



## **Mildew Resistance – Pink Stain for Plastics**

### **1 Introduction**

**Note:** Nothing in this standard supercedes applicable laws and regulations.

**Note:** In the event of conflict between the English and domestic language, the English language shall take precedence.

This standard describes a procedure used to evaluate the resistance of plastics to growth of a microorganism known to cause pink staining in vinyl and other polymer systems.

**1.1 Purpose.** To detect Polyvinyl Chloride (PVC) exterior grades compatible for exterior use.

**1.2 Applicability.** Integral colored exterior grade PVC trim.

### **2 References**

**Note:** Only the latest approved standards are applicable unless otherwise specified.

#### **2.1 External Standards/Specifications.**

None

#### **2.2 GM Standards/Specifications.**

None

#### **2.3 Additional References.**

- American Type Culture Collection, <https://www.atcc.org/Login.aspx>.
- Culture medium: Bennett's Agar. (Available/Reference: [https://us.vwr.com/stibo/hi\\_res/8287084.pdf](https://us.vwr.com/stibo/hi_res/8287084.pdf) - or - [https://us.vwr.com/store/catalog/product.jsp?catalog\\_number=61001-244](https://us.vwr.com/store/catalog/product.jsp?catalog_number=61001-244).)
- Test organism streptovorticillium reticulum ATCC 25607.

### **3 Resources**

#### **3.1 Facilities.**

**3.1.1 Calibration.** The test facilities and equipment shall be in good working order and shall have a valid calibration label.

**3.1.2 Alternatives.** Alternative test facilities and equipment may also be used. However, all measuring variables as specified in this standard shall be determined correctly with respect to their physical definition.

#### **3.2 Equipment.**

**3.2.1** Petri dishes, 100 mm.

**3.2.2** Sterile cotton tipped swabs.

**3.2.3** Sterile distilled water.

**3.2.4** Incubator capable of maintaining  $29\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$ .

**3.2.5** Autoclave capable of maintaining a pressure of 100 kPa (121  $^{\circ}\text{C}$ ) for 15 minutes.

**3.2.6** Test organism streptovorticillium reticulum ATCC 25607. (Reference: American Type Culture Collection, <https://www.atcc.org/Login.aspx>.)

**3.2.6.1** As a stock culture, maintain on Bennett's Agar. The stock may be kept for not more than four months in a refrigerator at  $3\text{ }^{\circ}\text{C}$  to  $10\text{ }^{\circ}\text{C}$ .

**3.2.6.2** Subcultures incubated at  $29\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  for 7 to 14 days shall be used for inoculations. The subcultures may be held in a refrigerator at  $3\text{ }^{\circ}\text{C}$  to  $10\text{ }^{\circ}\text{C}$  for not more than one month.

**3.2.7** Culture medium, Bennett's Agar. (Available/Reference: [https://us.vwr.com/stibo/hi\\_res/8287084.pdf](https://us.vwr.com/stibo/hi_res/8287084.pdf) - or - [https://us.vwr.com/store/catalog/product.jsp?catalog\\_number=61001-244](https://us.vwr.com/store/catalog/product.jsp?catalog_number=61001-244).)

**3.2.7.1** Dissolve the following in 1 L of distilled water:

|               |        |
|---------------|--------|
| Yeast Extract | 1.0 g  |
| Beef Extract  | 1.0 g  |
| N-Z Amine     | 2.0 g  |
| Dextrose      | 10.0 g |
| Bacto Agar    | 18.0 g |

**3.2.7.2** Adjust pH to 4.3 with 1 N NaOH. Sterilize in autoclave at 100 kPa pressure for 15 minutes. Pour sufficient medium to cover bottom of a 100 mm petri dish (15 mL to 20 mL) and cool to room temperature.

**3.3 Test Vehicle/Test Piece.** Not applicable.

**3.4 Test Time.**

Calendar time: 14 to 16 days

Test hours: 0 hours

Coordination hours: 0 hours

**3.5 Test Required Information.** Not applicable.

**3.6 Personnel/Skills.** Not applicable.

## 4 Procedure

**4.1 Preparation.** Not applicable.

**4.2 Conditions.**

**4.2.1 Environmental Conditions.** Not applicable.

**4.2.2 Test Conditions.** Deviations from the requirements of this standard shall have been agreed upon. Such requirements shall be specified on component drawings, test certificates, reports, etc.

**4.3 Instructions.**

**4.3.1 Inoculation.** Moisten the solidified agar surface in the petri dish by streaking with a sterile cotton tipped swab dipped in sterile distilled water. Then streak the swab on the stock culture and inoculate the agar surface by streaking in a crosshatch pattern.

**4.3.2 Test Specimens.** Cut a 19 mm diameter disc from each sample and place on the inoculated agar. For coated fabrics, two discs cut from each sample are tested, with the plastic side and the fabric side each in contact with the agar. It is important to establish good contact between the sample surface and the inoculated agar surface. Sterile weights (such as 16 mm stainless steel nuts) may be used to prevent samples from curling.

**4.3.3 Control Sample.** An untreated sample (containing no biocide) of the material being tested should be placed in each petri dish as a control. Plasticizer flexible polyvinyl chloride film containing no biocide is susceptible to pink staining and may also be used as a control.

**4.3.4 Incubation.** Incubate the petri dish at  $29\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$  for 14 days.

## 5 Data

**5.1 Calculations.** Not applicable.

**5.2 Interpretation of Results.**

**5.2.1 Evaluation.** Observe the degree of staining on the samples by comparing with the inoculated, untreated control. The degree of staining is determined by the amount of sample surface stained rather than the intensity of color. Any possible sample discoloration that is not pink in color should be disregarded when determining the degree of stain.

**5.2.2 Rating.** Rate the degree of pink stain as follows:

|                                   |      |
|-----------------------------------|------|
| No Stain                          | (NS) |
| Trace of Stain (<10% coverage)    | (TS) |
| Slight Stain (10 to 30% coverage) | (SS) |

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