



THE WOOLMARK COMPANY

WOOLMARK SPECIFICATION

FLAT WOVEN, PILE WOVEN
AND PRESSED FELT
APPAREL FABRICS

SPECIFICATION SF-2

Effective 1 January 2016

WOOLMARK SPECIFICATION

SPECIFICATION SF-2: 2016

FLAT WOVEN, PILE WOVEN AND PRESSED FELT APPAREL FABRICS

FABRICS

Woolmark, Woolmark Blend or Wool Blend labelling may be applied to woven fabric:

Woolmark Blend and Wool Blend labelling must not be applied to:

- pile garment shells
- pressed felt fabrics.

The use of a Woolmark approved fabric **does not** confer the right to use the mark on later end products.

SPECIFICATIONS

- Woolmark Blend labelling **must not** be used on pressed felt (ie fabric produced directly from fibres and not by felting woven or knitted fabric) or pile garment shells.
- Specifications for Woolmark Blend and Wool Blend fabrics are the same as those for Woolmark, except where indicated.
- The term 'Blend' used in this specification includes both Woolmark Blend and Wool Blend.
- If the fabric care claim (words or symbols) is for both 'Dry clean' and 'Hand wash', the fabric shall meet both claim requirements.

All fabrics

Property	Test method	Flat woven or pressed felt fabrics			Woven pile fabrics
		Fabric type			
		1 Suits trousers	2 Coats, jackets, costumes, skirts, dresses, kimonos, dressing gowns, accessories	3 Shirts, blouses, nightwear	4 Garment shell
Wool fibre content (%: minimum)	155	Woolmark	100%	Pure New Wool	NA
		Woolmark Blend	50%	new wool	
		Wool Blend	30%	new wool	
Non-wool fibre content (%: maximum)	155	Woolmark Blend	50%	Specification F-5	NA
		Wool Blend	70%	Specification F-7	
Surface pile weight (g/m ² : minimum)	15				220
Tensile strength (N: minimum)	4	196 (>150g/m ²) 177 (≤150g/m ²)	98	147	NA
Colourfastness to light: Blue reference (grade: minimum)	5	Darker than 1/12 standard depth			4
		Lighter than, or equal to, 1/12 standard depth			3
		<i>Bright and pastel colours</i>			
		Darker than 1/12 standard depth			3
		Lighter than, or equal to, 1/12 standard depth			2–3
Colourfastness to rubbing: dry Stain (grade: minimum)	165	3–4			

- This table must be read in conjunction with the notes that follow.

NOTES

1. Woolmark TM155: Wool content

The wool content of Woolmark labelled fabrics is fully described in by specifications F-1 to F-4. The wool content of Woolmark Blend labelled fabrics is fully described in Specification F-5. The wool content of Wool Blend labelled fabrics is fully described in Specification F-7. All pile fabrics must have a pure wool pile but the backing material may be manufactured of an alternative material.

2. Woolmark TM15: Surface pile weight

This property is only measured on pile fabrics

3. Woolmark TM04: Tensile strength

Both the warp and weft directions must meet the specification.

Tensile strength measurements are not required for fabric manufactured to accessories.

4. Woolmark TWC-TM5: Colourfastness to light

- Undyed and bleached white fabric must not be evaluated.
- For fabrics sold in Australia and South Africa, colourfastness to light, blue reference grade 5 is required for shades darker than 1/3 standard depth and grade 4 for shades between 1/3 and 1/12 standard depth.
- Naturally coloured wool**
Such wools may exhibit poor colour fastness to light, however, the fabric may carry the Woolmark or Woolmark Blend providing the following text (or similar) is used on the ticket: 'It is an inherent feature of some naturally coloured wools that the colour may fade'.

- **Bright and pastel colours**
Only the specific shades given on The Woolmark Company shade reference card; bright and pastel colours and intermediate shades at maximum brightness are included. No other shades will be classed as bright or pastel shades without prior approval by the Woolmark Management Group.
5. **Woolmark TM165: Colourfastness to rubbing**
This test is not required on fabrics lighter in shade than 1/12 standard depth.

