



THE WOOLMARK COMPANY

# WOOLMARK SPECIFICATION

KNITTED FABRICS

## SPECIFICATION SF-1

Effective 1 January 2016

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## **SPECIFICATION SF-1: 2016**

### ***KNITTED FABRICS***

#### **FABRICS**

**Woolmark, Woolmark Blend or Wool Blend labelling** may be applied to circular and warp-knitted fabric.

Only the **Woolmark** logo may be applied to pile fabric.

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 pile fabrics.
- Specifications for Woolmark Blend and Wool Blend fabrics are the same as those for Woolmark, except where indicated.
- The term 'Blend' used in the specification includes both Woolmark Blend and Wool Blend fabrics.
- For fabrics to be used in end uses not listed in the following tables, please contact The Woolmark Company.
- **Care claim.** 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	End use				
		1 Trousers, leggings, suiting, fabric	2 Costumes, skirts, dresses, jackets, coats, dressing gowns	3 Shirts, blouses, underwear, nightwear, next-to-skin apparel	5 Sweaters, cardigans, waistcoats	7 Pile fabric
<b>Wool fibre content</b> (%: minimum)	155	Woolmark: 100% Pure New Wool				
		Woolmark Blend: 50% new wool				
		Wool Blend: 30% new wool				
<b>Non-wool fibre content</b> (%: maximum)	155	Woolmark Blend: 50% (see specification F-5)				NA
		Wool Blend: 70% (see specification F-7)				
<b>Colourfastness to light</b> blue reference (grade: minimum) Not applicable to fabric to be used in underwear or nightwear	5	Darker than 1/12 standard depth: 4				
		Lighter than, or equal to, 1/12 standard depth: 3				
		<b>Bright and pastel colours</b>				
		Darker than 1/12 standard depth: 3				
		Lighter than, or equal to, 1/12 standard depth: 2-3				
<b>Surface pile weight</b> (g/m <sup>2</sup> : minimum)	15			-		220
<b>Cover factor</b> (mm tex: minimum) Plain knit semiworsted and woollen spun fabric only	169			1.0		
<b>DCM extract</b> (%: maximum) woollen fabrics only	136			1.5		
<b>Colourfastness to rubbing – dry</b> Stain (grade: minimum)	165			3-4		
<b>Burst strength</b> (kPa: minimum)	29	400	325	325 250 (fine gauge apparel)	325	-

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

## NOTES

### 1. Woolmark TM155

The wool content of Woolmark labelled fabrics is described in by specifications F-1 to F-4.

The wool content of Woolmark Blend labelled fabrics is described in Specification F-5.

The wool content of Wool Blend labelled fabrics is described in Specification F-7.

All pile products must have a pure wool pile but the backing material may be manufactured of an alternative material.

### 2. Woolmark TM5: Colourfastness to light

- 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.
- Undyed and bleached white products **must not** be evaluated
- Naturally coloured wool**  
Such wools may exhibit poor colourfastness to light but the product may carry the Woolmark or Woolmark Blend if 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 & 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.

**3. Woolmark TM15: Surface pile weight**

This test is conducted only on sliver knit or other pile fabrics.

**4. Woolmark TM169: Cover factor**

This criterion only applies to semi-worsted and woollen spun plain knitted fabrics.

**Definitions:**

- a. **Plain knit:** the stocking stitch or 'Jersey' like fabric (simplest knitted structure).
- b. **Semi-worsted spun:** yarns made from sliver produced by carding and gilling, in which the carded sliver has not been condensed or combed.

**5. Woolmark TM136: DCM Extractable Matter**

This test is only conducted on woollen-spun fabrics.

Fabrics treated with a fluorocarbon finish or machine washable fabrics that have been processed with shrink-resist polymer treatments (from solvent) may give results greater than the permitted maximum since these additives may be removed in addition to any oils or softeners present. In these cases, a figure greater than the maximum may be allowed, provided that the sample meets all other requirements. Such cases must be referred to the Woolmark Management Group.

