

# **KOHL'S** **KWIQ TESTING**

March 19, 2020

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#### **Overview**

The **KWIK** program is an additional tool to ensure the after wash performance of fabric, garment/ textile product meet Kohl's Customer's expectations and quality.

This program will be implemented in both the fabric and garment/textile product stage for every style and colorway.

If a failure is found in KWIK, mill and/or garment/finished product factory should review the test results immediately, validate, find the root cause and make adjustments to correct and/or improve the fabric/garment quality. Once improvement is made the KWIK process should be completed again to verify quality improvement. Supplier should then implement the action to the entire production.

#### **KWIK operation facilities requirements**

- KWIK testing is conducted on-site at Kohl's certified and non-certified testing facilities.
- Fabric and textile product suppliers are expected to have basic on-site testing capabilities in place to monitor production for Kohl's to ensure compliance with third party testing conducted at the development stage and throughout bulk production.

#### **KWIK Sampling Criteria**

##### **Fabric Stage:**

Once the 1<sup>st</sup> 10% of total fabric production has been completed for every colorway the "mill quality team" will cut the fabric yardage from the production lot and send to their in-house testing laboratory to perform the KWIK Test (checking process details as per Appendix 2).

##### **Apparel/Textile Product Stage:**

For garment style newly started in production line after the 1<sup>st</sup> 10% of PO quantity or 1200 pieces per each colorway is complete (whichever smaller), Agent/ Vendor QA will go to production line, pick the garment sample and send to their in-house testing laboratory for KWIK test. (Check process details as per Appendix 4)

#### **KWIK Report Arrangement**

- During production, agent/vendor QA will review and confirm the KWIK report for both fabric (body fabric) and garment/textile. KWIK reports must be passing as part of the check points of their Final Random Inspection (FRI).
- The KWIK report is a **mandatory** document to be included during shipping for both fabric and garment/textile product delivery.
- Any significant failure to meet Kohl's requirements **MUST** be corrected and retested before bulk production resumes.
- Any major concerns should be shared with Agent and/or Vendor for further review and discussion with Kohl's as needed.
- Passing Materials report should be provided to factory along with the fabric
- When the after wash appearance evaluations are conducted at the facility, complete records are to be retained and be available to Kohl's upon request within 24 hours. The KWIK evaluation results are to be stored in the Factory's Quality Assurance Office.

## **Appendix 1**

### **Required Equipment**

- American Washer and Dryer – It is recommended that AATCC approved brand names, such as Whirlpool or Kenmore is used. A current list of recommended model numbers can be found on AATCC's web site. <http://www.aatcc.org/Technical/WashDry.htm>
- Gray Scale. <https://www.aatcc.org> (Products/QC Products/Colorfastness Testing)
- Household detergent – American label Tide
- Seam Smoothness Replica
- Fabric Smoothness Replica
- Viewing Board – see supplies required below
- Kohl's Pilling Standard (Included with this procedure).
- Washing Ballast (for washing test)
- Digital Fabric Weight Scale (with at least 2 d.p. and can measure in gram) at the mill or printer (with annual calibration records)
- Circular Die Cutter
- Stainless Steel Ruler (with annual calibration record)
- Measure Tape
- Non washable marker pen
- Working Table (with enough width to allow fabric with full fabric width to lay flat for measure)

**Appendix 2**

**Kohl's Wash Evaluation to Insure Quality – Fabric Testing**

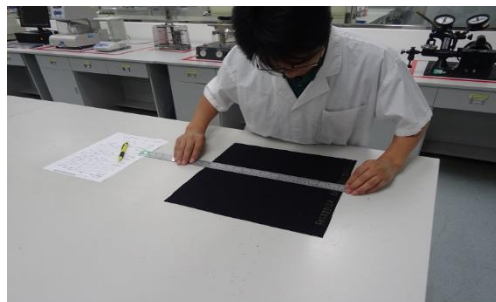
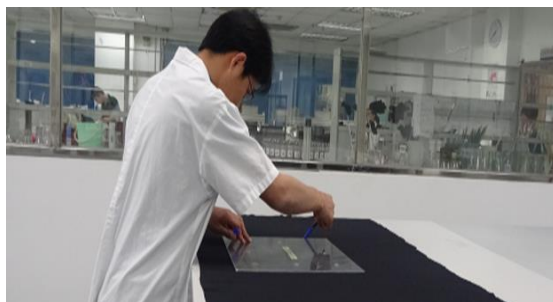
**1. Sampling Procedure**

