#### GB/T 25978—2018 道路车辆 标牌和标签

#### GB/T 25978—2018 Road vehicle—Plates and Label

代替 GB/T25978—2010Replace GB/T25978—2010

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# 前言

# Foreword

本标准按照GB/T1.1—2009给出的规则起草。

This standard is drafted in accordance with the rules in GB/T 1.1—2009.

本标准代替GB/T25978—2010《道路车辆 标牌和标签》,与GB/T25978—2010相比主要技术变化如下:

This standard replaces GB/T 25978-2010 Road Vehicle Plate and Label; the technical changes of this new version are as follows:

——增加了3.2.6发动机/变速器标签(F类)并给出相应的性能要求;

——Engine/transmission labels (F type) are added in paragraph 3.2.6 and the relevant performance requirements offered.

——完善了多项标签一般性能要求的试验条件,同时在5.3.4耐液体性能要求中增加了皮革类清洗液、地毯及车辆用具类清洗液、50%体积混合的异丙醇(IPA)水溶液、变速器液体、乙醇等多种液体;5.3.6.2增加了10min热循环试验,并增加了5.3.10耐高压清洗性能试验、5.3.11热剪切粘结强度性能试验等;

——Test conditions for general performance requirements for labels are perfected while test items such as leather-cleaning solution, carpets and vehicle tools cleaning fluids, 50 % mixed IPA water solution, transmission fluid, and ethanol, etc. are all added in paragraph 5.3.4 “10 min thermal cycle test” in paragraph 5.3.6.2 “high-pressure cleaning test” in paragraph 5.3.10 and “thermal shear binding strength test” in paragraph 5.3.11 are added respectively;

——增加了5.3.12标签自毁性能试验方法,完善标签防伪防篡改性能要求;

——“Test methods for label self-destruction performance” are added in paragraph 5.3.12, the requirements for label anti-counterfeiting and tamper-proof performance perfected;

——增加了附录A(资料性附录)标签粘贴表面建议。

——Annex A (informative) on “the binding surface of labels” is added.

本标准由中国人民共和国工业和信息化部提出。

This standard was proposed by Ministry of Industry and Information Technology of People’s Republic of China.

本标准由全国汽车标准化技术委员会(SAC/TC114)归口。

This standard is prepared by the National Automotive Standardization Technical Committee (SAC/TC114).

本标准所代替标准的历次版本发布情况为:

The previous version:

——GB/T25978—2010。

——GB/T25978—2010.

# 1 范围

# 1. Scope

本标准规定了道路车辆上使用的用于说明车辆信息的标牌和标签的分类、性能要求及试验方法。

This standard specifies the classification, performance requirements and test methods for plates and labels used on road vehicles for displaying vehicle information.

本标准适用于道路车辆上使用的用于说明车辆制造信息、警告性信息、操纵及指示性信息等内容的各类标牌和标签。

This Standard is applicable to various types of plates and labels used on the vehicle on the road for describing vehicle’s manufacturing information, warning information, operation and indicative information and other contents.

本标准不适用于在车辆或车辆部件本体上通过打刻、蚀刻、铸造、喷涂、印制,或者缝制在部件本体上等方式直接形成的车辆标识。

This Standard is not applicable to the labels on vehicle or its component body directly generated by engraving, etching, casting, spraying, or printing, or those sewn onto vehicle component body.

本标准不适用于在车辆生产、运输、交接中使用的(车辆正常使用前可去除的)车辆或部件的标识。

This Standard is not applicable to the plates and labels (removable before vehicle normal use) for vehicles or their components vehicle production, transportation and handing over.

用于车辆零部件及总成的各类标牌和标签可参照采用。

Plates and labels for vehicle parts or assemblies can also be referred to this Standard.

# 2 规范性引用文件

# 2. Normative references

下列文件对于本文件的应用是必不可少的。凡是注日期的引用文件,仅注日期的版本适用于本文件。凡是不注日期的引用文件,其最新版本(包括所有的修改单)适用于本文件。

The provisions contained in the following documents have been an essential part of this Standard when they are quoted herein. For the dated documents that been quoted, only the dated versions shall be applicable to this Standard. For the undated documents, only the latest editions (including all modifications and corrections) shall be valid to this Standard.

GB/T250 纺织品 色牢度试验 评定变色用灰色样卡

GB/T 250 Textiles—Tests for color fastness—Grey scale for assessing change in color

GB/T3280 不锈钢冷轧钢板和钢带

GB/T 3280 Cold rolled stainless steel plate sheet and strip

GB/T13306 标牌

GB/T 13306 Plates

# 3 术语和定义

# 3. Terms and definitions

下列术语和定义适用于本文件。

For the purpose of this document, the following terms and definitions apply.

**3.1标牌 plate**

**3.1 plate**

刚性结构的、载有车辆信息的通过铆接、焊接、胶带粘贴等方式安装在车辆上的标识物。标牌分为金属标牌和非金属标牌。

Rigid-structured markers that carrying vehicle information been installed on vehicles by riveting, welding, and tape-pasting or other methods**.** Its kinds can be divided into metal and non-metallic plate.

**3.2 标签 label**

**3.2 label**

柔性结构的、载有车辆信息的通过粘贴等方式安装在车辆上的标识物。标签可按使用位置分为发动机舱标签、暴露的外部标签、非暴露的外部标签、暴露的内部标签、非暴露的内部标签和发动机/变速器标签。

Soft-structured markers that carrying vehicle information been installed on vehicles by pasting or other methods; depending on its usage position, its kinds can be divided into engine compartment labels, exposed exterior/interior labels, non-exposed exterior/interior labels, as well as engine/transmission labels.

**3.2.1 发动机舱标签(A 类) engine compartment labels(A type)**

**3.2.1 engine compartment labels (A type)**

位于发动机舱内、粘贴在除发动机本体之外的标签。

This kind of labels refers to ones in engine compartment pasted on areas other than the engine body.

注:例如粘贴在发动机舱内喷涂过的钣金件上、塑料饰盖、蓄电池或容器上的标签等。

Note: Examples can be labels pasted on the spray-coated sheet metal parts, plastic decorative cover, battery or containers in the engine compartment.

**3.2.2 暴露的外部标签(B类) exposed exterior labels (B type)**

**3.2.2 exposed exterior labels (B type)**

位于车身外部、粘贴的位置可见的标签。

Labels pasted on visible position outside of vehicle body.

注:例如挂车栓钩标签、行李架或滑雪橇架载荷标签等。

Note: Examples can be labels for trailer hitch, load labels for luggage rack or ski rack, etc.

**3.2.3 非暴露的外部标签(C类) non-exposed exterior labels (C type)**

**3.2.3 non-exposed exterior labels (C type)**

位于车身活动部件的接合部,在开启车身活动部件后方可见的标签。

Labels pasted on the connectors of movable parts of vehicle body and can be visible when these parts are opened.

注:例如贴在门柱上或门柱内侧的标签、油箱加注口盖标签等。

Note: Examples can be labels pasted on or inside the surface of pillars and filler lid, etc.

**3.2.4 暴露的内部标签(D 类) exposed interior labels (D type)**

**3.2.4 exposed interior labels (D type)**

位于车辆内部、在部件正常使用(折叠部件处于收起状态)状态可见的、暴露在日光照射下的标签, 以及位于遮阳板外表面(可见表面)的标签。

Labels located inside the vehicle, visible when vehicle parts are in normal use state (folding part are in retracted state) and exposed to sunlight, as well as those located on the outer surface of the sun shield (visible surface).

注:例如遮阳板上的安全气囊标签、安全带标签等。

Note: Examples can be labels of air bag or safety belt pasted on the sun shield etc.

**3.2.5 非暴露的内部标签(E类) non-exposed interior labels (E type)**

**3.2.5 non-exposed interior labels (E type)**

位于车辆内部可见的(对于折叠部件,当其处于打开状态时可见的),不暴露在日光照射下的标签; 以及只有放下遮阳板或打开门时方暴露的标签。

Labels located visibly inside the vehicle (for the folding part, the labels are visible when the part is in the open state) and not exposed to sunlight; and labels which are exposed only when the sun shield is pulled down or the door is opened.

注:例如粘贴在遮阳板内表面的标签、粘贴在可折叠部件内表面的标签、行李舱标签等。

Note: Examples can be labels pasted on the inside surface of the sun shield, inside surface of the collapsible parts and on luggage compartment, etc.

**3.2.6 发动机/变速器标签(F类) engine/transmission labels (F type)**

**3.2.6 engine/transmission labels (F type)**

直接粘贴在发动机或变速器金属本体上的标签。

Labels directly attached to engine or transmission metal body.

