GM WORLDWIDE ENGINEERING STANDARDS	Test Procedure	GMW14141

Dye Migration

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.

1.1 Purpose. This test procedure shall be used to evaluate the dye migration of any dyed, printed, or colored textile material. Color change due to water is also evaluated. Distilled water or deionized water is used in this test procedure because tap water is variable in composition

1.2 Applicability. The procedure is applicable to textile materials that are dyed, printed, or colored.

1.3 Remarks. None.

2 References

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

2.1 External Standards/Specifications.

ISO 105-A02 ISO 105-A03 ISO 105-F010

2.2 GM Standards/Specifications.

None

2.3 Additional References. None.

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 Perspiration Tester, Perspirometer or equivalent device (plastic or glass plates are available with the equipment).

3.2.2 Air Circulating Oven.

3.2.3 Multi-fiber test fabric (ISO 105-F010, Style number 10A).

3.2.4 Gray Scale for Color Change (ISO 105-A02).

3.2.5 Gray Scale for Staining (ISO 105-A03).

3.2.6 Wringer.

3.2.7 Distilled water or deionized water from an ion-exchange device, freshly boiled.

3.3 Test Vehicle/Test Piece. Colored specimen 60 mm × 60 mm backed with Multi-fiber test fiber.

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3.4 Test Time.

Calendar time:	5 d
Test time:	3 d
Coordination time:	2 h

3.5 Test Required Information. Not applicable.

3.6 Personnel/Skills. Personnel trained in accordance with the laboratory accreditation and Standard Operating Procedure requirements.

4 Procedure

Summary of Test Method. The specimen backed by Multi-fiber test fabric is immersed in water under specified conditions of temperature and time, and then placed between glass or plastic plates under specified conditions of pressure, temperature and time. The change in color of the specimen and the staining of the attached Multi-fiber test fabric are observed.

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 Test Procedure.

4.3.1.1 Immerse the test specimen in the test solution at room temperature with occasional agitation to ensure thorough wetting out (at least 30 minutes generally required for an average textile).

4.3.1.2 Remove the test specimen from the test solution and pass between squeeze rolls (wringer) to remove excess liquid. Whenever possible, the wet weight of the specimen should be 2.5x to 3.0x the dry weight.

4.3.1.3 Place the test specimen between glass or plastic plates and insert in the specimen unit of the perspiration tester. Adjust the perspiration tester to produce a pressure of 4.5 kg on the test specimens.

4.3.1.4 Heat the loaded specimen unit in an oven at 38 °C for 2 h. Remove specimen from oven and air dry at room temperature. Do not press dry.

5 Data

5.1 Calculations. Not applicable.

5.2 Interpretation of Results. Not applicable.

5.3 Test Documentation.

5.3.1 Evaluation and Report.

5.3.1.1 Evaluation Method for Color Change. Rate the test specimen for color change using the ISO 105-A02 Gray Scale and report the rating.

5.3.1.2 Evaluation Method for Staining. Rate the Multi-fiber test fabric for staining using the ISO 105-A03 Gray Scale and report the rating.

6 Safety

This Engineering Standard may involve safety requirements for hazardous materials, the method of operations and equipment. This standard does not propose to address all the safety issues associated with its use. It is the responsibility of the user of this standard to ensure compliance with all appropriate safety and health practices. This would include any specific training that may be required. The safety and health standards include site specific rules and procedures, company rules and procedures, and Government Standards. Contact shall be made with the appropriate site Safety and Health personnel for further direction and guidance in these matters.

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