

Guide to Insulation Product Specifications

Introduction

The *Guide to Insulation Product Specifications* was updated by the National Insulation Association Technical Information Committee in July 2018 after their meeting. This guide lists ASTM, federal and military specifications that pertain to the thermal insulation industry. It encompasses both industrial and commercial mechanical insulations as well as building envelope and fire resistance insulations. Related application and finishing accessory materials also are included.

Some government construction agencies (General Services Administration, Department of Housing and Urban Development, Department of Defense, Corps of Engineers, etc.) issue specifications or standards that designate insulation materials. This guide is intended to serve the limited purpose of describing, in a general way, the specifications and standards so designated. It should be kept in mind that the materials listed in this guide are subject to change, as are the specifications and standards themselves. Users are encouraged to review the current version of the applicable specification and/or standard.

This guide organizes each specification by type (ASTM, federal, or military), number and title and describes its scope. NIA Associate Members that manufacture products that claim conformance to the referenced specification are listed below each specification.

Do not rely upon the guide to determine whether a product meets contract specifications or to obtain approvals under purchase orders or contracts. These determinations must be made by careful examination of the contract specifications, the manufacturer's literature, and the provision of the government specification or standard referred to in the contract documents. For specific product information and specifications compliance, consult the particular manufacturer.

Ordering Information

To order a copy of an ASTM specification, contact the following:

Order Department

ASTM International

100 Barr Harbor Drive

West Conshohocken, PA 19428

Tel: (610) 832-9585; Fax (610) 832-9555

www.astm.org

Requests for copies of federal and military specifications should be made on company letterhead and sent to the following address:

700 Robbins Ave.

Philadelphia, PA 19111-5094

(Allow 8-10 working days for processing)

Hard copies of this guide can be downloaded from the NIA website at www.insulation.org:

NIA

516 Herndon Parkway., Suite D

Herndon, VA 20170

Tel: (703) 464-6422; Fax: (703) 464-5896

www.insulation.org

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Federal Specifications

HH-P-31F	Packing and Lagging Material, Fibrous Glass Metallic and Plain Cloth and Tape
L-T-80B	Tape, Pressure-Sensitive Adhesive (Aluminum-Backed)
SS-S-111C	Sound Controlling Materials (Trowel and Spray Applications)

Replacement Information for Federal Specifications

HH-B-100B	Canceled. Replaced by ASTM C 1136. Barrier Material, Vapor (for Pipe, Duct and Equipment Thermal Insulation)
HH-I-515E	Canceled. Replaced by ASTM C 739. Insulation, Thermal (Loose Fill For Pneumatic or Poured Application): Cellulosic or Wood Fiber

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HH-I-521F	Canceled. Replaced by ASTM C 665. Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures)
HH-I-523C	Canceled. Replaced by ASTM C 533. Insulation, Block and Pipe Covering, Thermal (Calcium Silicate for Temperatures to 1,200°F)
HH-I-524C	Canceled. Replaced by ASTM C 578. Insulation Board, Thermal (Polystyrene)
HH-I-525A	Canceled. Replaced by ASTM C 640. Insulation Board, Thermal (Cork)
HH-I-526C	Canceled. Replaced by ASTM C 726. Insulation Board, Thermal (Mineral Fiber)
HH-I-592B	Canceled. Replaced by ASTM C 728. Insulation Board, Thermal (Mineral Aggregate)
HH-I-530B	Canceled. Replaced by ASTM C 591. Insulation Board, Thermal, Unfaced (Polyurethane or Polyisocyanurate)
HH-I-545B	Canceled. Replaced by ASTM C 1071. Insulation, Thermal and Acoustical (Mineral Fiber, Duct Lining Material)
H-I-551E	Canceled. Replaced by ASTM C 552. Insulation, Block and Board, Thermal (Cellular Glass)
HH-I-558C	Last revised January 1992. Replaced by numerous ASTM documents. Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type)
HH-I-573B	Canceled. Replaced by ASTM C 534. Insulation, Thermal (Flexible Unicellular Sheet and Pipe Covering)
HH-I-574B	Canceled. Replaced by ASTM C 549. Insulation, Thermal (Perlite)
HH-I-585C	Canceled. Replaced by ASTM C 516. Insulation, Thermal (Vermiculite)
HH-I-1030B	Canceled. Replaced by ASTM C 764. Insulation, Thermal (Mineral Fiber, for Pneumatic or Poured Application)
HH-I-1252B	Canceled. No Replacement. Insulation, Thermal, Reflective (Aluminum Foil)
L-P-535E	Inactive. Plastic Sheet (Sheeting); Plastic Strip; Poly (Vinyl Chloride) and Poly (Vinyl Chloride-Vinyl Acetate), Rigid
LLL-I-535B	Canceled. Replaced by ASTM C 208, and others. Insulation Board, Thermal (Cellulosic Fiber)
SS-C-160A	Canceled. Replaced by ASTM C 195. Cements, Insulation Thermal Heat-resisting cements.