**6. Woolmark TM165: Colourfastness to rubbing**

This test is not conducted on fabric where the depth of shade is less than 1/12 standard depth.

**7. Woolmark TM29: Burst strength**

This requirement is applicable only to plain knitted fabrics. Fine gauge knitted fabric for next-to-skin use (including underwear) may have a minimum burst strength of 250kPa.

## Fabrics with a 'Dry clean only' care claim

Property	Test method	Fabric type			
		1 Trousers leggings suiting fabric	2 Costumes, skirts, dresses, jackets, coats, dressing gowns	3 Shirts, blouses, underwear, nightwear	7 Pile fabric
Dimensional stability (%)	ISO 3175	-5 < DC			
Number of cycles		-8 < DC (area) 3 x Normal			
Colourfastness to water	6	3-4			
change of colour (grade: minimum)					
stain wool (grade: minimum)					
stain cotton (grade: minimum)		3			
For blend fabrics stain other fibre: worst fibre (grade: minimum)		3		NA	

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

### NOTES

#### 1. ISO3175: Dimensional stability

-5 < DC indicates that the shrinkage in both length and width must not be greater than 5%.

-8 < DC (area) indicates that the area shrinkage must not be greater than 5%.

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

#### 2. Woolmark 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. This fibre should be indicated in the test report.

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

Property	Test method	Fabric type			
		1 Trousers leggings	2 Skirts, dresses, jackets, coats, dressing gowns	3 Shirts, blouses, underwear, nightwear	4 Pile fabric
<b>Dimensional change – relaxation (%)</b>	31				
width		–	–	DC < +5	–
length		–	–	–10 < DC	–
No. and type of wash cycles		1 × 7A	1 × 7A	1 × 7A	1 × 7A
<b>Dimensional change – felting (%)</b>	31				
width		–	–	–	–
length		–	–	–	–
area		–	–	–8 < DC	–
No. and type of wash cycles		1 × 7A	1 × 7A	1 × 5A	1 × 7A
<b>Dimensional change – total (%)</b>	31				
width		DC < +5	DC < +5	–	–
length		–5 < DC	–5 < DC	–	–3
area		–	–	–	–
<b>Colourfastness to hand washing</b>	250				
change of colour (grade: minimum)			3–4		3–4
stain wool (grade: minimum)			4		4
<i>For blend fabrics</i> stain other fibre (grade: minimum)			3–4		NA
<b>Colourfastness to wet alkaline contact</b>	174				
change of colour (grade: minimum)			3–4		3 – 4
stain wool (grade: minimum)			4		4
<i>For blend fabrics</i> stain other fibre (grade: minimum)			3–4		NA

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

### NOTES

#### 1. Woolmark TM31: Dimensional stability

–5 < DC indicates that the shrinkage in both length and width must not be greater than 5%.  
DC < +5 indicates that the extension in washing must not be greater than 5%.

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

Undyed and bleached white fabrics must not be evaluated.

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

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

This test is only applied to multi-coloured fabrics.



## Fabrics with a 'Machine wash' care claim

Property	Test method	Fabric type			
		1 Trousers, leggings	2 Skirts, dresses, jackets, coats, dressing gowns	3 Shirts, blouses, underwear, nightwear	4 Pile fabric
<b>Dimensional change – relaxation (%)</b>	31				
width		–	–	DC < +5	–
length		–	–	–10 < DC	–
area		–	–	–	–
No. and type of wash cycles		1 × 7A	1 × 7A	1 × 7A	1 × 7A
<b>Dimensional change – felting (%)</b>	31				
width		–	–	–	–
length		–	–	–	–
area		–	–	– 8 < DC	–
No. and type of wash cycles		3 × 5A	3 × 5A	5 × 5A	3 × 5A
<b>Dimensional change – total (%)</b>	31				
width		DC < +5	DC < +5	–	–
length		–5 < DC	–5 < DC	–	–3 < DC
area		–	–	–	–
<b>Colourfastness to machine washing</b>	193				
change of colour (grade: minimum)			3–4		3–4
stain wool and nylon (grade: minimum)			4		4
stain other fibre: worst fibre (grade: minimum)			3–4		3–4
<b>Colourfastness to wet alkaline contact</b>	174				
change of colour (grade: minimum)			3–4		3–4
stain wool and nylon (grade: minimum)			4		4
stain other fibre: worst fibre (grade: minimum)			3–4		3–4

