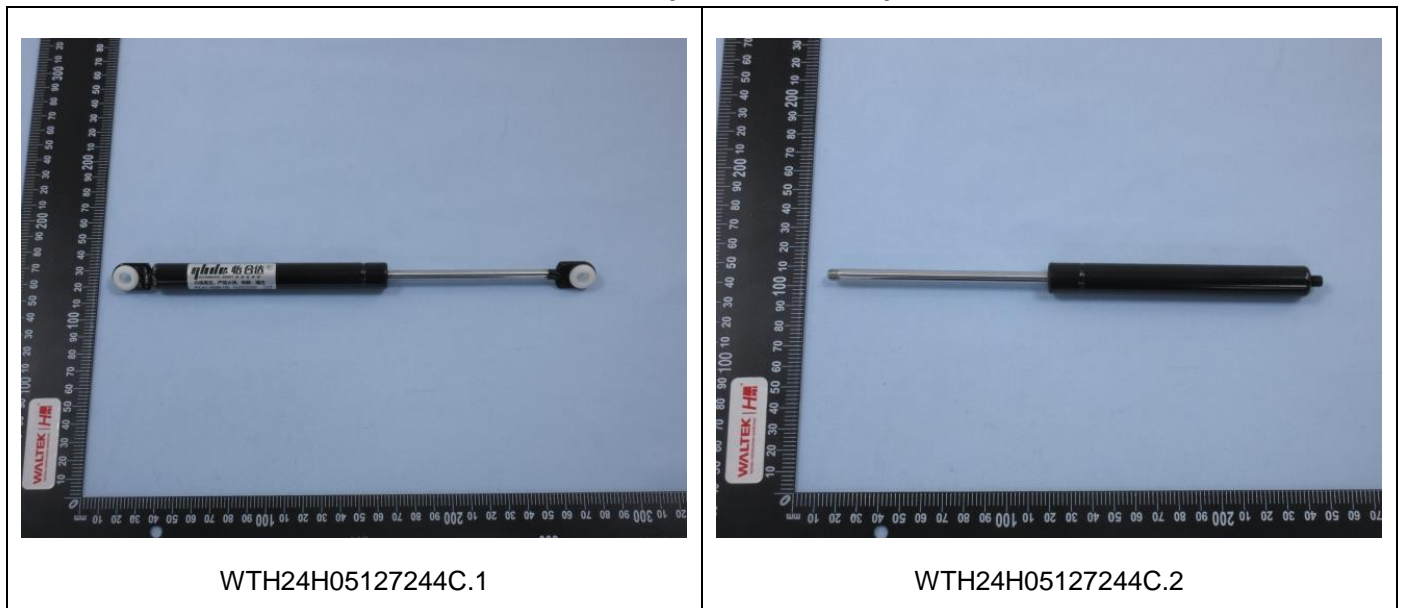


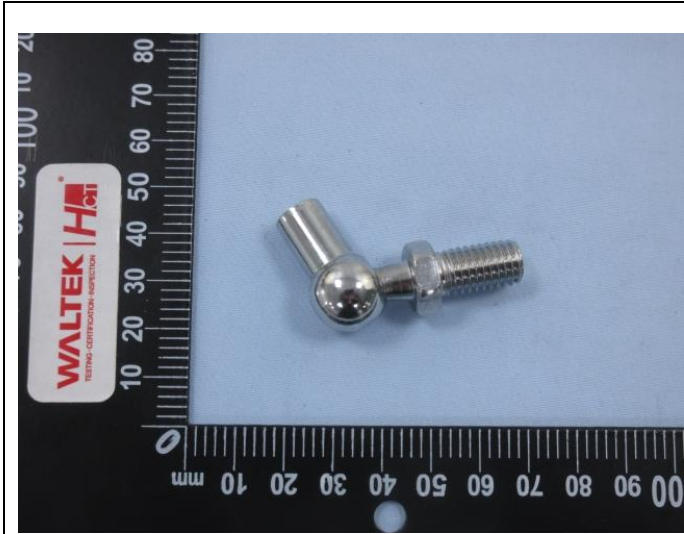
detected (less than method detection limit)), MDL=Method Detection Limit 方法检出限, --- =未进行检测(Not Conducted)