Military Specifications

MIL-A-23054A	Acoustic Absorptive Board, Fibrous Glass Perforated Fibrous Glass Cloth Faced
MIL-A-24179A	Adhesive, Flexible Unicellular-Plastic Thermal Insulation
MIL-A-24699	Acoustical Transmission Loss Barrier Material
MIL-A-3316C	Adhesive, Fire-Resistant, Thermal Insulation
MIL-C-2861E	Cement, Insulation, High Temperature
MIL-C-19565C	Coating Compounds, Thermal Insulation, Fire- and Water-Resistant, Vapor-Barrier
MIL-C-20079H	Cloth, Glass; Tape, Textile Glass; and Thread, Glass and Wire-Reinforced Glass
MIL-C-24576A	Cloth, Silica Glass; Cloth, Coated, Glass, Silicone-Rubber Coated
MIL-I-742F	Insulation Board, Thermal, Fibrous Glass
MIL-I-2781F	Insulation, Pipe, Thermal
MIL-I-2818 C	Insulation Blanket, Thermal, Fibrous Mineral
MIL-I-2819F	Insulation Block, Thermal
MIL-I-13042A	Insulation Sleeving, Thermal, Tubular Flexible
MIL-I-15475C	Insulation Felt, Thermal, Fibrous Glass, Semi-rigid
MIL-I-16411F	Insulation Felt, Thermal, Glass Fiber
MIL-I-16562A	Insulation, Synthetic, Rubber-Like, Chemically Expanded, Cellular (Sheet Form)
MIL-I-22023D	Insulation Felt, Thermal and Sound Absorbing Felt, Fibrous Glass, Flexible
MIL-I-22344D	Insulation, Pipe, Thermal, Fibrous Glass
MIL-I-23128B	Insulation Blanket, Thermal, Refractory Fiber, Flexible
MIL-DTL-24244D (SH)	Insulation Material, with Special Corrosion, Chloride, and Fluoride Requirements
MIL-S-24149C	Studs, Welding, and Arc Shields (Ferrules)
MIL-T-23397B	Tapes, Pressure Sensitive Adhesive for Masking During Paint Stripping Operations
MIL-W-23680E	Stud Welding Systems, DC, Integral Power Source and Control Unit, Electric Arc and Capacitor Discharge
MIL-W-80110C	Stud Welding Units, Independent DC Power Source with Separate Control Unit, Electric Arc
MIL-Y-1140H	Yarn, Cord, Sleeving, Cloth, and Tape—Glass
ELECTRIC BOAT SPECIFICATION – EB 4013	Anti-Sweat and Refrigerant Insulation Systems (Sheet and Tubes)
DOD-I-24688 / MIL-DTL-24688A	Insulation; Polyimide, Sheet and Tube

Replacement Information for Military Specifications

MIL-P-15280J	Inactive. Plastic Material, Unicellular (Sheets and Tubes)
MIL-B-5924B	Canceled. Replaced by ASTM C 800. Batting, Insulation, Glass Fibers

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Miscellaneous Specifications and Standards

American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE)
Corps of Engineers, Department of the Army
Energy Codes
Federal Construction Guide Specifications (FCGS)
Manufacturers Standardization Society of the Valve and Fitting Industry, Inc.
Midwest Insulation Contractors Association (MICA)
Model Building Codes
National Insulation Association (NIA)
Naval Facilities Engineering Command
Nuclear Regulatory Commission
National Fire Protection Association (NFPA)
SCAQ MD
U.S. Coast Guard

A Listing of Guides, Practices and Test Methods Available Through ASTM

The following selected ASTM standards describe test methods and practices to determine specific characteristics of building and construction materials and shall not be used to specify materials. These methods may be referenced in ASTM standards or other specification and standards. ASTM standards must be reviewed every five years and, if not revised, either approved again or withdrawn.

