AATCC 技术手册

AATCC TECHNICAL MANUAL

（内部资料　注意保存）

上　册

二〇〇七年三月

前　言

这一版本《技术手册》上的测试方法是在2003年四月前通用的。总结了一些包括已经增加的和其他一些重要变化的新测试方法。

AATCC测试方法是由研究委员会经过深入的研究和多个实验室对比创立的，创建一个方法往往需要几年的时间。在创立每一个方法时，简易性、再现性、适应性、测试费用和测试过程需要的时间，都是重要的考虑因素。一个测试方法在《技术手册》上发表之前，必须经过可靠的研究委员会的审批，编辑委员会的再审查和技术研究委员会(TCR)的审批。

每一个新的测试方法在最初三年期间，每年需要一次审查，并要经过研究委员会的推荐和TCR的审批，通过检查，这个测试方法有可能被重申，修订或撤消。在经过最初三年以后，每个测试方法每五年由研究委员会至少审查一次，接着经过TCR的审批，有可能被重申，修订或撤消。每一个测试方法的序言中要包括这些审查的历史记录。

所有AATCC测试方法的一个重要特征是测试结果是数字量化的，像和报道的相反的未通过测试一样。测试结果是描述材料的依据或者非他们本身的过程特性，是一种规范。AATCC的政策是这些规范禁止签注。

每一个测试方法中都标明一串数据，显示这个方法发行、最新修订、重申的年份。标注中应该提供这个测试方法的全部相关信息。如果参考文献的上下文中未给出这个方法的明确资料来源，AATCC应该放在标注之前，比如：AATCC测试方法16－2003，或简单的写为：AATCC 16－2003。

研究委员会在编写这些测试方法时，使用的限定文献为《AATCC测试方法编写设计说明书》。这些研究委员会的组织和运行的限定文献为《AATCC测试方法和技术委员会的程序规则》。

在1969年以前，技术手册包含现在发行的三本单独的书中的全部材料——《技术手册》，七月出版的《纺织化学家和着色师》(采购指南)，当前的《AATCC评论》，和《AATCC会员目录》。当前版本的《技术手册》自1969年以来还没有修改过。在1985年《技术手册》有如下的较大的版面调整：(1)索引被放在书的前部；(2)测试方法按号数顺序排列；(3)增加了技术标准术语表(4)增加了《测试方法编写设计说明书》。在1989年，测试方法后面直接列出了评价程序。

目　录

AATCC 测试方法的修订

自从 2003 版本的技术手册出版以来，AATCC 测试方法作了如下变更。2004 版本变更的最终日期截止到 2003 年 4 月 1 日。

全球性修订。以下 AATCC 测试方法进行编辑修订，且对原料名和以前提及的 Atlas 电子设备合资公司，纺织品改进公司，Raitch 公司和美国 SDL 公司的联系方式更新如下：SDL Atlas L. L. C. , 1813A Associate Lane, Charlotte, NC28217；电话：704/329 - 0911；传真：704/329 - 0914；e - mail：info@ sdlatlas. com：

8 - 2001，15 - 2002，17 - 1999，20 - 2002，70 - 2000，86 - 2000，92 - 1999，93 - 1999，96 - 2001，10 - 1999，109 - 2002，114 - 1999，115 - 2000，116 - 2001，117 - 1999，118 - 2002，119 - 1999，120 - 1999，124 - 2001，130 - 2000，131 - 2000，133 - 1999，138 - 2000，139 - 2000，142 - 2000，143 - 2001，162 - 2002，165 - 1999，179 - 2001，180 - 1997，181 - 1997，186 - 2001 和 187 - 2002。

以下表示 2004 版本手册中测试方法的其它变更。

16 - 2003，光照下的不褪色性

此项全面修正，由光致褪色特殊类型改为基于性能的描述。

61 - 2003，洗涤，家用和商用织物的不褪色性

修正后，表 I 中加上 ± 规定公差且 12. 1，12. 5，和 12. 9 章节中的源名更正为 SDL Atlas L. L. C. 。

66 - 2003，机织织物起皱后的恢复性：复原角

经过五年的评价修改，此方法得到肯定，且 13. 4 中的原名改为高等测试仪器公司。

88B - 2003，重复家用洗涤后，织物线缝处的平滑性

修正后，加上精确度和误差的说明，12. 3 中的源名更新为 SDL Atlas L. L. C。

88C - 2003，重复家用洗涤后，织物折痕的保留性

修正后，加上精确度和误差的说明。12. 3 中的源名更新为 SDL Atlas L. L. C。

89 - 2003，丝光处理

经过五年的评价修改，此方法得到肯定。

111 - 2003，日光和日晒雨淋下，织物的耐气候性

修正后，题目由“织物的耐气候性”改为“日光和日晒雨淋下，织物的耐气候性”。主要的变更是删除机器品种部分，这部分现在纳入到 AATCC 方法 192 - 2003 中。

