



检测报告

Test report

Smartguard 睿盾[®]

致力于提供全方位的玻璃易洁产品
从易洁涂料供应、定制化
易洁生产线设备、展示设备、生产工具，到个性化服务方案
我们提供一站式玻璃易洁科技服务

Committed to providing a full range of glass easy cleaning products
From Smartguard coating supply, customized Smartguard produc-
tion line equipment, display equipment, production tools, to
personalized service solutions,
we provide one-stop glass easy clean technology service.

睿盾纳米 Smartguard

把易洁玻璃表面处理技术做到极致
Achieve the peak for easy glass surface
treatment technology

★睿盾纳米的技术概况

涂料分子独特的改性基团，可以极大地提高涂层的疏水、疏油能力，并形成类似于荷叶表面的微观结构，让玻璃达到类似荷叶效应的易洁去污效果。

Technology Overview

The unique modified group of the coating molecule can greatly improve the hydrophobic and oleophobic ability of the coating, and form a microstructure similar to the surface of the lotus leaf, allowing the glass to achieve an easy decontamination effect similar to the lotus leaf effect.

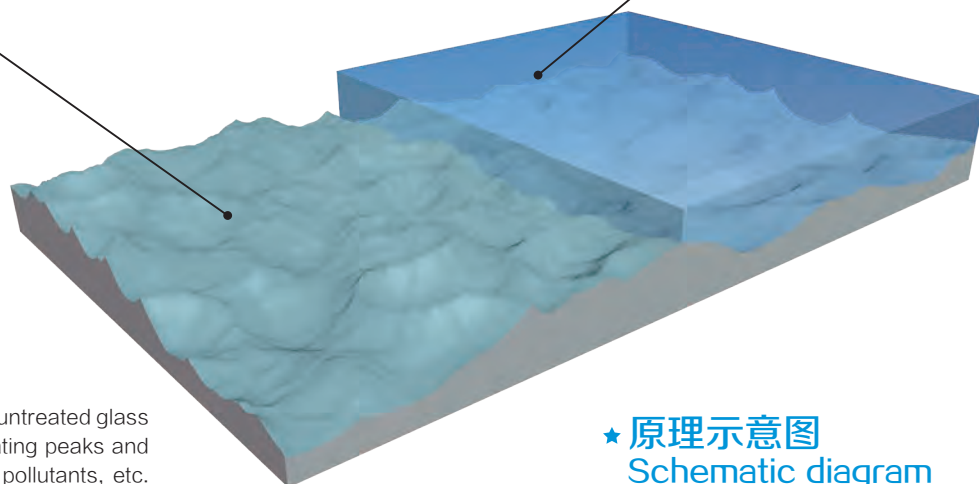
运用标准的施工方法，让涂料与玻璃表面的二氧化硅充分结合，通过分子间的相互作用和新形成涂层内部网状结构变化等一系列的化学反应，最终以化学共价键形式键合在玻璃表面，形成全透光纳米级厚度的超薄保护层。该保护层完全覆盖在玻璃表面，从物理层面上隔绝玻璃表面与污染物的接触，可以尽可能长时间的保持玻璃的洁净度，不仅更易清洁，且牢固耐擦洗，满足人们对高品质生活的追求。

Using standard coating application methods, the coating is fully combined with the silica on the glass surface, and through a series of chemical reactions such as molecular interactions and changes in the internal network structure of the newly formed coating, the final bonding is in the form of chemical covalent bonds. On the surface of the glass, an ultra-thin protective coating with full light transmission nanometer thickness is formed. The protective coating completely covers the glass surface, physically isolates the glass surface from contact with pollutants, and can maintain the cleanliness of the glass for a long time. The glass is not only easier to clean, but also firm and resistant to scrubbing, It satisfies people's pursuing of high-quality life.

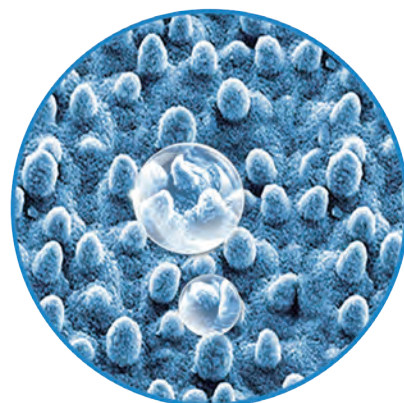
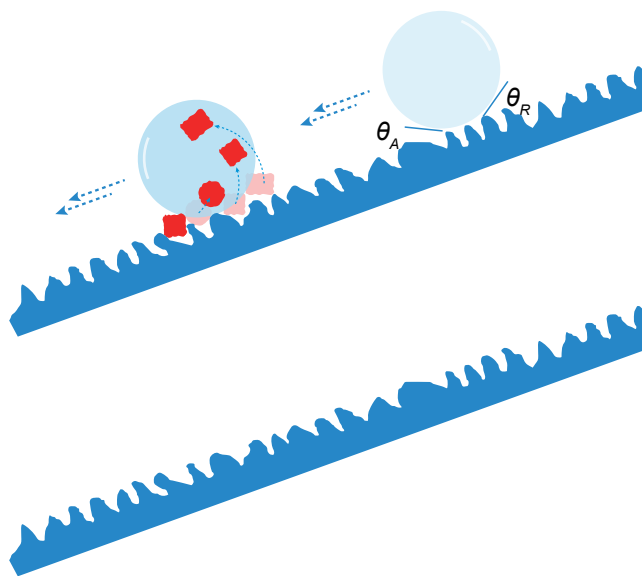
普通玻璃表面微观结构 Untreated Glass Surface Micro Structure

在微观世界中，未经处理的玻璃表面并不是平整、光滑的，存在着高低起伏的峰谷。微小的灰尘颗粒、污垢水、污染物等会侵入到这些峰谷之中，造成难以清洁的污渍。

In the microscopic world, the surface of untreated glass is not flat and smooth, there are undulating peaks and valleys. Tiny dust particles, dirt water, pollutants, etc. will invade these peaks and valleys, causing stains that are difficult to clean.



★原理示意图
Schematic diagram



睿盾纳米 涂层微观结构
Smartguard Nano Coating
Micro Structure

Smartguard 睿盾[®]

认证概况

睿盾玻璃抗污易洁涂料系列产品，均已通过SGS，浙江大学材料学院权威检测，性能指标符合中国GB/T37830-2019及欧盟RoHS指令标准。

- 耐摩擦检测通过10万次；
- 耐酸耐碱；
- 产品绿色环保，符合欧盟ROHS指令的要求，不含有有害的含氟PFOA、PFOS化合物及其衍生物。

易洁表面 价值无限 Smarter Surface Create More Value

深圳市睿盾纳米新材料有限公司

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日期 : 2021-03-15

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客户名称: 深圳市睿盾纳米新材料有限公司
客户地址: 深圳市南山区蛇口沿山路 45 号佳利泰大厦 9B 室

样品名称 : 睿盾牌抗污易洁涂层玻璃

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Guangzhou Branch Testing, Inspection & Reliability Laboratory

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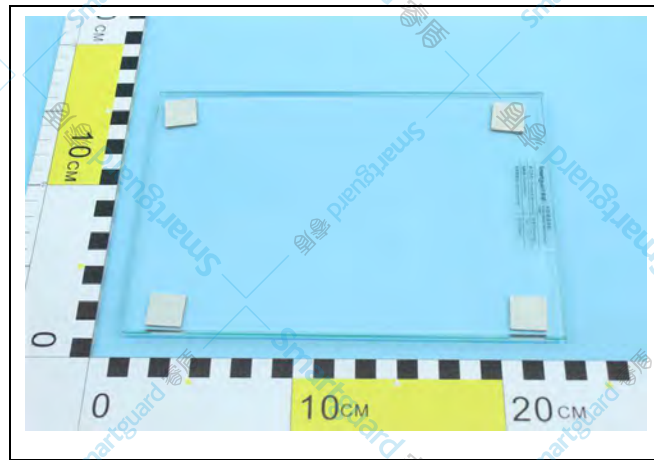
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结果总结:

序号	测试项目	测试方法	结果	结论
1	耐磨性测试	参照 GB/T 3920-2008 和客户要求	外观和红墨水的易清洁性 无变化	合格
2	耐洗涤剂	AAMA 2605-20 第 8.7.4 节	无附着力损失, 无起泡或 其他可见变化	合格
3	耐酸性	AAMA 2605-20 第 8.7.1 节	无可见变化	合格
4	耐窗户清洗剂	AAMA 2605-20 第 8.7.5 节 & ASTM D3359-17	无起泡或其他可见变化, 划格区域涂膜无脱落	合格

备注: 合格: 达到要求
 不合格: 未达到要求
 /: 不下判定

原样照片:



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1.测试项目: 耐磨性测试

样品描述: 易洁涂层玻璃板

测试方法: 参照 GB/T 3920-2008 和客户要求

试验条件:

负载: 150g

摩擦材料: 2层无尘布 (客户提供)

摩擦头规格: $\phi 10\text{mm}$

摩擦速率: 60cpm

摩擦次数: 100000 次 (完整一个来回为一次)

行程: 60mm

每 2500 次摩擦后, 观察样品的外观变化, 并对摩擦区域和未测试区域滴加红墨水, 进行红墨水的易清洁性比较。

测试结果:

摩擦次数	测试结果	客户要求	结论
2500	外观和红墨水的易清洁性无变化	100000 次后, 外观和红墨水的易清洁性无变化	合格
5000	外观和红墨水的易清洁性无变化		
7500	外观和红墨水的易清洁性无变化		
10000	外观和红墨水的易清洁性无变化		
12500	外观和红墨水的易清洁性无变化		
15000	外观和红墨水的易清洁性无变化		
17500	外观和红墨水的易清洁性无变化		
20000	外观和红墨水的易清洁性无变化		
22500	外观和红墨水的易清洁性无变化		
25000	外观和红墨水的易清洁性无变化		
27500	外观和红墨水的易清洁性无变化		
30000	外观和红墨水的易清洁性无变化		
32500	外观和红墨水的易清洁性无变化		



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摩擦次数	测试结果	客户要求	结论
35000	外观和红墨水的易清洁性无变化	100000 次后, 外观 和红墨水的易清洁 性无变化	合格
37500	外观和红墨水的易清洁性无变化		
40000	外观和红墨水的易清洁性无变化		
42500	外观和红墨水的易清洁性无变化		
45000	外观和红墨水的易清洁性无变化		
47500	外观和红墨水的易清洁性无变化		
50000	外观和红墨水的易清洁性无变化		
52500	外观和红墨水的易清洁性无变化		
55000	外观和红墨水的易清洁性无变化		
57500	外观和红墨水的易清洁性无变化		
60000	外观和红墨水的易清洁性无变化		
62500	外观和红墨水的易清洁性无变化		
65000	外观和红墨水的易清洁性无变化		
67500	外观和红墨水的易清洁性无变化		
70000	外观和红墨水的易清洁性无变化		
72500	外观和红墨水的易清洁性无变化		
75000	外观和红墨水的易清洁性无变化		
77500	外观和红墨水的易清洁性无变化		
80000	外观和红墨水的易清洁性无变化		
82500	外观和红墨水的易清洁性无变化		
85000	外观和红墨水的易清洁性无变化		
87500	外观和红墨水的易清洁性无变化		
90000	外观和红墨水的易清洁性无变化		
92500	外观和红墨水的易清洁性无变化		
95000	外观和红墨水的易清洁性无变化		
97500	外观和红墨水的易清洁性无变化		