# 4 标牌和标签的性能要求

# 4. Performance requirements for plates and labels

## 4.1 标牌的性能要求

## 4.1 Requirements for plate performance

标牌的涂层附着力、颜色的耐晒牢度、耐磨性能、耐盐雾性能、耐湿热性能、耐霉菌性能应满足GB/T13306的相关要求。

The coating layer adhesion, color light fastness, wear-resistance, salt spray resistance, wet and heat resistance and mildew resistance of the plate shall meet relevant requirements in GB/T 13306.

## 4.2 标牌胶带粘贴的性能要求

## 4.2 Pasting performance requirements for plate adhesive tape

### 4.2.1 剥离强度

### 4.2.1 peel strength

可通过180°剥离强度或90°剥离强度(任选其一)对胶带的剥离强度性能进行评价。

The peel strength performance can be evaluated by conducting the test of 180° or 90° peel strength (Choose one).

不同工况下的剥离强度要求有:

Peel strength requirements under different work cycles are as follows:

1. 初粘时剥离强度

a) the initial bonding peel strength

经5.2.3.3试验后,180°剥离强度应大于或等于0.5N/mm,90°剥离强度应大于或等于0.4N/mm。

After completing the test specified in paragraph 5.2.3.3, 180° peel strength shall be greater than or equal to 0.5 N/mm; 90° peel strength shall be greater than or equal to 0.4 N/mm.

1. 标准环境下剥离强度

b) Peel strength under standard environment

经5.2.3.4试验后,180°剥离强度应大于或等于1N/mm,90°剥离强度应大于或等于0.8N/mm。

After completing the test specified in paragraph 5.2.3.4, 180° peel strength shall be greater than or equal to 1 N/mm; 90° peel strength shall be greater than or equal to 0.8 N/mm.

1. 高温下剥离强度

c) Peel strength at high temperatures

经5.2.3.5试验后,180°剥离强度应大于或等于0.4N/mm,90°剥离强度应大于或等于0.3N/mm。

After completing the test specified in paragraph 5.2.3.5, 180° peel strength shall be greater than or equal to 0.4 N/mm; 90° peel strength shall be greater than or equal to 0.3 N/mm.

1. 热老化后剥离强度

d) Peel strength after thermal aging

经5.2.3.6试验后,180°剥离强度应大于或等于0.8N/mm,90°剥离强度应大于或等于0.8N/mm。

After completing the test specified in paragraph 5.2.3.6, 180° peel strength shall be greater than or equal to 0.8 N/mm; 90° peel strength shall be greater than or equal to 0.8 N/mm.

1. 温水老化后剥离强度

e) Peel strength after warm water aging

经5.2.3.7试验后,180°剥离强度应大于或等于0.8N/mm,90°剥离强度应大于或等于0.8N/mm。

After going through the test specified in paragraph 5.2.3.7, 180° peel strength shall be greater than or equal to 0.8 N/mm; 90° peel strength shall be greater than or equal to 0.8 N/mm.

1. 循环老化后剥离强度

f) Peel strength after cycle aging

经5.2.3.8试验后,180°剥离强度应大于或等于1N/mm,90°剥离强度应大于或等于0.8N/mm。

After going through the test specified in paragraph 5.2.3.8, 180° peel strength shall be greater than or equal to 1 N/mm; 90° peel strength shall be greater than or equal to 0.8 N/mm.

1. 耐湿老化后剥离强度

g) Peel strength after humidity resistance aging

经5.2.3.9 试验后,180°剥离强度应满足大于或等于0.8 N/mm,90°剥离强度应大于或等于0.8N/mm。

After going through the test specified in paragraph 5.2.3.9, 180° peel strength shall be greater than or equal to 0.8 N/mm; 90° peel strength shall be greater than or equal to 0.8 N/mm.

### 4.2.2 拉拔力性能

### 4.2.2 Drawing force performance

经5.2.4试验后,拉拔力应大于或等于125N。

After going through the test specified in paragraph 5.2.4, the force shall be greater than or equal to 125 N.

### 4.2.3 动态剪切强度

### 4.2.3 Dynamic shear strength

**4.2.3.1 初粘时动态剪切强度**

**4.2.3.1 The initial bonding dynamic shear strength**

经5.2.5a)试验后,动态剪切强度应大于或等于0.2N/mm2.

After going through the test specified in 5.2.5 a), the strength shall be greater than or equal to 0.2 N/mm2.

**4.2.3.2 标准环境下动态剪切强度**

**4.2.3.2 Dynamic shear strength under the standard environment**

经5.2.5b)试验后,动态剪切强度应大于或等于0.3N/mm2。

After going through the test specified in 5.2.5 b), the strength shall be greater than or equal to 0.3 N/mm2.

**4.2.3.3 高温下动态剪切强度**

**4.2.3.3 Dynamic shear strength at high temperature**

经5.2.5c)试验后,动态剪切强度应大于或等于0.2N/mm2。

After going through the test specified in 5.2.5 c), the strength shall be greater than or equal to 0.2 N/mm2.

**4.2.3.4 热老化后动态剪切强度**

**4.2.3.4 Dynamic shear strength after thermal aging**

经5.2.5d)试验后,动态剪切强度应大于或等于0.4N/mm2。

After completing the test specified in paragraph 5.2.5 d), the strength shall be greater than or equal to 0.4 N / mm2.

**4.2.3.5 温水老化后动态剪切强度**

**4.2.3.5 Dynamic shear strength after warm water aging**

经5.2.5e)试验后,动态剪切强度应大于或等于0.3N/ mm2。

After going through the test specified in paragraph 5.2.5 e), the strength shall be greater than or equal to 0.3 N/mm2.

**4.2.3.6 循环老化后动态剪切强度**

**4.2.3.6 Dynamic shear strength after cycle aging**

经5.2.5f)试验后,动态剪切强度应大于或等于0.3N/mm2。

After going through the test specified in paragraph 5.2.5 f), the strength shall be greater than or equal to 0.3 N/mm2.

**4.2.3.7 挡风玻璃洗涤剂老化后动态剪切强度**

**4.2.3.7 Dynamic shear strength after the windshield detergent aging**

经5.2.5g)试验后,动态剪切强度应大于或等于0.4N/mm2。

After going through the test specified in paragraph 5.25 g), the strength shall be greater than or equal to 0.4 N/mm2.

### 4.2.4 静态剪切强度

### 4.2.4 Static shear strength

经5.2.6试验后,静态保持时间应大于或等于10000min。

After going through the test specified in paragraph 5.2.6, the static holding time shall be greater than or equal to 10000 min.

## 4.3 标签的一般性能要求

## 4.3 The general performance requirements for labels

### 4.3.1 180°剥离强度

### 4.3.1 180° peel strength performance

经5.3.2试验后,180°剥离强度应大于或等于0.44N/mm。

After going through the test specified in paragraph 5.3.2, the strength shall be greater than or equal to 0.44 N/mm.

### 4.3.2 耐磨损性能

### 4.3.2 Wear resistance performance

经5.3.3试验后,标签均应外观完好,无粘接分离现象,无破损,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing through the test specified in paragraph 5.3.3, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.3 耐液体性能

### 4.3.3 Fluid resistance performance

经5.3.4试验后,标签均应外观完好,无粘接分离现象,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.4, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.4 耐湿性能

### 4.3.4 Humidity resistance performance

经5.3.5试验后,标签均应外观完好,无粘接分离现象,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.5, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.5 热循环性能

### 4.3.5 Thermal cycle performance

经5.3.6.1试验后,标签均应外观完好,无粘接分离现象,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.6.1, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.6 热老化性能

### 4.3.6 Thermal aging performance

经5.3.7试验后,标签均应外观完好,无粘接分离现象,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.7, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.7 色牢度性能

### 4.3.7 Color fastness performance

经5.3.8试验后,标签产生的色差均应至少达到GB/T250规定的灰色样卡4级的要求。

After completing the test specified in paragraph 5.3.8, the color differences of the test sample shall be at least meet the requirements for gray scale 4 in GB/T 250.

### 4.3.8 人工气候加速老化性能

### 4.3.8 Artificial climate accelerated aging performance

经5.3.9试验后,标签均应外观完好,无粘接分离现象,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.9, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.9 耐高压清洗性能

### 4.3.9 High-pressure cleaning resistance performance

经5.3.10试验后,标签均应外观完好,无粘接分离现象,与试验前样品相比表面色彩没有明显变化;标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.10, the label’s appearance shall be intact and with no debonding, the colors shall have no obvious changes compared with the same one before the test, and the information on the label shall be still clear and easy to read, and characters shall not be deformed. If there is a bar code on the label, it should be readable after the test.