Standards pertaining to thermal insulation generally are developed by ASTM Committee C-16 on Thermal Insulation and thus are identified with the prefix C followed by a three- or four-digit number. A two-digit number following the dash (omitted in this document) indicates the year that the standard was adopted or, if revised, the year of last revision.

Users are advised to refer to the current version of the standard in effect at the time of preparation of purchase documents and specifications.

C165	Test Method for Measuring Compressive Properties of Thermal Insulations.
C167	Test Methods for Thickness and Density of Blanket or Batt Thermal Insulations.
C168	Terminology Relating to Thermal Insulating Materials
C177	Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus
C203	Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
C209	Test Methods for Cellulosic Fiber Insulation Board
C240	Test Methods of Testing Cellular Glass Insulation Block
C302	Test Method for Density and Dimensions of Preformed Pipe-Covering-Type Thermal Insulation
C303	Test Method for Density and Dimensions of Preformed Block-Type Thermal Insulation
C335	Test Method for Steady-State Heat Transfer Properties of Horizontal Pipe Insulation
C356	Test Method for Linear Shrinkage of Preformed High-Temperature Thermal Insulation Subjected to Soaking Heat
C390	Criteria for Sampling and Acceptance of Preformed Thermal Insulation Lots
C411	Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation
C419	Practice for Making and Curing Test Specimens of Mastic Thermal Insulation Coatings
C423	Test Method for Sound Absorption and Sound Absorption Coefficiencies by the Reverberation Room Method
C447	Practice for Estimating the Maximum Use Temperature of Thermal Insulations
C450	Practice for Prefabrication and Field Fabrication of Thermal Insulating Fitting Cover for NPS Piping, Vessel Lagging, and Dished Head Segments
C461	Test Methods for Mastics and Coatings Used with Thermal Insulation
C488	Test Method for Conducting Exterior Exposure Tests of Finishes for Thermal Insulation
C518	Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
C585	Practice for Inner and Outer Diameters of Rigid Thermal Insulation for Nominal Sizes of Pipe and Tubing (NPS System)

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C634	Terminology Relating to Environmental Acoustics
C647	Guide to Properties and Tests of Mastics and Coating Finishes for Thermal Insulation
C653	Guide for Determination of the Thermal Resistance of Low-Density Blanket-Type Mineral Fiber Insulation
C680	Practice for Determination of Heat Gain or Loss and the Surface Temperatures of Insulated Pipe and Equipment Systems by the Use of a Computer Program
C692	Test Method for Evaluating the Influence of Thermal Insulations on the External Stress Corrosion Cracking Tendency of Austenitic Stainless Steel
C740	Practice for Evacuated Reflective Insulation in Cryogenic Service
C755	Practice for Selection of Vapor Retarders for Thermal Insulation
C795	Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel
C871	Test Methods for Chemical Analysis of Thermal Insulation Materials for Leachable Chloride, Fluoride, Silicate, and Sodium Ions
C921	Practice for Determining the Properties of Jacketing Materials for Thermal Insulation
C929	Practice for Handling, Transporting, Shipping, Storage, Receiving, and Application of Thermal Insulation Materials to Be Used Over Austenitic Stainless Steel
C930	Classification of Potential Health and Safety Concerns Associated with Thermal Insulation Materials and Accessories
C1045	Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements
C1058	Practice for Selecting Temperatures for Evaluating and Reporting Thermal Properties of Thermal Insulation
C1101/C1101M	Test Methods for Classifying the Flexibility or Rigidity of Mineral Fiber Blanket and Board Insulation
C1104/C1104M	Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation
C1129	Standard Practice for Estimation of Heat Savings by Adding Thermal Insulation to Bare Valves and Flanges
C1136	Flexible, Low Permeance Vapor Retarders for Thermal Insulation
C1139	Fibrous Glass Thermal Insulation and Sound Absorbing Blanket and Board for Military Applications
C1199	Standard Test Method for Measuring the Steady-State Thermal Transmittance of Fenestration Systems Using Hot Box Methods
C1335	Test Methods for Measuring Non-Fibrous Content of Man-made Rock and Slag Mineral Fiber Insulation
C1338	Test Method for Determining Fungi Resistance of Insulation Materials and Facings
C1363	Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box
C1617	Standard Practice for Quantitative Accelerated Laboratory Evaluation of Extraction Solutions Containing Ions Leached from Thermal Insulation on Aqueous Corrosion of Metals
C1639	Standard Specification for Fabrication of Cellular Glass Pipe and Tubing Insulation
C1676	Standard Specification for Microporous Thermal Insulation
C1728	Standard Specification for Flexible Aerogel Insulation
C1729	Standard Specification for Aluminum Jacketing for Insulation
C1767	Standard Specification for Stainless Steel Jacketing for Use over Thermal Insulation
D792	Test Methods for Density and Specific Gravity Cellular Density of Plastics by Displacement
D1621	Test Method for Compressive Properties of Rigid Cellular Plastics
D1622	Test Method for Apparent Density of Rigid Cellular Plastics
D2126	Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
E84	Test method for Surface Burning Characteristics of Building Materials
E90	Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions
E96	Test Method for Water Vapor Transmission of Materials
E119	Test Method for Fire Tests of Building Construction and Materials
E136	Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
E176	Terminology Related to Fire Standards
E477	Test Method for Measuring Acoustical and Airflow Performance of Duct Liner Materials and Prefabricated Silencers
E814	Test Method for Fire Tests of Through-Penetration Fire Stops
E2231	Standard Practice for Specimen Preparation and Mounting of Pipe and Duct Insulation Materials to Assess the Surface Burning Characteristics
F683	Practice for Selection and Application of Thermal Insulation for Piping and Machinery