112 - 2003，铅封罐法表征织物上甲醛的释放量。

经过五年的评价修改，此方法得到肯定。

126 - 1991，交替暴露在水（高湿度）和光照下，织物的不褪色性。

由于其用得少，通过 AATCC 讨论和其委员会和 TCR 投票结果废除使用。

127 - 2003，耐气候性，流体静压测试

经过五年的评价修改，此方法得到肯定。

132 - 2003，干洗后情况下，织物的不褪色性。

经过五年的评价修改，此方法得到肯定。在 11. 8 中加上 Adco's 的 e - mail 地址。

135 - 2003，家用洗涤后，织物的尺寸变化

修订后，题目由“机织和编织织物在家用洗衣机洗涤中的尺寸变化”修改为“家用洗涤后，织物的尺寸变化”。其中主要的变化是把通常情况下，测试循环次数改成了三和对取样技术和标记技术的阐明。

136 - 2003 ，无纺织布和胶合（叠层）织物的键强度。

修正后，主要的变更是加上精确度和误差的说明和对仪器材料单进行修正。

150 - 2003，家用洗涤后，衣服的尺寸变化

修订后，题目由“衣服在家用洗衣机洗涤中的尺寸变化”修改为“家用洗涤后，衣服的尺寸变化”。其中主要的变化是把通常情况下，测试循环次数改成了三和对取样技术和标记技术的阐明。

151 -2003,洗涤 -Ometer 法测定污垢的再沉淀

经过五年的评价修改,此方法得到肯定,12.3、12.6、12.8 中的源名更新为 SDL Atlas L. L. C。

167 -2003,分散染料的发泡性

经过五年的评价修改,此方法得到肯定。

169 -2003 织物材料的防水性:氙灯照射法

此项全面修正,由光致褪色特殊类型改为基于性能的描述,并且包括了精确度和误差的说明。

172 -2003 家用洗涤中,非氯漂白剂的不褪色性。

把冲刷载荷镇重物从 2 型改变为 3 型。12.6 中的源名更新为 SDL Atlas L. L. C。

175 -2003, 耐污染性

经过五年的评价修改,此方法得到肯定,且对 2.1 进行编辑修订,进一步阐明细化。

177 -2000,一定温度和湿度下,光照下,织物的不褪色性:氙灯照射

由于其用得少,通过 AATCC 讨论和其委员会和 TCR 投票结果废除使用。

188 -2003,家用洗涤中,织物对次氯酸钠漂白的不褪色性

修正后,加上精确度和误差的说明。14.6 中的源名更新为 SDL Atlas L. L. C。

190 -2003,用活化氧漂白清洁剂家用洗涤后,织物的不褪色性:加速

经过三年的评价修改,此方法得到肯定。12.1 中的源名更新为 SDL Atlas L. L. C。

191 -2003,酸性纤维素酶的影响:最高负重洗衣机

经过三年的评价修改,此方法得到肯定。10.2 中的源名更新为 SDL Atlas L. L. C。

192 -2003,阳光弧形灯下,润湿和未润湿纺织品的耐气候性

新的 AATCC 测试方法提供了对织物材料的耐气候性进行表征的一种手段。测试仪选择 A - 阳光弧形灯照射 - 润湿,B - 阳光弧形灯照射 - 未润湿。如该方法所述,此法适用于纤维,纱和织物和由这些材料制成的产品,包括涂层织布,人造革(不管是天然的,着色的,成品或未成品的)。但这些测试仪器并没有暗含或表示对特定应用条件下,织物的加速测试。任何耐气候测试和实际应用中,真实暴露状况的相关度必须用数学方法进行表征和取得相关部门的许可。