### 4.3.10 热剪切粘结强度

### 4.3.10 Bonding strength of thermal shear

经5.3.11试验后,标签位移不应超过5mm,标签上字体不应发生扭曲,标签上信息应清晰且易于识别,如果标签上有条形码,试验后条形码应可读。

After completing the test specified in paragraph 5.3.11, the label displacement shall not be more than 5 mm, the fonts in the label shall not be distorted, the information on the label shall be clear and easily to be identified; if there is a bar code on the label, it should be readable after the test.

## 4.4 特殊用途标签的附加要求

## 4.4 Additional requirements for specifically used labels

### 4.4.1 防篡改性能

### 4.4.1 Tamper-proof performance

**4.4.1.1 标签的移除:**

**4.4.1.1 Removal of labels:**

4.4.1.1.1 应通过撕毁标签或使标签上的信息不可辨认,导致标签的自毁。经5.3.12试验后,标签均应发生断裂无法完整移除,或未发生断裂但外观发生明显改变(如出现裂纹、变形等情况)导致标示信息不完整。

4.4.1.1.1 Tear up the label or make the information on the label be unidentified, which shall lead it into self-destruction. After the test specified in paragraph 5.3.12 has been finished, labels used in the test will fracture that they cannot be removed entirely or the information they displayed cannot be read out due to the obvious changes of their appearance (cracks, deformations etc.) while the bodies are not broken.

4.4.1.1.2 粘贴于油漆表面的标签移除后,粘贴标签的部件区域外观应发生可辨认的改变,使检查者能在原标签粘贴区域追溯到原标签存在的证据。若采用荧光方式实现,标签移除后应留有荧光印记。

4.4.1.1.2After the removal of labels on the painted surface, identified changes shall occur in the area on which labels pasted, enabling the signs of original ones be found out for where they once been. The florescent mark shall be maintained after the label has been removed if it is realized in this way.

4.4.1.2 标签信息的更改应留下原始信息的痕迹,或者明显改变标签的外观。

4.4.1.2 The signs of the original information shall be conserved or the label’s appearance shall be obviously changed once there is an information change on the label.

### 4.4.2 防伪性能

### 4.4.2 Anti-counterfeiting performance

4.4.2.1 标签应防伪造。

4.4.2.1 Labels shall be prevented from being counterfeited.

4.4.2.2 标签材料应包含有制造商的标识或一些其他独特标识,该标识的更改或消除应能可辨认地改变标签的外观。

4.4.2.2 The material of labels shall include the logo of the manufacturer or some other unique marks, which to make sure that any changes or removal will definitely lead to some identified changes on labels’ appearance.

# 5 标牌和标签的试验方法

# 5 Test methods for plates and labels

## 5.1 标牌的试验方法

## 5.1 Test methods for plates

按照GB/T13306的规定进行试验。

Tests shall be conducted in accordance with provisions in GB/T 13306.

## 5.2 标牌胶带粘贴的试验方法

## 5.2 Test methods for plate adhesive tape pasting

### 5.2.1 试验环境

### 5.2.1 Test environment

在未特殊定义的情况下,所有试验需在标准环境(23℃±2℃,50%±5% RH)下进行,同时试验胶带和测试板在标准环境下放置4h后再进行粘贴。

Unless otherwise defined, all tests shall be conducted under the standard environment (23 ℃±2 ℃, 50 %±5 % RH) while both of the tape and the test plate cannot be used for pasting until they have been placed under the standard environment for 4 h.

### 5.2.2 样品制备

### 5.2.2 Sample preparation

测试板:长度为125mm±1mm,宽度为50mm±1mm,厚度1.5mm~2.0mm,测试板材质为GB/T3280规定的06Cr19Ni10。亦可选取标牌实际粘贴的车辆部位外侧油漆板或电镀板作为测试板。在胶带粘贴在测试板之前,需要用脱脂纱布和清洁剂清洁测试板表面。

Test board: 125 mm ±1 mm in length, 50 mm ±1 mm in width, 1.5 mm-2.0 mm in thickness, and the material of the test plate shall be lCr18Ni9Ti (SUS304) specified in GB/T 3280.Painted or electroplated panel outside of the vehicle body actually pasted with plate may also be selected as the test plate. It’s necessary to use absorbent gauze with detergent to clean the surface of the test plate before being pasted with the tape.

胶带:胶带尺寸参照不同试验的具体要求,每个试验需要至少制作3个样品,试验结果为各样品试验结果的平均值。测试用的胶带是一侧覆有隔离纸的成卷的双面胶带,没有隔离纸的一侧称为敞开面,敞开面是粘贴到标牌上的一侧。而把覆有隔离纸另一侧称为覆盖面,覆盖面是贴到车体或电镀件表面的一侧。

Tape: A minimum of 3 pieces of samples are required for each test which may specify various sizes of tapes and the test results shall be the average results of the three samples. The tape prepared for tests shall be double-sided with one side covered by isolation paper. The side is called the covering surface which pastes on vehicle body or on one surface side of electroplated parts, while the other side without the isolation paper is called the open surface which pastes on labels.

### 5.2.3 剥离强度试验

### 5.2.3 Peel strength test

**5.2.3.1 180°剥离强度试验**

**5.2.3.1 180° peel strength test**

在标准环境下,制备宽25mm±1mm,长200mm±1mm 的胶带样品。为保证胶带在剥离时不被拉伸变形,需在胶带的敞开面上贴附厚度为20μm ~60μm 聚酯薄膜。同时为确保聚酯薄膜与胶带的粘贴强度,在贴附聚酯薄膜前,先把底涂剂涂布在聚酯薄膜的粘接表面,并在底涂剂干燥后再在胶带上贴附聚酯薄膜。

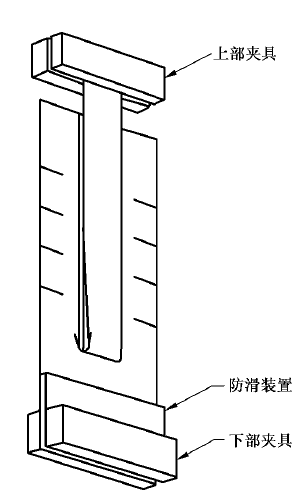
Prepare the tape sample with the size of 25 mm+1 in width, 200 mm+1 in length under the standard environment. To ensure that the tape will not suffer tensile deformation when it is being peeled, a 20 μm-60 μm thick polyester film shall be attached to its open side. And to guarantee the bonding strength between the polyester film and the tape, first apply primer coating onto the bonding surface of the polyester film, and then attach the film onto the tape after the primer coating is dry.

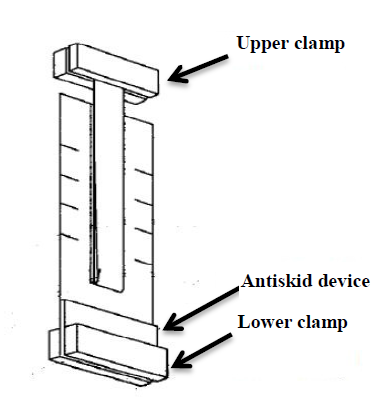
将贴附有聚酯薄膜的胶带的覆盖面粘附在测试板上,然后用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保胶带粘贴完全。

Paste the covering surface with the polyester film tape to the test plate, and use a 2 kg, 50 mm-wide roller to press its surface back and forth at a speed of 300 mm/min to ensure the tape has been fully affixed on the plate.

在5.2.3.3~5.2.3.9的不同试验条件下,将试验样品的自由端对折180°,并从测试板上剥离25mm±1mm的试验样品,把试验样品的自由端和测试板分别夹在拉力试验机的上、下夹持器上,应使剥离面与拉力试验机力线保持一致。拉力试验机以300mm/min的剥离速度连续剥离胶带,通过自动记录仪绘出剥离曲线,剥离曲线的前20mm±1mm 的测量数值不计,记录剥离曲线的20 mm±1 mm~80mm±1mm 间的测量数值(见图1)。

Under the different test conditions specified in paragraphs 5.2.3.3 to 5.2.3.9, folding up the free end of the test sample by 180°, and peel off a sample with a length of 25 mm+1 mm from the test plate. Clamp the free end of the sample and the test plate respectively to the upper and lower clampers of the tension tester. The peeling surface shall be consistent with the force line of the tension tester. Use the tension tester to continuously peel the tape at the speed of 300 mm/min continuously, and the peeling curve shall be drawn by an autographic recorder. Record the measured values in the range of 20 mm+1 mm-80 mm+1 mm of the peeling curve without taking into account the curve value for the first 20 mm+1 mm. (Figure 1)





**图1 180°剥离强度试验示意图**

**Figure 1 180° peel strength test**

**5.2.3.2 90°剥离强度试验**

**5.2.3.2 90° peel strength test**

在标准环境下,制备宽25mm±1mm,长200mm±1mm 的胶带样品。为保证胶带在剥离时不被拉伸变形,需在胶带的敞开面上贴附厚度为20μm~60μm 聚酯薄膜。同时为确保聚酯薄膜与胶带的粘贴强度,在贴附聚酯薄膜前,先把底涂剂涂布在聚酯薄膜的粘接表面,并在底涂剂干燥后再在胶带上贴附聚酯薄膜。

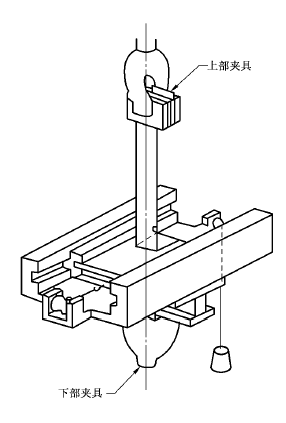
Prepare bonding tape with the size of 25 mm+1 in width, 200 mm+1 in length under standard environment. To ensure that the tape will not suffer tensile deformation when it is being peeled, a 20 μm-60 μm thick polyester film shall be attached on its open side. At the same time, to guarantee the bonding strength between the polyester film and the tape, before attaching the polyester film, apply primer coating onto the bonding surface of the polyester film first, and then attach the film onto the tape after the primer coating is dry.

