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Laboratory Procedure for Preparation of Appearance Evaluation Area

1. Foreword

1.1 Much of the information contained in this standard was previously included in various AATCC test methods. In 2023, a laboratory study was conducted comparing light-emitting diodes (LED) to traditional fluorescent and incandescent bulbs for use in the evaluation area. To more fully describe and maintain lighting options and other critical details of the evaluation area, the information was moved to this stand-alone procedure, which can be combined with multiple test methods including AATCC TM88B, 88C, 124, 128, and 143.

2. Purpose and Scope

2.1 This procedure provides guidance on preparing an appearance evaluation area, including selecting and verifying lamps.

2.2 The procedure is used in combination with test methods specifying the visual appearance evaluation of textile materials and products.

3. Principle

3.1 Specifications for the viewing board, lighting, and room arrangement for a visual evaluation area are provided.

3.2 Guidance on selecting and verifying lamp properties is also provided.

4. Referenced Documents

NOTE: Use current versions of all publications unless otherwise specified.

4.1 AATCC TM88B Test Method for Seam Smoothness in Fabrics after Home Laundering (see 9.1).

4.2 AATCC TM88C Test Method for Crease Retention in Fabrics after Home Laundering (see 9.1).

4.3 AATCC TM124 Test Method for Smoothness Appearance of Fabrics after Home Laundering (see 9.1).

4.4 AATCC TM 128 Test Method for Wrinkle Recovery of Fabrics: Appearance (see 9.1).

4.5 AATCC TM143 Test Method for Appearance of Apparel and Other Textile End Products After Home Laundering (see 9.1).

5. Terminology

5.1 **fluorescent tube**, n.—a low-pressure mercury-vapor gas-exchange lamp or light source that uses fluorescence to produce visible light. An electric current

in the gas excites mercury vapor, which produces visible light.

5.2 **LED lamp**, n.—a light source that uses light-emitting diodes (LEDs) to produce visible light.

5.3 **incandescent lamp**, n.—an electric light source that uses a heated wire filament to produce visible light. The filament is enclosed in a glass bulb that is filled with vacuum or inert gas to protect the filament from oxidation.

5.4 **luminaire**, n.—a complete lighting unit consisting of a light source with a means of distribution (reflector and/or refractor), lamp positioning (socket), lamp protection (housing), and a provision for power connection.

6. Safety Precautions

6.1 The safety precautions specified in the procedure are ancillary to the standard and are not intended to be all-inclusive.

6.2 It is the user's responsibility to reference applicable safety data sheets, use safe and proper techniques, and wear appropriate personal protective equipment in handling materials in this standard.

6.3 Users MUST consult manufacturers for specific details such as safety data sheets, equipment operating instructions, and other recommendations. Consult and follow all applicable health and safety regulations (e.g., OSHA standards and rules).

7. Apparatus and Materials (see 9.2)

7.1 Viewing board.

7.1.1 A flat surface 1829 mm (72 in.) in height and at least 1219 mm (48 in.) wide to accommodate scale(s) and specimen side by side.

7.1.2 Painted to match the Grade 2 chip on the Gray Scale for Staining (see 9.1). Approximate CIELAB values for the chip are $L^* = 77$, $a^* = 0$, $b^* = 0$. A tolerance of two units for each parameter is acceptable for the board color.

7.1.3 Means to secure specimen and scale(s) such that the center of specimen is 1524 mm (60 in.) above the floor and no shadow is cast over the specimen or scale.

7.2 Overhead lighting.

7.2.1 Two parallel fluorescent or LED tube-shaped lamps providing cool white light.

7.2.2 If fluorescent tube lamps are used, select those with:

- cool white light,

- nominal length 96 in. (designated F96, see 9.3), and

- nominal diameter 1½ in. (12/8 in., designated T12).

7.2.3 If LED lamps are used (see 9.4), select those with:

- cool white light,
- diffuse light (you should not be able to see the individual LED spots of light when looking at the illuminated lamp),
- nominal length 48 in.,
- nominal diameter 1 in. (8/8 in., designated T8),
- nominal illuminance 2100 lm,
- correlated color temperature (CCT) 4000K ± 300K,
- color rendering index (CRI) ≥ 80, and
- light intensity 1000 ± 500 lx (see 8.8).

7.2.4 Luminaire, white enamel reflector (without baffle or glass), appropriate for selected lamps (see 9.4) and for mounting as shown in Fig. 1.

7.3 Directional lighting (if specified by test method or evaluation procedure)

7.3.1 Incandescent or LED lamp with:

- white light,
- nominal power 100 W,
- beam angle ≤ 45° (full width, see 9.5),
- light intensity 1000-1500 lx,
- CCT 2800-6500K, and
- CRI of ≥ 80.

7.3.2 Luminaire, appropriate for the selected lamp, with an aluminum reflector to focus light and prevent stray light, adjustable to height and position as shown in Fig. 2.

7.3.3 Light shield, adjustable to height and position as shown in Fig. 2. The role of a light shield is to prevent the light emitting from the flood light from distracting the observer. The shield should block the light from reaching the observer's eye when rating.

7.4 Illuminance meter (luxmeter) calibrated (see 9.6).

7.5 Means of eliminating ambient light and minimizing reflection from walls (see 8.2)

8. Procedure

8.1 Viewing Area.

8.1.1 Identify an area at least 3,000 × 1,500 mm for use as the appearance evaluation area.

8.1.2 It has been the experience of many observers that light reflected from the side walls near the viewing board can interfere with the rating results. It is recommended that the side walls be painted matte black (less than 5 gloss units, mea-