- 1.1. (1<sup>st</sup> Sample): Skip the initial 10 yards (minimum) of fabric and measure and cut out 1.5 yards of fabric with full fabric width in each colorway
- 1.2. (2<sup>nd</sup> Sample): On the same production batch, cut out another 1.5 yards with full width fabric from not less than 20 yards apart from last cutting, or can take from another production batch
- 1.3. The cut fabric should be allowed to relax in a conditioned environment (temperature: 21±1°C & Humidity:65±2% RH (ASTM D 1776)) for at least 4 hours prior to the following tests being performed:
  - 1.3.1. Dimensional Stability (based on AATCC 135)
  - 1.3.2. Appearance Retention (Refer to the Appearance Requirement of Garment testing section)
  - 1.3.3. Fabric Skew (based on AATCC 179 )
  - 1.3.4. Fabric Weight (based on ASTM D3776)
  - 1.3.5. Fabric width (based on ASTM D3774)
- 1.4. Compare the results collected and compare to the fabric specification and calculate the deviation % and rate the results as if accordance to Kohl's requirement

**2. Testing Procedure**

2.1. Dimensional Stability

- 2.1.1. Take the conditioned testing sample and measure 15 X15 inch (380x380 mm) or 24X24 inch (610x610 mm), in one (1) layer fabric (avoid fabric selvages)
- 2.1.2. Mark test specimens with three 10" or 18" pairs of bench marks by standard template or other fixture separately on length and width directions. After marking done, measure the bench marks distance again with calibrated ruler to ensure the accuracy, pls refer to below photo.



- 2.1.3. Weigh testing sample and ballast to make sure it is within 1.8±0.1KG; weigh 44g detergent (Ultra Tide R Powder-Original Scent) according to Kohls requirement

- 2.1.4. As per the care instruction on product, choose correct machine wash cycle, pls refer to below table

Cycle	(1) Normal	(2) Delicate	(3) Permanent Press
Water Level, L (gal)	72 ± 4 (19 ± 1)	72 ± 4 (19 ± 1)	72 ± 4 (19 ± 1)
Agitation Speed, strokes/min.	86 ± 2	27 ± 2	86 ± 2
Washing Time, min.	16 ± 1	8.5 ± 1	12 ± 1
Final Spin Speed, rpm	660 ± 15	500 ± 15	500 ± 15
Final Spin Time, min.	5 ± 1	5 ± 1	5 ± 1
Wash Temp, °C (°F)	(I) Cold: 27 ± 3 (80 ± 5) (II) Warm: 41 ± 3 (105 ± 5) (IV) Hot: 49 ± 3 (120 ± 5) (V) Very Hot: 60 ± 3 (140 ± 5)	(I) Cold: 27 ± 3 (80 ± 5) (II) Warm: 41 ± 3 (105 ± 5) (IV) Hot: 49 ± 3 (120 ± 5) (V) Very Hot: 60 ± 3 (140 ± 5)	(I) Cold: 27 ± 3 (80 ± 5) (III) Warm: 41 ± 3 (105 ± 5) (IV) Hot: 49 ± 3 (120 ± 5) (V) Very Hot: 60 ± 3 (140 ± 5)

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- 2.1.5. Add detergent and agitate for 1 min to dissolve detergent completely then stop machine. Add testing sample and ballast evenly and restart wash cycle until the washing cycle completed.
- 2.1.6. Take out the sample and dry the washed sample with the agreed drying process. As if for tumble drying, please refer to below table:

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#### Alternative Washing and Drying Conditions

Machine Cycle	Washing Temperature	Drying Procedure
(1) Normal/Cotton Sturdy	(II) 27 ± 3°C (80 ± 5°F)	(A) Tumble
(2) Delicate	(III) 41 ± 3°C (105 ± 5°F)	i. Cotton Sturdy
(3) Permanent Press	(IV) 49 ± 3°C (120 ± 5°F)	ii. Delicate
	(V) 60 ± 3°C (140 ± 5°F)	iii. Permanent Press
		(B) Line
		(C) Drip
		(D) Screen

- 2.1.7. Repeat above wash/dry cycles twice and push the sample into conditioned environment for conditioning at least for 4 hours ( 21±1°C · 65±2%RH)
- 2.1.8. Measure distance between each bench marks(M) and record data
- 2.1.9. Calculation:

$$\text{Dimension Stability (\%)} = \frac{(\text{M})\text{inch} - 10(18)\text{inch}}{10 (18)\text{Inch}} \times 100\%$$

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#### 2.2. Appearance Retention

