Physical Properties of Insulfoam Expanded Polystyrene, EPS

FEDERAL SPECIFICATIONS: INSULFOAM PRODUCTS MEET ASTM C578 (Supersedes Federal Specification HH-I-524C)

PROPERTY		ASTM TEST	TYPE I	TYPE VIII	TYPE II	TYPE IX
TYPICAL TESTED R-Values for use in thermal resistance design calculations						
R-Value* Normal density lb/ft³		C177/C 518	1.00	1.25	1.5	2.0
Thermal Resistance		AT 40° F	4.17	4.25	4.55	4.76
per 1.00 in. thickness		AT 75° F	3.85	3.92	4.17	4.35
PHYSICAL REQUIREMENTS OF INSULFOAM Thermal Insulation Meeting ASTM C 578 Minimum and Maximum allowable values.						
Density, Minimum lb/ft³		C303/D 1622	0.9	1.15	1.35	1.8
Thermal Resistance		C177/C 518				
1.00 IN, (25.4mm) thickness		AT 40 F	4.0	4.2	4.4	4.6
Minimum* F•ft²•h/Btu		AT 75 F	3.6	3.8	4.0	4.2
Compressive resistance at yields or 10% deformation, whichever occurs first (with skins intact), minimum psi		C 165/D 1621	10.0	13.0	15.0	25.0 -33
Flexural strength, minimum psi		C 203	25.0	30.0	40.0	50.0
Water Vapor permeance of 1.00 in (25.4 mm) thickness max. perm		E 96	5.0	3.5	3.5	2.0
Water Absorption by total immersion maximum volume %		C272	4.0	3.0	3.0	2.0
Dimensional Stability (change in dimensions) maximum %		D 2126	2.0	2.0	2.0	2.0
Oxygen Index, minimum %		D 2863	24.0	24.0	24.0	24.0
Maximum Use Temperatures						
Continuous Exposure	°F.	–	167°	167°	167°	167°
Intermittent Exposure	°F.	–	180°	180°	180°	180°
Fungus & Bacterial Resistance		FHA Test Procedure	Will not support bacteria or fungus No food value			
Buoyancy-Flotation	lbs./cu. ft.		60 lbs./cubic foot			

BUILDING CODE CLASSIFICATION
ICBO Research Report No 4169
Factory Mutual No. 4450
* Typical Tested R-Values are based on data provided by ARCO Chemical Co., BASF Corp. and Huntsman Chemical Company

FLAMMABILITY PROPERTIES

Board Thickness	1" Max.	2" Max.	4" Max.	1" Max.
Board Density, PCF	1.0	1.0	1.0	1.5
FIRE HAZARD CLASSIFICATIONS				
Flame Spread	5-10	5-10	10-15	5-10
Fuel Contributed	ND	ND	ND	ND
Smoke Developed	15-125	40-125	40-125	15-50

ASTM tests are used solely to measure and describe properties in response to heat and flame under controlled laboratory conditions.
Flame spread, fuel contributed and smoke developed ratings derived are not intended to reflect hazards under actual fire conditions.
SELECTION OF PROPER INSULFOAM DENSITY: The standard INSULFOAM density will range between 1 lbs. and 1.25 lbs. per cubic foot and is generally more than adequate relative to compressive strength, moisture absorption, and water vapor transmission. However under certain conditions, higher densities may be desirable, i.e. concentrated loading areas, and/or under high impact traffic areas.
FIRE HAZARD CLASSIFICATION: UL Procedure 723. ASTM E-84

LIMITED WARRANTY AND REMEDY

Western Insulfoam warrants to the original purchaser for a period of one year from the date of delivery to that purchaser that our expanded polystyrene (EPS) products are manufactured in accordance with our specifications and are free from defects in workmanship and materials using those specifications as standards. Western Insulfoam makes no other representation or warranty of any kind, express or implied, in fact or in law, including, without limitation, the warranty of merchantability or warranty of fitness for a particular purpose, other than the limited warranty set forth in the preceding sentence. The limit and exclusive remedy for our liability shall be to supply an equivalent amount of product for any material returned to us within one year of shipment to the original purchaser and found to be defective by us, regardless of whether the defect was latent or obvious. Replacement of a nonconforming product is the purchaser's or user's exclusive remedy and we will not be responsible for any consequential damage, loss or injury of any kind.
Western Insulfoam does not practice engineering or architecture. No agent, salesman, or representative is empowered to change, alter or amend the above statements unless done in writing by a duly authorized officer of Western Insulfoam.

FLAMMABILITY WARNING

Western Insulfoam's expanded polystyrene (EPS) products are combustible, as are all organic materials. They must not be stored or installed near open flame or any other source of ignition. In addition, when EPS insulation board is installed in the interior of any occupied structure, it must be protected by a proper thermal barrier and the installer must review applicable local, state and federal building codes to determine the correct thermal barrier for the particular application.

ADJOINING MATERIALS WARNING

Expanded polystyrene (EPS) is subject to attack by liquid solvents or by most solvent based adhesives and other liquid products such as gas, diesel, etc. Care should also be taken to separate any coal tar pitch products or coal tar pitch vapors from any direct contact with EPS foam.