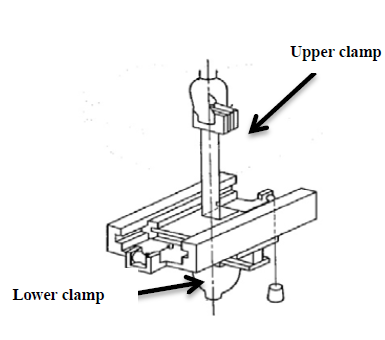
将贴附有聚酯薄膜的胶带的覆盖面粘附在测试板上,然后用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保胶带粘贴完全。

Paste the covering surface with the polyester film tape to the test plate, taking a 2 kg, 50 mm-wide roller to move back and forth on its surface at the speed of 300 mm/min to ensure the tape has been fully affixed on the plate.

在5.2.3.3~5.2.3.9的不同试验条件下,将试验样品的自由端对折90°,并从测试板上剥离覆盖面25mm±1mm,把试验样品的自由端和测试板分别夹在拉力试验机的上、下夹持器上。应使剥离面与拉力试验机力线保持一致。拉力试验机以300mm/min的剥离速度连续剥离胶带,通过自动记录仪绘出剥离曲线,剥离曲线的前20mm±1mm 的测量数值不计,记录剥离曲线的20mm±1mm~80mm±1mm 间的测量数值(见图2)。

Under the different test conditions specified in paragraphs 5.2.3.3 and 5.2.3.9, folding up the free end of the test samples for 90°, and peel 25 mm+1 mm in length from the test plate. Clamp the free end of the sample and the test plate respectively to the upper and lower clampers of the tension tester. The peel surface shall be consistent with the force line of tension tester, take the tension tester to peel the tape at the speed of 300 mm/min continuously, and the peeling curve can be drawn by an autographic recorder. Record the measured values in the range of 20 mm-80 mm on the peeling curve without taking into account the curve value for the first 20 mm. (Figure 2)





**图2 90°剥离强度试验示意图**

**Figure 2 90° peel strength test**

**5.2.3.3 初粘时剥离强度试验**

**5.2.3.3 The initial bonding peel strength test**

样品制备粘贴完成后,将试验样品放置在标准环境下20min后,按照5.2.3.1或5.2.3.2所述的试验方法进行试验。

After finishing the preparation and pasting of the test sample, place it in the standard environment for 20 min; conduct the test in accordance with the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

**5.2.3.4 标准环境下剥离强度试验**

**5.2.3.4 Peel strength test under standard environment**

将试验样品放置在标准环境下72h后,按照5.2.3.1或5.2.3.2所述的试验方法进行试验。

After placing the test sample in the standard environment for 72 h, conduct test using the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

**5.2.3.5 高温下剥离强度试验**

**5.2.3.5 Peel strength test at a high temperature**

将试验样品放置在标准环境下24h后,按照5.2.3.1或5.2.3.2所述的试验方法在温度为80 ℃±2℃的条件下进行试验。

Place the test sample in the standard environment for 24 h, conduct the test at a temperature of 80 ℃±2 ℃ in accordance with the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

**5.2.3.6 热老化后剥离强度试验**

**5.2.3.6 Peel strength test after thermal aging**

将试验样品放置在标准环境下24h后,将其放置在80℃±2℃的条件下240h,完成后,将样品放置在标准环境下24h。按照5.2.3.1或5.2.3.2所述的试验方法进行试验。

Place the test sample in the standard environment for 24 h, put it at a temperature of 80 ℃±2 ℃ for 240 h. Then place the sample in the standard environment for another 24 h, and conduct the test in accordance with the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

**5.2.3.7 温水老化后剥离强度试验**

**5.2.3.7 Peel strength test after the warm water aging**

将试验样品放置在标准环境下24h后,将其浸入40℃±2℃的水浴槽中240h,完成后,将表面水分彻底擦除,并在标准环境下放置24h,按照5.2.3.1或5.2.3.2所述的试验方法进行试验。

Place the test sample in the standard environment for 24 h, then submerge it in the water bath tank at a temperature of 40 ℃±2 ℃ for 240 h. After this procedure, wipe the water on the surface fully, and place the sample in the standard environment for another 24 h, conduct the test in accordance with the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

**5.2.3.8 循环老化后剥离强度试验**

**5.2.3.8 Peel strength test after the cycle aging**

将试验样品放置在标准环境下24h后,按如下温度循环进行老化试验:

Place the test sample for 24 h under the standard conditions, put it into the circulation aging box, and then conduct the aging test at the following temperatures consecutively:

1. 在-30℃±2℃的条件下,放置17h;

a) Placing at -30 ℃±2 ℃, for 17 h;

1. 在70℃±2℃的条件下,放置72h;

b) Placing at 70 ℃±2 ℃, for 72 h;

1. 在38℃±2℃、100% RH 的条件下,放置24h;

c) Placing at 38 ℃±2 ℃ with 100% RH, for 24 h;

1. 在-30℃±2℃的条件下,放置7h;

d) Placing at -30 ℃±2 ℃, for 7 h;

1. 在38℃±2℃、100% RH 的条件下,放置17h;

e) Placing at 38 ℃±2 ℃ with 100% RH, for 17 h;

1. 在70℃±2℃的条件下,放置7h。

f) Placing at 70 ℃±2 ℃, for 7 h.

完成后,将试验样品放置在标准环境下24h,按照5.2.3.1或5.2.3.2所述的试验方法进行试验。

After this step, place the sample in the standard environment for 24 h, and conduct the test in accordance with the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

**5.2.3.9 耐湿老化后剥离强度试验**

**5.2.3.9 Peel strength test after the humidity resistance aging**

将试验样品放置在标准环境下24h后,将试验样品放置在38℃±2℃、95% RH 条件下240h,完成后,将样品放置在标准环境下24h,按照5.2.3.1或5.2.3.2所述的试验方法进行试验。

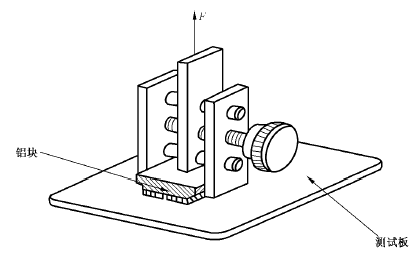
Place the test sample in the standard environment for 24h, then place it into the aging box with the 38 ℃±2 ℃, 95% RH environment for another 240 h. After this step, place the sample in the standard environment for 24 h, and conduct the test in accordance with the methods specified in paragraph 5.2.3.1 or 5.2.3.2.

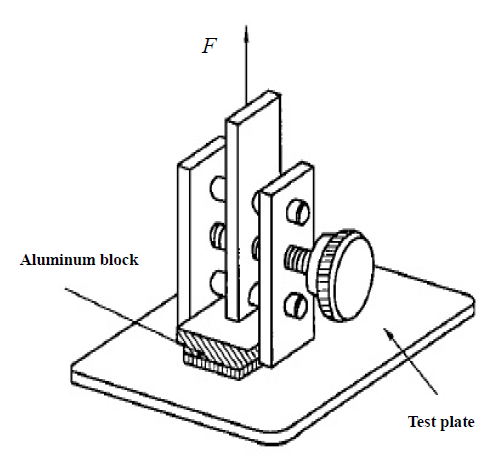
### 5.2.4 拉拔力性能试验

### 5.2.4 Drawing force performance test

在标准环境下,制备宽12.5mm±1mm,长25mm±1mm 的胶带和铝块。将胶带不带隔离纸的一侧粘贴到铝块上,然后用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保胶带粘贴完全。然后将另一侧的隔离纸撕去并粘贴在测试板上(见图3)。在标准环境下放置72h后,然后以60mm/min的拉伸速度拉拔铝块,测量铝块被拔落时最大的拉力。

Prepare a tape with the size of 12.5 mm in width, 25 mm in length and an aluminum block under the standard environment. Paste the side of the tape with no isolation paper to the aluminum block, and use a 2 kg, 50 mm-wide roller to press its surface back and for that a speed of 300 mm/min to ensure full bonding between the tape and the block. Then tear up the isolation paper from the other side of the tape and paste it on the test plate (Figure 3). After placing the aluminum block in the standard environment for 72 h, stretch it at the speed of 60 mm/min and measure the maximum tensile force when the block is drawn off the tape.





