



THE WOOLMARK COMPANY

WOOLMARK SPECIFICATION

MERINO PERFORM GARMENTS

SPECIFICATION AM-3

Effective 1 January 2016

SPECIFICATION AM-3: 2016

MERINO PERFORM GARMENTS

PRODUCTS

Merino Perform, Merino Perform Pro and **Merino Perform Advantage** may be used on the following product types meeting the criteria detailed in this specification:

- outerwear
- underwear and base layer products
- mid layer products
- socks
- accessories, such as caps and gloves.

The product descriptor **MerinoPerform™ Pro** may only be applied to:

- underwear or next-to-skin products manufactured from pure wool fabrics that have a hydrophilic face and hydrophobic back.

The product descriptor **MerinoPerform™ Advantage** may only be applied to:

- underwear or next-to-skin products manufactured from blend fabrics that have a hydrophilic face and hydrophobic back.
- Outerwear and mid-layer garments are defined as garments designed to be normally worn over other garments so that they have minimal contact with the skin.
- Next-to-skin products and underwear are defined as products designed to be normally worn under other garments so that they have direct contact with the skin.

All Products

All products must meet the requirements listed in specification AK-1 (knitted garments) or AW-1 (woven garments), except where specifically noted in this Specification.

| Property | Test Method | Outerwear, mid-layer | Underwear, next-to-skin | Accessories |
|---|----------------------|--|--|--|
| Wool content (%: minimum) Woolmark Woolmark Blend Wool Blend | 155 | Pure New Wool 50% 30% | | |
| Mean wool fibre diameter(μm : absolute maximum) | 22 or 23 or 24 | 22.5 | 19.75 | 22.5 19.5 for next to skin products |
| Comfort factor (%: minimum) | | | 99% | 99% for next to skin products |
| Fabric construction | | | See Notes | |
| Garment construction, (where applicable) | 206 | For garments with a MerinoPerform™ outer layer, the use of non-MerinoPerform material must not exceed 5% by weight of the outer layer of the garment. Lining materials are not included. | | |
| Colourfastness to Rubbing (grade: minimum) Dry Wet | 165 | 3-4 2-3 | 3-4 2-3 | 3-4 2-3 |
| Hydrophilic/hydrophobic surfaces | AATCC-195 | | Droplet of water spreads to the outside of fabric. | |

This table shall be read in combination with the notes below

NOTES

1. Woolmark TM155: Wool content

The tolerance for wool content is 0.3% for Woolmark and 3% for Woolmark Blend and Wool Blend. The fabric or garment must also have a wool content within 3% of the nominal blend content. Any synthetic fibre may be used.

Membrane finishes (such as used for Gore-Tex®) to impart functionality to MerinoPerform™ fabrics may be excluded from the determination of the wool content.

2. Woolmark TM22, TM23 or TM24: Mean wool fibre diameter and comfort factor

This measurement is conducted on yarn or fibre (as appropriate) removed from fully finished product. The fibre diameter requirement (which includes sampling and testing tolerances) is applicable at the end product stage. It is known that the mean fibre diameter can increase during textile processing owing to preferential loss of finer fibres. It is not known how much change will occur for any particular set of circumstances but in order to meet the end product requirement it is advised that wools with diameters closer to 19 μm (for base layer and underwear garments) and 22 μm (for outerwear and accessories) are chosen at the raw material stage.

If the fibre diameter is determined using TM22 or TM23, this may give an inaccurate result if the yarn is highly twisted; in such cases, the result from Woolmark TWC-TM24 should be accepted. In cases of dispute, the result from Woolmark TWC-TM24 must be accepted.

For accessories the limit of mean fibre diameter is 22.5 μm except where the product can be reasonably considered to be for next-to-skin use. In this case a limit of 19.75 μm must be used. This requirement does not apply to socks.

3. Fabric construction

For Woolmark Blend and Wool Blend products, wool fibre may only be intimately blended with one synthetic fibre in a singles yarn. Singles yarns of different blend content may be twisted together to make a multi-ply yarn.

