



PSQCA

**PAKISTAN STANDARDS  
AND  
QUALITY CONTROL AUTHORITY  
STANDARDS DEVELOPMENT CENTRE**

(Textile Division)

(A Federal Statutory Authority of Ministry of Science and Technology created by Act VI of 1996)

(Formerly Pakistan Standards Institutions)

Ref: SDC-2/TEX/TC-11/2009

Date: 19-11-2009

**INVITATION OF MEETING**

*[Handwritten signature]*  
\_\_\_\_\_  
*[Handwritten date]*  
\_\_\_\_\_  
*[Handwritten name]*  
\_\_\_\_\_

SUBJECT: **TECHNICAL COMMITTEE FOR PIECE GOODS & TOWELS (TC-11)**

Dear Sir,

The **46<sup>th</sup>** meeting of the above committee will be held on **10-12-2009** at **10:30 AM** in the Committee Room of **Standards Development Centre, Mubarak Manzil, 2<sup>nd</sup> Floor, 39-Garden Road, Opp: Jahangir Park, Saddar, Karachi-74400.**

You are requested to make it convenient to attend the meeting. In the event of you are being unable to attend, we shall be glad to have the information at the earliest.

The working papers are enclosed herewith.  
Please bring the necessary paper to the meeting.

Yours faithfully

(S. MUHAMMAD ZAKI)  
Assistant Director (Textile)

Secretary to the Technical Committee

Encl: As above

**A G E N D A**

1. Recitation from THE HOLY QURAN.
2. To announce apologies for absence.
3. To confirm the minutes of the previous meeting.
4. Any matter arising from the minutes.
5. To consider the following:
  - a) Draft-Pakistan Standard Specification for Bath Towels bleached, striped or dyed. (1<sup>st</sup> revision of PS: 1552-1982) along with test report
6. Any other business with the permission of Chair.

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*Pls do not send the "Dear" name of members and ask for their names in this regard. Gujjar Khan*  
20/11

**DRAFT-**  
**PAKISTAN STANDARD SPECIFICATION**  
**FOR**  
**BATH TOWELS BLEACHED STRIPED CHECKED OR DYED**

**0. FOREWORD**

0.1 This Pakistan standard was adopted by Standards Development Centre (PSQCA) on \_\_\_\_\_, endorsement by National Standards Committee Textile (NSCT) [formerly Textile Divisional Council (TDC)] and previously the draft having been finalized by the Technical Committee for Piece Goods & Towels Manufactures (TC-11)

0.2 This standard was first published in 1982, since then many suggestions were received for improvements which after the consideration have been incorporated in this revision.

0.3 In order to keep abreast of the progress in industries, the Pakistan Standards are subject to periodical reviews suggestions for improvements shall always be welcomed and put up to the relevant committee for its consideration.

0.4 This Standard prescribes SI units followed by FPS units in parentheses.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated expressing the results of test shall be rounded off accordance with PS: 103-1960 "Method of rounding off the numerical values". The number of significant places retained in the rounded off value should be the same, as that of the specified values of this standard.

**1. SCOPE**

1.1 This standard prescribes the requirements, method of sampling and test for bleached, checked, striped, and dyed of bath towels made on power looms, suitable for institutional (domestic and contract ) use.

1.2 This standard does not specify the general appearance, feel, finish, of the material.

2. **CONDITIONING:** Before testing all samples shall be conditioned in accordance with PS: ISO 139-2008 i.e. temperature  $20 \pm 2$  °C and relative humidity  $65\% \pm 2$ .

2.1 The period of conditioning of the samples shall be not less than 4 hours.

**3. TERMINOLOGY**

3.1 For the purposes of this Pakistan Standard, the following terms shall apply.

3.1.1 *Terry fabric (woven):* Warp-pile fabric in which loops are created, without positive assistance, by varying the relative positions of the fell and the reed. A high tension is applied to the ground warp and a very low tension to the pile warp.