- 2.2.1. Assessment should be completed on the same specimen of the dimensional stability test
- 2.2.2. Appearance requirements are to be compared between the washed and unwashed product. Where appropriate, the performance requirement has been given. The performance rating should be observed using a standard such as, the Gray Scale or visual observation. The results must be entered on the Kohl's KWIQ worksheet (refer to Appendix 3).
- **Color Bleeding/Self Staining:** This is a visual observation of color transfer to another color or portion of the product, using the Gray Scale for Evaluating Staining to verify that Kohl's requirement of 4.5 or better has been met. Observation results are the Gray Scale reading.
  - **Excessive Color Change:** This is a visual observation comparing the washed product to the unwashed product. Use the Gray Scale for Evaluating Change in Color to verify that Kohl's requirement of 4 or better has been met. Observation results are the Gray Scale reading.
  - **Excessive Wrinkling:** Kohl's Overall Smoothness Appearance Standard is compared to the product to verify that Kohl's requirement has been met. This appearance requirement is applicable for all products evaluated using the KWIQ test, including sweaters. It has no relation to a product that may be labeled as wrinkle-free. Observation results are Pass or Fail.
  - **Excessive Pilling:** Kohl's Pilling Standard is compared to the product to verify that Kohl's requirement has been met. This appearance requirement is applicable for all products evaluated using the KWIQ test, including raised fiber and washed garment treatments (enzyme washed, stone washed, etc.) Observation results are Pass or Fail.
  - **Holes or other signs of excessive abrasion:** This is a visual observation for any evidence of holes or other signs of excessive abrasion after wash. Observation results are Pass or Fail.
  - **Handfeel:** This is a physical evaluation to determine if the handfeel is the same as the before wash sample. Observation results are Pass or Fail.

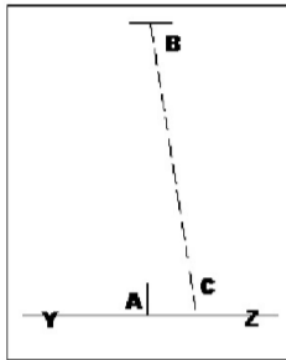
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#### 2.3. Fabric Skew

- 2.3.1. Using a marker pen, draw a reference line YZ across the width of the specimen approximately three (3) inches, above the bottom edge. Draw benchmark A perpendicular to and in the middle of YZ. Draw benchmark B, both perpendicular to YZ and parallel to A
- 2.3.2. After 3 cycles of washing and drying (same process as dimensional stability test), lay specimen flat and allow conditioning for at least 4 hours. The specimen should be gently smoothed and free of large wrinkles or creases. Begin smoothing at the top and work down.
- 2.3.3. Draw a line from B to line YZ, following the grainline. Mark this intersection as C.
- 2.3.4. Measure the distance from A to C ( $L_{AC}$ ). Measure the distance from A to B ( $L_{AB}$ ).



- 2.3.5. Calculate the percentage of skewing as follows:

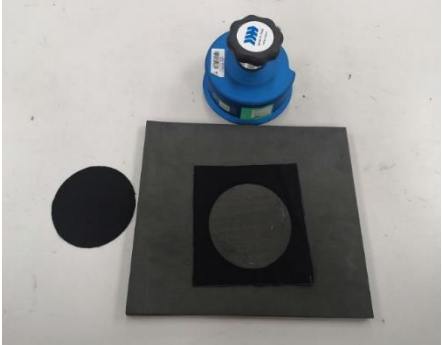
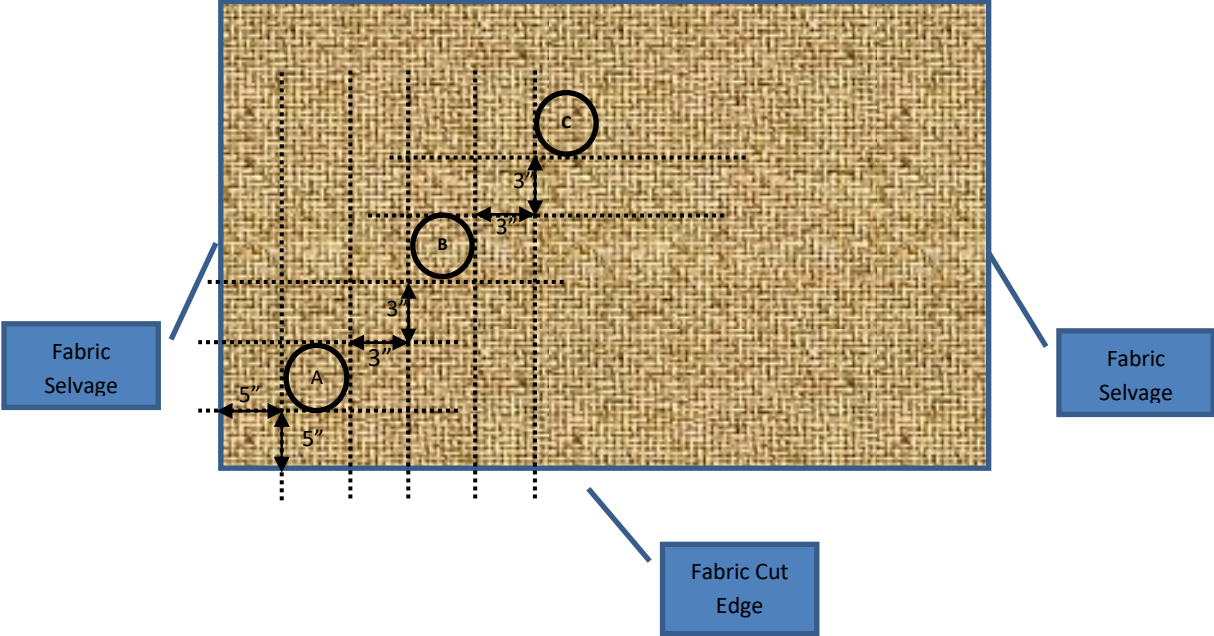
$$\text{Fabric Skew (\%)} = \frac{L_{AC}}{L_{AB}} \times 100\%$$