**图3 拉拔力性能试验示意图**

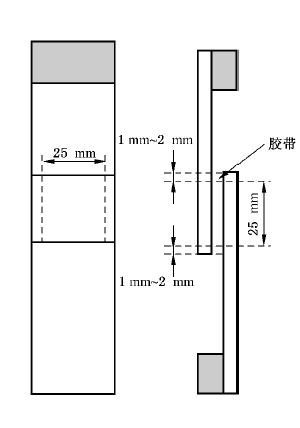
**Figure 3 Drawing force performance test**

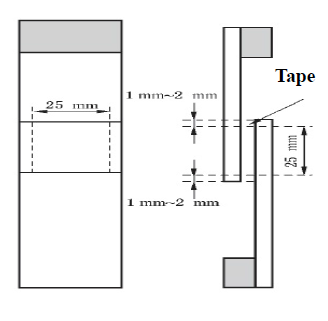
### 5.2.5 动态剪切强度试验

### 5.2.5 Dynamic shear strength test

在标准环境下,制备宽25mm±1mm,长2mm±1mm 的胶带样品。将胶带粘贴到测试板上,然后用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保胶带粘贴完全。在下述5.2.5a)~5.2.5g)的不同试验条件下,以50mm/min的拉伸速度拉伸测试板,测量两板在脱离时的粘结强度(见图4):

Prepare the tape sample with the size of 25 mm+1 mm in width, 25 mm+1 in length under the standard environment. Use a 2 kg, 50 mm-wide roller to press its surface back and forth at a speed of 300 mm/min to ensure the tape has been fully affixed on the plate. Under the conditions specified in paragraphs 5.2.5 a) ~5.2.5 g), stretch the test plate at the speed of 50 mm/min and measure the bonding strength when the two plates are separated from each other. (Figure 4)





**图4 动态剪切强度试验示意图**

**Figure 4 Dynamic shear strength test**

a) 初粘时动态剪切强度试验

a) The initial bonding dynamic shear strength test

样品制备粘贴完成后,将试验样品放置在标准环境下20min后,按照5.2.5所述的试验方法进行试验。

When the preparation and the bonding finished, placing the test sample in the standard environment for 20 min, and conduct the test in accordance with the methods specified in paragraph 5.2.5.

b) 标准环境下动态剪切强度试验

b) Dynamic shear strength test under standard environment

将试验样品放置在标准环境下72h后,按照5.2.5所述的试验方法进行试验。

Place the test sample in the standard environment for 72 h, and conduct the test using the method specified in paragraph 5.2.5.

c) 高温下动态剪切强度试验

c) Dynamic shear strength test at a high temperature

将试验样品放置在标准环境下24h后,按照5.2.5所述的试验方法在温度为80℃±2℃的条件下进行试验。

Place the test samples in the standard environment for 24 h, then conduct the test at a temperature of 80 ℃±2℃ in accordance with the method specified in paragraph 5.2.5.

d) 热老化后动态剪切强度试验

d) Dynamic shear strength test after thermal aging

将试验样品放置在标准环境下24h后,将其放置在80℃±2℃的条件下240h,完成后,将样品放置在标准环境下24h。然后按照5.2.5所述的试验方法进行试验。

Place the test sample in the standard environment for 24 h, and then place at a temperature of 80 ℃±2 ℃ for 240 h. After that, place the sample in the standard environment for another 24 h, and conduct test using the method specified in paragraph 5.2.5.

e) 温水老化后动态剪切强度试验

e) Dynamic shear strength test after warm water aging

将试验样品放置在标准环境下24h后,将其浸入40℃±2℃的水浴槽中240h,完成后,将表面水分彻底擦除,并在标准环境下放置24h,按照5.2.5所述的试验方法进行试验。

Place the test sample in the standard environment for 24 h, then submerge it in the water bath tank at a temperature of 40 ℃±2 ℃ for 240 h. After that, wipe the water on the surface fully, and place the sample in the standard environment for another 24 h, conduct the test in accordance with the method specified in paragraph 5.2.5.

f) 循环老化后动态剪切强度试验

f) Dynamic shear strength test after cycle aging

将试验样品放置在标准环境下24h后,按如下温度循环进行老化试验:

Place the test sample in the standard environment for 24 h, and then conduct cycle aging test at the temperatures consecutively hereinafter:

1) 在-30℃±2℃的条件下,放置17h;

1) Placing at -30 ℃±2 ℃, for 17 h;

2) 在70℃±2℃的条件下,放置72h;

2) Placing at 70 ℃±2 ℃, for 72 h;

3) 在38℃±2℃、100% RH 的条件下,放置24h;

3) Placing at 38 ℃±2 ℃with 100% RH, for 24h;

4) 在-30℃±2℃的条件下,放置7h;

4) Placing at -30 ℃±2 ℃, for 7 h;

5) 在38℃±2℃、100% RH 的条件下,放置17h;

5) Placing at 38 ℃±2 ℃with 100% RH, for 17h;

6) 在70℃±2℃的条件下,放置7h。

6) Placing at 70 ℃±2 ℃, for 7 h.

完成后,将试验样品放置在标准环境下24h,按照5.2.5所述的试验方法进行试验。

After these steps finished, place the test sample in the standard environment for 24 h, and conduct the test in accordance with the method specified in paragraph 5.2.5.

g) 挡风玻璃洗涤剂老化后动态剪切强度试验

g) Dynamic shear strength after the windshield detergent aging test

在清水中加入如下试剂:

Add the following reagents into fresh water:

1) 20%(体积比)的乙醇(纯度为95%,含1%的丁醇);

1) 20% (volume ratio) ethanol (95% purity and containing 1% butanol);

2) 10%(体积比)的异丙醇(纯度>98%);

2) 10% (volume ratio) isopropanol (Purity> 98%);

3) 0.09%(质量比)的十二烷基硫酸钠(SDS,纯度为95%);

3) 0.09% (mass ratio) sodium dodecyl sulfate (SDS, 95% purity);

4) 0.6%(质量比)的乙二醇(纯度>98%)。

4) 0.6% (mass ratio) ethylene glycol (Purity> 98%).

在标准环境下把制备好的试验样品完全浸入以上溶液中,浸泡30min后在标准环境下放置2h,按照5.2.5所述的试验方法进行试验。

Submerge the prepared test sample in the above-mentioned solution in standard environment for 30 min, place it in the standard environment for another 2 h, and conduct the test in accordance with the method specified in paragraph 5.2.5.

### 5.2.6 静态剪切强度试验

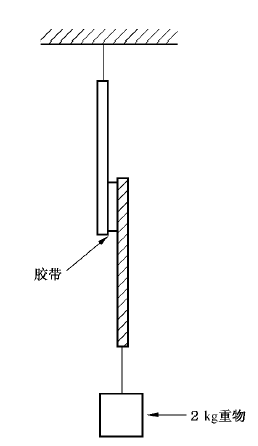
### 5.2.6 Static shear strength test

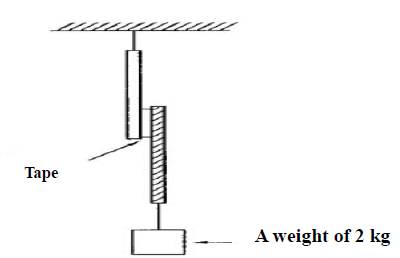
在标准环境下,制备宽25mm±1mm,长25mm±1mm 的胶带样品。

Prepare the tape sample with 25 mm+1 mm width and 25 mm+1 mm length under the standard environment.