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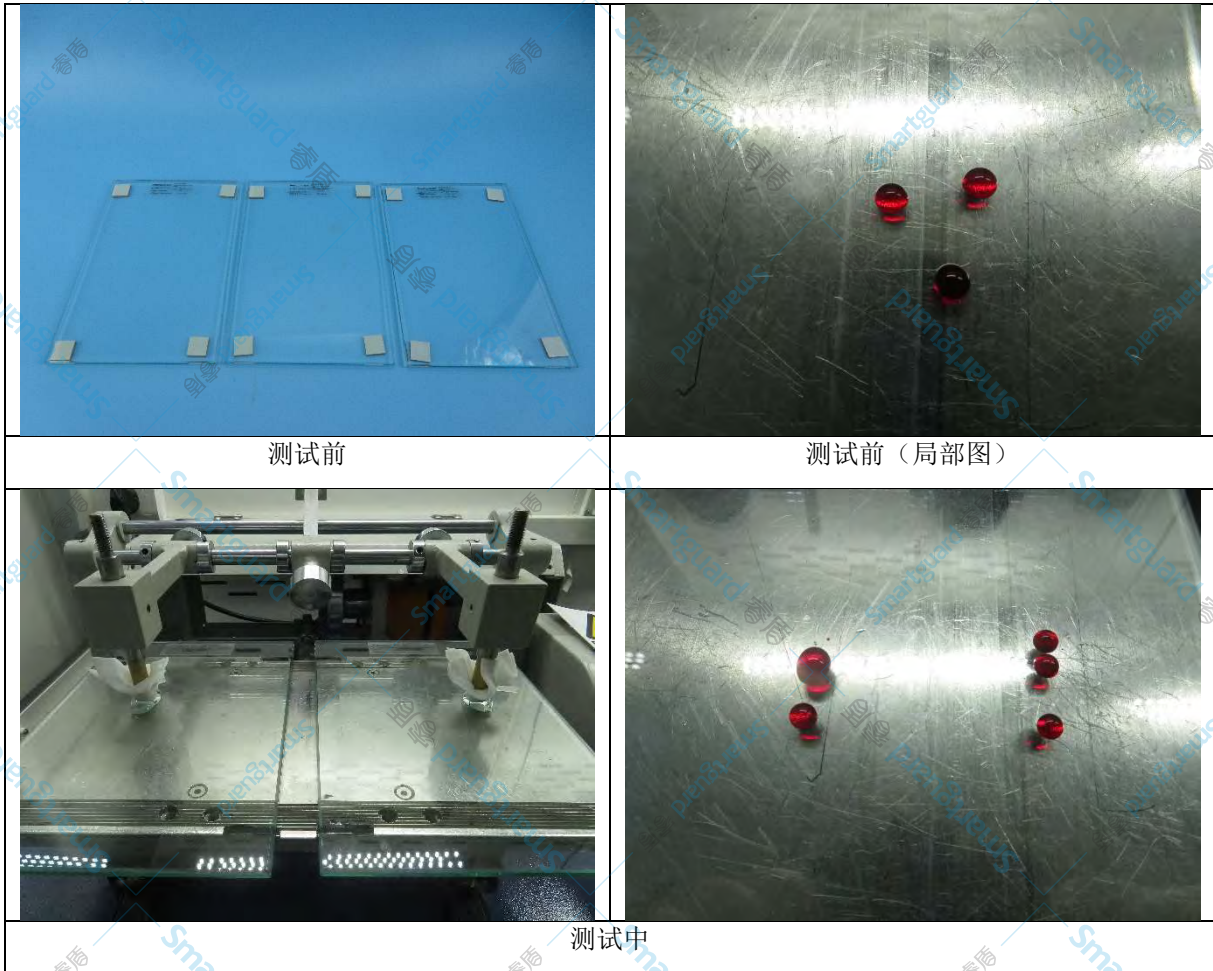
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摩擦次数	测试结果	客户要求	结论
100000	外观和红墨水的易清洁性无变化	100000 次后, 外观 和红墨水的易清洁 性无变化	合格

测试照片:



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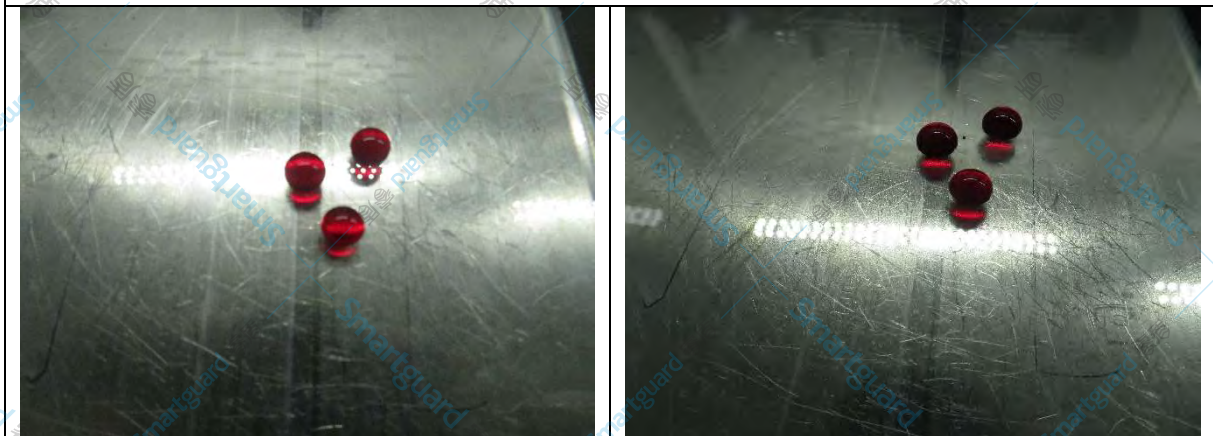
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参照样品