- 2.3.6. Record the results into the KWIQ Worksheet (refer to Appendix 3)
- 2.3.7. For any specific details, should get reference from Kohl's Appearance Evaluation Requirements Procedures / AATCC 179.



**2.4. Fabric Weight**

2.4.1. Use the die cutter with predefined cut area (100cm<sup>2</sup> in most of the standard equipment, or need to recalculate further if had other measure) to take 3 cutting from conditioned fabric samples as per below arrangement (sample A, B & C)



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2.4.2. Measure the weight of each sample (in grams) by digital scale, and record the reading ( $W_{(sample)}$ ) onto the cut fabric sample by marker pen accordingly.

2.4.3. Calculate the fabric weight of each of cut sample as per below formula:

$$\text{Fabric Weight}_{(sample)} (\text{Gram per Sq.Meter}) = W_{(sample)} \times 100$$

2.4.4. Calculate the Average Fabric Weight (Fabric Weight  $_{(Avg)}$ )

$$\text{Fabric Weight}_{(Avg)} (\text{Gram per Meter}^2) = \frac{W_A + W_B + W_C}{3}$$

2.4.5. Record the Average Fabric Weight (Fabric Weight  $_{(Avg)}$ ) into the Fabric Test Report (refer to Appendix 3)

2.4.6. The cut sample should use a plastic bag to keep in good condition and file together with the test report.

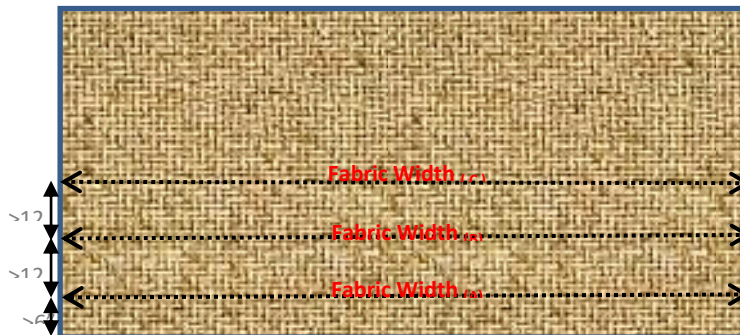
2.4.7. Record the results into the KWIQ Worksheet (refer to Appendix 3)

2.4.8. For any specific details, should get reference from ASTM D3776.

## 2.5. Fabric Width

2.5.1. Lay the fabric on a smooth horizontal surface (working table) without tension in any direction and free of wrinkles or distortion.

2.5.2. Measure the width of fabric by Stainless Steel Ruler or Measure Tape from selvage to selvage as per below illustration



2.5.3. Record each of the measure to the nearest 1/16 Inch (1mm) at 3 (Three) different points ( $FW_{(Point)}$ )

2.5.4. Calculate the Average Fabric Width (Fabric Width  $_{(Avg)}$ )

$$\text{Fabric Width}_{(Avg)} (\text{inch}) = \frac{FW_A + FW_B + FW_C}{3}$$

2.5.5. Record the Average Fabric Width (Fabric Width  $_{(Avg)}$ ) into the KWIQ Worksheet (refer to Appendix 3)

2.5.6. For any specific details, should get reference from ASTM D3774.

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**Appendix 3**

**Kohl's Wash Evaluation to Insure Quality-KWIQ Worksheet-Fabric**

Date Tested \_\_\_\_\_ Color \_\_\_\_\_  
 Style Number \_\_\_\_\_ Lot Number \_\_\_\_\_  
 Fabric description \_\_\_\_\_ Operator Name \_\_\_\_\_  
 Mill \_\_\_\_\_ Mill Manager's Signature \_\_\_\_\_

Summary :	Results	Pass/Fail
A. Dimensional Stability & Appearance		
B. Appearance Retention		
C. Fabric Skew		
D. Fabric Weight		
E. Fabric Width		

**A. Dimensional Stability & Appearance**

**Care instruction:** \_\_\_\_\_

	Original (Measurement)	Washed (Measurement)	Shrinkage (Percentage)	Requirement (Percentage)	Overall Rating (Pass/Fail)
Length	_____	_____	_____	_____	_____
Width	_____	_____	_____	_____	_____

**B. Appearance Retention**

Observation Results Are to Be Recorded as Pass or Fail, except where the gray scale is used and torque/skew %'s, which are indicated to one decimal point (ex. 3.4% 2.4%).

