KES

Grade Classification Standard of Osmotic Test and defect indicating shape

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1. Scope of Application

This standard shall be applied to grade classification of osmotic testing method, which detects the faults on the surface of materials, goods (testing product), and defect indicating shape.

2. General Facts

(1) In test execution, select the testing method to be applied among the classifications regulated in 4.1, considering expected sort and size of defect in advance, use of testing product, rough of surface and quality of detector. And simultaneously, determine the details of operation according to 4.3.

(2) Grade classification in this test is applied to defect indicating shape of final processed cotton, and permitted grade is determined separately considering use, design and specification of testing product, with the advanced conference.

(3) Test engineer

Engineer of test or grade classification should have the required quality or equivalent knowledge, capacity, experience.

3. Definition of Terminology

Definition of terminology used in this standard is shown below.

(1) Washable fluorescence (or dyeing)

Fluorescent (or dyeing) osmotic solution with washing treatment

(2) Post-emulsified fluorescent osmotic solution

Washing treated fluorescent osmotic solution after emulsified treatment

(3) Solvent removal fluorescence (dyeing)

Removal treated fluorescent osmotic solution with detergent

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(4) Oil emulsifier

Emulsifier used without water

(5) Water emulsifier

Emulsifier used with water

(6) Dry-developer

Developer of white minute power used in dried state

(7) Hydro-developer

Developer of white minute power dispersed in water

(8) Quick-drying developer

Developer of white minute power dispersed in volatile organic solvent

(9) Osmotic time

The time from osmotic solution applying to oil or washing treatment, including the time of assort solution.

(10) Double solution

Operation, which makes solution run down, not to remain solution on the surface of testing product.

(11) Emulsified treatment

Operation of emulsifier applying to the surface of testing product

(12) Emulsified time

Time from emulsifier applying to washing treatment

(13) Washing treatment

Operation of washing osmotic solution and emulsifier on the surface of testing product

(14) Removal treatment

Operation of removing solvent removal osmotic solution on the surface of testing product

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(15) Washing solution

Solvent used for removal treatment

(16) Developing time

In drying development, it is the time from developer applying to observation, and in hydro development, the time from developer drying to observation.

(17) Defect indicating shape

Indication shape appeared by soaking osmotic solution, invades defect, through the surface.

(18) Imitative indication

Indication shape by the other cause but for defect

4. Testing Method

4.1 Classification of testing method

Testing method is classified according to sort of osmotic solution and developing method

Table1. Classification of testing method according to the sort of osmotic solution

Name	Method	Symbol
Fluorescent osmotic test	Method of using washable fluorescent osmotic solution	FA
	Method of using post-emulsifying fluorescent osmotic solution	FB
	Method of using solvent removal fluorescent osmotic solution	FC
Dyeing osmotic test	Method of using washable dyeing osmotic solution	VA
	Method of using solvent removal dyeing osmotic solution	VC

Note : Emulsifiers used for post-emulsifying fluorescent osmotic solution are oil and water emulsifier.

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Table 2. Classification of developing method

Name	Developing method	Symbol
Drying development	Method of using drying developer	D
Hydro development	Method of using hydro-developer	W
	Method of using quick-drying developer	S
None development	Method without developer	N

Note : Mark of testing method is combined with the symbol of Table 1 and Table2.

Example : Method of using FA-W washable fluorescent osmotic solution, and applying hydro developer.

4.2 Testing procedure

Testing procedure is shown in Table 3.

Table 3. Testing procedure

Sort of osmotic solution and developer			Symbol of testing method	Testing procedure									
				Pre-treat	Osmo-tic treat	Emu-lsified treat	Wa-shing treat	Re-moval treat	Drying treat	Deve-lop-ment treat	Drying treat	Obse-rvation	Post treat
Washable fluorescent osmotic solution	–	Drying developer	FA-D	○	○	○	○	○	○	○	○	○	○
Washable fluorescent osmotic solution or Washable dyeing osmotic solution	–	Hydro developer	FA-W VA-W	○	○	○	○		○	○	○	○	○
Washable fluorescent osmotic solution or Washable dyeing osmotic solution	–	Quick drying developer	FA-S VA-S	○	○	○	○	○	○	○	○	○	○
Washable fluorescent osmotic solution	–	Not used	FA-N	○	○	○	○	○			○	○	○
Post emulsified fluorescent osmotic solution	–	Drying developer	FB-D	○	○	○	○	○	○	○	○	○	○
Post emulsified fluorescent osmotic solution	–	Hydro developer	FB-W	○	○	○	○		○	○	○	○	○
Post emulsified fluorescent osmotic solution	–	Quick drying developer	FB-S	○	○	○	○	○	○	○	○	○	○
Solvent removal fluorescent osmotic solution	–	Drying developer	FC-D	○	○			○	○	○	○	○	○
Solvent removal fluorescent osmotic solution or Solvent removal dyeing osmotic solution	–	Hydro developer	FC-W VC-W	○	○			○	○	○	○	○	○
Solvent removal fluorescent osmotic solution or Solvent removal dyeing osmotic solution	–	Quick drying developer	FC-S VC-S	○	○			○	○	○	○	○	○
Solvent removal fluorescent osmotic solution	–	Not used	FC-N	○	○			○				○	○

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4.3 Testing operation

4.3.1 Pre-treatment

Pre-treatment is done as below.

(1) Before osmotic solution is applied to testing product, oil and paint and rusty style and dirty etc., which prevent invading of osmotic solution into defect, and oil and moisture, which remain in the adhesive material and defect of the surface should be removed sufficiently.

(2) Pre-treatment is done by the method of washing, steam washing, coating detergent, alkali detergent and acid detergent by the solvent, considering the sort and viscosity of attached materials and the quality of testing products.

(3) In case of partial test of testing product, pre-treatment is done at least to 25 mm from testing part.

(4) After treatment, solvent and washing solution and moisture etc. should dried sufficiently.

4.3.2 Osmotic treatment

Osmotic treatment is done as below.

(1) Osmotic treatment is applied by the method of soaking, spray, brush etc. according to the sort of quantity, size, shape of testing product and the sort of osmotic solution, and the surface of tested part should be soaked by osmotic solution during osmosis.

(2) Time for osmosis should be determined considering the sort of osmotic solution, quality of testing product, expected sort and size of defect and the temperature of testing product, osmotic solution. Generally, in case of 15 ~ 50℃, increase the time considering temperature, and in case of more than 50℃ or less than 3℃, time should be determined considering the sort of osmotic solution and the temperature of testing product etc..

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