测试样品



测试后-2500次

测试后-5000次



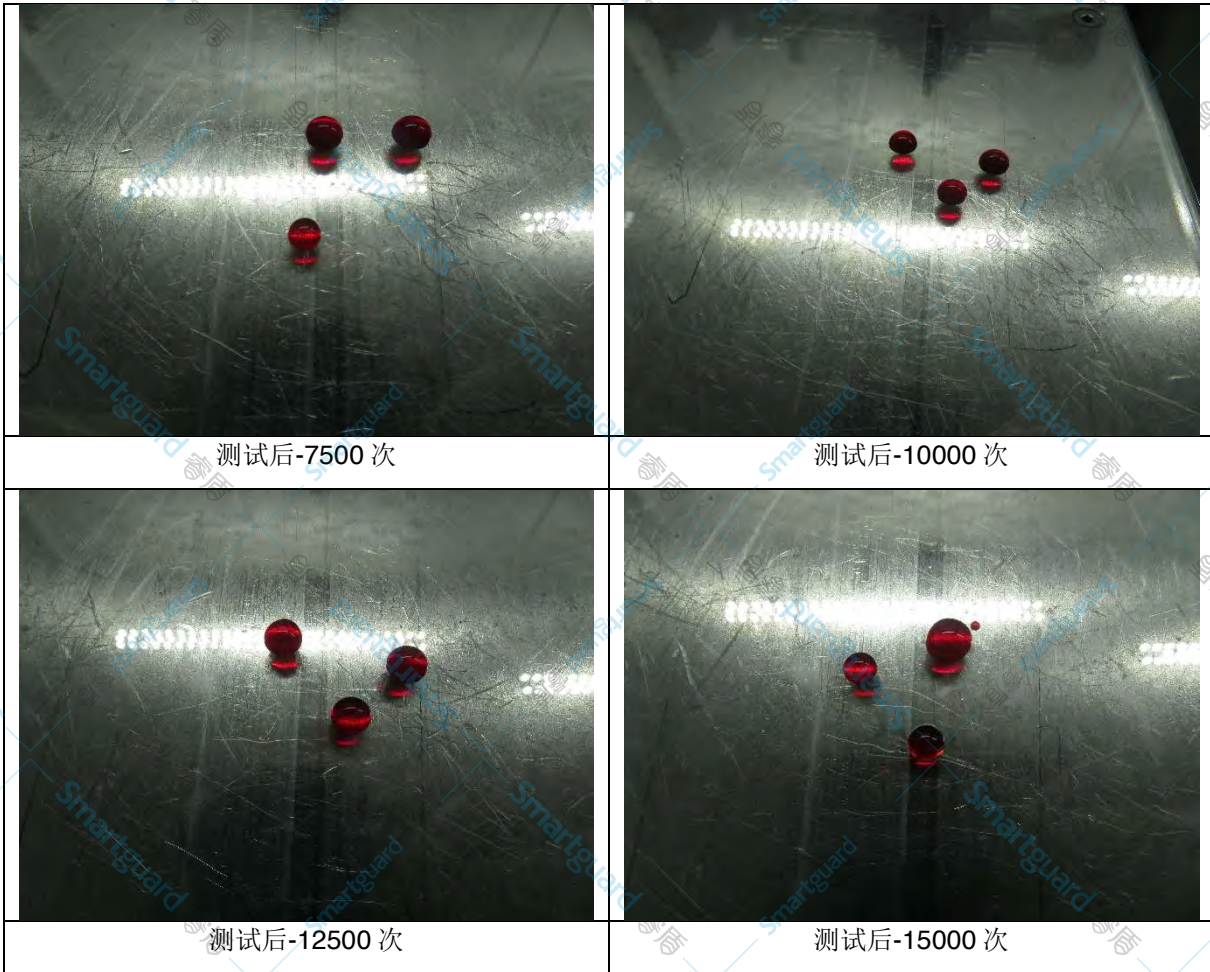
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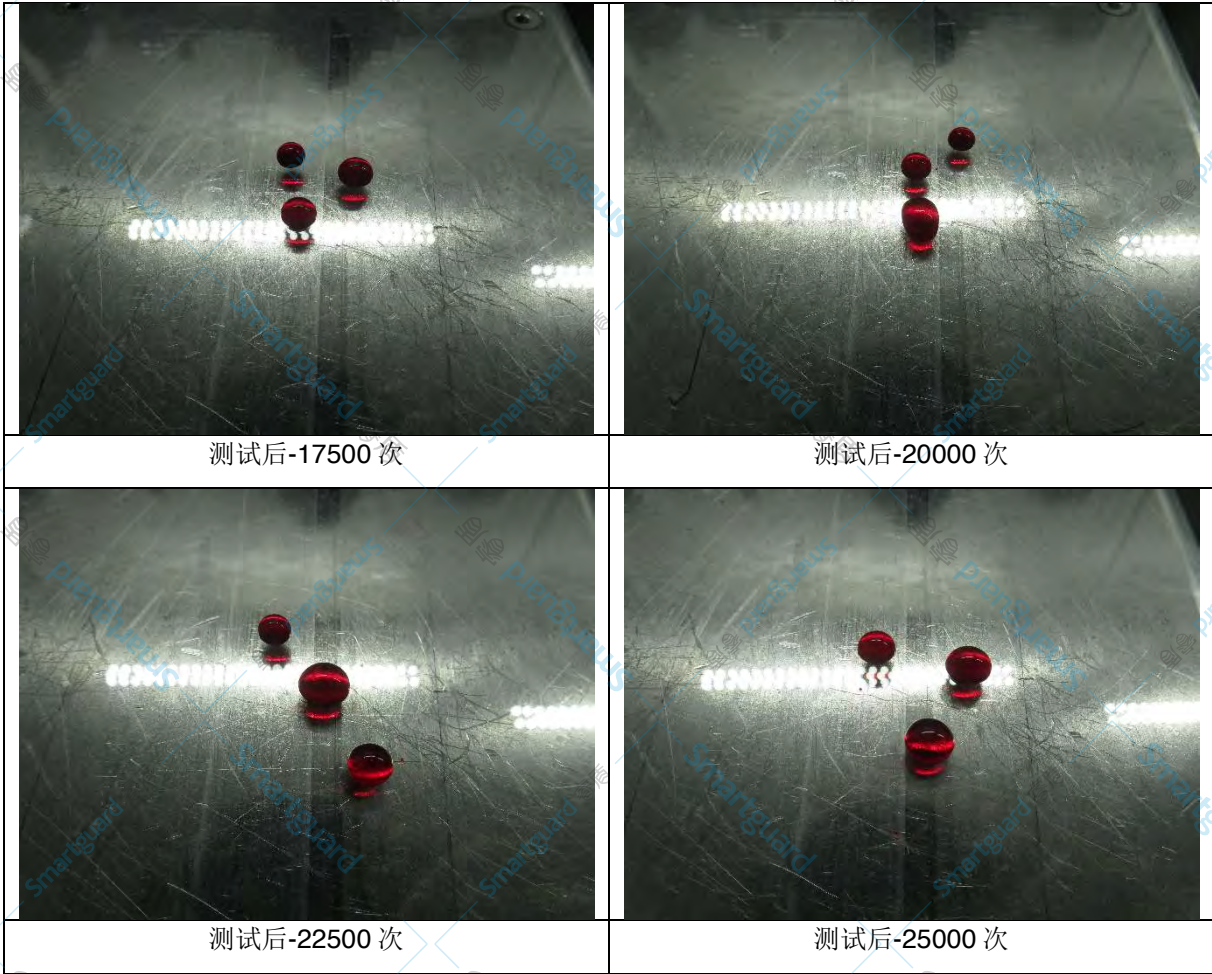
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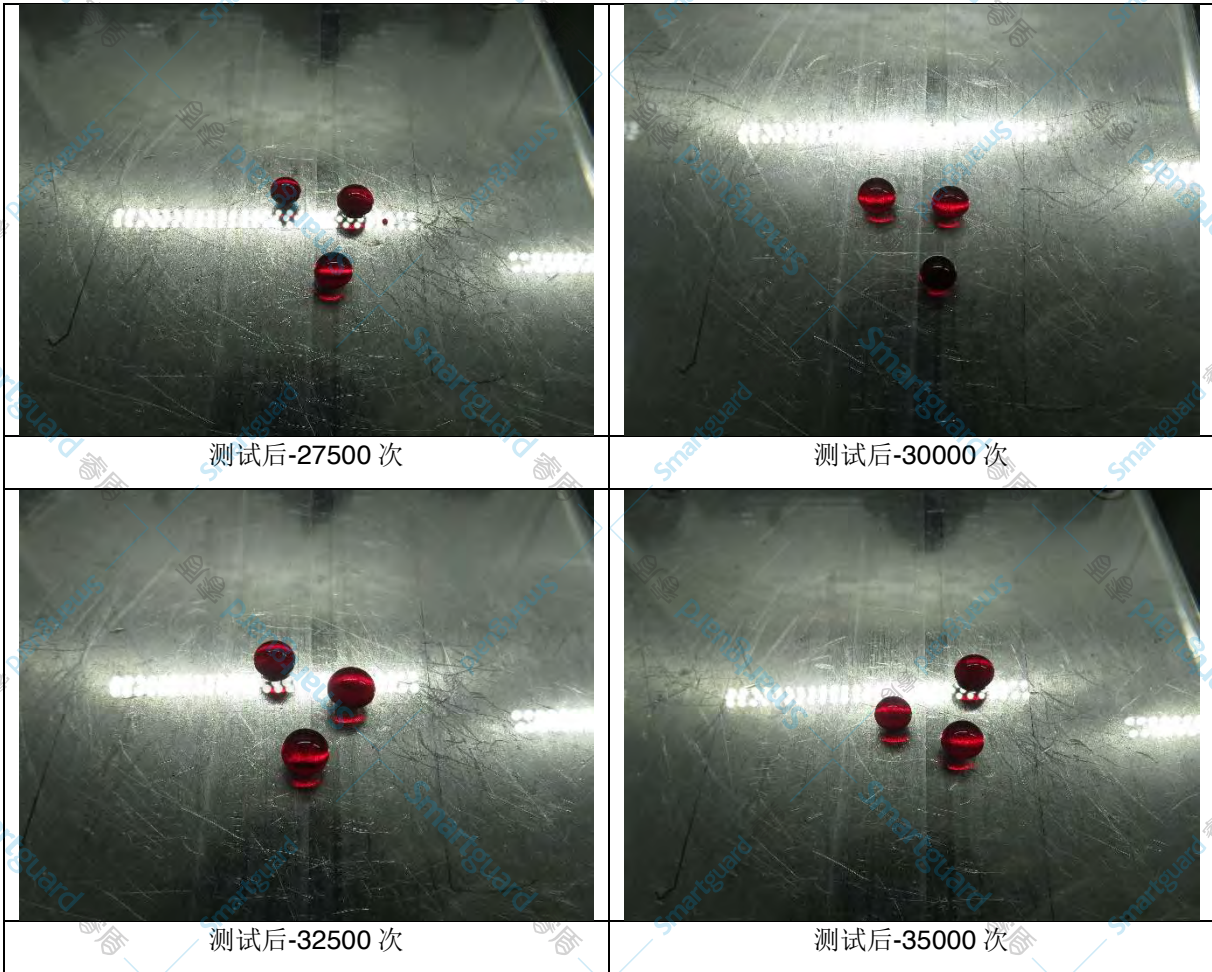
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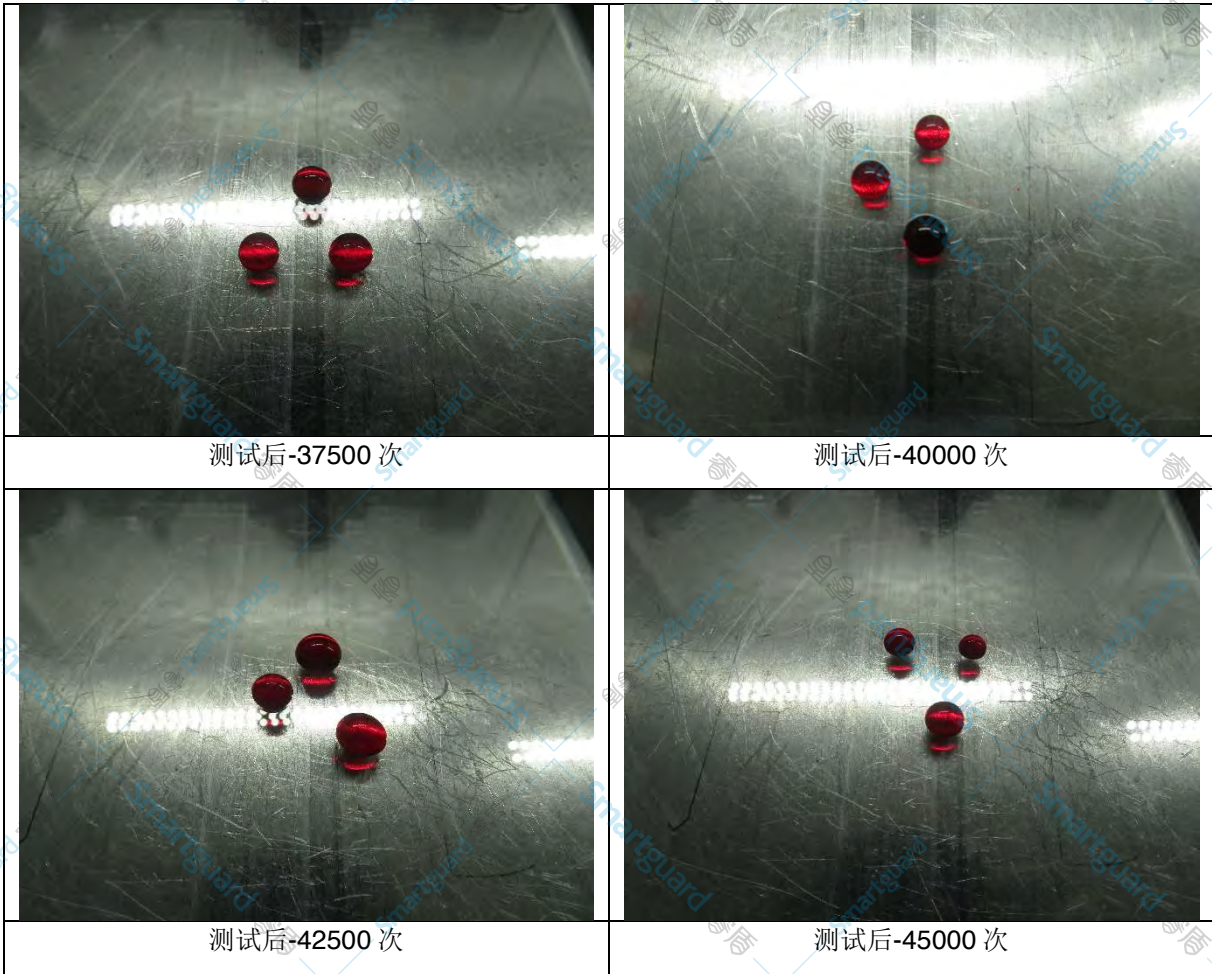
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检测报告