- \_\_\_\_\_ Color Bleeding/Self Staining (Gray Scale 4.5 or Better)
- \_\_\_\_\_ Excessive Color Loss without Suppressor (Gray Scale 4.0 or Better Prints/Pigment Dyed/Sulphur Dyed Indigo Gray Scale Rating: 3.5 min)
- \_\_\_\_\_ Excessive Color Loss with Suppressor (Gray Scale 4.0 or Better Prints/Pigment Dyed/Sulphur Dyed Indigo (Gray Scale Rating: 3.5 min)
- \_\_\_\_\_ Color Staining (Gray Scale 3.0 or Better)
- \_\_\_\_\_ Acetate \_\_\_\_\_ Cotton \_\_\_\_\_ Nylon \_\_\_\_\_ Polyester \_\_\_\_\_ Wool
- \_\_\_\_\_ Excessive Pilling Photographic Rating: 4 (Slight Pilling or Fuzzing) or Better
- \_\_\_\_\_ Excessive Wrinkling Smoothness Appearance: 3.5
- \_\_\_\_\_ Holes or Other Signs of Excessive Abrasion
- \_\_\_\_\_ Handfeel Same as Before Wash

Comment (Pass/Fail): \_\_\_\_\_

### **C. Fabric Skew (based on AATCC 179)**

**Fabric Skew Requirement\* (Circle out the appropriate)**

	Tier 1	Tier 2	Tier 3
Woven	3%	3%	2%
Knit	5%	4%	3%

Results:

\_\_\_\_\_

Comment (Pass/ Fail):

\_\_\_\_\_

### **D. Fabric Weight (based on ASTM D3776)**

**Kohl's Fabric Weight Requirement:**

**Deviation from contracted +/- 5% maximum**

	Result ( g / m <sup>2</sup> or oz per yd <sup>2</sup> )
Trial A	
Trial B	
Trial C	
Average	

Contracted Fabric weight

\_\_\_\_\_

Comment (Pass/ Fail):

\_\_\_\_\_

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**Fabric width (based on ASTM D3774) :**

	Result ( Inch or cm )
Trail A	
Trial B	
Trial C	
Average	

Contracted Fabric width:

\_\_\_\_\_

Comment (Pass/ Fail):

\_\_\_\_\_

----- END -----

## **Appendix 4**

### **Garment / Textile Product Testing**

#### **1. Procedure**

- Two apparel or textile products in each colorway are to be pulled for analysis.
- Read the care label instructions carefully.
- Compare the apparel or textile products to each other, to confirm that they are identical, including specification measurements.
- Measure one apparel/textile product in length and width as indicated by the point of measure used on the technical specification. (Reference the How to Measure Guide.) Record these measurements on the KWIQ worksheet, under dimensional stability, unwashed.
  - **Tops** - the measurements should be body length and chest width.
  - **Bottoms** - the measurements should be waist and inseam/skirt length. An exception to this is full elastic bottoms; the width measurement should be the hip, low hip if applicable, instead of the waist.
- Launder the measured apparel or textile product according to the care label instructions, using household detergent. Include a twin size sheet, in 100% white cotton, to help balance the wash and dry load. We recommend using 1 twin flat sheet to reduce the potential of excessive wrinkling sometimes caused by a fitted sheet. The sheet may be used on multiple evaluations, as long as no color transfer has occurred.
- Multiple garments may be included in a wash or dry cycle as long as the color family is complimentary and there are no 'wash separately' instructions included in the care label.
- Repeat the wash and dry process 3 times, according to the care label instructions. (wash/dry, wash/dry, wash/dry)

#### **2. Wash Conditions:**

- When the care instructions call for 'machine wash warm', the water temperature should be at 105°F or 40°C. When the care instructions call for 'machine wash cold', the water temperature should be at 85°F or 30°C.
- Normal Cycle – 12 minute wash, 6 minute final spin
- Permanent Press Cycle – 10 minute wash, 4 minute final spin
- Delicate Cycle – 8 minute wash, 4 minute final spin