3.1. **MerinoPerform™ Pro**

The fabric shall be constructed and finished so that the face of the fabric, which forms the outer surface of the garment, possesses hydrophilic properties. The back of the fabric, which forms the inside of the garment, shall possess hydrophobic properties.

3.2. **MerinoPerform™ Advantage**

The fabric shall be composed of at least two separate yarns. The fabric shall be constructed and finished so that the face of the fabric, which forms the outer face of the garment, possesses hydrophilic properties. The back of the fabric, which forms the inside of the garment, should possess hydrophobic properties.

3.3. **Laminated fabrics**

Laminated fabrics (fabrics bonded using glue, etc.) shall be treated as two fabrics; the outer or shell fabric and the inner layer or lining fabric.

4. **Garment construction**

4.1. **MerinoPerform™ Pro and MerinoPerform™ Advantage**

The face side of the fabric must be on the outside of the garment.

4.2. **Outerwear with a wool-containing shell fabric**

Only the shell fabrics must meet the requirements of this specification. Lining fabrics and fusing materials may be non-wool.

4.3. **Outerwear with a non-wool shell fabric**

The wool-containing lining material must meet the requirements of this specification. Where the lining materials used on **MerinoPerform™** garments are pure wool, the label must include the words 'Pure new wool lining'. Where the lining materials used on **MerinoPerform™** garments are wool blend, the label must include the words 'Wool Blend lining'.

4.4. **Laminated fabric**

Where the inner component of a laminated fabric used to construct a garment is a pure wool or wool blend fabric, the product may carry the Merino Perform label with the words 'Pure New Wool lining' or 'Wool-rich Blend lining'.

5. **Woolmark TM165 Colourfastness to Rubbing**

This test is conducted on product, the colour of which is darker than 1/12 depth. Undyed and bleached white product must not be evaluated for colourfastness.

Both the face and back of the fabric must be tested separately.

6. **AATCC-195: Liquid moisture management properties of textile fabrics**

This test is only required for **MerinoPerform™ Pro** and **MerinoPerform™ Advantage** products.

A droplet (0.25ml) of simulated sweat (AATCC195) placed on the inside of the fabric shall spread to the outside of the fabric. This method (2010) is available from the American Association of Textile Chemists and Colorists (AATCC).

Dry Clean only or Hand-washable products

| Property | Test method | Outerwear, mid-layer | Underwear, next-to-skin | Accessories |
|--|-------------|--|-------------------------|--|
| Dimensional change – relaxation (%) Knitted Length Width Area Woven Length Width No. and type of wash cycles Dry clean Hand wash | 31 | -10 < DC DC < +5 -3 < DC -3 < DC Not measured 1 × 7A | Not applicable | -10 < DC DC < +5 -3 < DC -3 < DC Not measured 1 × 7A |
| Dimensional change – felting (%) Knitted Length Width Area Woven Length Width Cuff edge No. and type of wash cycles Dry clean Hand wash | 31 | - - -8 < DC -3 < DC -3 < DC -1 < DC < 1 3 cycles 1 × 5A | Not applicable | - - -8 < DC -3 < DC -3 < DC -1 < DC < 1 3 cycles 1 × 5A |
| Dimensional change – total (%) Knitted Length Width Area Woven Length Width | 31 | -5 < DC DC < +5 -3 < DC -3 < DC | Not applicable | |
| Afterwash appearance | 31/298 | Acceptable | Not applicable | Acceptable |
| Colourfastness to hand washing Change of colour Stain wool Stain other fibre (Grade : minimum) | 250. | 3-4 4 3-4 | Not applicable | 3-4 4 3-4 |
| Colourfastness to wet alkaline contact Change of colour Stain wool Stain other fibre (Grade : minimum) Multi-coloured products only | 174 | 3-4 4 3-4 | Not applicable | 3-4 4 3-4 |

This table shall be read in combination with the notes following Care Claim Specifications