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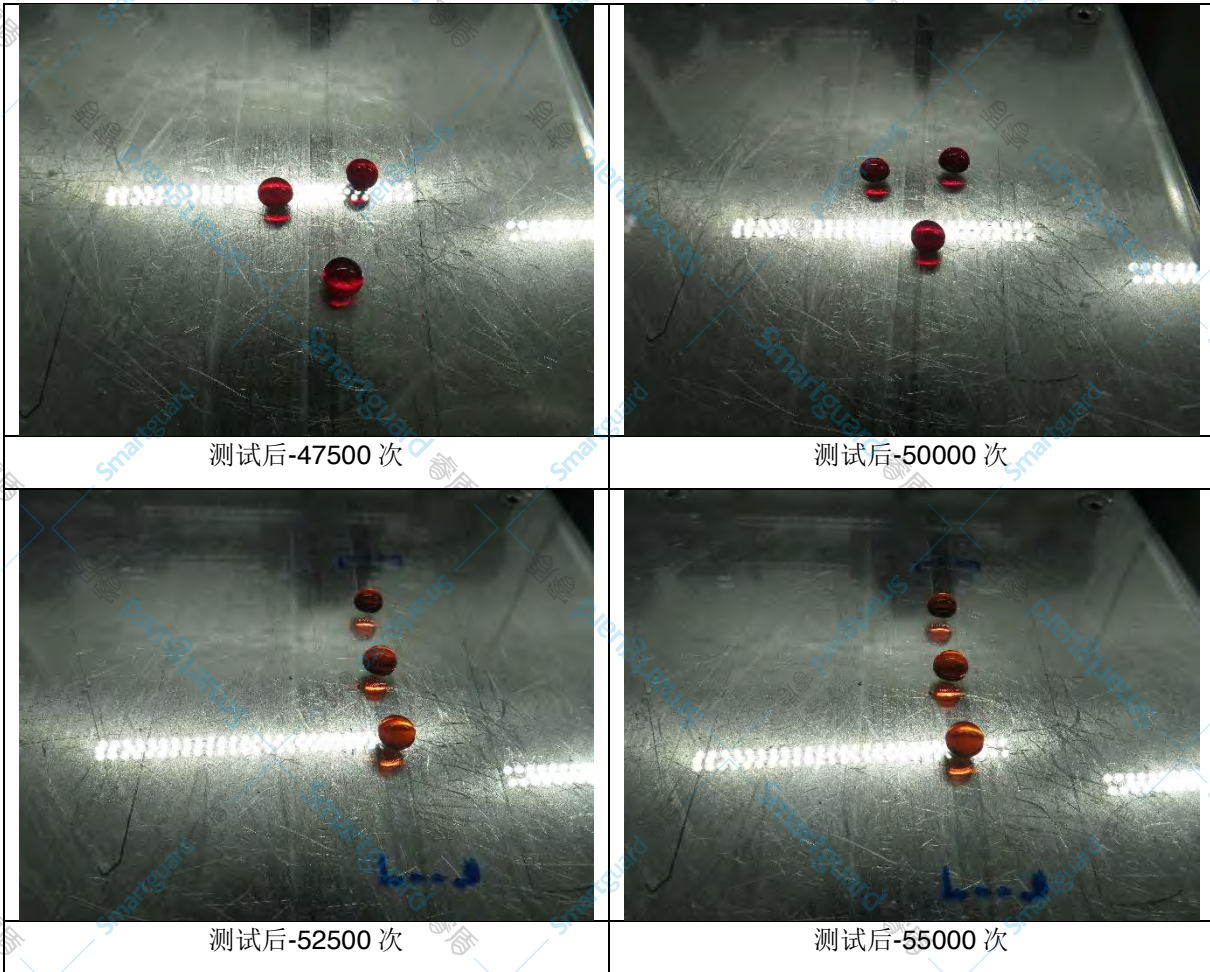
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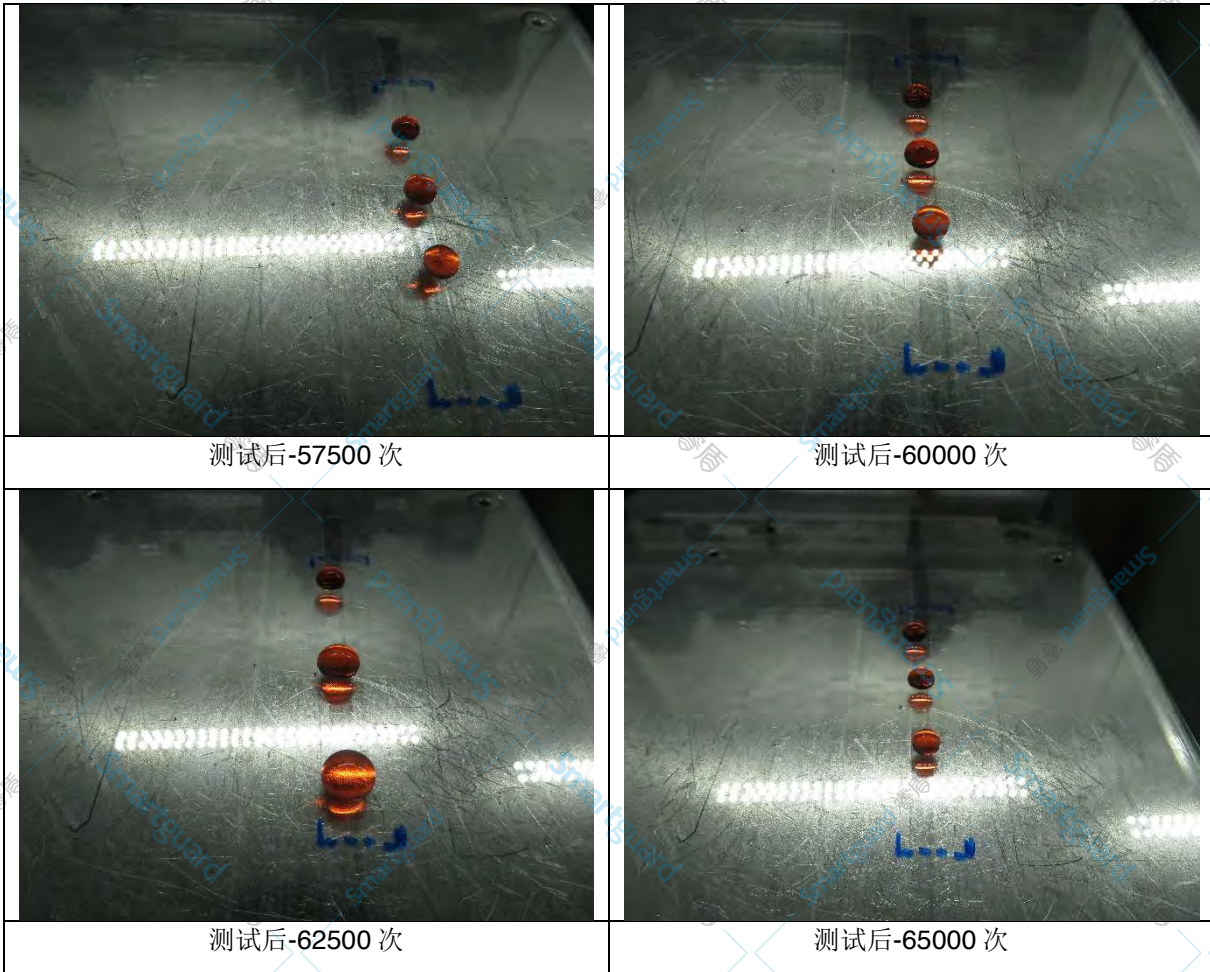
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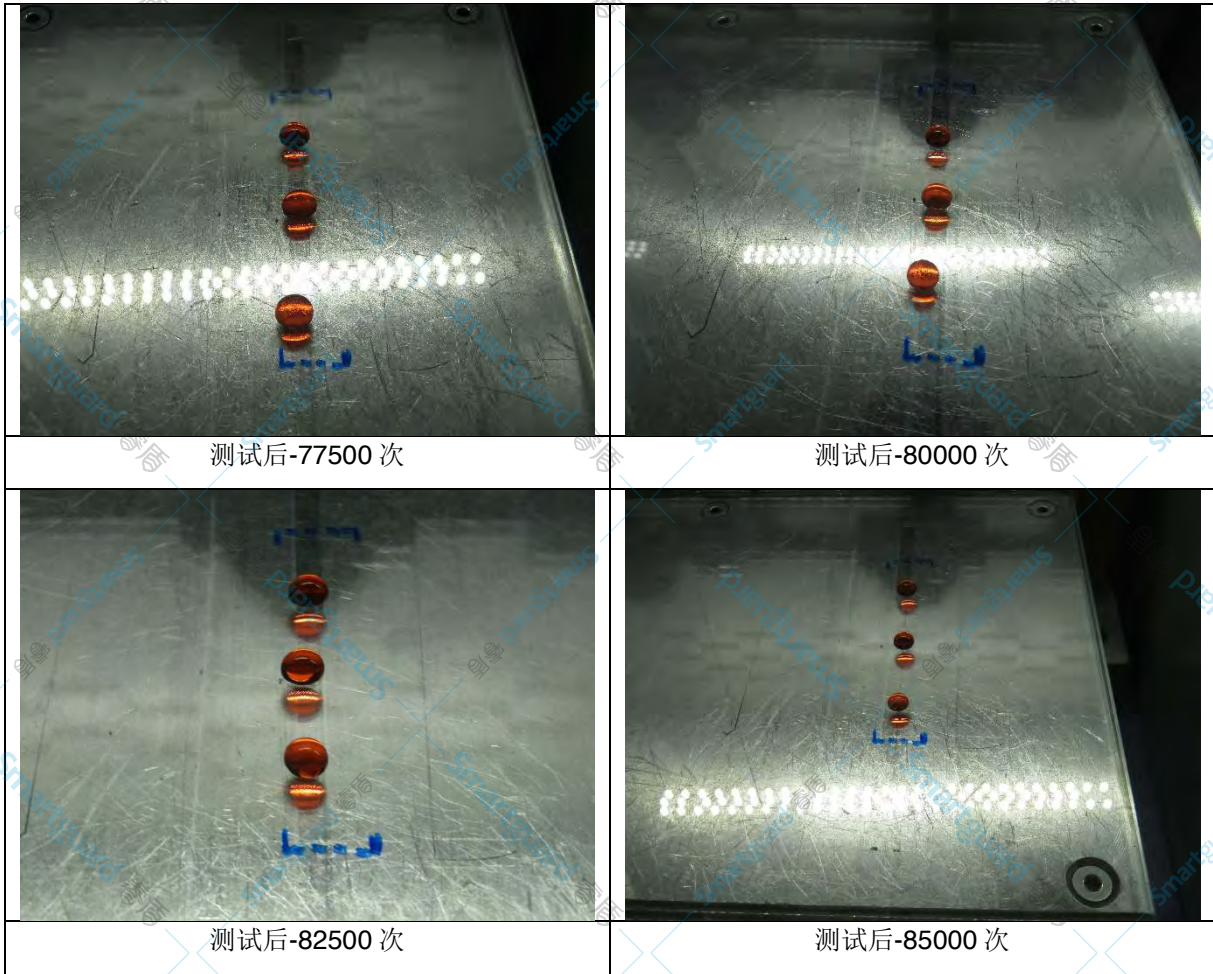
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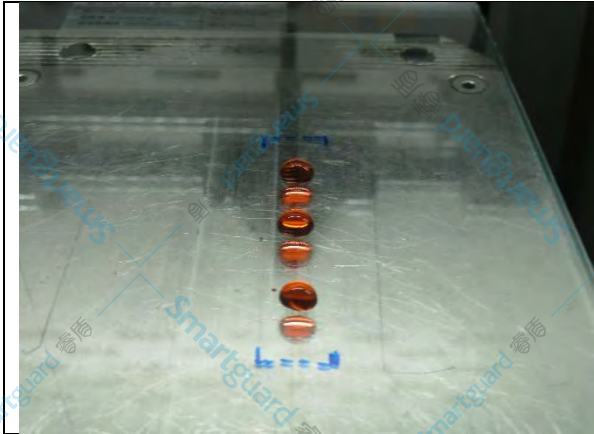
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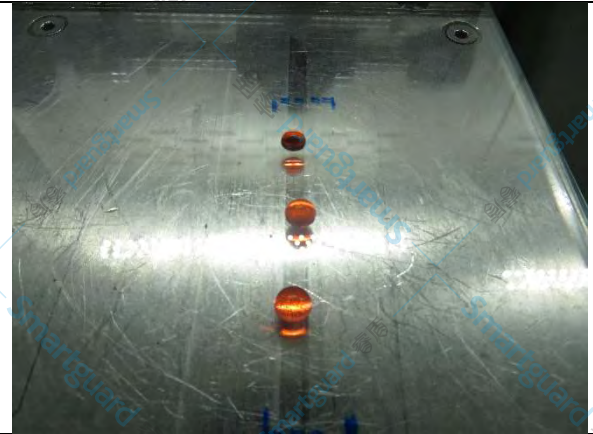
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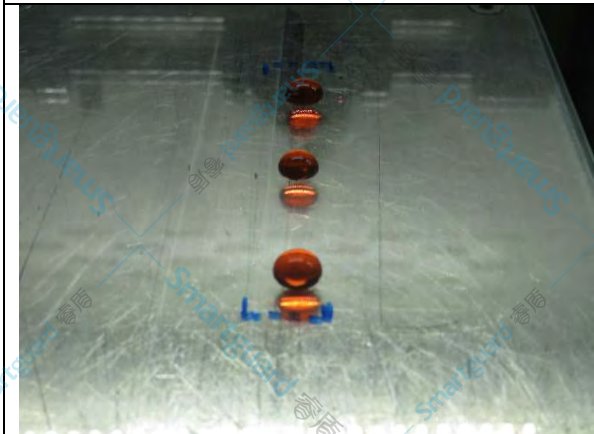
页码 : 15 of 24



