

Type G ORIGINAL

Product Description

3M™ Thinsulate™ Insulation (Type G) is an economical, 100% polyester, mid-loft insulation. It may be quilted using conventional quilting equipment.

- Nice drape characteristics
- Breathable
- Moisture-resistant
- Washed or dry-cleaned depending on individual manufacturers' recommendations
- Hypoallergenic

Intended Uses

Outerwear, sportswear, workwear, gloves and accessories.

Fiber Composition

U.S. Convention:

Insulation:
100% Polyester

ISO Convention:

Insulation:
100% polyester

Flammability

Class 1 — Normal Flammability per procedure in 16 CFR Part 1610, Federal Flammable Fabrics Act.

Warmth While Damp

Retains most of its insulating ability even under damp conditions. Individual fibers absorb less than 1% by weight of water. Easily dried.

Restricted Substances

3M™ Thinsulate™ Insulation (Type G) meets the harmful substances requirements of OEKO-TEX® Standard 100 and has been awarded the OEKO-TEX® Certificate for Product Class 1 by Hohenstein Institutes (meets the human-ecological requirements of the standard presently established for baby articles).



Article meets the bluesign® criteria

3M™ Thinsulate™ Insulation (Type G) articles carrying the bluesign® approved label meet the strict safety and environmental criteria of the bluesign® system. These articles are made from bluesign® approved chemical products and raw materials and are produced in a resource conserving way with a minimum impact on people and the environment.



Available Widths

60" (1.52 m) roll width (nominal) with a 2" (5.1 cm) inside diameter core.

Properties

Typical Values*	3M™ Thinsulate™ Insulation (Type G)						
	Basis Weight		Thickness ASTM D 5736 @ 0.002 psi		Thermal Resistance (R _{ct}) ASTM F 1868		
	g/m ²	oz/yd ²	cm	inch	clo	R-value	m ² °K/W
G60	60	1.8	0.8	0.31	1.4	1.2	0.22
G80	80	2.4	1.1	0.45	1.9	1.6	0.29
G100	100	2.9	1.3	0.53	2.2	1.9	0.34
G120	120	3.5	1.5	0.59	2.5	2.2	0.38
G150	150	4.4	1.7	0.67	2.8	2.5	0.43
G200	200	5.9	2.0	0.78	3.3	2.9	0.51

* Values represent the averages of the population of lots at date of publication

$$\text{Clo (R}_{ct}) = \frac{(0.18 \text{ °C} \times \text{m}^2 \times \text{hr})}{\text{K cal}} \quad \text{R-value} = \frac{(\text{hr} \times \text{ft}^2 \times \text{°F})}{\text{BTU}}$$

Construction Guidelines

GENERAL MANUFACTURING GUIDELINES

3M™ Thinsulate™ Insulation products need to be properly used in order to produce their intended benefits in apparel and related articles. For this reason, specifiers, garment manufacturers and converters need to abide by the construction guidelines and care instructions in this Technical Data Sheet, as well as by the proper end-article placement and coverage guidelines in the *Product Usage Requirements (PUR)* brochure. It is primarily the garment manufacturer's/designer's responsibility to assure their end customers' satisfaction by:

1. Selecting appropriate shell and lining fabrics, including findings and recommended scrims for the intended application.
2. Following the construction guidelines supplied by 3M for the design and manufacture of each garment.
3. Determination of the proper care instructions (taking into account 3M recommended care instructions) and creation of the appropriate label to be sewn into each garment.

GENERAL FABRIC RECOMMENDATIONS

The 3M™ Thinsulate™ Insulation family of products does not require downproof fabrics in most instances. However, when using 3M™ Thinsulate™ Insulation with fabrics that are not downproof, the potential for fiber migration should be determined.

- Fiber migration due to wash durability can be detected by sewing a pillow of the garment components — following the construction guidelines — and washing it five times as recommended. Observe the fabric surface for protruding fiber ends.
- Fiber migration caused by other mechanisms can be assessed by submitting fabric samples to the 3M laboratory through 3M sales representatives.

The use of fiberproof scrims to separate the insulation from textured shell or lining fabrics, coated, micro-coated, or waterproof breathable fabrics is required when needed to prevent fiber migration. This can be accomplished by adding scrim(s) during the garment construction process when necessary.