将胶带粘贴到测试板上,然后用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保胶带粘贴完全。然后在标准环境下放置72h后,在其垂直方向的下端施加2kg的重物,测量两测试板的脱离时间(见图5)。

And use a 2 kg, 50 mm-wide roller to press its surface back and forth at a speed of 300 mm/min to ensure the tape has been fully affixed on the plate. Then place the sample in the standard environment for 72 h, attach a weight of 2 kg to its lower end in the vertical direction and measure the time needed to separate the two test objects. (Figure 5)





**图5 静态剪切强度试验示意图**

**Figure 5 Static shear strength test**

5.3 标签的试验方法

5.3 Test methods for labels

### 5.3.1 试验准备

### 5.3.1 Test preparation

**5.3.1.1 测试板的选取**

**5.3.1.1 Test plate selection**

进行5.3.2、5.3.7、5.3.12试验时,测试板材质为GB/T3280规定的06Cr19Ni10。

The material of test plate shall be 06Cr19Ni10 specified in GB/T 3280 when conducting tests described in paragraphs 5.3.2, 5.3.7, and 5.3.12.

进行5.3.4试验时,推荐选取标签实际粘贴表面作为测试板,若测试液体与实际粘贴表面发生反应,则测试板材质为GB/T3280规定的06Cr19Ni10。

The surface that labels actually pasted shall be selected as the test plate when conducting the test described in paragraph 5.3.4. If there is a chemical reaction between the plate and test fluid, the material above mentioned shall be used.

进行其他试验时,推荐选取标签实际粘贴表面作为测试板。

For other tests, it’s recommend that the binding surfaces actually used shall be selected as test plates.

**5.3.1.2 试验样品的制备**

**5.3.1.2 Test sample preparation**

除5.3.2、5.3.11、5.3.12试验规定外,试验标签的尺寸应与实际应用相符,测试板的尺寸应与试验标签相匹配。试验标签应载有标识信息。

Besides the requirements specified in paragraphs 5.3.2, 5.3.11 and 5.3.12, the test samples shall bear information for identification and their sizes shall be in line with the labels in actual use as well as for test plates.

在标签粘贴在测试板之前,需要用脱脂纱布和清洁剂清洁测试板表面。将标签粘贴在测试板上,用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保标签粘贴完全。除5.3.4f)、5.3.6.2、5.3.12试验外,在进行试验之前,试验样品应在标准环境(23 ℃±2 ℃、50%±5% RH)条件下至少放置24h。

Before pasting the labels onto test plates, it’s necessary to use absorbent gauze with cleaning fluid to clean the binding surfaces. And use a 2 kg, 50 mm-wide roller to press its surface back and forth at a speed of 300 mm/min to ensure the tape has been fully affixed on the plate. Except tests described in paragraphs 5.3.4 f), 5.3.6.2, and 5.3.1, before each test, the test sample shall be placed in the standard environment (23 ℃±2 ℃, 50%±5% RH) for at least 24 h.

每个试验需要至少制作3个试验样品。

There shall be at least 3 test samples for each test.

### 5.3.2 180°剥离强度试验

### 5.3.2 180° peel strength test

制备宽25mm±1mm,长200mm±1mm 的标签,将标签粘贴在测试板(长度为125mm±1mm,宽度为50mm±1mm,厚度1.5mm~2.0mm)上,用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保标签粘贴完全。

Prepare a label with the size of 25 mm+1 mm in width, 200 mm+1 mm in length, then paste the label onto the plate (125+1 mm in length, 50+1 mm in width, and 1.5 mm~2 mm in height）. And use a 2 kg, 50 mm-wide roller to press its surface back and forth at a speed of 300 mm/min to ensure the tape has been fully affixed on the plate.

在下述试验条件下:

Then take the following steps:

a) 标准环境下放置24h;

a) Place the sample in the standard environment for 24 h;

b) 在5.3.5试验后,在标准环境下放置1h;

b) After completing he test specified in paragraph 5.3.5, place the sample in the standard environment for 1 h;

c) 在5.3.6.1试验后,在标准环境下放置1h。

c) After completing the test specified in paragraph 5.3.6.1, place the sample in the standard environment for 1 h.

将标签的自由端对折180°,并从测试板上剥离25mm±1mm 的标签,把标签的自由端和测试板分别夹在拉力试验机的上、下夹持器上,应使剥离面与拉力试验机力线保持一致。拉力试验机以300mm/min的剥离速度连续剥离标签,通过自动记录仪绘出剥离曲线,剥离曲线的前20mm±1mm的测量数值不计,记录剥离曲线的20mm±1mm~80mm±1mm 间的测量数值。试验结果为各试验样品试验结果的平均值。

Fold up the free end of the test samples by 180°, and peel a length of 25 mm from the test plate. Then clamp the free end of the test samples and the test board respectively to the upper and lower clampers of the tension tester. Make sure that the peeling surface shall be in line with the pulling force line of the tension tester. Use the tension tester to continuously peel the label at a speed of 300 mm/min, draw the peeling curve with an autographic recorder. Record the measured values between the 20 mm-80 mmon the peel curve without taking into account the measured value for the first 20mm on the curve. The test results shall be the average value from various sample tests.

180°剥离强度试验不适用于具有4.4.1.1.1的特性的标签。

This kind of test is not applicable to the labels with characteristics specified in paragraph 4.4.1.1.1.

### 5.3.3 耐磨损试验

### 5.3.3 Wear resistance test

标签应粘贴在由Taber磨损试验机的制造者所提供的相同的纸板基体上,使用CS-10号砂轮,通过Taber磨损试验机,在500g负载下,以30r/min的转速,进行下述磨损循环:

To conduct this test, labels shall be pasted on the same paper basis provided by the manufacturer of Taber wear test machine through CS-10 grinding wheel at the speed of 30 r/min under a 500 g weight into wear cycles as follows:

a) A、C、D、E类标签应进行100个磨损循环;

a) For A, C, D and E type labels, 100 wear cycles are required;

b) B、F类标签应进行200个磨损循环。

b) For B and F type labels, 200 wear cycles are required.

### 5.3.4 耐液体试验

### 5.3.4 Fluid resistance test

除标准规定外,耐液体试验应使用车辆实际应用液体。试验包括:

Except for other requirements of the standard, this test shall sample the vehicle in-use liquid for test items, including:

1. 耐清洁剂试验

a) Cleaning fluids resistance test

在标准环境下,将试验样品分别垂直浸没在皮革类清洗液、地毯及车辆用具类清洗液、50%体积混合的异丙醇(IPA)水溶液中,放置4h,取出试验样品,用棉布擦净,目测。

Vertically submerge the test samples into the leather-cleaning solution, carpet and vehicle cleaning fluids, and 50% mixed IPA water solution vertically for 4 h respectively. Then fetch these samples out, dry them with cotton cloth, and conduct a visual inspection.

1. 耐发动机油试验

b) Engine oil resistance test

在标准环境下,将试验样品垂直浸没在23℃±2℃发动机油中,放置4h,取出试验样品用棉布擦拭至表面无可视发动机油后置于120℃±2℃(A 类)或150℃±2℃(F类)条件下,放置4h,取出试验样品,目测。

In the standard environment, submerge the test sample vertically into the 23 ℃+2 ℃ engine oil for 4 h, then fetch it out, taking cotton cloth to clean the surface fully, after that, put the sample in120 ℃+2 ℃ (A type only) or 150 ℃+2 ℃ (B type only) conditions for 4 h and conduct a visual inspection.

耐发动机油试验仅适用于A 类、F类标签。

This kind of test is only applicable to A or F type labels.

1. 耐风挡玻璃清洗液试验

c) Windshield cleaning fluid resistance test

在标准环境下,将试验样品垂直浸没在风挡玻璃清洗液中,放置4h,取出试验样品,用棉布擦净,目测。

In the standard environment, submerge the test sample vertically for 4 h, fetch it out, taking cotton cloth to wipe the fluid out, and conduct a visual inspection.

耐风挡玻璃清洗液试验仅适用于A 类、B类、C类、F类标签。

This kind of test is only applicable to A, B, C, or F type labels.

1. 耐制动液试验

d) Brake fluid resistance test

——在标准环境下,将试验样品垂直浸没在23℃±2℃制动液中,放置4h,取出试验样品,用棉布擦净,目测。

——In the standard environment, submerge the test sample into 23 ℃+2 ℃ brake fluid vertically for 4 h, then fetch the sample out, taking cotton cloth to wipe the fluid out, then conduct a visual inspection.

仅适用于A 类标签。

The test mentioned above is only applicable to A type label.

——在标准环境下,将试验样品垂直浸没在23℃±2℃制动液中,放置4h,取出试验样品用棉布擦拭至表面无可视制动液后置于100 ℃±2 ℃条件下,放置4h,取出试验样品,目测。

——In the standard environment, submerge the test sample into 23 ℃+2 ℃ brake fluid vertically for 4 h, then fetch the sample out, taking cotton cloth to wipe the fluid on the surface fully out. After that, place the sample in the 100 ℃+2 ℃ condition for 4 h, fetch it out, and conduct a visual inspection.