ASTM Specifications and Conforming Products from NIA members

This guide organizes each specification by type (ASTM, federal, or military), number, title, and describes its scope. NIA Associate Members that manufacture products that claim conformance to the referenced specification are listed below each specification.

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A240/A240M**Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels**

Covers chromium, chromium-nickel, and chromium-manganese-nickel stainless and heat-resisting steel plate, sheet, and strip for pressure vessels.

- ITW Insulation Systems/Pabco-Childers Metals
- R.P.R. Products, Inc.

A653/A653M**Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process**

- R.P.R. Products, Inc.

A792/A792M**Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process**

- ITW Insulation Systems/Pabco-Childers Metals
- R.P.R. Products, Inc.

B209**Aluminum and Aluminum-Alloy Sheet and Plate [Metric]**

Covers aluminum and aluminum alloy flat sheet, coiled sheet, and plate.

- ITW Insulation Systems/Pabco-Childers Metals
- R.P.R. Products, Inc.

C195**Mineral Fiber Thermal Insulating Cement**

Covers mineral fiber thermal insulating materials in the form of dry cement which, when mixed with a suitable proportion of water, applied as a plastic mass, and dried in place, affords resistance to heat transmission on surfaces operating at temperatures between 100° and 1,600°F. Replaces federal specification Ss-C-160A in part.

C196**Expanded or Exfoliated Vermiculite Thermal Insulating Cement**

Covers expanded or exfoliated vermiculite thermal insulating material in the form of dry cement or plaster, intended to be mixed with a suitable proportion of water, applied as a plastic mass, and dried in place, for use as insulation on surfaces operating at temperatures between 100° and 1,800°F. The cement shall not be used where it will be exposed to combustion conditions, such as the hot face lining of a furnace. Replaces federal specification SS-C-160A in part.

C208**Cellulosic Fiber Insulation Board**

Covers the principal types, grades, and sizes of insulating board.

- Type I—Sound deadening board
- Type II—Roof insulation board
- Type III—Ceiling tiles and panels
- Type IV—Wall sheathing
- Type V—Backer board
- Type VI—Roof deck

C449/C449M**Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement**

Covers mineral fiber insulating and finishing cement, shipped in dry mix form, including hydraulic-setting binder, which when mixed with water and applied in accordance with the manufacturer's direction, affords a smooth surface as a final finish for heated surfaces between 100° and 1,200°F. Replaces federal specification SS-C-160A in part.