3.1.2 *Terry ratio*: Length of the pile yarn removed divided by the length of the sample (see PS:ISO 7211-3/2002)

3.1.3 *Absorbency*: Propensity of material to take in and retain a liquid, usually water, in the pores and interstices of the material.

3.1.4 *Total mass*: Mass of one ready-made terry towel (i.e. the average of five towels)

3.1.5 *Domestic use*: Use of terry towels or other items made from terry fabrics in private homes.

3.1.6 *Contract use*: Uses other than domestic, e. g. in hotels, restaurants, schools, etc.

#### 4. MANUFACTURE

4.1 *Yarn*: The cotton yarn used in the manufacture of bath towels shall conform to the requirements specified in PS: 1338/A-2001 (*Ring Spinning Carded*), and bath towels shall be made from good quality pure yarn, well and evenly spun.

4.2 *Towels*: The towels shall be free from cut hole, tear, smash, dressing and filling materials and from substances liable to cause subsequent tendering.

4.3 *Selvedge*: Selvedge shall be straight, firmly and evenly woven. The weave for the selvedge shall be a 3-rib weave (two end weaving as one) or terry weave selvedge. Each selvedge shall be not less than 5 mm not than 13 mm wide. Split or cut selvedges shall be acceptably hemmed (see 4.5) at least 6 mm deep with a turn-in of at least 3 mm and no raw edges shall show on the finished articles.

4.4 The ground to pile ratio of towels shall be 1:3, 1:4, 1:5, and 1:6 or as agreement between the buyer and the seller.

4.5 *Hems*: The finished hem at each end of the towel shall be 6 mm to 10 mm wide. Hems shall be uniformly sewn with not be less than 10 stitches per 25 mm. The ends of the stitching, and any breaks in the thread during stitching, shall be securely backstitched and tacked.

4.6 *Sewing threads*: The sewing thread for hemming shall be 100% Polyester thread of not finer than 3/12 tex (50<sup>s</sup>/3) [see PS: 2884-2009]. The colour of thread shall match the shade of the towel.

#### 5. REQUIREMENTS

5.1 *Construction*: The towels shall comply with the requirements specified in Table-1 and Table-2. The permissible tolerances for various requirements and the methods of test have also been prescribed.

5.2 *Dimensions*: The length and width of the towel shall be specified in Table-3 or as agreement to between the buyer and the seller and the dimension shall be determined in accordance with PS:ISO 22198-2008.

5.3 In order to illustrate or specify the indeterminable characteristics, such as general appearance, feel and shade of towels, a sample has been agreed upon and sealed; the supply shall be in conformity with the sample in such respects.

5.4 The custody of the sealed sample shall be a matter of prior agreement between the buyer and the seller.

**TABLE-1**  
**CONSTRUCTIONAL DETAILS OF COTTON BATH TOWELS,**  
**BLEACHED, STRIPED CHECKED OR DYED**

Variety No.	Count of yarn in Tex (Ne)			Density per 10 cm (inch)			Weight/ sq. meter (of terry part)	Pile ratio
	warp	pile	weft	warp	pile	weft		
1.	2x30 (20/2)	2x30 (20/2)	37 (16)	110 (28)	110 (28)	177 (45)	540	1 : 6
2.	2x30 (20/2)	2x30 (20/2)	37 (16)	106 (27)	106 (27)	165 (42)	438	1 : 5
3.	2x30 (20/2)	2x30 (20/2)	37 (16)	110 (28)	110 (28)	173 (44)	475	1 : 5
4.	2x30 (20/2)	2x30 (20/2)	30 (20)	106 (27)	106 (27)	185 (47)	390	1 : 4
5.	2x30 (20/2)	2x30 (20/2)	30 (20)	79 (20)	79 (20)	173 (44)	280	1 : 4
6.	2x30 (20/2)	2x30 (20/2)	30 (20)	126 (32)	126 (32)	201 (51)	380	1 : 3
7.	2x30 (20/2)	2x30 (20/2)	49 (12)	110 (28)	110 (28)	189 (48)	510	1 : 5
8.	2x30 (20/2)	2x30 (20/2)	30 (20)	118 (30)	118 (30)	169 (43)	355	1 : 3
9.	2x30 (20/2)	2x30 (20/2)	59 (10)	110 (28)	110 (28)	185 (47)	524	1 : 5
10.	2x30 (20/2)	37 (16)	37 (16)	102 (26)	102 (26)	197 (50)	360	1 : 6
11.	2x30 (20/2)	49 (12)	59 (10)	98 (25)	98 (25)	102 (26)	264	1 : 3
12.	30 (20)	37 (16)	37 (16)	102 (26)	102 (26)	197 (50)	330	1 : 6
13.	30 (20)	37 (16)	37 (16)	102 (26)	102 (26)	197 (50)	330	1 : 6
Tolerance	± 3 %	± 3 %	± 3 %	± 2	± 2	± 2	± 5 %	--
Method of tests	PS: ISO 7211/5-2002			PS: ISO 7211/2-2002			PS: ISO 3801-2002	Appendix-A