Fabrics with a 'Dry clean only' care claim

Property	Test method	Flat woven or pressed felt fabrics			Woven pile fabrics
		Fabric type			
		1	2	3	4
		Suits trousers	Coats, jackets, costumes, skirts, dresses, kimonos, dressing gowns, accessories	Shirts, blouses, nightwear	Garment shell
Dimensional change (%)	ISO 3175	-3% < DC < 3% in warp and weft			
number of cycles		3 Normal			
Colourfastness to water	6				
change of colour (minimum)		3-4			
stain wool (grade: minimum)		3			
stain cotton (grade: minimum)		3			
<i>For blend fabrics only</i>					
Stain other fibre (minimum)		3			NA

- This table must be read in conjunction with the notes that follow.

NOTES

1. ISO 3175: Dimensional stability to dry cleaning

In the event that equipment for ISO 3175 *Normal* cycle testing is not available, three commercial dry clean cycles are a suitable alternative.

For all dimensional stability testing, 'shrinkage' is denoted by a negative (-) value and an 'extension' by a positive (+) value.

-3% < DC < 3% indicates that the shrinkage must be less than -3% and the extension must be less than +3%.

2. Woolmark TWC-TM6: Colourfastness to water

Undyed and bleached white fabrics must not be evaluated.

'Stain other fibre' is defined as the most severely stained fibre in the adjacent fabric.

Fabrics with a 'Hand wash' or 'Hand wash or dry clean' care claim

Property	Test method	Flat woven or pressed felt fabrics			Woven pile fabrics
		Fabric type			
		1 Suits, trousers	2 Coats, jackets, costumes, skirts, dresses, kimonos, dressing gowns, accessories	3 Shirts, blouses, nightwear	4 Garment shell
Dimensional change – relaxation (%)	31				
width		-3 < DC	-3 < DC	-3 < DC	-3 < DC
length		-3 < DC	-3 < DC	-3 < DC	-3 < DC
No and type of wash cycles		1 x 7A	1 x 7A	1 x 7A	1 x 7A
Dimensional change – felting (%)	31				
width		-	-	-	-
length		-	-	-	-
differential cuff edge felting		-1 < DC < +1	-1 < DC < +1	-1 < DC < +1	-1 < DC < +1
No and type of wash cycles		1 x 7A	1 x 5A	1 x 7A	
Dimensional change – total (%)	31				
width		-3 < DC	-3 < DC	-3 < DC	-3 < DC
length		-3 < DC	-3 < DC	-3 < DC	-3 < DC
Colourfastness to hand washing	250				
change of colour (grade: minimum)			3-4		
stain wool (grade: minimum)			4		
stain other fibre (grade: minimum)			3-4 (blend fabrics only)	NA	
Colourfastness to wet alkaline contact	174				
change of colour (grade: minimum)				Multi-coloured fabrics only	
stain wool (grade: minimum)				3-4	
stain other fibre (grade: minimum)				4	
			3-4 (blend fabrics only)	NA	

- This table must be read in conjunction with the notes that follow.

NOTES

1. Woolmark TM31: Dimensional stability

- 3 < DC indicates that the shrinkage of the fabric in washing must not exceed 3%.
- 1 < DC < +1 extension must not exceed 1% and shrinkage must not exceed 1%.

2. Woolmark TWC TM-250: Colourfastness to hand washing

- Undyed and bleached white fabrics are not to be evaluated.
- 'Stain other fibre' is defined as the most severely stained fibre in the adjacent fabric.

3. Woolmark TM174: Colourfastness to wet alkaline contact

- Applied to multi-coloured fabric only.