仅适用于F类标签。

The test mentioned above is only applicable to F type label.

1. 耐燃料试验

e) Fuel resistance test

在标准环境下,将试验样品垂直浸没在燃料(汽油、柴油、乙醇汽油E85)中,放置10s±1s,取出干燥20s±1s,上述为一循环,共进行10个循环。10个循环后,在标准环境下垂直放置1h,目测。

In the standard environment, submerge the test sample vertically into fuels (petrol, diesel, ethanol gasoline E85) for 10 s+1 s; fetch the sample out for drying in 20 s+1 s, which is a whole cycle. And 10 cycles are needed for this test. After the 10 cycles, keep the sample vertically in the standard environment for 1 h, and conduct a visual inspection.

耐燃料试验仅适用于A 类、B类、F类标签和C类标签中粘贴在燃料容器上的标签。

This kind of test is only applicable to A, B and F type labels, as well as for C type labels attached on the surface of fuel tanks.

1. 耐酸试验

f) Acid resistance test

在标准环境下放置72h后,使用滴管用电池硫酸溶液(相对密度为1.28)将全部标签与被粘贴表面间边缘和标签部分表面浸湿,放置7d,目测(以24h为时间间隔观察,如发生硫酸挥发,则重复浸湿程序)。

Place the sample in the standard environment for 72 h; Wet the edge between the label and the pasted test board and part of the label surface with sulfuric acid solutions of batteries for dropper use (the relative density of 1.28) hold the sample for 7 d, and conduct a visual inspection. (The time interval for observation is 24 h; if the fluid evaporated, repeat the wetting procedure.)

耐酸试验仅适用于粘贴在蓄电池上的标签。

This kind of test is only applicable to labels on vehicle batteries.

1. 耐变速器液体试验

g) Transmission fluid resistance test

在标准环境下,将试验样品垂直浸没在23℃±2℃变速器液体中,放置4h,取出试验样品用棉布擦拭至表面无可视变速器液体后置于150℃±2℃条件下,放置4h,取出试验样品,目测。

In the standard environment, submerge the test sample into 23 ℃+2 ℃ transmission fluid vertically for 4 h, fetch the sample out, wipe out the fluid on the surface , then keep it in the 150 ℃+2 ℃ condition for 4 h; Fetch the sample out, and conduct a visual inspection.

耐变速器液体试验仅适用于F类标签。

This kind of test is only applicable to F type label.

### 5.3.5 耐湿试验

### 5.3.5 Humidity resistance test

将试验样品置于40℃±2℃、100% RH 的条件下,放置144h。试验后,在标准环境下放置1h,目测。

Place the test sample in the condition of 40 ℃+2 ℃,100% RH for 144 h; Then keep the sample in the standard environment for 1 h, and conduct a visual inspection.

### 5.3.6 热循环试验

### 5.3.6 Thermal cycling test

5.3.6.1 试验样品进行下述2个循环[从a)~d)代表1个循环]:

5.3.6.1The test samples shall undergo 2 cycles hereinafter [sections from a) to d) is a whole cycle]:

a) 对于A 类和D 类标签,在120 ℃±2 ℃条件下,放置30min;对于B类、C类、E 类标签,在90℃±2℃条件下,放置30min;对于F类标签,在150℃±2℃条件下,放置30min。

a) For A and D types, they shall be placed in the condition of 120 ℃+2 ℃ for 30 min; For B, C and E types, they shall be placed in the condition of 90 ℃+2 ℃ for 30 min; For F type, it shall be placed in the condition of 150 ℃+2 ℃for 30min.

b) 在23℃±2℃、50%±5% RH 的条件下,放置15min;

b) All types of samples shall be placed in the condition of 23 ℃+2 ℃ with 50%+5% RH for 15 min;

c) 在-30℃±2℃条件下,放置30min;

c) All types of samples shall be placed in the condition of -30 ℃+2 ℃ for 30 min;

d) 在23℃±2℃、50%±5% RH 的条件下,放置15min。

d)All types of samples shall be placed in the condition of 23 ℃+2 ℃ with 50%+5% RH for 15 min.

试验后,在标准环境下放置1h,目测。

When these cycles ended, keep the samples in the standard environment and conduct a visual inspection.

5.3.6.2 试验样品制备完成后,在标准环境下放置10min,进行5.3.6.1规定的a)~d)2个循环。试验后,在标准环境下放置1h,目测。

5.3.6.2After the preparation put the test sample in the standard environment for 10 min conduct 2 testing cycles in accordance with sections from a) to d) of paragraph 5.3.6.1. When the test finished, put it in the standard environment for 1 h, and then conduct a visual inspection.

5.3.6.2 仅适用于在粘贴后短时间内需要历经明显温变的标签,5.3.6.2不作为标签性能评价试验,若试验后,标签外观发生明显变化或出现粘接分离现象,则不推荐在此位置粘贴标签(标签粘贴表面建议参见附录A)。

5.3.6.2 This test procedure only applies to labels that usually go through a huge temperature change after its binding. And this kind of test is not for label performance assessment. The label’s binding position is not recommended if obvious appearance change occurs or its paste detached after the test.

### 5.3.7 热老化试验

### 5.3.7 Thermal aging test

将试验样品置于下述温度条件下:

The samples shall be placed at the temperatures hereinafter:

a) 对于A 类需永久保持的标签(如车辆识别代号标签、产品标牌、发动机标识等),在120 ℃±2℃条件下,放置1000h;对于A 类其他标签,在120℃±2℃条件下,放置168h;

a) For A type labels that need to be maintained permanently (such as VIN labels, product and engine labels etc.), these samples shall be placed in the condition of 120 ℃+2 ℃ for 1000 h; for other A type labels, their samples shall be placed in the condition of 120 ℃+2 ℃ for 168 h;

b) 对于B类、C类、D类、E类需永久保持的标签(如车辆识别代号标签、产品标牌等),在90℃±2℃条件下,放置1000h;对于B类、C类、D 类、E类其他标签,在90 ℃±2 ℃条件下,放置168h;

b) For B, C, D and E type labels that need to be maintained permanently (such as VIN labels, product labels etc.), their samples shall be placed in the condition of 90 ℃+2 ℃for 1000 h; For other labels of the four types above, their samples shall be placed in the condition of 90 ℃+2 ℃for 168 h;

c) 对于F类标签,在150℃±2℃条件下,放置1600h。

c) For E type labels, their samples shall be placed in the condition of 150 ℃+ 2 ℃ for 1600 h.

试验后,在标准环境下放置1h,目测。

Place it for 1h under the standard environment after the test, and then conduct a visual inspection.

### 5.3.8 色牢度试验

### 5.3.8 Color fastness test

将试验样品放入老化箱内,老化箱采用氙灯作为光源,试验样品正面受到波长为300nm~400nm光线的辐射,试验样品所受累积辐射能量应达到28 MJ/m2。在试验过程中,老化箱湿度为0~20%RH,黑板温度为100℃±3℃。

Put the test sample into the aging box which uses xenon lamp to ensure the subject exposing to the light within radiation of 300 nm~400 nm wave length. The accumulated radiation energy that the test sample amounted shall be reached to 28 MJ/m2 and during the test procedure, the humidity of the aging box and shall be kept at the range of 0~20%, while the temperature of the blackboard shall be kept at 100 ℃+3 ℃. Place it for 1h under the standard environment after the test, and then conduct a visual inspection.

色牢度试验仅适用于D类标签。

This kind of test is applicable to D type label.

### 5.3.9 人工气候加速老化试验

### 5.3.9 Artificial climate accelerated aging test

将试验样品放入老化箱内,老化箱采用氙灯作为光源,试验样品所受累积辐射能量,B类标签应达到2500kJ/m2,C类标签应达到600kJ/m2。在试验过程中,按照光照102min、光照并喷水18min的循环,采用连续光照,黑板温度为65℃±3℃。

Put the test sample into the aging box which uses xenon lamp; for the accumulated energy that the sample amounted, the B type shall be born to 2500 kJ/m2, while the C type shall be borne 600 kJ/m2. During the test procedure, the sample shall be undergone continuous lighting for 102 min, lighting and spraying water for 18 min as a cycle, while keeping the temperature of the blackboard at 65 ℃+3 ℃.

试验后,在标准环境下放置1h,目测。

After these steps finished, keep the test sample in the standard environment for 1 h, and conduct a visual inspection.

人工气候加速老化试验适用于B类、C类标签。

This kind of test is applicable to B or C type labels.

