SILICONE TREATED PERLITE- LOOSE FILL INSULATION

PRODUCT DESCRIPTION

Basic Use

Silicone Treated Perlite provides a quick, inexpensive and permanent method- for efficiently insulating masonry walls. Depending upon design conditions, reductions in heat. transmission of 50 percent or more may be obtained when perlite loose fill is used in the hollow cores of concrete block or cavity type masonry walls.

Limitations

Perlite Loose Fill insulation should be installed in well-sealed cavities and masonry unit walls as described under Item 5, Installation.

Composition and Materials

Perlite Loose Fill insulation is an inert volcanic glass expanded by a special heat process and treated with nonflammable silicone to improve water repellency.

Texture and Color

Silicone Treatment Perlite insulation is a white granular material.

Applicable Standards

Silicone Treated Perlite conforms with ASTM Specification C 549, Perlite Loose Fill Insulation; Federal Specification HH-I-574b; Thermal Insulation (Perlite); GSA Commercial Item Description A-A-903 Insulation, Thermal (Expanded Perlite). Acceptable in FHA Financed Housing-FHA Use of Materials Bulletin UM-37. Recommended by Brick Institute of America Technical Notes 21 and Expanded Shale, Clay and Slate Institute Bulletin No. 4 (July, 1972).

TECHNICAL DATA

Density

Recommended density range of 2-I1 Ibs/ft.^{3} (32-176 kg/m^3). ASTM C 520 Method of Test for Density of Granular Loose Fill lnsulations.

Thermal Conductivity At Various Densities: (See Table 1)

ASTM C 177 Method *of* Test for Thermal Conductivity of Materials by Means of the Guarded Hot Plate.

Table 1 and Table 2: As shown below:
ASTM C 136 Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates (When mechanical sieving device is used the sieving time should be 5 minutes and test sample should be 50 grams of material).

TABLE 1. THERMAL CONDUCTIVITY OF EXPANDED PERLITE
(AT VARIOUS DENSITIES)