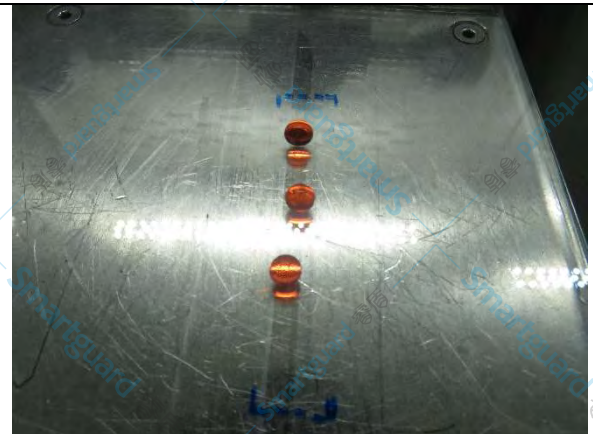
测试后-87500 次



测试后-90000 次



测试后-92500 次



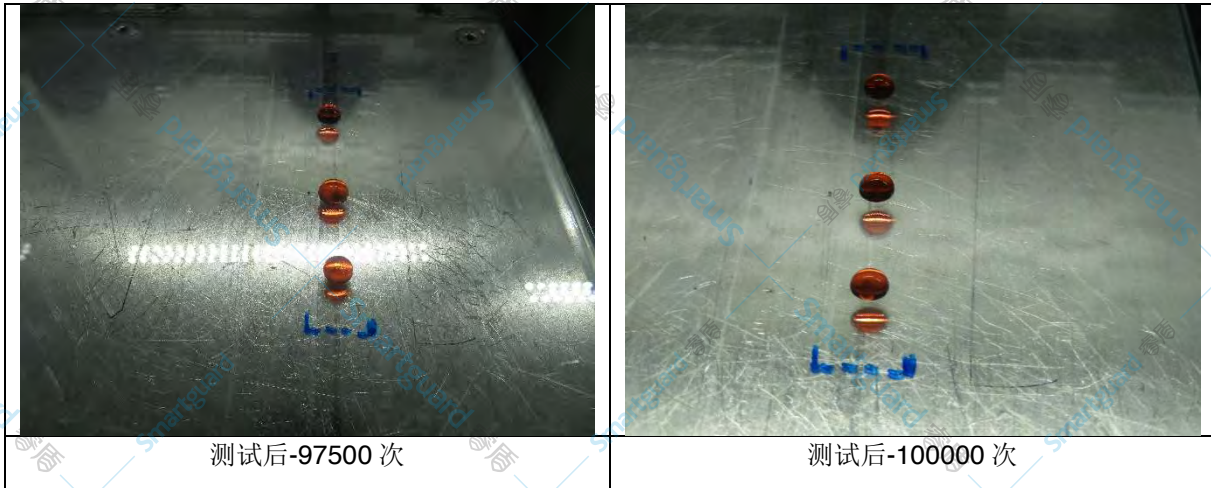
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编号 : GZIN2101006053MR_CN
 日期 : 2021-03-15
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设备信息:

设备	型号	设备编号	校准日期	下次校准日期
电动式摩擦脱色试验机	TG-5223-A	GZMR-AG-E126	2020-09-15	2021-09-14



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检测报告

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2.测试项目: 耐洗涤剂

样品描述: 易洁涂层玻璃板

测试方法: AAMA 2605-20 第 8.7.4 节

测试条件:

温度: 38°C

接触时间: 72h

胶带: Elcometer 99

测试结果:

测试项目	测试结果	AAMA 2605-20 要求	结论
耐洗涤剂	无附着力损失, 无起泡或其他可见变化	无附着力损失、无起泡或其它可见变化	合格

备注: 清洁剂成分如下:

无水焦磷酸四钠(AR): 53%(m/m)

无水硫酸钠(AR): 19%(m/m)

十二烷基磺酸钠(AR): 20%(m/m)

水合硅酸钠(AR): 7%(m/m)

无水碳酸钠(AR): 1%(m/m)

取上述清洁剂配置成 30g/L 清洁剂



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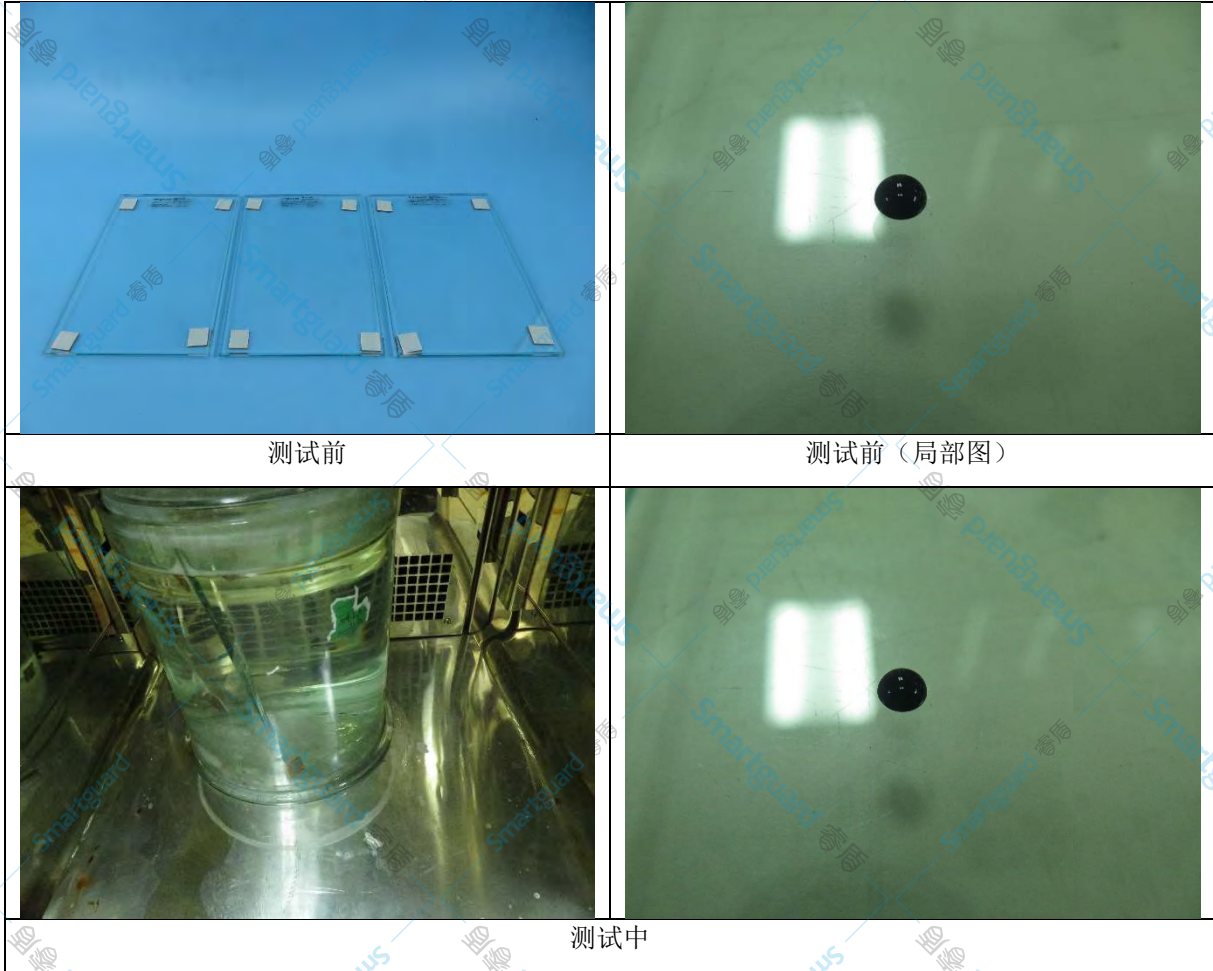
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测试照片:



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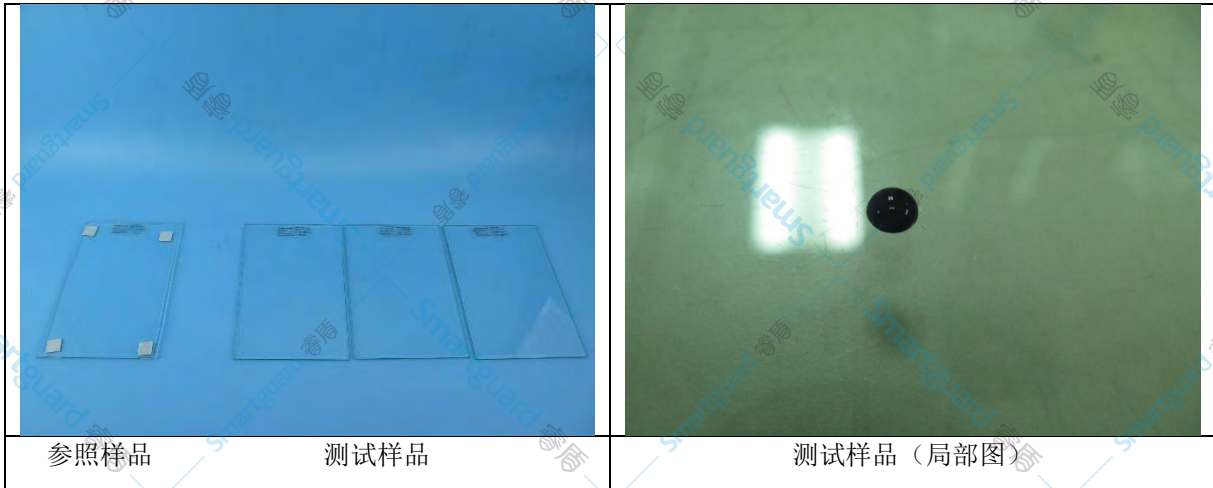
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设备信息:

设备	型号	设备编号	校准日期	下次校准日期
电子天平	JJ2000B	GZMR-AG-E213	2020-04-27	2021-04-26
换气高温箱	MS-GW-150B	GZMR-PL-E151	2020-09-14	2021-09-13



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检测报告

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3.测试项目: 耐盐酸性

样品描述: 易洁涂层玻璃板

测试方法: AAMA 2605-20 第 8.7.1 节

测试条件:

介质: 10%(V/V) HCl

接触方式: 点滴法

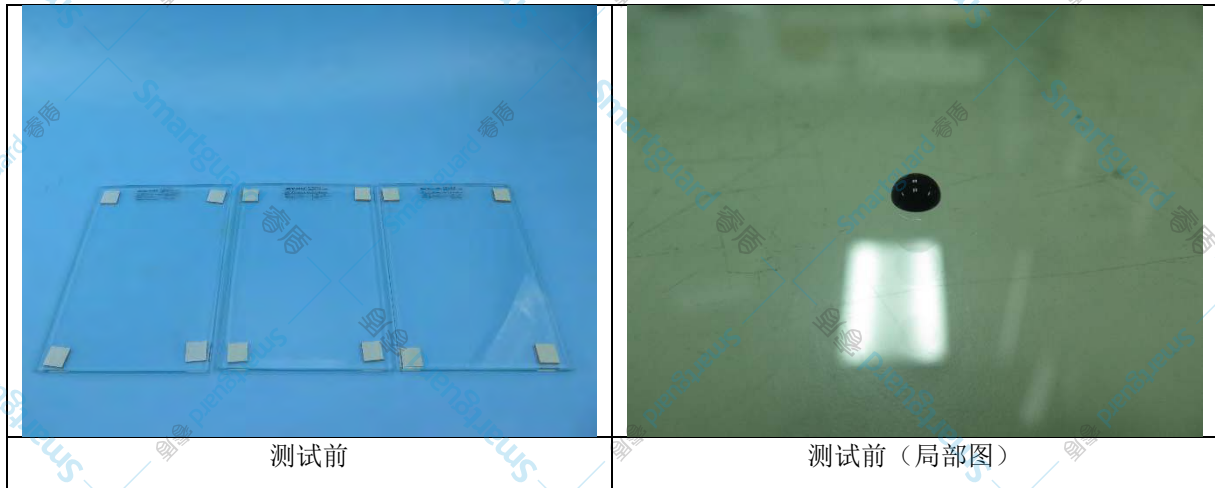
温度: 室温

接触时间: 15min

测试结果:

测试项目	测试结果	AAMA 2605-20 要求	结论
耐盐酸性	无可见变化	无起泡或其它可见变化	合格

测试照片:



测试前

测试前 (局部图)



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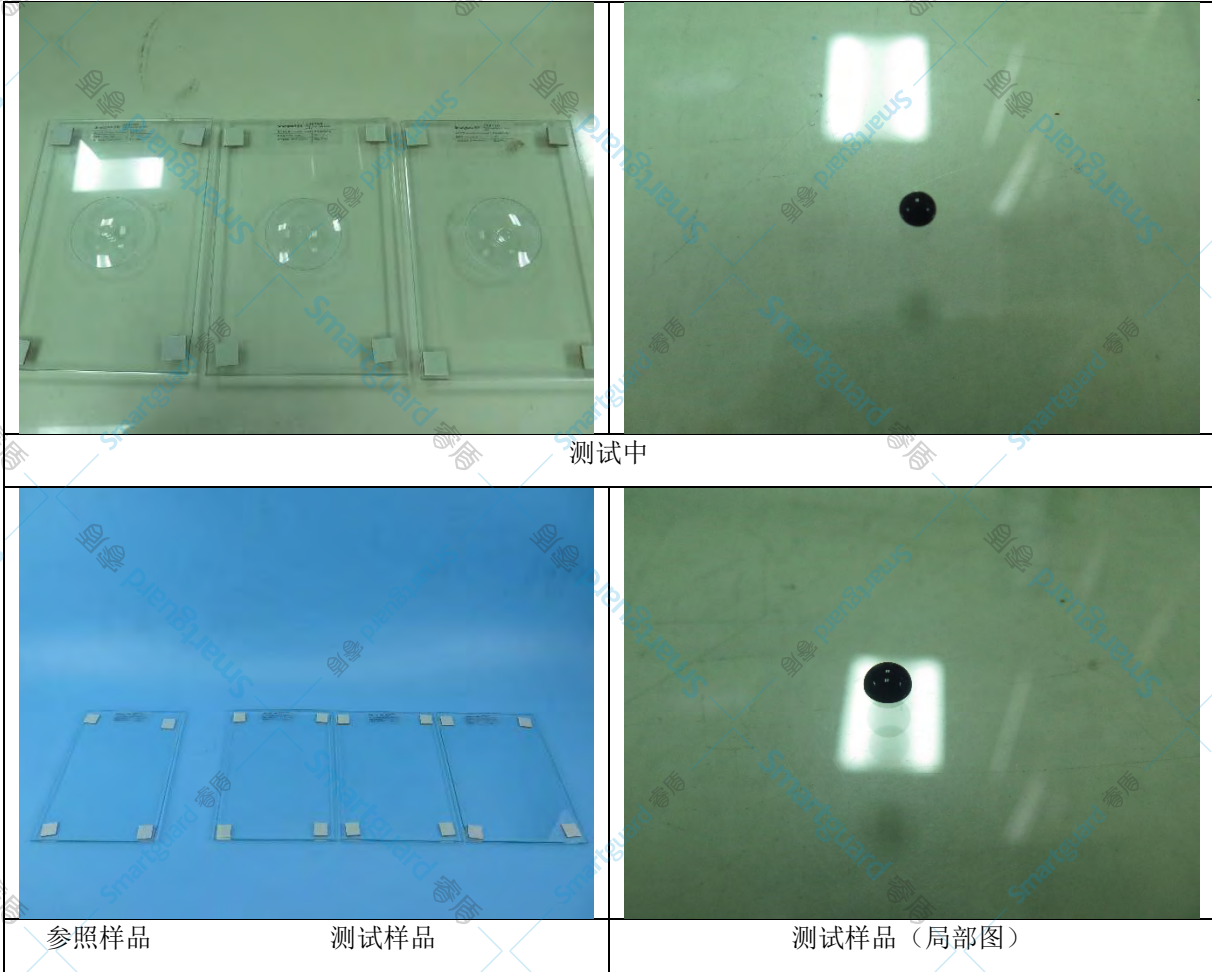
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日期 : 2021-03-15

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4.测试项目:耐窗户清洗剂

样品描述:易洁涂层玻璃板

测试方法:AAMA 2605-20 第 8.7.5 节 & ASTM D3359-17

测试条件:

介质:玻璃清洁剂(见备注)

接触方式:点滴法

温度:室温

接触时间:24h

划格间距:1mm

胶带:Elcometer 99

测试日期:2021-01-29~2021-02-04

测试结果:

测试项目	测试结果	AAMA 2605-20 要求	结论
耐窗户清洗剂	无起泡或其他可见变化,划格区域涂膜无脱落	无起泡或其他可见变化,划格区域涂膜无脱落	合格

备注:玻璃清洁剂成分如下:

丙二醇甲醚(AR):5%(m/m)

丙二醇(AR):5%(m/m)

异丙醇(AR):35%(m/m)

纯水:55%(m/m)