AATCC 评价程序 6,辅助颜色测量

经过五年的评价修改,此方法得到肯定。

AATCC 评价程序 7,辅助评价测试样品颜色的变化

经过五年的评价修改,此方法得到肯定。

2003AATCC 标准参考液态洗涤剂的专著

新 AATCC 专著用液态洗涤剂代替粉末状洗涤剂。

家用洗涤测试条件标准的专著

对当前洗衣机和干衣机的规格和标度技术进行修正。

Changes in AATCC Test Methods

The following changes have been made in AATCC test methods since publication of the 2003 edition of the TECHNICAL MANUAL. The copy deadline for changes in the 2004 edition was April 1, 2003.

Global Editorial Change. The following AATCC Test Methods were editorially revised to update the source names and addresses previously referenced as Atlas Electrical Devices Co. Inc., Textile Innovators Corp, Raitech Inc. and SDL America to the following: SDL Atlas L.L.C., 1813A Associate Lane, Charlotte NC 28217; tel: 704/329-0911; fax: 704/329-0914; e-mail: info@sdlatlas.com:

8-2001, 15-2002, 17-1999, 20-2002, 70-2000, 86-2000, 92-1999, 93-1999, 96-2001, 101-1999, 109-2002, 114-1999, 115-2000, 116-2001, 117-1999, 118-2002, 119-1999, 120-1999, 124-2001, 130-2000, 131-2000, 133-1999, 138-2000, 139-2000, 142-2000, 143-2001, 162-2002, 165-1999, 179-2001, 180-1997, 181-1997, 186-2001 and 187-2002.

The following represents other changes made to test methods in the 2004 Manual.

16-2003, Colorfastness to Light

Revised in its entirety to replace specific types of light fading apparatus with performance based descriptions.

61-2003, Colorfastness to Laundering, Home and Commercial: Accelerated

Revised to add ± tolerances to Table I and to update source name in 12.1, 12.5 and 12.9 to SDL Atlas L.L.C.

66-2003, Wrinkle Recovery of Woven Fabrics: Recovery Angle

Reaffirmed under the five-year review process. Also source in 13.4 has been changed to Advanced Testing Instruments Corp.

88B-2003, Smoothness of Seams in Fabrics after Repeated Home Laundering

Revised to include a precision and bias statement. Source name in 12.3 has been updated to SDL Atlas L.L.C.

88C-2003, Retention of Creases in Fabrics after Repeated Home Laundering

Revised to include a precision and bias statement. Source name in 12.3 has been updated to SDL Atlas L.L.C.

89-2003, Mercerization

Reaffirmed in accordance with the five year review process.

111-2003, Weather Resistance of Textiles: Exposure to Daylight and Weather

Revised with title change from "Weather Resistance of Textiles," to "Weather Resistance of Textiles: Exposure to Daylight and Weather." The major changes involve removing the machinery options which are now outlined in the new AATCC Method 192-2003.

112-2003, Formaldehyde Release from Fabric, Determination of: Sealed Jar Method

Reaffirmed under the five-year review process.

126-1991, Colorfastness to Water (High Humidity) and Light: Alternate Exposure

Withdrawn in its entirety due to lack of use. The lack of use was determined after advertising in *AATCC Review*, as well as through committee and TCR balloting.

127-2003, Water Resistance: Hydrostatic Pressure Test

Reaffirmed under the five-year review process.

132-2003, Colorfastness to Drycleaning

Reaffirmed under the five-year review process. Adco's e-mail address has been added in 11.8.

135-2003, Dimensional Changes of Fabrics after Home Laundering

Revised with title change from "Dimensional Changes in Automotive Home Laundering of Woven and Knit Fabrics," to "Dimensional Changes of Fabrics after Home Laundering." Major changes involve changing the number of test cycles to three for normal testing and a clarification of sampling and marking techniques.

136-2003, Bond Strength of Bonded and Laminated Fabrics

Revised. Major changes involve the addition of a precision and bias statement and an update to the apparatus material list.

150-2003, Dimensional Changes of Garments after Home Laundering

Revised with title change from "Dimensional Changes in Automatic Home Laundering of Garments," to "Dimensional Changes of Garments after Home Laundering." Major changes involve changing the number of test cycles to three for normal testing and a clarification of sampling and marking techniques.