When using coated, micro-coated, or waterproof breathable fabrics, the durability of the insulation is decreased because of surface friction and because water cannot be flushed through the garment and an intervening layer of scrim should be used against such fabrics. Durability may also be enhanced by providing a means via openings or vents at the bottom of a garment through which water can be easily expelled to minimize stress on the insulation during agitation and water extraction.

CONSTRUCTION GUIDELINES FOR GLOVES AND OTHER ACCESSORIES

Allow 24 hours for recovery of 3M™ Thinsulate™ Insulation (Type G) after removal from vacuum pack.

- Quality lamination processes will result in loftier and warmer end products.
- A tricot or scrim must be used between the 3M™ Thinsulate™ Insulation (Type G) and the outer shell of the glove.
- For details pertaining to proper placement in apparel, gloves or other accessories, please consult the brochure: *Product Usage Requirements (PUR)*.

CONSTRUCTION GUIDELINES FOR GARMENTS

Allow 24 hours for recovery of 3M™ Thinsulate™ Insulation (Type G) after removal from vacuum pack.

The standard care instructions for 3M™ Thinsulate™ Insulation (Type G) calls for a cold water home wash (30 °C/85 °F). Higher temperature wash conditions and/or industrial laundering conditions for certain weights are also permitted *provided that* specified more stringent construction guidelines are followed. Please refer to the following pertinent sections for details.

Garment Construction Guidelines for Standard Care Instructions allowing for Cold Water Home Wash (30 °C/85 °F)

3M™ Thinsulate™ Insulation (Type G) may be free-hung in edge-stabilized constructions not exceeding 22" × 22".

3M™ Thinsulate™ Insulation (Type G) may be quilted using conventional quilting equipment. Quilt spacings less than 4" are not recommended in order to maintain maximum warmth. Channel quilts of 4" to 7" are recommended.

Thorough garment testing is necessary for quilt dimensions outside of the recommended range.

For scrims, please consult your 3M sales representative. Fiber migration should be expected with textured fabrics, micro-coated fabrics or taffetas, especially for constructions having less than 86 picks per inch/34 picks per cm (or having a total thread count of less than 190 threads per inch/75 threads per cm). Applications with textured, coated or waterproof breathable fabrics may also cause abrasion due to surface friction. **All constructions, regardless of pick count, should be evaluated for fiber migration following the previously stated instructions.**

Garment Construction Guidelines for Care Instructions allowing for Hot Water Home Wash (80 °C/175 °F) or Industrial Laundering (80 °C/175 °F)

These laundering conditions are only allowed for product weights of 100 g/m² or greater.

Products need to be quilted between the lining and a scrim. For Channel Quilt patterns, the quilt line spacings must be between 4" and 6" (10 cm and 15 cm). For Diamond Quilt patterns, the diamonds must be between 4" × 4" to 6" × 6" as measured on the diagonals (10 cm × 10 cm to 15 cm × 15 cm). A scrim made from polyester or other temperature resistant material is strongly recommended if tunnel finishing or drying above 150 °C (300 °F).

Diamond Quilt Construction

Quilt Line Spacing up to 6" × 6"



For scrims, please consult your 3M sales representative. Fiber migration should be expected with textured fabrics, micro-coated fabrics or taffetas, especially for constructions having less than 86 picks per inch/34 picks per cm (or having a total thread count of less than 190 threads per inch/75 threads per cm). Applications with textured, coated or waterproof breathable fabrics may also cause abrasion due to surface friction. **All constructions, regardless of pick count, should be evaluated for fiber migration following the previously stated instructions.**

Since outerwear fabric selections vary, it is the apparel manufacturer's responsibility to thoroughly test each garment style to determine the proper care method. This is very important when hot water wash or industrial laundering is required. Care instructions from the garment manufacturer need to be followed to ensure integrity of the overall garment.

For questions, contact 3M Home Care Division Customer Service at 651-575-6694.



To reduce the inhalation of fibers or airborne dust, always use an appropriate respirator when the cutting or processing of rolls is expected to produce fibrous or airborne dust.

Care Instructions



Garments made with 3M™ Thinsulate™ Insulation (Type G) may be home machine washed or professionally dry-cleaned depending on the garment manufacturer's recommendation. Care instructions from the garment manufacturer need to be followed to ensure integrity of the overall garment.