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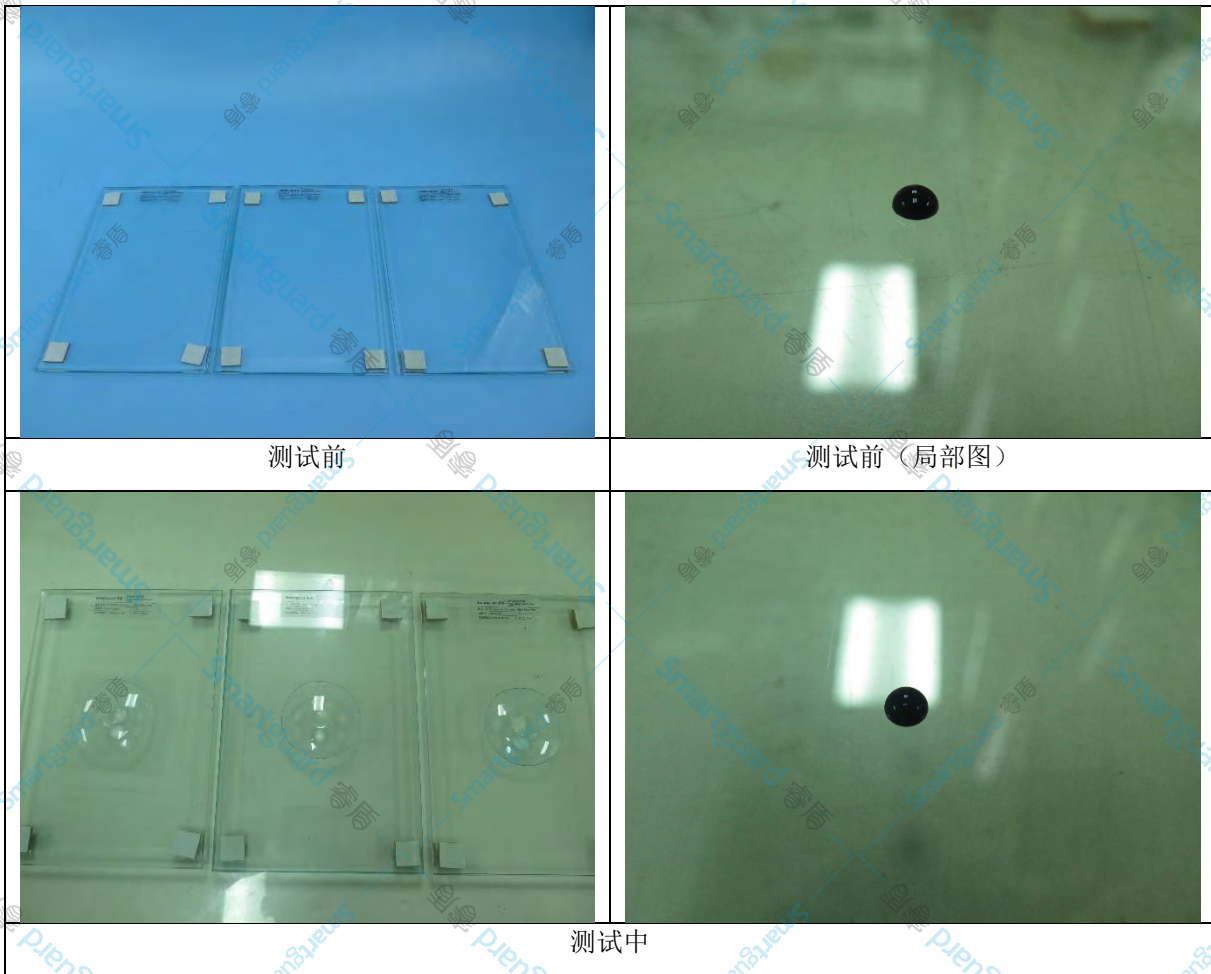
检测报告

编号 : GZIN2101006053MR_CN

日期 : 2021-03-15

页码 : 23 of 24

测试照片:



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检测报告

编号 : GZIN2101006053MR_CN
 日期 : 2021-03-15
 页码 : 24 of 24



参照样品

测试样品

测试样品 (局部图)



测试样品 (局部图)

设备信息:

设备	型号	设备编号	校准日期	下次校准日期
电子天平	JJ2000B	GZMR-AG-E213	2020-04-27	2021-04-26
超声波涂层测厚仪	PostTector 200	GZMR-AG-E110	2020-03-05	2021-03-04
漆膜划格板	BEVS 2203/1C	GZMR-AG-E036-13	2020-08-04	2021-08-03

附录信息: 本测试报告内容是报告编号为 GZIN2101006053MR 的中文版本。中英文版本如有歧义, 概以英文版为准。

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测试报告

No. SZXEC2100252602

日期: 2021年02月01日 第1页,共6页

深圳市睿盾纳米新材料有限公司
深圳市南山区蛇口沿山路45号佳利泰大厦9B室

以下测试之样品是由申请者所提供及确认: 睿盾牌纳米易洁玻璃涂料

SGS工作编号: RP21-001839 - SZ

样品接收日期: 2021年01月26日

测试周期: 2021年01月26日 - 2021年02月01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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测试报告

No. SZXEC2100252602

日期: 2021年02月01日 第2页,共6页

测试结果:

测试样品描述:

样品编号	SGS样品ID	描述
SN1	SZX21-002526.001	无色透明液体

备注:

- (1) 1 mg/kg = 1 ppm = 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	001
镉 (Cd)	100	mg/kg	2	ND
铅 (Pb)	1,000	mg/kg	2	ND
汞 (Hg)	1,000	mg/kg	2	ND
六价铬 (Cr(VI))	1,000	mg/kg	8	ND
多溴联苯之和(PBBs)	1,000	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)	1,000	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



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测试报告

No. SZXEC2100252602

日期: 2021年02月01日 第3页,共6页

测试项目	限值	单位	MDL	001
六溴二苯醚	-	mg/kg	5	ND
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)	1,000	mg/kg	50	ND
邻苯二甲酸丁苈酯 (BBP)	1,000	mg/kg	50	ND
邻苯二甲酸二(2-乙基己基)酯 (DEHP)	1,000	mg/kg	50	ND
邻苯二甲酸二异丁酯 (DIBP)	1,000	mg/kg	50	ND

备注:

- (1) 最大允许极限值引用自RoHS指令(EU) 2015/863。
 - (2) IEC 62321 系列等同于 EN 62321 系列
https://www.cenelec.eu/dyn/www/?p=104:30:1742232870351101:::FSP_ORG_ID,FSP_LANG_ID:1258637,25。
 - (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。
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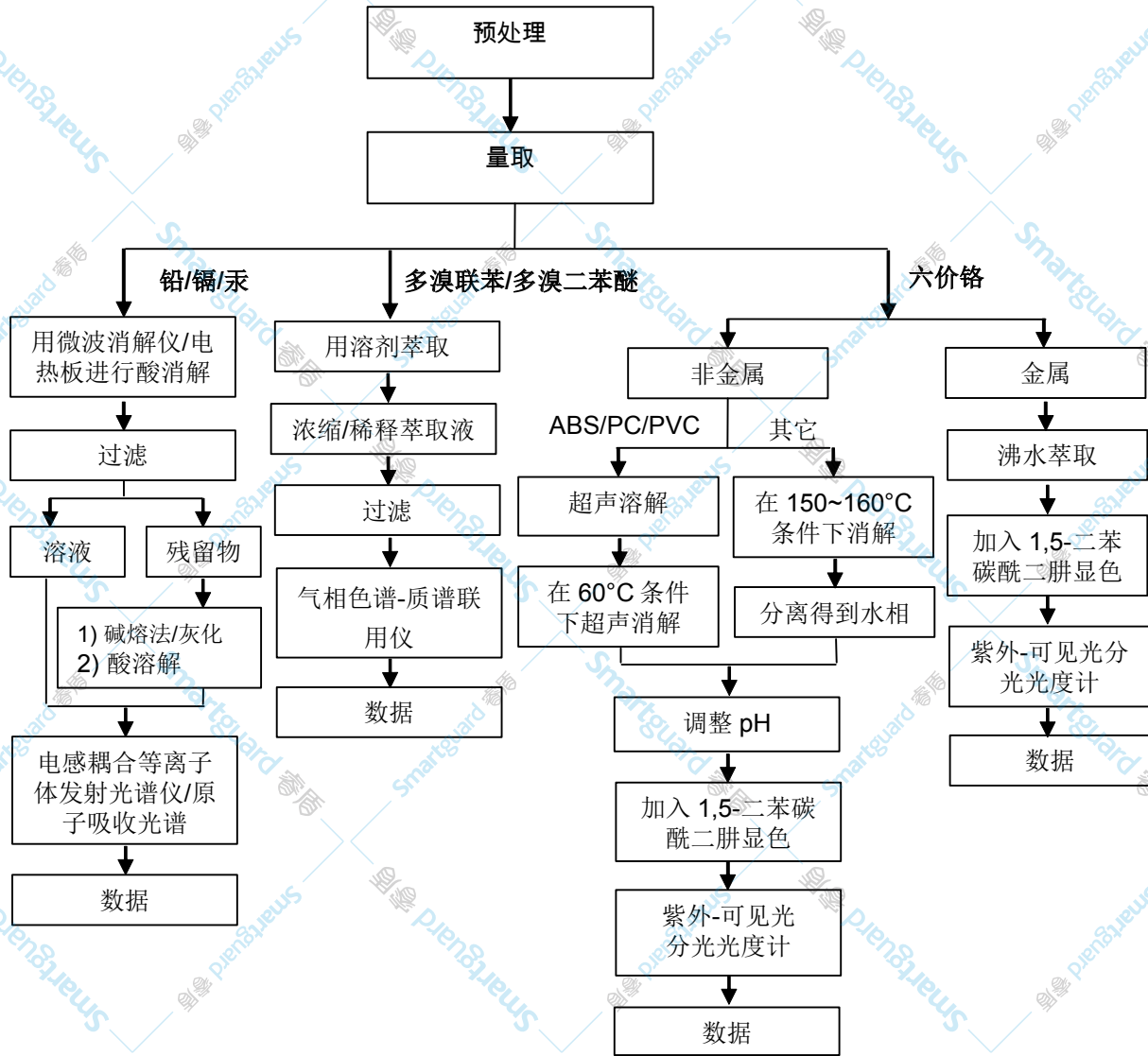
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附件

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs 测试流程图

1) 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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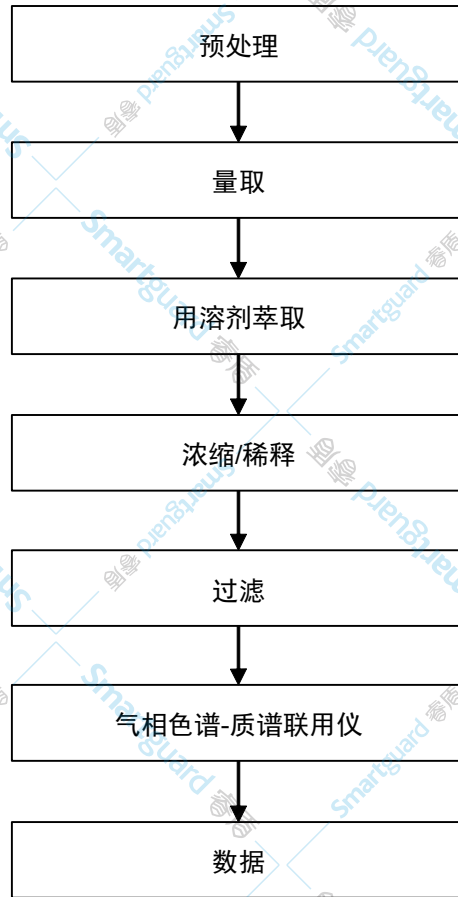
测试报告

No. SZXEC2100252602

日期: 2021年02月01日 第5页,共6页

附件

Phthalates 测试流程图



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测试报告

No. SZXEC2100252604

日期: 2021年02月01日 第1页,共4页

深圳市睿盾纳米新材料有限公司
深圳市南山区蛇口沿山路45号佳利泰大厦9B室

以下测试之样品是由申请者所提供及确认: 睿盾牌纳米易洁玻璃涂料

SGS工作编号:	RP21-001839 - SZ
样品接收日期:	2021年01月26日
测试周期:	2021年01月26日 - 2021年02月01日
测试要求:	根据客户要求测试
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测试报告