Machine washable products

| Property | Test method | Outerwear, mid-layer | Underwear, next-to-skin | Accessories |
|--|--------------------------|--|---|--|
| Dimensional change – relaxation (%) Knitted Length Width Area Woven Length Width No. and type of wash cycles | 31 | | -10 < DC DC < +5 -3 < DC -3 < DC 1 × 7A | -10 < DC DC < +5 -3 < DC -3 < DC 1 × 7A |
| Dimensional change – felting (%) Knitted Length Width Area Woven Length Width Cuff edge No. and type of wash cycles | 31 | -8 < DC -3 < DC -3 < DC -1 < DC < 1 3 × 5A | -8 < DC -3 < DC -3 < DC -1 < DC < 1 5 × [5A+TD] | -8 < DC -3 < DC -3 < DC -1 < DC < 1 3 × 5A |
| Dimensional change – total (%) Knitted Length Width Area Woven Length Width | 31 | -5 < DC DC < +5 -3 < DC -3 < DC | -5 < DC DC < +5 -3 < DC -3 < DC | |
| Afterwash appearance | 31/298 | Acceptable | | |
| Colourfastness to machine washing Change of colour Stain wool Stain other fibre (Grade : minimum) | 193 Part A Part B. | 3-4 4 3-4 | 3-4 4 3-4 | 3-4 4 3-4 |
| Colourfastness to wet alkaline contact Change of colour Stain wool Stain other fibre (Grade : minimum) Multi-coloured products only | 174 | 3-4 4 3-4 | 3-4 4 3-4 | 3-4 4 3-4 |

This table shall be read in combination with the notes below

NOTES

1. Woolmark TWC-TM31: Dimensional stability

While not all measurements made in this test have limits in the specification, all should be reported according to the requirements of TM31. The 'non-specified' measurements are included to assist retailers in making garment assessments related to their own requirements whilst also using the Woolmark specifications.

- [7A+TD] - a 7A wash followed by a tumble dry
- [5A+TD] - a 5A wash followed by a tumble dry
- Total = Relaxation shrinkage + Felting Shrinkage

A 'shrinkage' is denoted by a negative (-) value and an 'extension' by a positive (+) value.

1.1. Dimensional Change – Relaxation

This measurement is not required on dry clean only products.

1.2. Dimensional Change – Felting

As indicated in TM31, the ‘original measurements’ for felting shrinkage based on dimensions after 1 × 7A wash cycle. In the case of dry clean only, the dimensional change is based on original dimensions.

1.3. Tumble dry performance of outerwear, mid-layers and accessories

Where wash and tumble dry performance (Total Easy Care) is required for outerwear, mid-layers or accessories, the relaxation cycle shall be 1 × 7A cycle followed by a tumble dry (ie 1 × [7A + TD]). The felting cycle shall consist of five 5A cycles each followed by a tumble dry (ie 5 × [5A + TD]). The limits on dimensional change shall be unchanged.

1.4. Afterwash and tumble dry appearance.

Tumble drying can have an adverse effect on garment appearance. The claim on this specification requires that Woolmark TWC-31/TM298 be carried out; this test method includes a subjective assessment of appearance after:

1 × [7A + TD] and 5 × [5A + TD] cycles for base layers and underwear

1 × [7A + TD] and 2 × [5A + TD] cycles for outerwear and mid-layers.

2. Woolmark TM250: Colourfastness to hand washing

‘Stain other fibre’ is defined as the most severely stained fibre in the adjacent fabric. Undyed and bleached white products **must not** be evaluated for colourfastness.

3. Woolmark TWC-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.

The method used must be both Part A and B.

If the product passes Part A but fails Part B, labels and tickets attached to garments should carry a statement: ‘Wash using a Woolmark approved detergent’ (or similar). Full details of these additional requirements are available from The Woolmark Company.

3.1. Undyed and bleached white products **must not** be evaluated for colourfastness.

3.2. ‘Stain other fibre’ is defined as the most severely stained fibre in the adjacent fabric.

Products with a ‘Stretch’ related claim

| Property | Test Method | Pass Level |
|---|-------------|------------|
| Extension – length and width directions (%: minimum) | 179 | 20 |
| Non-recoverable extension Wales and courses (%: maximum) | | 3 |

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