151-2003, Soil Redeposition: Launder-Ometer Method

Reaffirmed under the five-year review process. Includes source name update in 12.3., 12.6 and 12.8 to SDL Atlas L.L.C.

167-2003, Foaming Propensity of Disperse Dyes

Reaffirmed under the five-year review process.

169-2003, Water Resistance of Textiles: Xenon Lamp Exposure

Revised in its entirety to replace specific types of light fading apparatus with performance based descriptions, and to include a precision and bias statement.

172-2003, Colorfastness to Non-Chlorine Bleach in Home Laundering

Revised to change wash load ballast type from Type 2 to Type 3 and update source name in 12.6 to SDL Atlas L.L.C.

175-2003, Stain Resistance: Pile Floor Coverings

Reaffirmed under the five-year review process and editorially revised to clarify 2.1.

177-2000, Colorfastness to Light at Temperature and Humidity: Xenon Lamp Apparatus
Withdrawn in its entirety due to lack of use. The lack of use was determined after advertising in *AATCC Review*, as well as through committee and TCR balloting.

188-2003, Colorfastness to Sodium Hypochlorite Bleach in Home Laundering
Revised to include a precision and bias statement. Source name has been updated in 14.6 to SDL Atlas L.L.C.

190-2003, Colorfastness to Home Laundering with Activated Oxygen Bleach Detergent: Accelerated
Reaffirmed under the three-year review process. Source name has been updated in 12.1 to SDL Atlas L.L.C.

191-2003, Acid Cellulase Enzymes, Effect of: Top Loading Washer
Reaffirmed under the three year review process. Source name in 10.2 has been updated to SDL Atlas L.L.C.

192-2003, Weather Resistance of Textiles: Sunshine-Arc Lamp Exposure With and Without Wetting
New AATCC Test Method which provides a means for determining the weather resistance of textile materials. The test options A—Sunshine-Arc Lamp Exposure with Wetting, and B—Sunshine-Arc Lamp Exposure without Wetting, as described in this method are applicable to fibers, yarns and fabrics and products made there from, including coated fabrics, whether natural, colored, finished or unfinished. These test options does not imply, expressly or otherwise, an accelerated test for a specific application. The degree of correlation between any weather resistance test and the actual exposure in use must be determined mathematically and agreed upon by the contractual parties

AATCC Evaluation Procedure 6, Instrumental Color Measurement
Reaffirmed under five-year review process.

AATCC Evaluation Procedure 7, Instrumental Assessment of the Change in Color of a Test Specimen
Reaffirmed under the five-year review process.

Monograph on 2003 AATCC Standard Reference Liquid Laundry Detergent
New AATCC monograph established using liquid laundry detergent as an alternate to powder.

Monograph on Standardization of Home Laundry Test Conditions
Revised to include updates to the specifications for current washers and dryers and a technique for calibration.

耐酸碱色牢度

1925 年由 AATCC 委员会 RRI 起草;1945,1952,1957 年修订,1972,1975,1978,1989 年重申,1981,1986,1994,2001 年重新进行编辑修订并重申。1995 年再次编辑修订并重申。并把此法和 ISO105 - E05 和 E06 联系起来。

1. 目的及适用范围

1.1 这种方法是用来鉴定测试样品对模拟的酸量,碱量,碱洗涤替代液和碱性街道污物的耐抗性。

2. 原理

2.1 把测试样品浸染或用简单的实验仪器把它和所需的溶液混在一起。测试样品的检测是通过观察其颜色的变化进行鉴定。

3. 术语解释

3.1 色牢度:由于在制作、测试、存放或使用过程中,材料可能会暴露于任何可能的环境,这样会使材料的颜色特征发生变化,或者会污染邻近的物品,牢色度就是表征材料颜色对于各种环境的稳定性的尺度。

4. 安全防范措施

注释:这些安全措施只供参考。在测试过程中只起到辅助作用,不必完全照作。在测试过程中,使用者有责任采用安全的、恰当的技术来处理样品。厂商必须提供详尽的细节,诸如材料的安全数据表等,以及其他厂商的建议。同时还必须附有所有的 OSHA 标准和规则。