Fabrics with a 'Machine wash' care claim

Property	Test method	Flat woven or pressed felt fabrics			Woven pile fabrics
		Fabric type			
		1 Suits, trousers	2 Coats, jackets, costumes, skirts, dresses, kimonos, dressing gowns, accessories	3 Shirts, blouses, nightwear	4 Garment shell
Dimensional change – relaxation (%)	31				
width		-3 < DC	-3 < DC	-3 < DC	-3 < DC
length		-3 < DC	-3 < DC	-3 < DC	-3 < DC
No. and type of wash cycles		1 × 7A	1 × 7A	1 × 7A	1 × 7A
Dimensional change – felting (%)	31				
width			-	-	-
length		-	-	-	-
differential cuff edge felting		-1 < DC < +1	-1 < DC < +1	-1 < DC < +1	-1 < DC < +1
No. and type of wash cycles		3 × 5A	3 × 5A	5 × 5A	3 × 5A
Dimensional change – total (%)	31				
width		-3 < DC	-3 < DC	-3 < DC	-3 < DC
length		-3 < DC	-3 < DC	-3 < DC	-3 < DC
Colourfastness to machine wash	193				
change of colour (grade: minimum)				3–4	
stain wool and nylon (grade: minimum)				4	
stain other fibre (grade: minimum)				3–4	
Colourfastness to wet alkaline contact	174				
change of colour (grade: minimum)				Multi-coloured fabrics only	
stain wool and nylon (grade: minimum)				3–4	
stain other fibre (grade: minimum)			4		
			3–4		

- This table must be read in conjunction with the notes that follow.

NOTES

1. Woolmark TM31: Dimensional stability

-3 < DC indicates that the shrinkage of the fabric in washing must not exceed 3%.
-1 < DC < +1 indicates extension must not exceed 1% and shrinkage must not exceed 1%.
For fabrics designed for accessories (hats, shawls, scarves, gloves or ties) only 1×7A plus 1×5A wash cycles are required.

2. Woolmark TM193: Fastness to machine washing

The test method is divided into two parts:

Part A standard detergent without perborate

Part B standard detergent with perborate.

Both test methods are to be carried out and both sets of results must be reported.

If fabrics fail Part B but pass Part A, additional labelling requirements must be observed to prevent problems that could arise during the washing of garments should a bleach containing detergent be used. In this case, all labels and tickets attached to garments must carry an advisory statement: 'Wash using a Woolmark approved detergent' (or similar). Full details of these additional requirements are available from The Woolmark Company.

Undyed and bleached white fabrics must not be evaluated.

3. Woolmark TM174: Colourfastness to wet alkaline contact

Specification applies to multi-coloured fabrics only.

Fabrics with a 'Machine wash and tumble dry' care claim

Property	Test method	Flat woven or pressed felt fabrics			Woven pile fabrics
		Fabric type			
		1	2	3	4
		Suits, trousers	Coats, jackets, costumes, skirts, dresses, kimonos, dressing gowns, accessories	Shirts, blouses, nightwear	Garment shell
Dimensional change – relaxation (%)	31				
width		-3 < DC	-3 < DC	-3 < DC	-3 < DC
length		-3 < DC	-3 < DC	-3 < DC	-3 < DC
No. and type of wash /dry cycles		1 × [7A + TD]	1 × [7A + TD]	1 × [7A + TD]	1 × [7A + TD]
Dimensional change– felting (%)	31				
width		–	–	–	–
length		–	–	–	–
differential cuff edge		-1 < DC < +1	-1 < DC < +1	-1 < DC < +1	-1 < DC < +1
No. and type of wash/dry cycles		5 × [5A + TD]	5 × [5A + TD]	5 × [5A + TD]	5 × [5A + TD]
Dimensional change – total (%)	31				
width		-3 < DC	-3 < DC	-3 < DC	-3 < DC
length		-3 < DC	-3 < DC	-3 < DC	-3 < DC
Colourfastness to machine washing	193				
Change of colour (grade: minimum)				3–4	
Stain wool and nylon (grade: minimum)				4	
Stain other fibre (grade: minimum)			3–4		
Colour fastness to wet alkaline contact	174				
Change of colour (grade: minimum)				3–4	
Stain wool and nylon (grade: minimum)				4	
Stain other fibre (grade: minimum)				3–4	

- This table must be read in conjunction with the notes that follow.

NOTES

1. Woolmark TWC-TM193: Colourfastness to machine washing

Undyed and bleached white fabric must not be evaluated

The test method is divided into two parts:

Part A: standard detergent without perborate

Part B: standard detergent with perborate.