### 5.3.10 耐高压清洗试验

### 5.3.10 High-pressure cleaning test

在5.3.5、5.3.6.1、5.3.7试验后,在标准环境下放置24h,以压力8.50MPa±0.34MPa,水温为室温的高压水枪在距离标签20cm 位置以45°角进行喷射,持续时间5s。

After the previous 5.3.5, 5.3.6.1, and 5.3.7 tests have been carried out, put the test sample in the standard environment for 24 h, then fetch it out, taking a water gun with 8.50 MPa+0.34 MPa pressure from a distance of 20 cm at 45 degree angle in room temperature to wash the sample for 5 s.

试验后,在标准环境下放置1h,目测。

When the test finished, put it in the standard environment for 1 h, then conduct a visual inspection.

耐高压清洗试验适用于B类、F类标签。

This kind of test is applicable to B or F type labels.

### 5.3.11 热剪切粘结强度试验

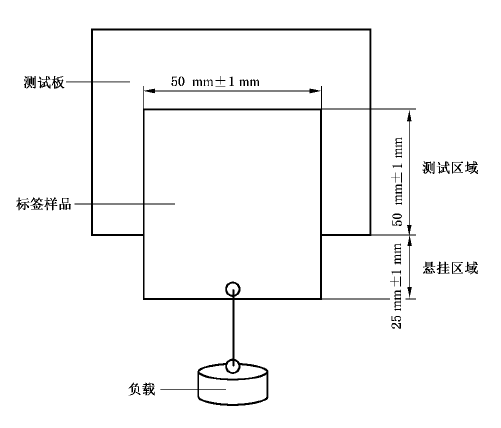
### 5.3.11 Thermal shear binding strength test

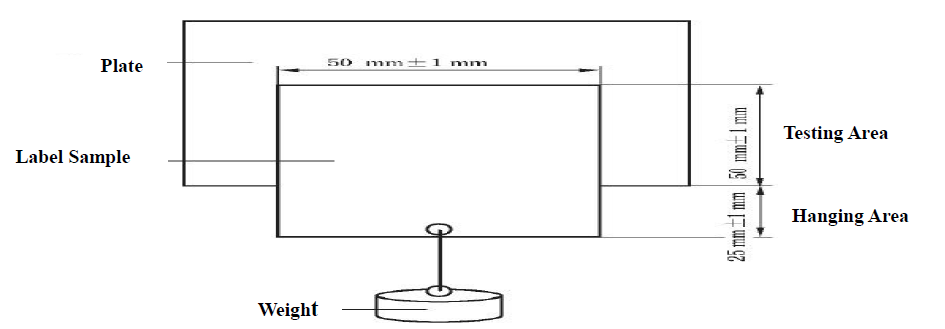
制备宽50mm±1mm,长75mm±1mm 的标签,如图6所示,将标签粘贴在测试板上,用2kg,50mm宽的压辊以300mm/min的速度在其表面辊压一个往复,确保标签粘贴完全,在标准环境下放置24h后,在标签悬挂区域的下端施加0.1kg重物(可另行在标签悬挂区域贴附胶带用以固定重物),置于120℃±2℃的条件下,放置24h,测量标签位移量。试验结果为各试验样品试验结果的平均值。

As Figure 6 shows, prepare a label with the size of 50 mm+1 mm in width, 75 mm+1 mm in length, then paste it on the test plate. To ensure it has been fully affixed, taking a roller with 2 kg weight, 50 mm width, and move back and forth on its surface at the speed of 300 mm /min. After its storage in the standard environment for 24 h, hang a 0.1 kg weight to the bottom of the label, then keep it under 120 ℃+2 ℃ condition for 24 h, and finally measure its displacement. The ultimate test results shall be the average value from various sample tests.

热剪切粘结强度试验仅适用于粘贴于垂直表面的A 类、F类标签。

This kind of test is only applicable to A or F type labels pasted on vertical surfaces.





**图6 热剪切粘结强度试验示意图**

**Figure 6 Thermal shear binding strength test**

### 5.3.12 自毁性能试验

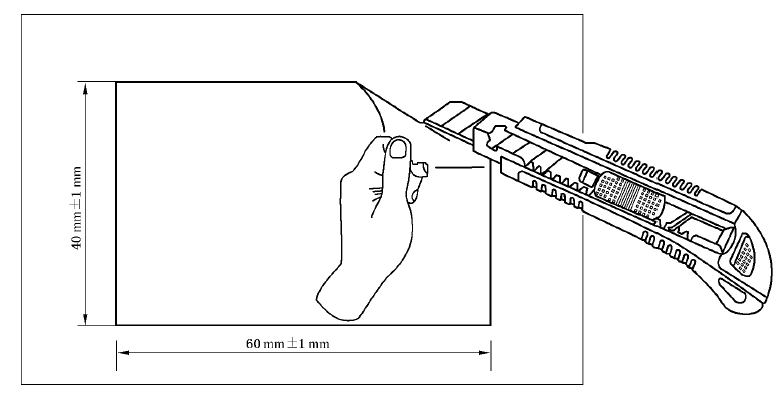
### 5.3.12 Self-destruction performance test

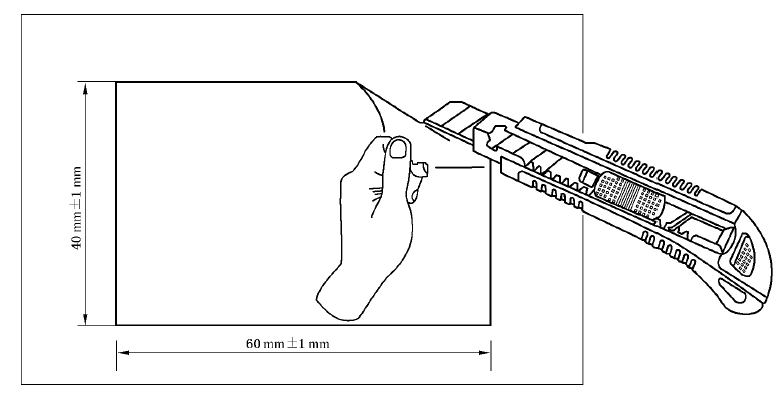
制备宽40mm±1mm,长60mm±1mm 的标签(标签边缘应光滑无切口,设计给出的预制切口除外),将标签粘贴在测试板上,用2kg,50mm 宽的压辊以300mm/min的速度在其表面辊压一个往复,确保标签粘贴完全,在标准环境下放置14d。

Prepare a label with the size of 40 mm + 1 mm in width, 60 mm + 1 mm in length (the edges of the label shall be smooth without incision, except for intentionally left) .Paste the label onto the test plate. To ensure the label has been fully affixed, taking a roller with 2 kg weight, 50 mm width, and move back and forth on its surface at the speed of 300 mm /min. Then store it in the standard environment for 14 d.

如图7 所示,手工借助美工刀从标签一端(以45°角方向)将标签从测试板上剥离,速度约为30mm/min。

As Figure 7 shows, peel the label from the testing plate utility knife (45 degree) at the speed of 30 mm/ min.





**图7 自毁性能试验示意图**

**Figure 7 Label self-destruction performance test**

# 附 录 A (资料性附录) 标签粘贴表面建议

# Annex A (Informative) Suggestions on the Binding Surface

**A.1 标签粘贴表面要求**

**A.1 The binding surface of labels**

标签粘贴表面应尽量光滑、平整且具有高表面能,表面粗糙度(Ra)宜小于10μm,材料表面能宜大于40dyn/cm。

The binding surface of the label should be as smooth as possible with Ra<10 μm, and boasts high surface energy > 40 dyn/cm.

**A.2 适合标签粘贴的表面**

**A.2 Surfaces applicable to binding**

标签宜粘贴在如下表面:油漆面、清漆面、电泳漆面、聚酰胺、丙烯腈-丁二烯-苯乙烯共聚合物(ABS塑料)、硬质聚氯乙烯、金属表面等。

Surfaces such as paint, varnish lacquer, electrophoretic paint, polyamide, ABS, hard PVC, and metals etc. are applicable to label binding.

**A.3 不适合标签粘贴的表面**

**A3. Surfaces not applicable to binding**

标签不宜粘贴在高粗糙度表面,如:仪表板(IP面板)皮纹面、发动机罩盖磨砂表面等。

Highly rough surfaces like leather surface of automobile instrument panel (IP), frosted surface of engine cover etc. are not applicable to label binding.

标签不宜粘贴在低表面能材料表面,如:三元乙丙橡胶(EPDM)、聚丙烯/三元乙丙橡胶共混材料(PP/EPDM)、聚丙烯、软质聚氯乙烯、碳纤维材料(使用脱模剂)、使用大量增塑剂的非金属材料等。

Other low-energy surfaces like EPDM, PP/EPDM, soft PVC, carbon fiber (with parting agent used) as well as non-metallic materials using substantial plasticizers.