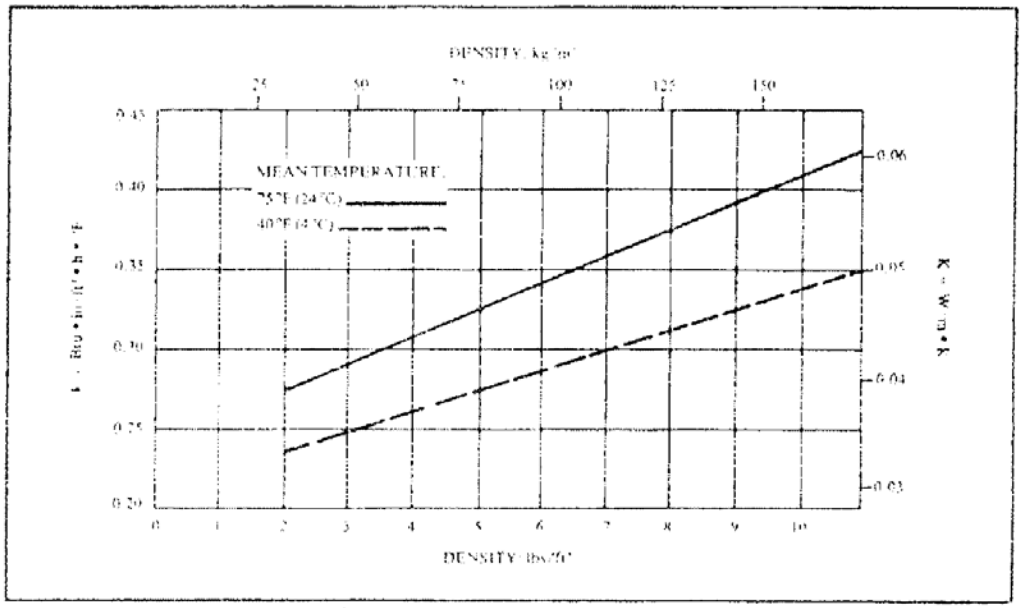

TABLE 2. THERMAL CONDUCTANCE/RESISTANCE*

Section Thickness of Perlite Loose Fill Insulation		Thermal Conductance "C"		Thermal Resistance "R"	
U.S.	(SI)	U.S.	(SI)	U.S.	(SI)
1 in.	(2.5 cm)	0.32	(1.82)	3.13	(0.55)
2 in.	(5.1 cm)	0.16	(0.91)	6.25	(1.10)
3 in.	(7.6 cm)	0.11	(0.61)	9.37	(1.65)
4 in.	(10.2 cm)	0.08	(0.45)	12.50	(2.20)
5 in.	(12.7 cm)	0.06	(0.36)	15.63	(2.75)
6 in.	(15.2 cm)	0.05	(0.30)	18.75	(3.30)
7 in.	(17.7 cm)	0.045	(0.26)	21.88	(3.85)
8 in.	(20.3 cm)	0.04	(0.23)	25.00	(4.40)

*"C" values expressed in Btu/h • ft² • °F (W/m²/K) were calculated using maximum thermal conductivity "k" factor of 0.32 Btu in/h • ft² • °F (.046 W/m K) at 75°F (24°C) mean temperature. "R" values expressed in h • ft² • °F/Btu (K • m²/W) were calculated using the formula R = 1/C.

Noncombustible

In accordance with ASTM E136: Behavior of Materials in a Vertical Tube Furnace at 750°C.

Fire Rating

Underwriters Laboratories Design No. U905 shows that a 2-hour rated 8 in. (20.32 cm) concrete block wall is improved to 4 hours when cores are filled with Silicone Treated Perlite.

Water Repellency

Silicone treated perlite minimizes water transmission-Laboratory tests on water transmission by Structural Clay Products Research Foundation show a cavity wall filled with Silicone Treated Perlite will not transmit water to the interior wythe even under the most severe conditions. Performance of over-all was rated "excellent" in accordance with procedures established by the National Bureau of Standards in BMS 82. However, it should be noted that silicone treated perlite insulation will not waterproof a poorly constructed masonry wall.

Permanency

Silicone Treated Perlite is inorganic and therefore rot, vermin and termite resistant and non-combustible with a fusion point of approximately 2300°F (1260°C). It is as permanent as the walls which contain it.

Non-Settling

Perlite Loose Fill supports its own weight in the wall without settling.

INSTALLATION

Location

The insulation shall be installed in the following locations:

1. In the cores of all exterior (and interior) hollow masonry unit walls.
2. In the cavity between all exterior (and interior) masonry walls.
3. Between exterior masonry walls and interior furring.

The insulation shall be poured directly into the wall at any convenient interval. Wall sections under doors and windows shall be filled before sills are placed.

All holes and openings in the wall through which insulation can escape shall be permanently sealed or caulked prior to installation of the insulation. Copper, galvanized steel, or fiber glass.

Method

Perlite Loose Fill Insulation cuts installation costs since it is lightweight and pours easily and quickly in place without need for special installation equipment or skills. The insulation may be poured directly into walls or emptied into a simple wood or metal hopper which can be slid along the wall to direct the perlite into cores or cavities. Perlite loose fill is free flowing and fills all voids without bridging.

AVAILABILITY AND COSTS

Availability

Silicone Treated Perlite insulation is available throughout the United States, Canada, Mexico, and other countries.

Cost

Contact local manufacturer.

GUARANTEE

Certificate of Conformance stating product conforms to the Standard Specifications for Silicone Treated Perlite Loose Fill Insulation as adopted and published by Perlite Institute, Inc. is available from the manufacturer.

MAINTENANCE

None required.

TECHNICAL SERVICES

Manufacturers of Silicone 'Treated Perlite Loose Fill Insulation maintain qualified technical representatives to assist in installation and advise on design requirements.

FILING SYSTEMS

SPEC-DATA"" 11. Sweet's Architectural Catalog File No. 7.14d/Pe.

Additional technical literature on Perlite Loose Fill Insulation is available on request front the Perlite Institute, Inc.

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