Both test methods are to be carried out and both sets of results must be reported.

If fabrics fail Part B but pass Part A, additional labelling requirements must be observed to prevent problems that could arise during the washing of garments should a bleach containing detergent be used. In this case, all labels and tickets attached to garments must carry an advisory statement: 'Wash using a Woolmark approved detergent' (or similar). Full details of these additional requirements are available from The Woolmark Company.

Undyed and bleached white fabrics must not be evaluated

2. Woolmark TWC-TM31: After wash and dry appearance

Assessment to be carried out following ironing.

In addition to the fabric-related appearance retention criteria, the fabric must not exhibit problems related to garment trim which are likely to lead to consumer complaint (eg no colour bleeding from waist band trim, zip must function, button must not be loose, belt loops must not become detached or distorted).

3. Woolmark TWC- TM174: Colourfastness to wet alkaline contact

Undyed and bleached white fabric must not be evaluated.

'Stain other fibre' is defined as the most severely stained fibre in the adjacent fabric.

TEST AND REPORT CRITERIA

All samples must be tested using the test methods in the following table, however there is no pass or fail criteria for the properties tested. The licensee must test all samples to the appropriate method and report the result to the customer.

The failure of the fabric to meet the guideline performance level must be highlighted to the licensee by the Key Account Manager. When requested, The Woolmark Company can provide advice or assistance to the licensee to improve the performance of the fabric under normal commercial arrangements for consultancies. The decision to accept or reject a particular fabric should be subject to agreement between the fabric manufacturer and the customer. The Woolmark Company **shall not** act to arbitrate between the two parties on such issues.

Woolmark TM13 Mass per unit area

This measurement **must** be made on all fabrics

Woolmark TWC-TM112: Abrasion

Testing **must** be carried out and the results reported.

The abrasion resistance of fabrics is related to many factors (e.g. fibre fineness, yarn count, yarn type, weave, etc) and it is difficult to correlate the abrasion conditions of a fabric during wear with test results because of the many facets of abrasion. An individual test can provide only a comparison with previous experience with a particular fabric rather than an exact prediction of the wear life of a fabric. However, fabrics must be tested according to Woolmark TWC-TM112 and it is advised that the guideline performance given in the following table be achieved.

Property	Test method	Flat woven or pressed felt fabrics			Woven pile fabrics
		Guideline Performance level			
		1 Suits, trousers	2 Coats, jackets, costumes, skirts, dresses, kimonos, dressing gowns, accessories	3 Shirts, blouses, nightwear	4 Garment shells
Abrasion ('000 rubs: minimum)	112	20	10	15	10
Seam slippage (mm opening: maximum)	117	6	10	6	10
Pilling: indication of propensity	196	3–4			

- This table must be read in conjunction with the notes that follow.
- Not applicable to accessories.

1. Woolmark TWC-TM117: Seam slippage

Testing **must** be carried out and the results reported.

It is recognised that seam slippage can be reduced by special seaming techniques but fabrics **must** be tested according to Woolmark TWC-TM117 and it is advised that the guideline performance given in the preceding table be achieved.

2. Woolmark TWC-TM196: Indication of pilling propensity

Testing **must** be carried out and the results reported.

Due to the many factors affecting pilling there is no universally accepted test method that accurately predicts the likely propensity of a fabric to pill during use. However, fabrics **must** be tested according to Woolmark TWC-TM196.

COMMENTS:

Pilling in wear is a highly variable process. The same fabric worn by different people under similar circumstances may pill quite differently. Further differences exist between consumers in their perception of what is unacceptable. The Woolmark Company pilling test is a simple method that indicates the propensity to pilling for most fabrics, although it may not always give a true comparative indication of differences between fabrics because pilling is assessed after a fixed time interval. Pilling is a dynamic property and

the rate of pilling can often change according to time and wear. Some of the most important factors influencing pilling propensity are:

- *fibre diameter* *fibre length*
- *twist level* *fabric construction.*

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