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# Standard Specifications for CELLULAR GLASS THERMAL INSULATION FOR PIPES<sup>1</sup>



ASTM Designation: C 381 - 58

ADOPTED, 1958.<sup>2</sup>

This Standard of the American Society for Testing Materials is issued under the fixed designation C 381; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

## Scope

1. These specifications cover the composition, sizes, dimensions, and physical properties of cellular glass intended for thermal pipe insulation, for use on surfaces operating at temperatures between  $-300$  and  $+800$  F. For specific applications, the actual temperature limits shall be agreed upon between the manufacturer and the purchaser.

## Definitions

2. The Definitions of Terms Relating to Thermal Insulating Materials (ASTM Designation: C 168)<sup>3</sup> shall be considered as applying to the terms used in these specifications.

## Materials and Manufacture

3. Cellular glass thermal insulation for pipes shall be fabricated from standard cellular glass insulating block. The block shall consist of true glass compo-

sitions of high durability, processed by fusion, comprising a homogenous rigid cellulated mass of hermetically sealed cells:

## Physical Requirements

4. The insulation shall conform to the following physical requirements:

Density (average), lb per cu ft . . . . .	8 to 10
Thermal conductivity (average), max, Btu in. per hr sq ft deg Fahr:	
At mean temperature of 0 F . . . . .	0.35
At mean temperature of 70 F . . . . .	0.39
At mean temperature of 100 F . . . . .	0.41
At mean temperature of 300 F . . . . .	0.55

## Sizes and Dimensions

5. (a) Cellular glass pipe insulation shall be furnished in 18-in. lengths to fit all sizes of pipe and tubing  $\frac{1}{4}$  in. nominal diameter and larger.

(b) Each section shall be true to shape and roundness and shall be fabricated to fit all nominal size pipe and standard tubing. The outside diameter of the insulation shall be fabricated in accordance with recommended dimensional standards practice.

(c) The length of the segments shall have a tolerance of  $\pm\frac{1}{16}$  in. of the specified length. The wall thickness

<sup>1</sup> Under the standardization procedure of the Society, these specifications are under the jurisdiction of the ASTM Committee C-16 on Thermal Insulating Materials.

<sup>2</sup> Prior to adoption as standard, these specifications were published as tentative from 1956 to 1958.

<sup>3</sup> Appears in this publication, see Contents in Numeric Sequence of ASTM Designations at front of book.