4.1 测试工作着必须具备很好的试验操作技能,同时在试验场所要佩带安全眼罩。

4.2 所有化学试剂在使用时都要谨慎。称量和混合盐酸、醋酸以及氢氧化钠时要配戴防化眼罩或脸罩,封闭手套和隔离服。

4.3 实验室附近应配有洗眼液或安全水池,同时操作个人应该配有防毒面具以备不时之需。

5. 仪器、材料和试剂

5.1 烧杯,250ml

5.2 种罩,4L,带玻璃板底座

5.3 蒸发皿

5.4 颜色改变的亮度色标(见 11.1)

5.5 盐酸溶液(HCL),35%

5.6 醋酸溶液(CH_3COOH),56%

5.7 氢氧化铵溶液(NH_4OH),氨(NH_3)28%,

5.8 碳酸钠溶液,脱水

5.9 氢氧化钙溶液,新制浆

6. 测试样品

6.1 这些样品必需被裁成合适的形状。

7. 过程

7.1 酸的测试。

7.1.1 把待测样品加入到盐酸溶液中(100mL 的 35% 的盐酸加水到 1000mL,注酸入水),在 21℃(70 华),不经过漂洗在室温下把样品进行干燥。

7.1.2 把待测样品加入到醋酸(56%),不经过漂洗在室温下把样品进行干燥。

7.2 碱的测试。

7.2.1 在 21℃把待测样品浸入到氢氧化铵溶液(含 28% 氨)中两分钟,且不经过漂洗在室温下把样品进行干燥。

7.2.2 在 21℃把待测样品浸入到碳酸钠溶液中两分钟,且不经过漂洗在室温下把样品进行干燥。

7.2.3 把样品悬在距 10mL 氢氧化铵溶液(含 28% 氨)7.6 厘米的上部 24 小时,用带玻璃盖的广口型种罩住。

7.2.4 把待测样品加入到新制的氢氧化钙溶液中,(由氢氧化物加入少量的水制成的浆),把样品进行干燥。然后轻刷样品把残留粉末除去。

8. 鉴定

8.1 把样品和颜色改变的亮度色标进行对比评定(见 11.1)

5 级 - 可以忽略或没有变化,等同于灰度等级 5。

4.5 级 - 颜色变化等同于灰度等级 4 - 5。

4 级 - 颜色变化等同于灰度等级 4。

3.5 级 - 颜色变化等同于灰度等级 3 - 4。

3 级 - 颜色变化等同于灰度等级 3。

2.5 级 - 颜色变化等同于灰度等级 2 - 3。

2 级 - 颜色变化等同于灰度等级 2。

1.5 级 - 颜色变化等同于灰度等级 1 - 2。

1 级 - 颜色变化等同于灰度等级 1。

9. 试验报告

9.1 在报道这些测试方法的结果时,应该按下面所举的例子一样表述试剂:

"这种材料对盐酸等的具有…. 等级的色牢度。"

10. 精确度及误差

10.1 精确度:这用测试方法的准确度还没有被确定。还没有具体的构思如何来确定这种方法的准确度。这种方法的使用者应该使用标准的统计技术来对这种方法的本实验室结果或实验室之间的平均值进行比较。

10.2 误差。耐酸碱色牢度只在测试方法程度上定义,还没有完全独立的方法确定其真实值。作为一种估计的方法,不能确定其误差。

11. 注意

11.1 由 AATCC 提供,邮编:12215,Research Triange Park,国家合格证 27709 ,美国,电话:919/549 - 8141;传真:919/549 - 8933;电子邮箱:orders@ aatcc. org。

Colorfastness to Acids and Alkalis

Developed in 1925 by AATCC Committee RR1; revised 1945, 1952, 1957; reaffirmed 1972, 1975, 1978, 1989; editorially revised and reaffirmed 1981, 1986, 1994, 2001; editorially revised 1995. Related to ISO 105-E05 and E06.

1. Purpose and Scope

1.1 Test specimens are evaluated for resistance to simulated action of acid fumes, sizes, alkaline sizes, alkaline cleansing agents and alkaline street dirt. These test methods are applicable to textiles made from all fibers in the form of yarns or fabrics, whether dyed, printed or otherwise colored.

2. Principle

2.1 The specimens are steeped in or spotted with the required solutions by means of simple laboratory equipment. The tested specimens are examined for changes in color.

