

Thinsulate™ LiteLoft™ Insulation



Exceptional warmth
and lightweight comfort



Exceptional Warmth and Lightweight Comfort

You can get exceptional, lightweight warmth in a high-loft insulation. Thinsulate™ Lite Loft™ Insulation from 3M features a unique formulation that results in a soft hand and lofty appearance. Yet being light weight makes it more comfortable for both apparel and accessories.

The thermally weight-efficient batting of Thinsulate™ Lite Loft™ insulation is easy to unroll, cut and sew. It's so versatile, in fact, that some styles can be quilted or laminated, depending on the application.

You get all of this under the Thinsulate™ Insulation brand – which has high brand recognition in the consumer garment marketplace.¹

Thinsulate™ Lite Loft™ Insulation —

- Thinsulate™ Lite Loft™ insulation is lightweight, yet provides exceptional warmth and comfort.
- Available for quilted or laminated constructions.
- Down alternative
- Warm-water washable
- Hydrophobic fibers

Thinsulate™ Lite Loft™ Insulation

Thinsulate™ Lite Loft™ Insulation Type LL is a unique insulation that is lightweight and lofty. In fact, Thinsulate™ Lite Loft™ insulation is our warmest product available for apparel and accessories. It's ideal for use in all types of outerwear and accessories. It is suitable for quilted and laminated constructions.

Thinsulate™ Lite Loft™ Insulation Type LL

Uses: General Outerwear, Sportswear, Gloves, and Accessories

Warmth While Damp: Retains insulating ability in damp conditions

Composition: 100% Polyester

Physical Properties

Type	Weight*		Thickness		Additional Features**	
	g/m ²	oz/yd ²	cm	inches	Intrinsic Clo (I _c)	R-value
LL250	250	7.4	2.7	1.1	4.0	3.5

* ± 15%

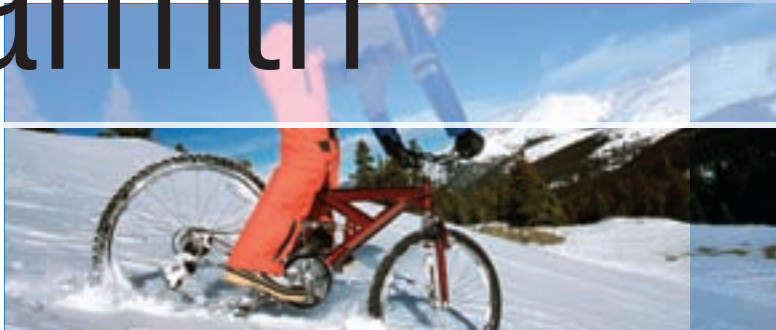
** Represents the average of the population of lots at time of publication.

*** Warmth is for insulation alone. $1 \text{ Clo (I}_c) = \frac{0.18^\circ\text{C} \times \text{m}^2 \times \text{hr}}{\text{K cal}}$ $\text{R-value} = \frac{\text{hr} \times \text{ft}^2 \times ^\circ\text{F}}{\text{BTU}}$

Available Width: Thinsulate™ Lite Loft™ insulation type LL is available in 60" roll width with 2" inside core diameter.

¹ 2006 New Boundaries research

Lightweight warmth



Thinsulate™ Lite Loft™ Insulation can also be used as part of our unique Thinsulate™ Zone Insulation system that allows clothing designers and manufacturers to incorporate a variety of types and weights of Thinsulate™ Insulation into their outerwear. By factoring in the part of the body being insulated and the activity the garment is used for, designers can achieve custom-engineered, high-performance clothing that more closely fits the needs and activities of their customers.

General Manufacturing Guidelines

Garment manufacturers are in the best position to assure customer satisfaction by:

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

General Fabric Recommendations

Downproof fabrics are not required for many Thinsulate insulation products. However, when Thinsulate™ Lite Loft™ insulation is used with fabrics that are not downproof, you should determine the potential for fiber migration from the insulation to the fabric surface.

- 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 your 3M sales representative.

Fiberproof scrim is recommended to separate the insulation from textured shell or lining fabrics and from coated, micro-coated, or waterproof breathable fabrics. Either use a scrim on one or both sides, or add a scrim during the construction process. The scrim supplied on certain Thinsulate insulation products eliminates the need for preliminary testing of fiber migration.

When using coated, micro-coated, or waterproof breathable fabrics, the durability of insulations is decreased because of surface friction and because water cannot be flushed through the garment. Durability can be enhanced by providing openings or vents at the bottom of a garment through which water can be easily expelled; this minimizes stress on the insulation during agitation and water extraction. Durability can also be enhanced by using a scrim to support the insulation.

Guidelines for Garment Construction

This insulation 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 scrim 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. 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.

Guidelines for Glove Construction

- Quality lamination processes will result in loftier and warmer end products.
- A tricot or scrim must be used between the insulation and the outer shell of the glove.
- Consult the Product and Brand Usage Standards (PBUS) for additional usage information.

Allow 24 hours for recovery of Thinsulate™ Lite Loft™ Insulation Type LL after removal from vacuum pack.

For questions, contact 3M Visibility and Insulation Solutions Technical Service at (651) 737-2753 or (651) 733-8697.

General Care Recommendations

3M does not control fabric selection or garment construction; therefore, it is the apparel manufacturer's responsibility to thoroughly test each garment style to determine the proper care method. Care instructions from the garment manufacturer need to be followed to ensure integrity of the overall garment.

Wash or Dry-Clean

Machine wash warm (40°C, 105°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.

Dry-Clean Only

Professionally dry-clean only. Tumble dry, low heat. Do not steam press. Steam only or use cool iron.

Important Notice to User:

WARRANTY: In the event any 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 OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTY 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 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 Thinsulate insulation rolls are made within strict dimensional tolerance specifications. However, it is possible to shift, shrink, or otherwise change length and/or width dimensions to a maximum of ±4% during handling or shipment.

Allow 24 hours for recovery after vacuum pack is removed.



**Occupational Health and
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