The standard care instructions for 3M™ Thinsulate™ Insulation (Type G) calls for a cold water home wash (30 °C/85 °F). Higher temperature wash conditions and/or industrial laundering conditions for certain weights are also permitted *provided that* specified more stringent construction guidelines are followed. Please refer to the following pertinent sections for details.

Standard Care Instructions Allowing for Cold Water Home Wash (30 °C/85 °F)

INSTRUCTIONS FOR: MACHINE WASH ONLY GARMENTS:

- + Machine wash cold (30 °C, 85 °F), delicate cycle. Use only non-chlorine bleach when needed. Tumble dry, low heat. Do not steam press. Steam only or use cool iron.

DRY-CLEAN ONLY GARMENTS:

- + Professionally dry-clean only. Tumble dry, low heat. Do not steam press. Steam only or use cool iron. Dry-cleaning may reduce loft.

WASH OR DRY-CLEAN GARMENTS:

- + Machine wash cold (30 °C, 85 °F), delicate cycle. Use only non-chlorine bleach when needed. Tumble dry, low heat. Do not steam press. Steam only or use cool iron or professionally dry-clean.

Care Instructions Allowing for up to a Hot Water Home Wash (up to 80 °C/175 °F)

(Applies only to garments with 3M™ Thinsulate™ Insulation (Type G) 100 grams or higher quilted between scrim and liner in a 4" to 6" channel or diamond pattern).

INSTRUCTIONS FOR: MACHINE WASH ONLY GARMENTS:

- + Machine wash hot (up to 80 °C, 175 °F), delicate cycle. Use only non-chlorine bleach when needed. Tumble dry, high heat up to 93 °C (200 °F). Do not steam press. Steam only or use cool iron. Hot washing may reduce loft.

DRY-CLEAN ONLY GARMENTS:

- + Professionally dry-clean only. Tumble dry, low heat. Do not steam press. Steam only or use cool iron. Dry-cleaning may reduce loft.

WASH OR DRY-CLEAN GARMENTS:

- + Machine wash hot (up to 80 °C, 175 °F), delicate cycle. Use only non-chlorine bleach when needed. Tumble dry, high heat up to 93 °C (200 °F). Do not steam press. Steam only or use cool iron or professionally dry-clean. Hot washing or Dry-cleaning may reduce loft.

Care Instructions Allowing for Industrial Laundry (up to 80 °C/175 °F)

(Applies only to garments with 3M™ Thinsulate™ Insulation (Type G) 100 grams or higher quilted between scrim and liner in a 4" to 6" channel or diamond pattern).

INSTRUCTIONS FOR: INDUSTRIAL LAUNDRY:

- + Industrial wash up to 80 °C (175 °F). Use only non-chlorine bleach when needed. Tumble dry up to 93 °C (200 °F), or tunnel finish up to 177 °C (350 °F). Do not steam press. Steam only or use cool iron. Industrial laundering may reduce loft.

These conclusions were determined through 3M internal test procedures for industrial wash as defined above. Using harsher cleaning conditions can significantly reduce product life. Wash testing is recommended.

IMPORTANT NOTICE

WARRANTY: In the event any 3M™ Thinsulate™ Insulation product is found to be defective in material, workmanship or not in conformance with any express warranty for a specific purpose, 3M's only obligation and your exclusive remedy shall be to repair, replace or refund the purchase price of such parts or products upon timely notification thereof and substantiation that the product has been stored, maintained and used in accordance with 3M's written instructions.

EXCLUSIONS TO WARRANTY: THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY OR CONDITION OF QUALITY, EXCEPT OF TITLE AND AGAINST PATENT INFRINGEMENT.

LIMITATION OF LIABILITY: Except as provided above, 3M shall not be liable or responsible for any loss or damage, whether direct, indirect, incidental, special or consequential, arising out of the sale, use or misuse of 3M™ Thinsulate™ Insulation products or the user's inability to use such products. **THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.**

3M's general terms and conditions also apply to the sale of this product.

3M may change the product, specifications and availability of the product as improvements are made: therefore, user should contact 3M for latest information before specifying the product.

All 3M™ Thinsulate™ Insulation rolls and 3M™ Thinsulate™ Featherless Insulation bags are produced within strict dimensional and weight tolerance specifications. However, changes in environment and other factors may cause the final dimensions and/or bag weights to shift, shrink, or otherwise change up to a maximum of ±4% during handling or shipment.

Please allow products to recover 24 hours after vacuum pack is removed.

**Home Care Division**

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