3. Terminology

3.1 **colorfastness,** n.—the resistance of a material to change in any of its color characteristics, to transfer of its colorant(s) to adjacent materials, or both, as a result of the exposure of the material to any environment that might be encountered during the processing, testing, storage or use of the material.

4. Safety Precautions

NOTE: These safety precautions are for information purposes only. The precautions are ancillary to the testing procedures and are not intended to be all inclusive. It is the user's responsibility to use safe and proper techniques in handling materials in this test method. Manufacturers MUST be consulted for specific details such as material safety data sheets and other manufacturer's recommendations. All OSHA standards and rules must also be consulted and followed.

4.1 Good laboratory practices should be followed. Wear safety glasses in all laboratory areas.

4.2 All chemicals should be handled with care. Use chemical goggles or face shield, impervious gloves and an impervious apron during dispensing and mixing of hydrochloric acid, acetic acid and ammonium hydroxide.

4.3 An eyewash/safety shower should be located nearby and a self-contained breathing apparatus should be readily available for emergency use.

5. Apparatus, Materials and Reagents

5.1 Beaker, 250 mL

5.2 Bell jar, 4 L, with a glass plate base

5.3 Evaporating dish

5.4 Gray Scale for Color Change (see 11.1)

5.5 Hydrochloric acid (HCl), 35%

5.6 Acetic acid (CH_3COOH), 56%

5.7 Ammonium hydroxide (NH_4OH), anhydrous ammonia 28% (NH_3)

5.8 Sodium carbonate (Na_2CO_3), anhydrous, technical

5.9 Calcium hydroxide [$Ca(OH)_2$], freshly prepared paste

6. Test Specimens

6.1 These may be cut in any convenient size.

7. Procedure

7.1 Acid Tests.

7.1.1 Spot the specimen with the hydrochloric acid solution (100 mL of 35% acid made up to 1 L, add acid to water) at 21°C (70°F), and then dry the specimen at room temperature without rinsing.

7.1.2 Spot the specimen with acetic acid (56%) and dry it at room temperature without rinsing.

7.2 Alkali Tests.

7.2.1 Steep the specimen for 2 min at 21°C (70°F) in ammonium hydroxide (28% anhydrous ammonia) and dry it at room temperature without rinsing.

7.2.2 Steep for 2 min at 21°C (70°F) in sodium carbonate (10%) and dry it at room temperature without rinsing.

7.2.3 Suspend the specimen over a 7.6 cm (3 in.) evaporating dish containing 10 mL ammonium hydroxide (28% anhydrous ammonia) for 24 h in a 4 L bell jar placed on a glass plate.

7.2.4 Spot the specimen with calcium hydroxide, a freshly prepared paste, made by mixing the hydroxide with a small amount of water, and dry the specimen. Then brush the specimen to remove the dry powder.

8. Evaluation

8.1 Rate the effect on the color of the test specimens by reference to the Gray Scale for Color Change (see 11.1).

Grade 5—negligible or no change as shown in Gray Scale Step 5.

Grade 4.5—change in color equivalent to Gray Scale Step 4-5.

Grade 4—change in color equivalent to Gray Scale Step 4.

Grade 3.5—change in color equivalent to Gray Scale Step 3-4.

Grade 3—change in color equivalent to Gray Scale Step 3.

Grade 2.5—change in color equivalent to Gray Scale Step 2-3.

Grade 2—change in color equivalent to Gray Scale Step 2.

Grade 1.5—change in color equivalent to Gray Scale Step 1-2.

Grade 1—change in color equivalent to Gray Scale Step 1.

9. Report

9.1 In reporting results of these tests, state the reagent used as given in the following example:

"This material is in Grade...with respect to colorfastness to hydrochloric acid, etc."

10. Precision and Bias

10.1 *Precision.* Precision for this test method has not been established. There is no contemplated activity to establish precision for this method. Users of the method should use standard statistical techniques in making any comparisons of test results for either *within-laboratory* or *between-laboratory* averages.

10.2 *Bias.* The colorfastness to acids and alkalis can be defined only in terms of a test method. There is no independent method for determining the true value. As a means of estimating this property, the method has no known bias.

11. Note

11.1 Available from AATCC, P.O. Box 12215, Research Triangle Park NC 27709; tel: 919/549-8141; fax: 919/549-8933; e-mail: orders@aatcc.org.