(b) 金属镀层中,按照检测方法 IEC 62321-7-1:2015: ①当六价铬的浓度高于  $0.13\mu\text{g}/\text{cm}^2$  时, 样品为阳性, 即含有六价铬; ②当六价铬的浓度为 ND(低于  $0.10\mu\text{g}/\text{cm}^2$ ) 时, 样品为阴性, 即未检测到六价铬; ③当六价铬的浓度介于  $0.10\mu\text{g}/\text{cm}^2$  与  $0.13\mu\text{g}/\text{cm}^2$  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(For corrosion-protected coatings on metals, according to the test method IEC 62321-7-1:2015: ①The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than  $0.13\mu\text{g}/\text{cm}^2$ . The sample coating is considered to contain Cr(VI); ②The sample is negative for Cr(VI) if Cr(VI) is ND (concentration less than  $0.10\mu\text{g}/\text{cm}^2$ ). The coating is considered a non-Cr(VI) based coating; ③The result between  $0.10\mu\text{g}/\text{cm}^2$  and  $0.13\mu\text{g}/\text{cm}^2$  is considered to be inconclusive -unavoidable coating variations may influence the determination; The surface difference of samples from different individuals may affect the determination results of Cr(VI); Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.)

(3): 对本报告图片中标识的样品进行筛选及化学检测(Screening and chemical tests were performed for the samples indicated by the photo in this report.)