**TABLE-2**  
**OTHER REQUIREMENTS FOR COTTON BATH TOWELS,**  
**BLEACHED, STRIPED CHECKED OR DYED**

S. No	Characteristics	Requirements	Method of tests
1.	Colourfastness to washing Change in colour Staining on cotton	$\geq 3-4$ (grey scale) $\geq 3-4$ (grey scale)	PS:ISO 105-C10/2008 (Test # 3)
2.	Colourfastness to light (blue wool scale)	$\geq 3-4$ for white items $\geq 4$ for other colour	PS:ISO 105-B02/2002
3.	Colourfastness to Rubbing dry wet	$\geq 3-4$ (grey scale) $\geq 3$ (grey scale)	PS:ISO 105-X12/2002
4.	Colourfastness to water	$\geq 4$ (grey scale)	PS:ISO 105-E01/2002
5.	Colourfastness to laundering- oxidative bleach response	$\geq 3-4$ (grey scale)	PS:ISO 105-C09/2002
6.	Colourfastness to chlorine	$\geq 3-4$ (grey scale)	PS:ISO 105-E03/2002
7.	Colourfastness to bleaching	$\geq 3-4$ (grey scale)	PS:ISO 105-N01/2002
8.	Absorption time	$\leq 15$ sec.	Appendix-B
9.	Absorbency	$< 65$ %	PS: 4878-2008
10.	pH	6.5 to 7.5	PS:ISO 3071-2008
11.	Dimensional change % warp weft	$\leq 2.0$ % $\leq 2.0$ %	PS:ISO 6330-2002
12.	Scouring loss %	$\leq 2.0$ %	PS: 276-1989

**TABLE-3**  
**DIMENSIONS OF COTTON BATH TOWELS, BLEACHED,**  
**STRIPED CHECKED OR DYED**

S. No.	Dimension in cm (inch)	
	length	width
1.	150 (59)	100 (39)
2.	150 (59)	81 (32)
3.	150 (59)	75 (26)
4.	140 (55)	70 (28)
5.	137 (54)	76 (30)
6.	137 (54)	69 (27)
7.	127 (50)	64 (25)
8.	122 (48)	60 (24)
9.	115 (45)	64 (25)
10.	112 (44)	61 (24)
11.	112 (44)	56 (22)
12.	102 (40)	50 (20)
13.	60 (24)	31 (12)
14.	30 (12)	31 (12)
Tolerance	$\pm 2$	$\pm 1$
Method of test	PS:ISO 22198-2008	

## 6. LABELLING AND MARKING

6.1 *Labelling*: The following information shall appear in legible and indelible marking on a label securely attached to individual towels:

- a) Manufacturer's name or trademark or both;
- b) Size of the towels; and
- c) Care Labelling.

6.2 The following information shall appear in legible and indelible marking on outside of each bulk container:

- a) Manufacturer's name or trade mark or both;
- b) Name of the material;
- c) Size of the towel;
- d) Colour;
- e) Quantity; and
- f) Lot or batch number.