#### **3. Dry Conditions:**

- When care instructions call for 'tumble dry low', the temperature should be 137°F, +/-5°.
- Tumble Dry Low – set heat temperature to Low
- Time setting –
  - Knits - approx. 45 minutes
  - Woven – approx. 25 minutes
  - Sweaters – approx. 35 minutes
  - Denim – approx. 35 minutes
- After the product has completed the wash and dry requirements, lay flat and allow to condition for a minimum of 2 hours. Follow all care label instructions, including any ironing. If no ironing instructions are included, no ironing should be done. Kohl's preferred care instructions 'when needed' means whenever the average consumer would find it necessary to iron in order to be satisfied with the overall appearance or specifically if the garment is a woven fabric. Hand iron weight is not to exceed 3 pounds.
- With product flat, measure the length and width as indicated by the point of measure used on the technical specification. (Reference the How to Measure Guide.) Record these measurements on the KWIQ worksheet, dimensional stability, washed. Calculate the shrinkage percentage and record on the KWIQ worksheet, dimensional stability, and shrinkage.
- After measuring, hang both products on the viewing board. Standing 4 feet from the board, compare the after wash product appearance to the unwashed product, using the appearance performance requirements. Both front and back appearance is to be compared.
- The overall rating of satisfactory or unsatisfactory is based upon all observations, both shrinkage and appearance requirements.

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#### 4. Appearance Requirements

The following appearance requirements are to be compared between the washed and unwashed product. Where appropriate, the performance requirement has been given. The performance rating observed using a standard, such as the Gray Scale or a visual observation, must be entered on the Kohl's KWIQ worksheet on the line in front of each appearance requirement. **All observations are to be made by comparing the washed and unwashed product and using the performance standard indicated.**

- **Appliques, buttons or trim items securely attached.** This is a visual observation that all appliques, buttons and trim items are securely attached after wash. **Observation results are Pass or Fail.**
- **Needle Cuts or Chews.** This is a visual observation for any evidence of needle cuts or chews after wash. **Observation results are Pass or Fail.**
- **Color Bleeding/Self Staining.** This is a visual observation of color transfer to another color or portion of the product, using the Gray Scale for Evaluating Staining to verify that Kohl's requirement of 4.5 or better has been met. **Observation results are the Gray Scale reading.**
- **Raveled Edges.** This is a visual observation for any evidence of raveled edges after wash. **Observation results are Pass or Fail.**
- **Seam Pucker.** Kohl's Seam Smoothness Standard is compared to the product to verify that Kohl's requirement has been met. This includes seam puckering on all split fronts, such as snap fronts, zipper fronts and button front products. **This appearance requirement is applicable for all products evaluated using the KWIQ test, including knits and sweaters. Observation results are Pass or Fail.**
- **Excessive Color Change.** This is a visual observation comparing the washed product to the unwashed product. Use the Gray Scale for Evaluating Change in Color to verify that Kohl's requirement of 4 or better has been met. **Observation results are the Gray Scale reading.**
- **Excessive Wrinkling.** Kohl's Overall Smoothness Appearance Standard is compared to the product to verify that Kohl's requirement has been met. **This appearance requirement is applicable for all products evaluated using the KWIQ test, including sweaters. It has no relation to a product that may be labeled as wrinkle-free. Observation results are Pass or Fail.**
- **Excessive Pilling.** Kohl's Pilling Standard is compared to the product to verify that Kohl's requirement has been met. **This appearance requirement is applicable for all products evaluated using the KWIQ test, including raised fiber and washed garment treatments (enzyme washed, stone washed, etc.) Observation results are Pass or Fail.**
- **Torque/Skew.** The sideseam and AATCC 179-2001 Inverted T methods are used to verify that Kohl's requirements have been met. Wovens - 3% max. Garment Indigo Dyed Wovens – 4% max. Woven Swimwear - 4% max. Knits & Sweaters – 5% max. 100% cotton jacquard and garment dyed knits – 7% max. Down Filled – 3% max. See procedure below. **Observation results are indicated in %. (one decimal place, ex. 3.4% 2.4%)**
- **Holes or other signs of excessive abrasion.** This is a visual observation for any evidence of holes or other signs of excessive abrasion after wash. **Observation results are Pass or Fail.**
- **Zippers or other trim items functioning properly.** This is a physical inspection to determine whether or not all trim items are functioning properly. **Observation results are Pass or Fail.**
- **Handfeel.** This is a physical evaluation to determine if the handfeel is **the same** as the before wash sample. **Observation results are Pass or Fail.**