样品附图/ The photo of the sample





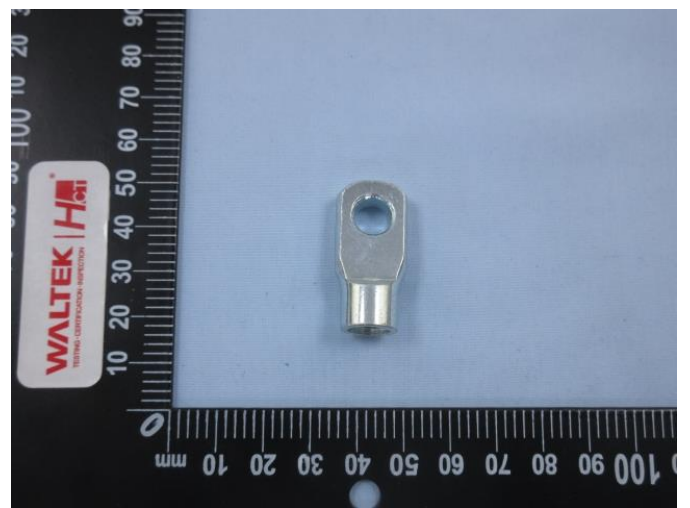
WTH24H05127244C.3



WTH24H05127244C.4

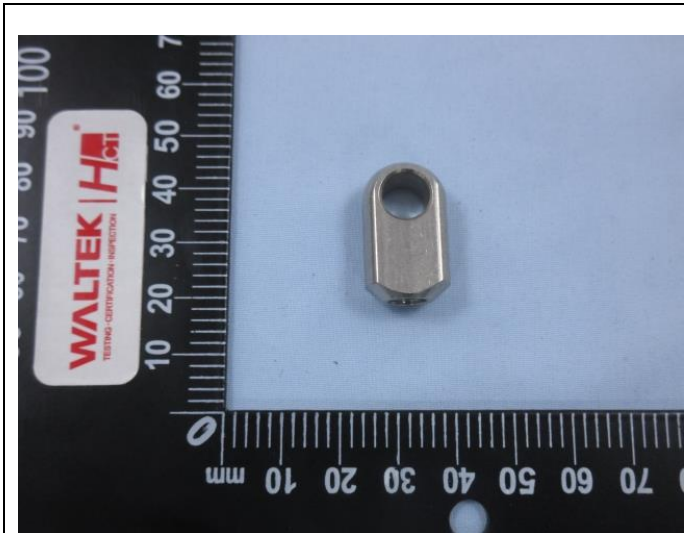


WTH24H05127244C.5

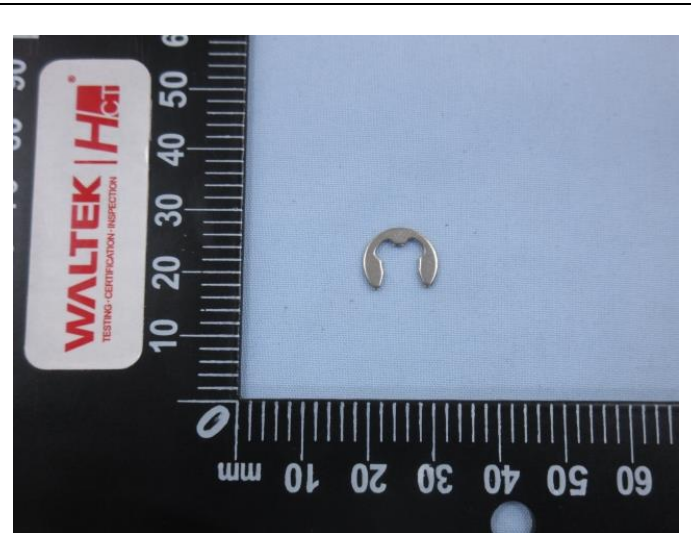


WTH24H05127244C.6





WTH24H05127244C.7



WTH24H05127244C.9



WTH24H05127244C.10



WTH24H05127244C.11



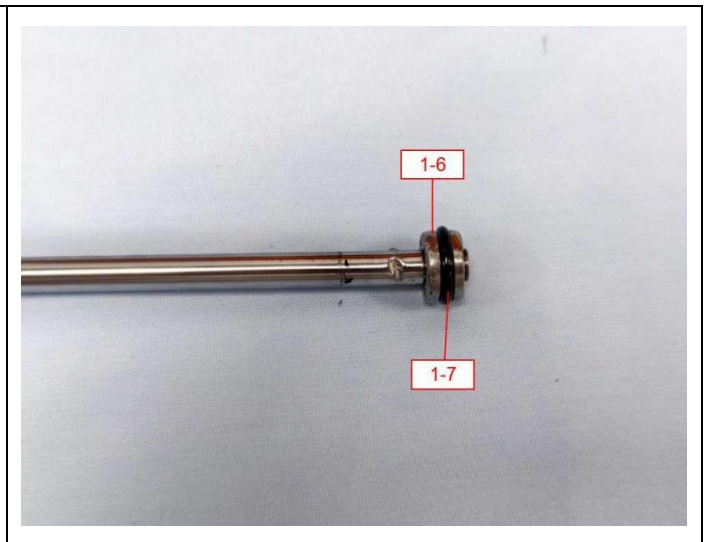
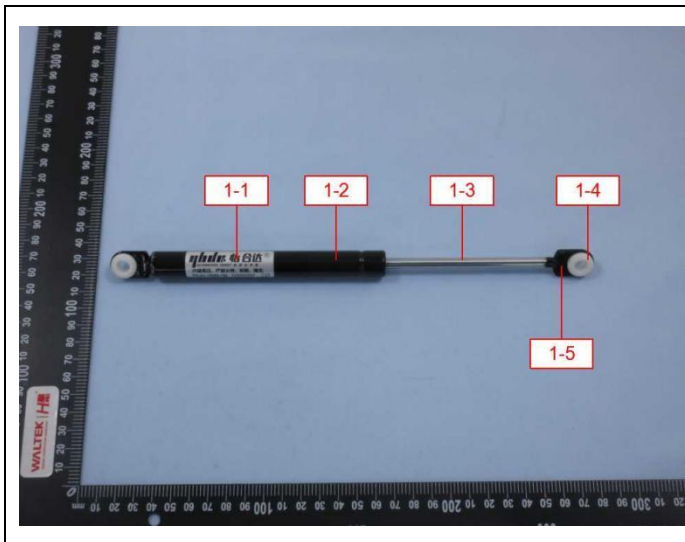


