

# Type B

FOR FOOTWEAR

## Product Description

3M™ Thinsulate™ Insulation for footwear (Types B/BQ/BZ) is lightweight, warm, moisture-resistant and breathable. It is designed to resist compression and maintain warmth under moderate pressures.

- Breathable
- Moisture-resistant
- Hypoallergenic

## Intended Uses

Footwear.

Some 3M™ Thinsulate™ Insulation products are compliant under the Berry Amendment. Please work with your Sales Representative to obtain formal Berry certification for the items of interest.

## Fiber Composition

### U.S. Convention:

*Type B:*  
88% Olefin  
12% Polyester

*Type BQ:*  
65% Olefin  
35% Polyester

*Type BZ:*  
65% Olefin  
35% Polyester

### ISO Convention:

*Type B:*  
88% polypropylene  
12% polyester

*Type BQ:*  
65% polypropylene  
35% polyester

*Type BZ:*  
65% polypropylene  
35% 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 for footwear (Types B/BQ/BZ) 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).



## Available Widths

60" (1.52 m) roll width (nominal) with a 3" (7.6 cm) inside diameter core.

## Properties

Typical Values*	3M™ Thinsulate™ Insulation for footwear (Types B/BQ/BZ)						
	Basis Weight		Thickness ASTM D 5736 @ 0.002 psi		Thermal Resistance (R <sub>ct</sub> ) ASTM F 1868		
	g/m <sup>2</sup>	oz/yd <sup>2</sup>	cm	inch	clo	R-value	m <sup>2</sup> °K/W
B100	105	3.1	0.20	0.08	0.4	0.4	0.061
B200	210	6.2	0.40	0.16	0.9	0.8	0.14
B400	420	12.4	0.80	0.31	1.8	1.6	0.28
B600	620	18.3	1.2	0.47	2.7	2.4	0.42
BQ400	420	12.4	2.1	0.83	3.7	3.3	0.57
<i>BQ400 Quilted**</i>	420	12.4	0.8	0.31	1.0	0.9	0.15
BQ600	620	18.3	2.9	1.1	5.0	4.4	0.77
<i>BQ600 Quilted**</i>	620	18.3	0.95	0.37	1.2	1.1	0.19
BZ200	210	6.2	0.7	0.28	1.3	1.1	0.20
BZ400	420	12.4	1.0	0.39	1.8	1.6	0.28
BZ500	520	15.3	1.1	0.43	2.1	1.8	0.33

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

\*\* Results based on 3M tests quilting BQ product to footwear lining in 1 inch diamond patterns. Quilting conditions may influence results.

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

## 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, manufacturers and converters need to abide by the construction guidelines 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 article manufacturer's/designer's responsibility to assure their end customers' satisfaction by:

1. Selecting appropriate shell and lining materials, including findings for the intended application.
2. Following the construction guidelines supplied by 3M for the design and manufacture of each article.
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.

### CONSTRUCTION GUIDELINES FOR FOOTWEAR

Adhesive lamination is a suitable method of construction for 3M™ Thinsulate™ Water-Resistant Insulation for footwear (Type B) and 3M™ Thinsulate™ Insulation for footwear (Type BZ) products.

Quilting is also a suitable method of construction for all 3M™ Thinsulate™ Insulation for footwear products, with the minimum quilt spacing recommended being a 1" × 1.5" (2.5 cm × 3.8 cm) diamond. Quilting is required for 3M™ Thinsulate™ Insulation for footwear (Type BQ), 3M™ Thinsulate™ Insulation (Type C200) and 3M™ Thinsulate™ 50% Recycled Insulation (Type R200).

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.

**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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