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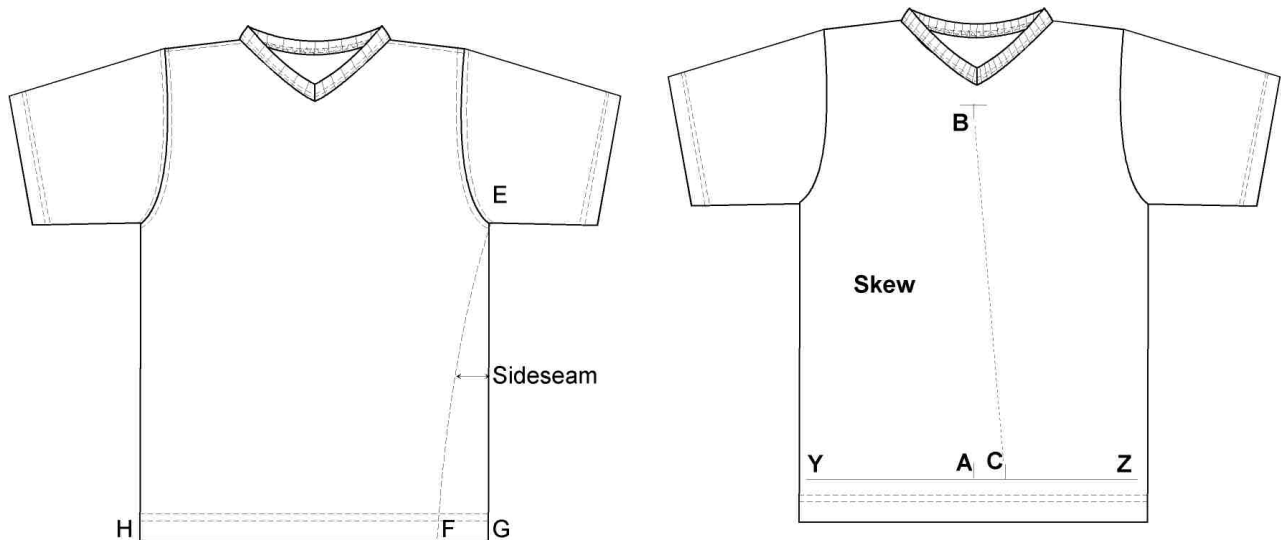
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**5. Torque**

Procedure for using the Sideseam method

1. After washing and drying, align the shoulder of a top or waist of a bottom. Lay flat and allow to condition for a minimum of 4 hours. The product should be gently smoothed and free of large wrinkles or creases. Begin smoothing at the top of the garment and work down.
2. Using a marker pen, one skewing mark should be placed at the uppermost point of the product folded edge - point E and the other skewing mark should be placed at the lower most point of the same folded edge - point G.
3. Measure the distance from point F across to the nearest fold edge - point G.

Calculate the percentage of torque after wash as follows:



**Skew**

Procedure for using the AATCC test method 179-2001/Inverted T Method 2, Option 3

1. After washing and drying, align the shoulder of a top or waist of a bottom. Lay flat and allow to condition for a minimum of 4 hours. The product should be gently smoothed and free of large wrinkles or creases. Begin smoothing at the top of the garment and work down.
2. Using a marker pen, draw a reference line YZ across the width of the panel, above the bottom edge and hem. Draw benchmark A perpendicular to and in the middle of YZ. Draw benchmark B, both perpendicular to YZ and parallel to A.
3. Draw a line from B to line YZ, following the grainline. Mark this intersection as C.
4. Measure the distance from A to C. Measure the distance from A to B.

Calculate the percentage of skewing after wash as follows:

**Exception**

Skew is not measured on those garments that have a horizontal engineered stripe or wide horizontal stripes, over 3" in width. The horizontal stripe(s) is the predominant element of the garment and the fabric must be cut and sewn with the stripe straight on the horizontal.



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**Appendix 5**

**Kohl's Wash Evaluation to Insure Quality–KWIQ Worksheet**

Date Tested \_\_\_\_\_ Color \_\_\_\_\_  
 Style Number \_\_\_\_\_ Size \_\_\_\_\_  
 PO Number \_\_\_\_\_ Name \_\_\_\_\_  
 Factory \_\_\_\_\_ Plant Manager's Signature \_\_\_\_\_

**Dimensional Stability**

**Specification Unwashed Washed Shrinkage Overall Rating**  
 (Measurement) (Measurement) (Measurement) (Percentage)

Length \_\_\_\_\_  Satisfactory

**Tops – Body Length (as indicated by the POM on Technical Specification)**  
**Bottoms – Inseam/Skirt Length (as indicated by the POM on Technical Specification)**