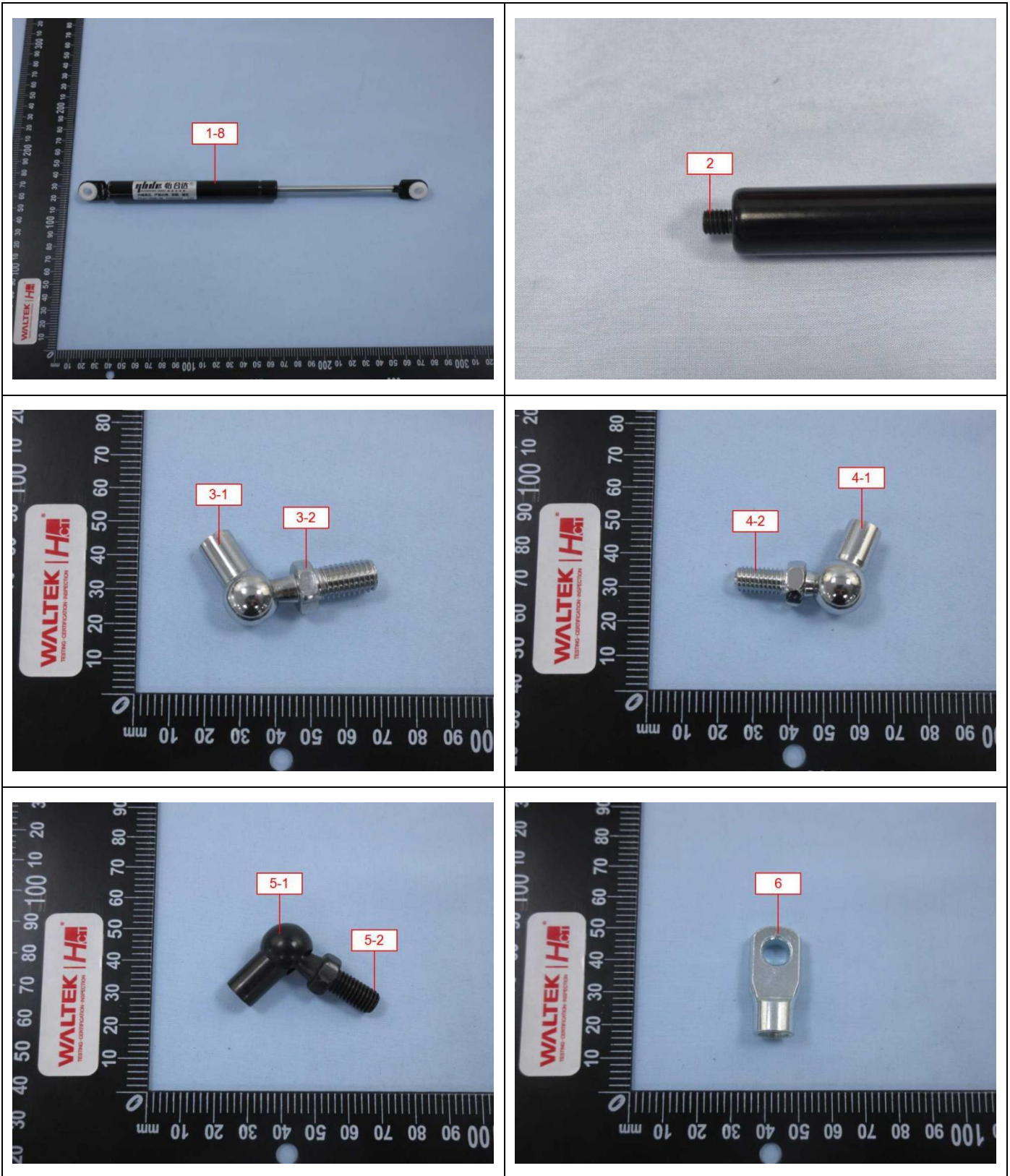
WTH24H05127244C.8

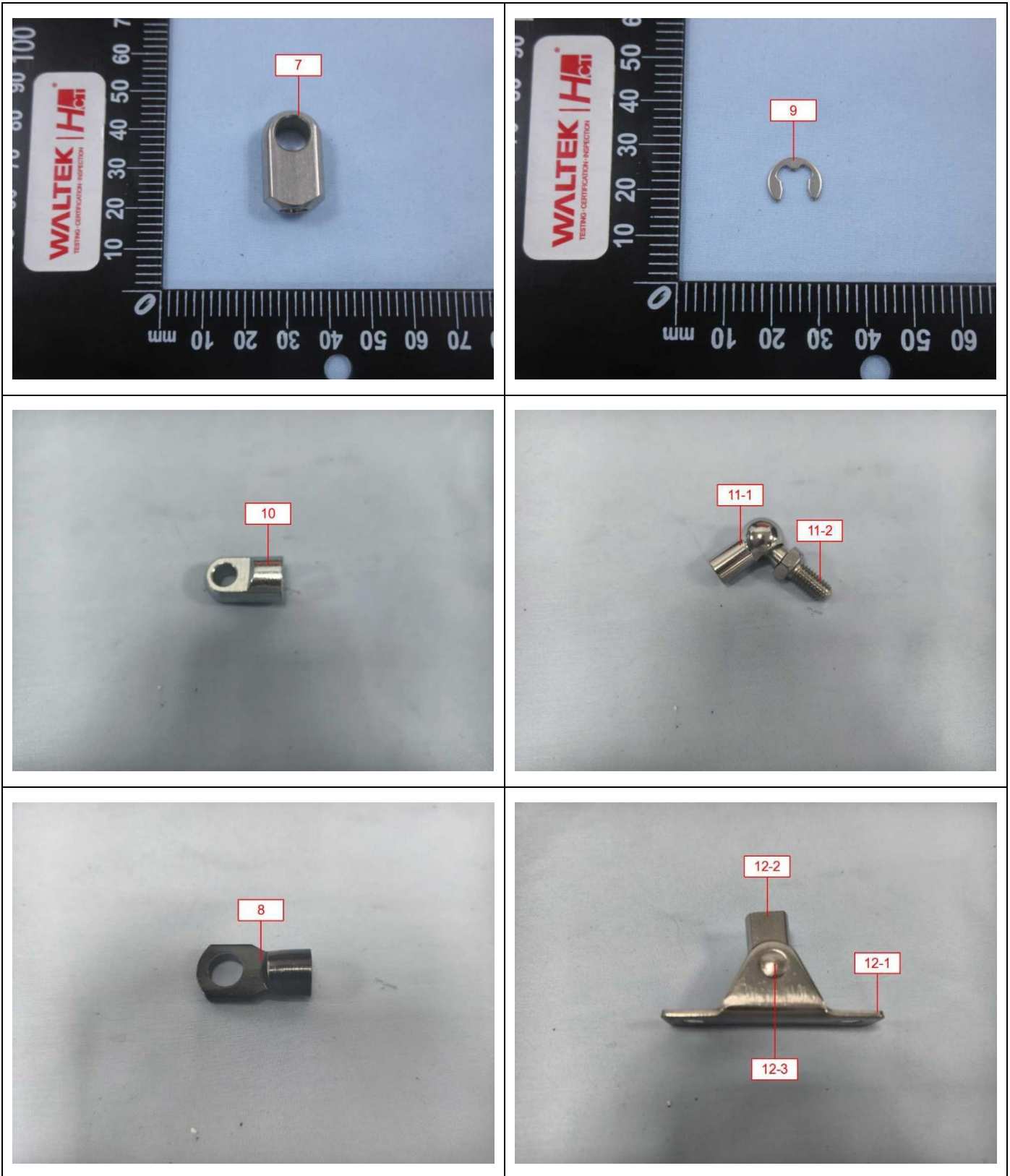


WTH24H05127244C.12

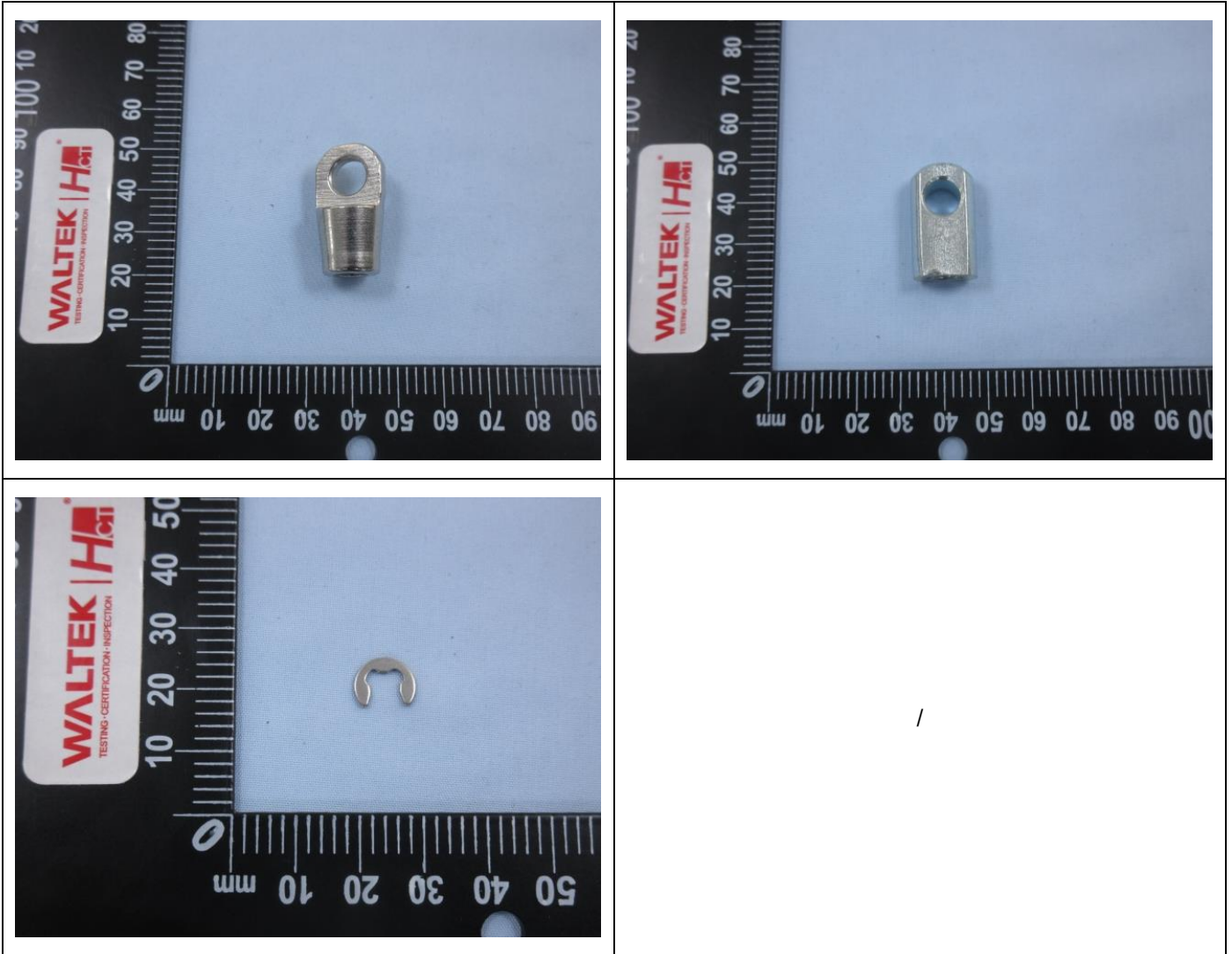
拆分附图/ The photo of Disassembly







客户参考图片(未做检测的样品)/ Client's reference photo(Non-tested sample)



声明/ Statement:

1. 检测报告无批准人签字和专用章无效。  
This report is considered invalid without approved signature and special seal.
2. 委托单位及地址, 样品和样品信息由委托方提供, 委托方应对其真实性负责, HCT 未核实其真实性。  
The Applicant name and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which HCT hasn't verified.
3. 本报告检测结果 (结论) 仅对受测样品负责。  
The result(s)(conclusion) shown in this report refer(s) only to the sample(s) tested.
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The “n” in CNAS logo report means that the test item(s) was (were) currently not applying for CNAS accreditation.
7. 本报告使用的判定规则:  
Decision rules used in this report:  
(1)按照检测要求列的法规/标准中规定的判定规则;  
(2)如果检测要求列的法规中没有规定判定规则的话, 则按照《CNAS-GL015 判定规则和符合性声明指南》6.2.1 简单接受(w=0)的二元判定规则:  
合格(接受)--测得值位于容许区间以内。  
不合格(拒绝)--测得值位于容许区间以外。  
(1)According to the Decision rules in the regulations/standards listed in the Test Requested;  
(2)If there is no Decision rules specified in the regulations listed in the Test Requested, then according to CNAS-GL015 Guidelines on Decision Rules and Statements of Conformity, 6.2.1, Simple Acceptance (w=0) of The binary Decision rule:  
PASS (Accepted) - The measured value is within the tolerance interval.  
FAIL (Rejected) - The measured value is outside the tolerance interval.

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