

# **Thinsulate™**

**THERMAL INSULATION**



**Family of Products**

# **Customer Service Report**

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Thermal Insulation

**Family of Products**



Insulation Products Project

St. Paul, MN 55144-1000

### Customer Service Report

**Customer Name:** Taylor Leatherwear  
**Contact:** David Patton  
**Address:** Route 6, Box 6033  
**City, State, Zip:** Tullahoma, TN 37388

**CSR#:** 2152  
**Date:** 03/18/97  
**Salesrep>>** J.G. Locke  
**Application>>** Comp. Analysis

### Objective:

Determine the CLO (warmth) and thickness of a submitted jacket and liner containing Thermolite insulation, and compare to a submitted leather package containing Thinsulate™ Thermal insulation Type C-200.

### Conclusions

When compared to the submitted jacket and liner containing Thermolite insulation, the submitted package containing leather and Thinsulate insulation Type C-200:

1. Is thinner
2. Is 35.2% warmer

Note: Please see the attached data sheet for complete test results.

TEST PROCEDURE:

Thermal Efficiency -

The insulation values of the samples were measured on the 3M clometer, which uses a heat flow meter to measure the heat transfer from a hot plate through the sample into a cold environment. The thermal resistance(clo) of the sample is determined under the equilibrium conditions in still air. The 3M clometer apparatus is similar in concept to the guarded hot plate described in ASTM D1518. Total Insulation Value (I<sub>t</sub>) represents the insulation of the sample and the boundary layer of air. Correct Insulation Value (I<sub>c</sub>) represents the insulation value of the sample alone. The insulation value of the boundary air layer (0.8 clo) has been subtracted.

Thickness -

Thickness measurements were determined using the 3M thickness tester having a test surface of 12 inches square. The reading was taken to the nearest hundredth centimeter with the sample under a pressure of 0.002 psi.

Samples Tested:

1. Submitted package of leather/lining/fabric/ Thinsulate Insulation Type c-200/lining fabric. The Thinsulate Insulation Type C-200 was quilted through the 2 lining fabrics in a 4" channel quilt.
2. Submitted jacket with the outer shell containing Gore-Tex, and a zip in liner consisting of nylon/Thermolite/mesh - quilted through in a 6" diamond quilt pattern.
3. Submitted liner only.

TEST RESULTS

Sample Number	Thickness cm	CLO(warmth) I <sub>c</sub>
1.	1.50	2.3
2.	1.53	1.7
3.	0.95	1.4

Sample Number	Weight (Insulation Only) g/m <sup>2</sup>
1.	210
2.	175

G.C. Meyer  
Insulation Products Project

All statements, technical information and recommendations contained herein are based on tests manufacturer believes to be reliable, but the accuracy of completeness thereof is not guaranteed. Before using or specifying the product, user shall determine the suitability of the product for intended use. User assumes all risks and liabilities whatsoever in connections with the use or specification of the product. No warranty is made by seller or manufacturer for fitness of purpose, either express or implied.

The results of this customer service request pertain only to the specific materials tested. All data, samples and thermograms are generated for the internal use of the requesting company only. The information in this customer service request is not to be used in promotional literature, publications or advertisements without the previous written consent of the Insulation Products Project, 3M Company.

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