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

### NOTES

#### 1. Woolmark TM31: Dimensional stability

–5 < DC indicates that the shrinkage in both length and width must not be greater than 5%.  
DC < +5 indicates that the extension in washing must not be greater than 5%.

#### 2. Woolmark TM193: Colourfastness 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.

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

#### 3. Woolmark TM174: Colourfastness to wet alkaline contact

This test is only applied to multi-coloured fabrics.

**Fabrics with a 'Machine wash and tumble dry' or 'Total Easy Care' claim**

Property	Test method	Fabric type			
		1 Trousers, leggings	2 Skirts, dresses, jackets, coats, dressing, gowns	3 Shirts, blouses, underwear, nightwear	4 Pile fabric
<b>Dimensional change – relaxation (%)</b>	31/ 254				
width		–	–	DC < +5	–
length		–	–	–10 < DC	–
No. and type of wash and dry cycles		1 × [7A + TD]	1 × [7A + TD]	1 × [7A + TD]	1 × [7A + TD]
<b>Dimensional change – felting (%)</b>	31/ 254				
width		–	–	–	–
length		–	–	–	–
area		–	–	–8 < DC	–
No. and type of wash and dry cycles		5 × [5A + TD]	5 × [5A + TD]	5 × [5A + TD]	5 × [5A + TD]
<b>Dimensional change – total (%)</b>	31/ 254				
width		DC < +5	DC < +5	–	–
length		– 5 < DC	– 5 < DC	–	–3 < DC
area					
<b>Colourfastness to machine washing</b>	193				
change of colour (grade: minimum)				3–4	
stain wool and nylon (grade: minimum)				4	
stain other fibre: worst fibre (grade: minimum)				3–4	
<b>Colourfastness to wet alkaline contact</b>	174				
change of colour (grade: minimum)				3–4	
stain wool and nylon (grade: minimum)				4	
stain other fibre: worst fibre (grade: minimum)				3–4	
<b>After wash appearance (grade: minimum)</b>	31		3		–

\* TD = tumble dry

7A/TD – a 7A wash followed by a tumble dry      5A/TD – a 5A wash followed by a tumble dry

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

**NOTES**

**1. Woolmark TM31: Dimensional stability**

–5 < DC indicates that the shrinkage in both length and width must not be greater than 5%.

DC < +5 indicates that the extension in washing must not be greater than 5%.

After wash and dry appearance

Tumble drying can have an adverse effect on fabric appearance.

This specification requires that Woolmark TWC-TM298 be carried out. This test method includes a subjective assessment after 1 × 7A + 1 × TD and 2 × (1 × 5A + 1 × TD) cycles.

**2. Woolmark TM193: Colourfastness to machine washing**

Undyed and bleached white fabrics must not be evaluated

The test method is divided into two parts:

Part A: standard detergent without perborate

Part B: standard detergent with perborate.

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.

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

**3. Woolmark TM174: Colourfastness to wet alkaline contact**

This test is only applied to multi-coloured fabrics.



## TEST AND REPORT CRITERIA

All samples must be tested using the test methods listed below, 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.

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.

### 1. Woolmark TM13 Mass per unit area

This measurement must be made on all fabrics

### 2. Woolmark TM276 Spirality

This requirement is applicable only to plain knitted fabrics. A maximum of 5degrees is recommended but is not mandatory.

### 3. Woolmark TM152: 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-TM152.

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 knitted 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 the pilling propensity are:

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

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