Width \_\_\_\_\_  Unsatisfactory

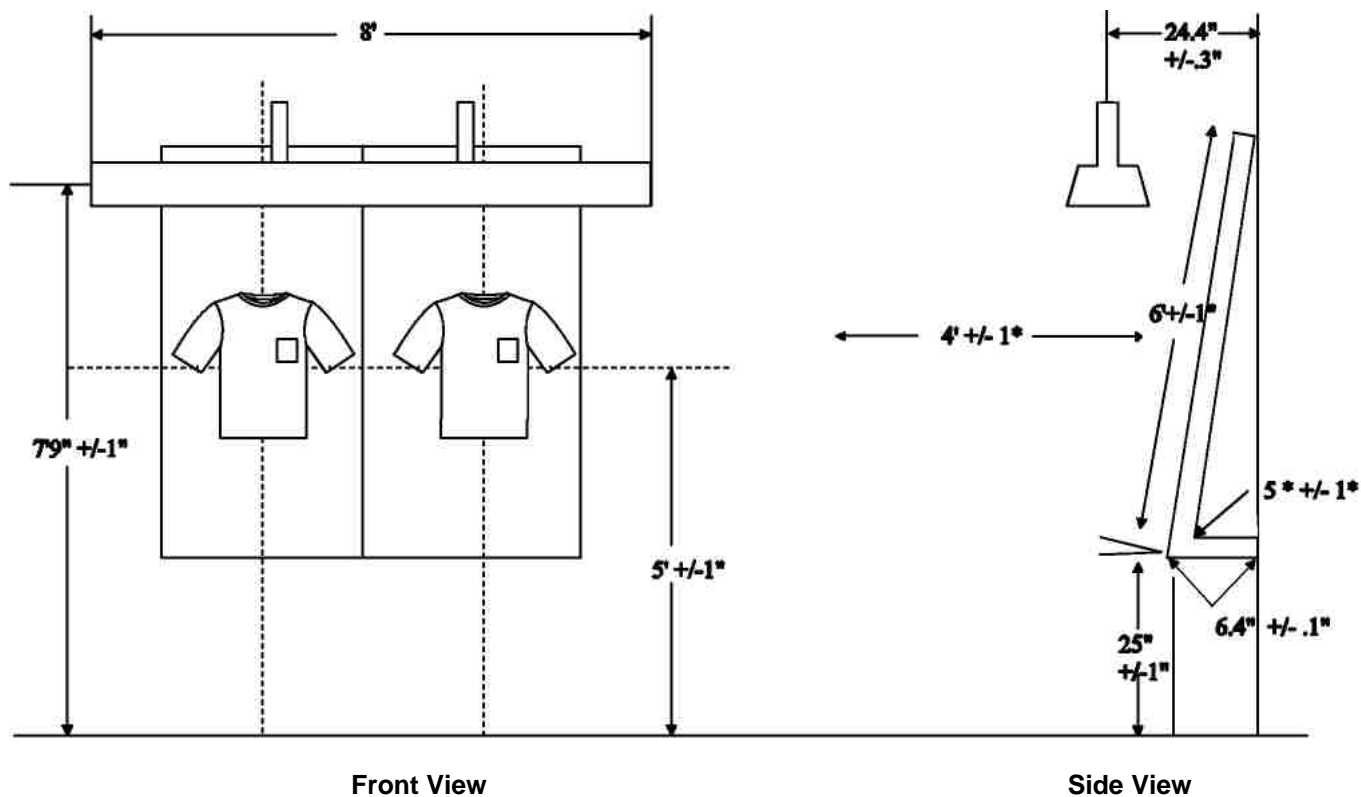
**Tops – Chest Width (as indicated by the POM on Technical Specification)**  
**Bottoms – Waist or Hip (as indicated by the POM on Technical Specification)**

**Appearance** – Observation Results Are to Be Recorded as Pass or Fail, except where the gray scale is used and torque/skew %'s, which are indicated to one decimal point (ex. 3.4% 2.4%).

	<b>Appliques, buttons or trim items securely attached</b>		<b>Needle cuts or chews</b>
	<b>Color bleeding/Self Staining</b> Gray scale 4.5 or better		<b>Raveled edges</b>
	<b>Excessive Color Change</b> Gray scale 4 or better		<b>Seam Pucker</b>
	<b>Excessive Wrinkling</b>		<b>Excessive Pilling</b>
	<b>Torque/Skew</b> Indicate both results as %'s		<b>Holes or Other Signs of Excessive Abrasion</b>
	<b>Zippers or Other Trim Items Functioning Properly</b>		<b>Handfeel Same as Before Wash</b>
<b>Other Comments:</b>			

## Appendix 3

### Viewing Board



**Observer** - stand directly in front of the specimen 4-ft (+/- 1") away from the board. It has been found that normal variations in the height of the observer above and below the arbitrary 5-ft eye level have no significant effect on the grade given.

#### Supplies Required

- **Lighting** – 4 4-ft Sylvania bulbs CW (cool white) UL3500K 128 WATTS.
- **Board** – 6-ft X 6-ft (+/- 1") piece of 1/4" plywood for the front of the board and a 6-ft X 6.4" (+/- 0.1") piece of 1/4" plywood to mount the board so that the bottom is a 5 +/- 0.1 degree angle (see diagram).
- **Paint** – After mounting, paint the 6-ft X 6-ft plywood board to match No. 2 gray chip in the AATCC gray Scale for Staining.

**REVISION RECORD**

3/19/2020 – Updated verbiage in KWIQ Garment Sampling Criteria to: “**Agent/ Vendor QA**” will go to production line, pick the garment sample and send to their in-house testing laboratory for KWIQ test. (Check process details as per Appendix 4)