



1. Product Name

Polymaster® R-501 Foamed-In-Place Insulation

2. Manufacturer

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3. Product Description

BASIC USE

Polymaster R-501® foam insulation is a cost-effective, environmentally friendly thermal and acoustical insulating material designed for use in cavity, concrete block or frame walls. It can be used in new or retrofit commercial, residential and industrial applications.

Polymaster foam can be used to insulate concrete block by using top or side pressure fill techniques. It provides higher R-values than inserts or vermiculite and is easier to install. Polymaster insulation can be installed in 10' - 12' (3 - 4 m) lifts during construction. 6", 8" and 12" (152, 203 and 305 mm) block can be easily filled in both running bond or stacked configurations. Pressure fill applications require holes as small as 5/8" (15.9 mm) and no larger than 1" (25.4 mm) drilled directly into the masonry. Foam will fill the cavity up to 12' (4 m) in either vertical direction from the hole. Pressure filling generates a complete fill of the core and head joints as the application progresses down the run of the wall.

Polymaster foam completely fills the cavity between double walls, fascia walls or internal/external cosmetic walls, producing excellent sealing around fittings, conduit, fixtures and pipe chases, while still allowing the wall to weep as constructed. It can provide R-values comparable to, or higher than, rigid board insulation. Polymaster is acceptable for use under many fire codes.

Commercial structures can be easily retrofit with Polymaster foamed-in-place insulation to improve thermal and acoustical properties. It

provides high R-values and enhances the comfort and efficiency of the building. Polymaster can be installed easily, making it a cost-effective choice, especially for buildings that would require extensive renovation with other types of insulation.

Superior R-values can be obtained by pumping Polymaster foam into the frame wall stud cavity. It eliminates deficiencies commonly found with some insulation products, such as settling, collapsing and thermal drift.

COMPOSITION & MATERIALS

Polymaster R-501 is a 3-part polymer foamed-in-place plastic insulation consisting of a proprietary dry powder resin mixed with a catalyst and foamed with nitrogen or compressed air. The foam hardens through a chemical process similar to that of epoxy resin. Complete drying requires 72 hours or more, depending on local environmental conditions. Polymaster is shipped in dry powder form and has a 1 year shelf life.

LIMITATIONS

Polymaster foam should not be used in wall cavities that will not permit water vapor transmission during the initial 72 hour curing period.

4. Technical Data

APPLICABLE STANDARDS

ASTM International

- ASTM C518 Standard Test Method for Steady-State Heat Thermal Transmission Properties by Means of the Heat Flow Apparatus
- ASTM C1363 Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus (replaces ASTM C236)
- ASTM D2842 Standard Test Method for Water Absorption of Rigid Cellular Plastics
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials
- ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials
- ASTM E413 Standard Classification for Rating Sound Insulation
- ASTM D5116 Standard Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products



Typical installation technique for Polymaster R-501

ENVIRONMENTAL CONSIDERATIONS

Polymaster R-501 foam insulation is biodegradable. It is shipped in recyclable product containers.

PHYSICAL/CHEMICAL PROPERTIES

- Thermal properties R-value on 8 inch (203 mm) CMU at 105 pcf (1682 kg/m³) (ASTM C1363) - R-value 11.05 ft² x h x °F/Btu (1.94 m² x K/W)
- Thermal properties K-value and R-value per inch thickness at 25 degrees F (-4 degrees C) (ASTM C518) - K-value 0.216 Btu/(ft² x h x °F) (0.37 W/(m x K)), R-value 4.63 ft² x h x °F/Btu (0.81 m² x K/W)
- Thermal properties K-value and R-value per inch thickness at 75 degrees F (24 degrees C) (ASTM C518) - K-value 0.244 Btu/(ft² x h x °F) (0.42 W/(m x K)), R-value 4.09 ft² x h x °F/Btu (0.72 m² x K/W)
- Water vapor transmission (ASTM E96) - 4.655 grains/hr x ft²
- Permeance (ASTM E96) - 6.631 (381 ng/(Pa x s x m²)) perms/inch
- Water vapor absorption (ASTM D2842) - 10% by volume at 24 hours, at 25 degrees F (-4 degrees C), at 100% relative humidity
- Shrinkage - 2% maximum
- Sound Transmission Classification (STC) - 52 (Retrofoam)
- Corrosivity - Noncorrosive
- Asbestos or glass fiber content - None
- CFC content - None
- Biodegradability - Biodegradable

Test reports are available upon request.





Polymaster foam completely fills CMU cavities.

FIRE PERFORMANCE

- Surface burning characteristics (ASTM E84) - Flamespread 20, smoke developed 50, thickness 4" (101.6 mm). Building code surface burning classification: Class I or Class A
- 4 hour fire resistance rated masonry wall design - Standard 8" (203 mm), 105 pcf (1682 kg/m³) density block with 30.5% grouted cells. See NCMA TEK 7-1A, 1999

SOUND PERFORMANCE

When tested according to ASTM E413, 3 1/2" (89 mm) stud frame cavity walls have achieved a rating of STC 44. When tested



Polymaster R-501 applied in wythe cavity

according to ASTM E90, 3 1/2" (89 mm) stud frame cavity walls have achieved a rating of STC 52 (Retrofoam).

5. Installation

PREPARATORY WORK

Handle and store product according to Polymaster recommendations. Ensure cores or spaces are free of mortar or other restrictions to the free flow of foam insulation. Verify that all work within the wall voids is complete prior to installation. Allow masonry mortar to set prior to installing insulation. Select the most aesthetically pleasing locations for foam injection, including locations to be concealed where possible, such as: masonry joints, wythe side of walls and covered side of walls.

For pressure fill installation, drill fill holes into CMU cores. Drill hole size: minimum diameter 5/8" (15.9 mm), maximum diameter 1" (25.4 mm).

METHODS

Install foam insulation in CMU cores to a uniform density using the pressure fill method or the top fill method. Completely fill all spaces, crevices and voids. If pressure fill method is used, fill and point drill holes in masonry units with mortar after installation.

Verify insulation density of each foam batch by random sampling of foam before installation. Fill a 1 gal (3.8 L) nonsealing plastic bag with foam. The bag weight shall be between 285 - 325 grams.

Verify complete filling of voids by drilling or removal of block face. Fill and point drill holes in masonry with mortar after inspection. Correct any foam installation found to be noncompliant with manufacturer's requirements. Complete installation recommendations are available from the manufacturer.

PRECAUTIONS

Do not install foam insulation when product temperature is below 50 degrees F (10 degrees C).

BUILDING CODES

Comply with the requirements of applicable code jurisdictions.

6. Availability & Cost

AVAILABILITY

Polymaster is available through a network of authorized installers. Contact manufacturer for more information.

COST

Budget installed cost information may be obtained from the manufacturer.

7. Warranty

Contact manufacturer for complete warranty details.

8. Maintenance

No specific maintenance is required.

9. Technical Services

Factory trained service personnel offer design assistance and technical support. For technical assistance, contact Polymaster or an authorized Polymaster R-501 installer.

10. Filing Systems

- SmartBuilding Index (SBI)
- MANU-SPEC®
- Additional product information is available from the manufacturer upon request.