6.3 *Marking*: The Bath Towels may also be marked with Standard Mark PSQCA.

**NOTE:** Note: *The use of the Standard Mark is governed by the provision of the section XIII of PSQCA Act VI of 1996 and details of conditions, under which a Licence for the use of Standard Mark may be granted to manufacturers or processors, may be obtained from Director (Conformity Assessment) Standards Development Centre (PSQCA) Karachi.*

7. **PACKING**: The towels shall be in a clean condition. Unless otherwise agreed upon between by the buyer and the seller, towels shall individually fold to a suitable size, and a number of folded towels of the same type, colour and size shall be arranged to form a bundle. Each bundle shall be securely tied at each end with cotton twine or tape. Each bundle of towels shall be completely wrapped in polyethylene sheeting or any other suitable material. Bundles of towels of the same type, colour and size shall be packed together in the same bales, cases/cartons in conformity with the procedure laid down in PS: 1818-1987.

## 8. SAMPLING

8.1 *Lot*: The quantity of towels of the same variety delivered to one buyer against one dispatch note shall constitute a lot.

8.2 The conformity of the lot to the various requirements specified in standard shall be determined on the basis of tests carried out on the samples selected from the lot.

8.3 Unless otherwise agreed, the number of pieces selected at random for inspection shall be in accordance with Table-4

**TABLE-4**  
**SAMPLE SIZE AND PERMISSIBLE NUMBER OF**  
**NON-CONFORMING PIECES**

Lot size	Sample size	Permissible number of non-conforming pieces	Sub-sample size
(1)	(2)	(3)	(4)
Up to 25	3	0	2
26 to 50	5	0	2
51 to 150	8	0	3
151 to 300	13	1	3
301 to 500	20	1	5
501 to 1000	32	2	5
1001 and above	50	3	8

8.4 *Number of sample and criteria for conformity:* It shall be as follows:

<i>Characteristics</i>	<i>Number of samples</i>	<i>Criteria for conformity</i>
Ends, picks, mass, length; width and visual inspection	According to col-2 of Table-4	Number of non-conforming pieces shall not exceed the corresponding number given in col-3
Colour fastness, scouring loss, dimensional change, absorbency,	According to col-4 of Table-4	All the test pieces shall meet the requirement.

**APPENDIX-A**  
**Terry ratio or pile to ground ratio**

A.1 *Principal:* Terry ratio or pile ground ratio is the length in millimetres (measured according to PS:ISO 7211-3/2002) of the removed pile yarn, divided by the length in millimetres of the sample. The length of the sample shall be 100 mm.

$$TR = \frac{L}{Lo}$$

Where:

*TR* is the terry ratio;

*L* is the length in millimetres of the pile yarn removed from the sample length;

*Lo* is the length in millimetres of the sample.

**APPENDIX-B**  
**Determination of the time of absorption**

B-1 *Principal:* Determination of the time for a terry towel test specimen to be completely wetted by water, when laid on the surface of the water.

B-2 *Material*

- Water of quality 3, according to PS:ISO 3696-2002
- Chronometer
- Water container
- Scissors or other means to cut the test specimens.

B-3 *Procedure*

- Condition the terry towel for at least 24 h in the standard atmosphere according to PS:ISO 139-2008.
- Cut five test specimens of  $(100 \pm 1)$  mm  $\times$   $(100 \pm 1)$  mm.
- Lay one face of a test specimen on the surface of the water and start the chronometer.
- Record the time for the specimen to be completely immersed.

B-4 *Calculation and expression of the results*

B-4.1 Repeat the test for the 4 other test specimens.

B-4.2 Calculate the arithmetic mean, in s, of the immersion time from the five records.

B-5 *Test report*

B-5.1 The test report shall include the following information:

- a) Identification of the terry towel;
- b) Test method; and
- c) The immersion time, in s.