No. SZXEC2100252604

日期: 2021年02月01日 第2页,共4页

测试结果:

测试样品描述:

样品编号	SGS样品ID	描述
SN1	SZX21-002526.001	无色透明液体

备注:

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = 方法检测限
- (3) ND = 未检出 (< MDL)
- (4) "-" = 未规定

全氟辛酸(PFOA)及其盐 & 全氟辛烷磺酸 (PFOS)及其衍生物

测试方法: 参考CEN/TS 15968:2010, 采用LC-MS或LC-MS/MS进行分析。

测试项目	CAS NO.	单位	MDL	001
全氟辛酸 (PFOA)及其盐+	-	mg/kg	0.010	ND
全氟辛烷磺酸 (PFOS)^	1763-23-1	mg/kg	0.010	ND
全氟辛基磺酰胺(PFOSA)	754-91-6	mg/kg	0.010	ND
N-甲基全氟辛烷磺酰胺(MeFOSA)	31506-32-8	mg/kg	0.010	ND
N-乙基全氟辛烷磺酰胺(EtFOSA)	4151-50-2	mg/kg	0.010	ND
2-(N-甲基全氟辛基磺酰胺)乙醇(MeFOSE)	24448-09-7	mg/kg	0.010	ND
2-(N-乙基全氟辛基磺酰胺)乙醇(EtFOSE)	1691-99-2	mg/kg	0.010	ND
全氟辛烷磺酸 (PFOS)及其衍生物	-	mg/kg	0.010	ND

备注:

- (1)+ PFOA 及其盐包含PFOA-Na (CAS No.: 335-95-5), PFOA-K (CAS No.: 2395-00-8), PFOA-Ag (CAS No.: 335-93-3), PFOA-F (CAS No.: 335-66-0) 和 APFO (CAS No.: 3825-26-1)
 - (2)^ 全氟辛烷磺酸 (PFOS)及其衍生物包含 PFOS-K (CAS No.: 2795-39-3), PFOS-Li (CAS No.: 29457-72-5), PFOS-NH4 (CAS No.: 29081-56-9), PFOS-NH(OH)2 (CAS No.: 70225-14-8), PFOS-N(C2H5)4 (CAS No.: 56773-42-3), PFOS-DDA (CAS No.:251099-16-8) 和 POSF (CAS No.: 307-35-7)
- 除非另有说明, 此报告结果仅对测试的样品负责。本报告未经本公司书面许可, 不可部分复制。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。



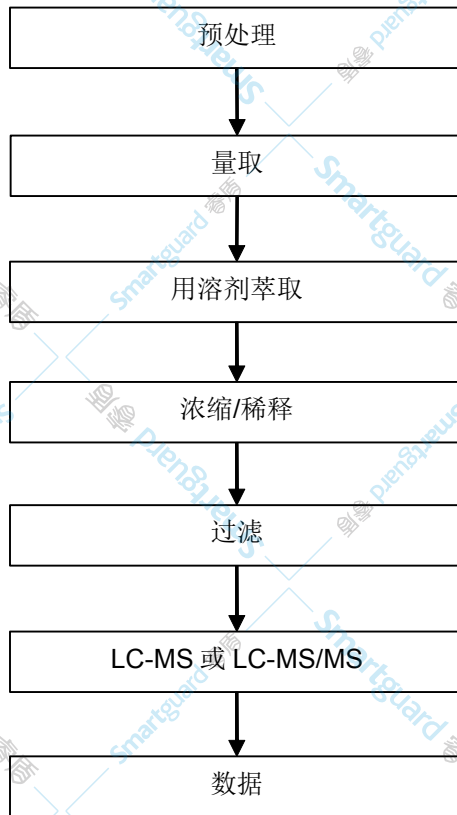
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附件

PFOA / PFOS 测试流程图



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No. SZXEC2100252604

日期: 2021年02月01日 第4页,共4页

样品照片:



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编号 Reference number: 20190923-0011

测试报告

Test Report

受检单位: 深圳市睿盾纳米新材料有限公司

样品名称: 易洁玻璃涂层

型号规格: Smartguard 易洁涂层系列

测试类别: 委托测试

Applicant: Shenzhen Smartguard Nano Material Co., Ltd.

Product: Easy-to-clean Glass Coating

Specification: Smartguard Easy-to-clean Coating Series

Test category: Commission inspection



测试人
Prepared by

李响

校核人
Reviewed by

张芝翔

批准人
Approved by

刘洋

报告批准日期
Report approval date



浙江大学材料科学与工程学院
表面与结构改性无机功能材料教育部工程研究中心

School of Materials Science and Engineering, Zhejiang University.
The Engineering Center of Surface and Structure Modified Inorganic
Functional Materials of Ministry of Education.

测试报告

Test Report

浙江大学材料科学与工程学院
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School of Materials Science and Engineering, Zhejiang University.
The Engineering Center of Surface and Structure Modified Inorganic
Functional Materials of Ministry of Education.

编号 Reference number: 20190923-0011

日期 Date: 2019 / 09 / 29

产品名称 Product name	易洁玻璃涂层 Easy-to-clean Coating	型号 Specification	Smartguard 易洁涂层系列 Easy-to-clean Coating Series
受检单位 Applicant	深圳市睿盾纳米新材料有限公司 Shenzhen Smartguard Nano Material Co., Ltd.		
样品数量 Number of samples	30Pcs	委托样品收到日期 Sample receipt date	2019/ 9/23
样品状态 Sample status	完好 Intact		
测试项目 Test items	<p>1. 接触角、滑动角； 2. 耐磨性、耐老化、沸水测试； 3. 透光率； 4. 耐弱酸、耐弱碱、疏油性。</p> <p>1. Contact angle and sliding angle; 2. Wear resistance, aging resistance, boiling water test; 3. Light transmittance; 4. Chemical resistance to weak acid, weak alkali and oleophobicity.</p>		
测试日期 Test Date	2019/09/23 - 2019/09/27		

注：测试结果只针对送测样品 Test results are only for the tested samples

受检单位 通讯资料 Applicant communication details	地址 Add	深圳市南山区蛇口沿山路佳利泰大厦9B室 Rm9A, Jialitai Building, Yanshan Road, Nanshan Dist., Shenzhen, China		
	邮编 Postcode	518000	电话 Tel	+86-0755-26890033
备注 Remarks	-			

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The Engineering Center of Surface and Structure Modified Inorganic
Functional Materials of Ministry of Education.

编号 Reference number: 20190923-0011

日期 Date: 2019 / 09 / 29

测试项目 Test items	接触角、滑动角 Contact angle, Sliding angle
测试仪器/方法 Test instrument / method	接触角测量仪 (DCA20, DATAPHYSI) Contact angle tester (DCA20, DATAPHYSI)
测试结果 Test result	<p>接触角: 108.0° (第一次测结果: 108.3°, 第二次测结果: 107.5°, 第三次测结果: 108.2°。) 滑动角: 11.0° (第一次测结果: 11.3°, 第二次测结果: 11.1°, 第三次测结果: 10.6°。)</p> <p>Contact angle: 108.0° (First test result: 108.3°, Second test result: 107.5°, Third test result: 108.2°。) Sliding angle: 11.0° (First test result: 11.3°, Second test result: 11.1°, Third test result: 10.6°。)</p>
测试日期 Test Date	2019/09/23 - 2019/09/27

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日期 Date: 2019 / 09 / 29

测试项目 Test items	耐磨性、耐老化、沸水测试 Wear resistance, Aging resistance, Boiling water test
测试仪器/方法 Test instrument / method	负载125g摩擦块, 尺寸90mm*40mm, 来回摩擦60000次; UVA-340紫外线老化实验箱内100小时; 沸水煮1小时。 接触角测量仪 (DCA20, DATAPHYSI) Applied 125gs force to the scrubbing pad, test block of size 90mmx40mm, performing 60,000 cycles of forward and back motion; UVA-340 UV 100 hours in the aging test chamber; boiling water for 1 hour. Contact angle tester (DCA20, DATAPHYSI)
测试结果 Test result	摩擦后接触角: 105.0° (第一次测结果: 104.8°, 第二次测结果: 104.5°, 第三次测结果: 105.7° 。) UV老化后接触角: 102.6° (第一次测结果: 102.4°, 第二次测结果: 102.3°, 第三次测结果: 103.1° 。) 水煮后接触角: 106.8° (第一次测结果: 106.6°, 第二次测结果: 106.8°, 第三次测结果: 107.0° 。) After wear contact angle: 105.0° (First test result: 104.8°, Second test result: 104.5°, Third test result: 105.7° 。) After UV contact angle: 102.6° (First test result: 102.4°, Second test result: 102.3°, Third test result: 103.1° 。) After boiling contact angle: 106.8° (First test result: 106.6°, Second test result: 106.8°, Third test result: 107.0° 。)
测试日期 Test Date	2019/09/23 - 2019/09/27

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日期 Date: 2019 / 09 / 29

测试项目 Test items	透光率 Light transmittance
测试仪器/方法 Test instrument / method	紫外分光光度计 (Cary 5000, Agilent) UV-Vis-NIR spectrophotometer (Cary 5000, Agilent)
测试结果 Test result	可见光平均透过率: 91.0 % (第一次测试结果: 91.2%, 第二次测试结果: 90.5%, 第三次测试结果: 91.3%。) Average transmittance in UV-Vis: 91.0% (First test result: 91.2%, Second test result: 90.5%, Third test result: 91.3%.)
测试日期 Test Date	2019/09/23 - 2019/09/27

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测试项目 Test items	耐弱酸、耐弱碱、疏油性 Weak acid resistance, Weak alkali resistance, Oleophobicity
测试仪器/方法 Test instrument / method	50%的浓盐酸水溶液; 碱性清洗剂; 正十二烷 (疏油测试)。 接触角测量仪 (DCA20, DATAPHYSI) 50% of hydrochloric acid aqueous solution; Alkaline cleaning agent ; N-dodecane (oleophobic test). Contact angle tester (DCA20, DATAPHYSI)
测试结果 Test result	耐酸一小时后: 106.2° (第一次测结果: 106.1° , 第二次测结果: 106.3° , 第三次测结果: 106.2° 。) 耐碱一小时后: 106.9° (第一次测结果: 106.7° , 第二次测结果: 106.9° , 第三次测结果: 107.1° 。) 疏油角度: 82.0° (第一次测结果: 82.3° , 第二次测结果: 81.8° , 第三次测结果: 81.9° 。) After one hour of acid bath: 106.2° (First test result: 106.1° , Second test result: 106.3° , Third test result: 106.2° 。) After one hour of alkali bath: 106.9° (First test result: 106.7° , Second test result: 106.9° , Third test result: 107.1° 。) Oleophobic angle: 82.0° (First test result: 82.3° , Second test result: 81.8° , Third test result: 81.9° 。)
测试日期 Test Date	2019/09/23 - 2019/09/27

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