

The Barrier Insulation: Technical Data



The Barrier TM -

Test Data Sheet

PATENT NO. 6,006,481

Test Methods:

The industry standard Thermal Conductivity and Resistance test method using ASTM Standard C-518 – “Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus” was used for testing.

Thermal Conductivity and Resistance Values

Test Type    K- Value BTU/hr ft Deg.F    Insulation from Conduction

ASTM C-518            0.6 in 3/8" Material

The industry standard Water Permeability Test Method (ICBO Sections 4.6.1 & 4.6.2) and Water Vapor Permeability Test Method (Procedure B of ASTM E96 were used for moisture transfer testing.

Water Permeability Transfer and Water Vapor Permeability Transfer Values

Permeance (grains/hr ft x 2 in. Hg)

0.000

Permeability (grains/hr ft x 2 in. Hg)

0.000

Additional Comments by testing facility:

“This products meets or exceeds the ICBO conditions for acceptance. At the end of 24 hours, there was NO indication that any water had dripped from the underside of the specimens. In fact a 3.5" head of water (rather than the required 2.0" head for 24 hours) was employed, with the same results after a period of 96 hours”.

All testing has been performed by an independent laboratory GEOSCIENCES LTD. – Laboratory Testing Division.

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## GEOSCIENCE LABORATORY ACCREDITATIONS

Geoscience's Thermal Property Testing Laboratory has received accreditation, certification, approval or acceptance from the following agencies:

California Energy Commission (CEC) and the Bureau of Home Furnishings.

Approved for the following tests:

ASTM C-167 Thickness and Density of Blanket

ASTM C-177 Guarded Hot Plate

ASTM C-236 Guarded Hot Box

ASTM C-518 Heat Flow Meter

National Voluntary Laboratory Accreditation Program (NVLAP-NIST).

Accredited for the following tests:

ASTM C-177 Guarded Hot Plate

ASTM C-236 Guarded Hot Box

ASTM E-136 Non-Combustibility

International Conference of Building Officials (ICBO) and Southern Building Code Congress International, Inc. (SBCCI).

Geoscience prepares R value test reports for insulation manufacturers and distributors which are in turn presented to ICBO and SBCCI (at their request). Geoscience has been surveyed by ICBO and Geoscience's reports are evaluated and accepted by that organization. Geoscience's reports are also evaluated and accepted by SBCCI.

MIL-C-45662A through Loral Aeronutronic (Aeronutronic Ford Corporation).

Geoscience has been certified in thermal conductivity and specific heat measurements under MIL-C-45662A by Aeronutronic Ford Corporation in connection with their USN Trident materials program. Geoscience measures thermal conductivity, specific heat and thermal diffusivity of ceramic insulators using ASTM C-177, ASTM C-2766 and transient slab method, respectively. Geoscience results are used as high accuracy quality control checks by the Navy.

Special Process Supplier's Certification through Aerojet Liquid Rocket Company.

Geoscience has been certified as a laboratory that can perform the following tests for the aerospace industry in connection with federal insulation programs:

Thermal conductivity ASTM C-177

Specific heat ASTM C-351

Ablation tests ASTM No. 67

The following is a list of organizations from whom Geoscience has received approval and recommendation:

Pacific Gas & Electric Company approves Geoscience as a qualified insulation testing laboratory.

Puget Sound Power approves Geoscience as a qualified testing laboratory.

San Diego Gas & Electric Company approves Geoscience as a qualified testing laboratory.

Oregon Department of Energy approves Geoscience as a qualified insulation testing laboratory.

Canadian General Standards Board has reviewed Geoscience's testing laboratory and finds it to be qualified to perform tests for Canadian insulation manufacturers.

ICI Fiberite has certified Geoscience as a high quality control laboratory service organization.

**Governmental Acceptance of Geoscience's Thermal Testing and Evaluation Capabilities** For over 30 years, Geoscience has performed contract research for governmental agencies such as AEC, ERDA, DOE, NASA, ONR, USAF, and the USN's Civil Engineering Laboratory at Port Hueneme in connection with thermal property measurement activities (thermal conductivity, thermal expansion coefficient, specific heat, emissivity, viscosity, etc.). The contract monitors of these agencies visit Geoscience to review measurement techniques. In all cases, over this long time period, the government has accepted and utilized Geoscience's data in energy and conservation programs (see, for example, the monograph NASA SP 5102).

Geoscience is also involved in a number of cooperative thermal property activities with institutional organizations and technical societies (i.e., the Canadian National Research Council, National Institute of Standards and Technology, ASTM C-16 Committee and ASHRAE).