## REFERANCES

1.	PS: 103-1991	Method of rounding off the numerical values.
2.	PS: 276-1989	Method for determination of scouring loss on grey and finished cotton textile materials (1 <sup>st</sup> revision).
3.	PS: 1338-2001	Cotton Yarn Grey (2 <sup>nd</sup> revision).
4.	PS: 1818-1987	Code for Packing and Packaging of fabrics (Inland & Seaworthy)
5.	PS: 2884-2009	Industrial Sewing threads (Synthetic)
6.	PS: 4878-2008	Water absorption of terry fabrics (Water Flow) Test Method.
7.	PS:ISO 105-B02/2002	Colour fastness to artificial light: Xenon arc fading lamp test.
8.	PS:ISO 105-C09/2002	Colour fastness to domestic and commercial laundering-oxidative bleach response using a non-phosphate reference detergent incorporating a low temperature bleach activator.
9.	PS:ISO 105-C10/2008	Colour fastness to washing with soap or soap and soda.
10.	PS:ISO 105-E01/2002	Colour fastness to water.
11.	PS:ISO 105-E03/2002	Colour fastness to chlorinated water (swimming-pool water).
12.	PS:ISO 105-N01/2002	Colour fastness to bleaching: Hypochlorite.
13.	PS:ISO 105-X12/2002	Colour fastness to rubbing.
14.	PS:ISO 139-2008	Standard atmosphere for conditioning and testing [1 <sup>st</sup> revision].
15.	PS:ISO 3071-2008	Determination of pH of aqueous extract.
16.	PS:ISO 3696-2002.	Water for analytical laboratory use-Specification and test methods.
17.	PS:ISO 3801-2002	Woven fabrics-Determination of mass per unit length and mass per unit area.
18.	PS:ISO 6330-2001	Domestic washing and drying procedures for textile testing.
19.	PS:ISO 7211/2-2002	Determination of number of threads per unit length.
20.	PS:ISO 7211/3-2002	Determination of crimp of yarn in fabric.
21.	PS:ISO 7211-5/2002	Determination of linear density of yarn removed from fabric.
22.	PS:ISO 22198-2008	Determination of width & length.



GOVERNMENT OF PAKISTAN  
MINISTRY OF SCIENCE & TECHNOLOGY  
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**QUALITY CONTROL CENTRE**  
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S.No. -----



PSQCA

## TEST REPORT

Our Ref. No. OCC/24/Tex/9/2009-10(1287)

Dated: 03-10-2009.

Mr. S Muhammad Zaki,  
Assistant Director (Textile),  
Standards Development Centre,  
2<sup>nd</sup> Floor, Mubarak Manzil,  
39-Garden Road, Saddar, Karachi.

**SUBJECT: TESTING OF SAMPLE COTTON BATH TOWELS.**

Reference: SDC-2/TEX/TC-11/2009 Dated: 05<sup>TH</sup> October, 2009

The sample have been examined and the results are recorded below at 24°C and 64% R.H.

S. No.	TESTS	RESULTS	
		Tex / 26 A	Tex / 27 B
01.	Count of Yarn (Ne) a) Warp b) Pile c) Weft	23.3 19.2 21.9	16.7 16.1 14.1
02.	Density/dm a) Ends b) Piles c) Picks	152 80 170	146 96 162
03.	Weight/Sq meter of Terry Part (gm)	426.9	430
04.	Absorption Time (Second)	5	5
05.	Absorbency %	10.1	12.3
06.	Color Fastnesses washing (class) a) Washing b) Staining on cotton c) Staining on wool	V V V	V V V
07.	Color Fastness to light (Class)	V	V
08.	PH Value	7.0	7.0
09.	Dimensional Change % a) Warp b) Weft	0.5 Nil	0.6 Nil
10.	Scouring Loss %	1.1	1.2
11.	Pile Patio	6.5	5.8
12.	Fiber Composition %	All Cotton	All Cotton

Remarks: No counter sample has been retained in these Labs.

**NAZIR HUSSAIN**  
Director  
Quality Control Centre

Notes: Please see terms & condition overleaf.