SCOPE:

The storage of garment having more than one shade sometimes results in transfer of dye from one area to another generally dark to light. This phenomenon is sometimes misunderstood as sublimation.

This type of transfer of dye occurs when garment having different shades is folded and colour are in intimate contact with each other. The intensity of dye transfer is influenced by moisture and so can be severe in atmospheric conditions e.g. humid & warm or when garment is steamed immediately before storing in plastic bag.

This method is intended to estimate colour transfer if occurred during prolonged period of storage. This method also can be used to assess tendency of colour transfer problem that can be envisaged during finishing. Some dyes are inherently bad and chemicals used during finishing also accelerate transfer of dye.

STANDARD TEST METHOD:

AATCC TM 163

In this method a dyed/finished test specimen is sandwiched between pre-wet Multifibre fabric & selected second fabric, placed in perspirometer for 48 hrs at room temperature then dried and amount of dye transfer (staining) is rated.

This test is primarily performed for / by US retailers and is an AATCC Standard test method. There is no similar test method available in ISO.

The details of test methods are given below.

<table>
<thead>
<tr>
<th>Equipment Used</th>
<th>Perspiration Tester</th>
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</thead>
<tbody>
<tr>
<td>Multifibre Fabric</td>
<td>No. 10 of 5.7 x 5.7 cm size</td>
</tr>
<tr>
<td>White cotton fabric</td>
<td>As per AATCC TM 8, 5.7 x 5.7 cm</td>
</tr>
<tr>
<td>Bag</td>
<td>Polyethylene / Plastic</td>
</tr>
<tr>
<td>Specimen Size</td>
<td>5.7 x 5.7 cm</td>
</tr>
</tbody>
</table>

Procedure:

1. Immerse in distilled / de-ionized water at 24 ± 3 C both multifibre fabric & white cotton fabric so as to achieve wet pick up of 100 – 110 %

2. Do not wet out the specimen under test

3. Prepare a sandwich with dyed test specimen between pre-wet Multifibre & white cotton fabric.

4. Clamp the sandwiched composite sample between two clean plates of perspiration tester.
5. Set the tester under fixed pressure.

6. Enclose the perspiration tester in polyethylene/plastic bag along with a dish containing at least 50 ml of distilled water so that high RH is maintained.

7. Seal the opening of bag.

8. Allow the specimen to remain for 48 hrs. at RT.

9. Ensure that perspiration tester does not fall into the water dish.

10. Remove the polythene cover & sandwiched specimen from the tester after 48 hrs. Separate the swatches & allow them to dry at RT.

11. Evaluate the dried multfiber fabric & white cloth for colour transfer (staining) if any with the help of AATCC grey scale for staining separately.

An accelerated test can be performed by placing the same test apparatus in a forced draft oven at 38°C for 4 hrs.

Case Studies

This test is generally not conducted by most retailers apart from a few from the US. However, the test is a very good indicator of what could go wrong in prolonged storage or transport. Little wonder that most of the complaints that we have investigated in this area have been due to poor fastness to storage. Some of these are given below -

**Case Study - 1**

Our lab received a garment in combination colors with the complaint of colour smearing for darker shade on to lighter shade portion having a sewn in tape. The sample was investigated for the cause of this problem & was tested for various colour fastness tests.

It was found that red satin tape used in the garment when tested for dye transfer after storage test was staining heavily on multi fiber fabric and adjacent cotton thus confirming the cause of problem.

*Satin tape transferring colour on adjacent multifibre fabric.*
Case Study - 2:

1 ladies blouse in 100 % Cotton with dark coloured sewn label was observed to have stained in and around Neck/Back Yoke portion. A detailed cause analysis revealed that the label when tested for colour fastness to dye transfer by this method showed very poor performance.

Label staining

Equipment:

Samples loaded into a perspirometer.