- Johns Manville/Industrial Insulation Group

C516**Vermiculite Loose Fill Thermal Insulation**

Covers expanded or exfoliated vermiculite loose fill insulation for use at temperatures ranging from -459° to 1,400°F. Replaces federal specification HH-I-585.

- Type I—Untreated

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Type II—Surface treated

C533

Calcium Silicate Block and Pipe Thermal Insulation

Covers calcium silicate block and pipe thermal insulation for use on surfaces with temperatures between 80 °F and 1700 °F. Replaces federal specification HH-I-523. Maximum density of less than 15 pcf.

Type Ia—Up to 1,200°F Pipe and Block

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com

Type II—Up to 1,700°F

- Johns Manville/Industrial Insulation Group

C534

Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form

Covers preformed flexible elastomeric cellular thermal insulation in sheet and tubular form for use on surfaces operating up to 350°F. Replaces federal specification HH-I-573.

Type I—Tubular

Grade 1—Regular

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

Grade 2—High Temperature

- Armacell LLC

Grade 3—Non-halogen

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

Type II—Sheet

Grade 1—Regular

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

Grade 2—High Temperature

- Armacell LLC

Grade 3—Non-halogen

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

C547

Mineral Fiber Preformed Pipe Insulation

Covers mineral fiber preformed pipe insulation for use on surfaces up to 1,200°F. Within each type, there are also different grades available.

Type I—Up to 850°F (molded)

- CertainTeed
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.

Type II—Up to 1,200°F (molded)

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com

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- Rock Wool Manufacturing Co.
 - Roxul, Inc.
- Type III—Up to 1,200°F (V-groove)
- Johns Manville/Industrial Insulation Group
 - Rockfibras Do Brazil Ind Com
 - Rock Wool Manufacturing Co.
- Type IV— Up to 1,000°F
- Johns Manville/Industrial Insulation Group
 - Knauf Insulation
 - Rockfibras Do Brazil Ind Com
 - Roxul, Inc.
- Type V—Up to 1,400°F
- Rockfibras Do Brazil Ind Com
 - Roxul, Inc.

C549

Perlite Loose Fill Insulation

Covers expanded perlite loose fill insulation for use up to 1,400°F. Replaces federal specification HH-I-574.

Type I—Untreated

- Johns Manville/Johns Manville/Industrial Insulation Group

Type II—Surface treated to produce water repellency

Type III—Surface treated to limit dust generated during application

Type IV—Surface treated to produce water repellency and limit dust generated during application.

C552

Cellular Glass Thermal Insulation

Covers cellular glass insulation for use at temperatures up to 800°F. Replaces federal specification HH-I-551.

Type I—Flat Block

- Pittsburgh Corning LLC

Type II—Pipe and tubing insulation

- Pittsburgh Corning LLC

Type III—Special Shapes

- Pittsburgh Corning LLC

Type IV—Board

- Pittsburgh Corning LLC

C553

Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications

Covers mineral fiber blanket intended for use at temperatures up to 1,200°F

Type I—Maximum use 450°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type II—Maximum use 450°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation

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- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type III—Maximum use 450°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type IV—Maximum use 850°F

- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type V—Maximum use 1,000°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type VI—Maximum use 1,000°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type VII—Maximum use 1,200°F

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

C578

Rigid, Cellular Polystyrene Thermal Insulation

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Covers cellular polystyrene for use at temperatures up to 165°F. Replace federal specification HH-I-524. Specification covers various types of rigid cellular polystyrenes that are commercially available. See specification for description of each type.

Type I-VII is EPS – Polystyrene for Pipe Insulation.

Type XIII is extruded polystyrene (XPS) billet available at various thicknesses of 7-10 inches

- ITW Insulation Systems
- Polyguard Products

Types XII, X, IV, VI, VII, and V are extruded polystyrene (XPS) boards available at various thicknesses up to 4 inches

- Knauf Insulation
- Owens Corning

C591

Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation

Covers unfaced, preformed rigid cellular polyisocyanurate plastic material intended for use at temperatures up to 300°F. Replaces federal specification HH-I-530.

Type I—Minimum compressive resistance of 16 psi.

- Dyplast Products, LLC
- ITW Insulation Systems

Type II—Minimum compressive resistance of 35 psi.

- Duna-USA
- Dyplast Products, LLC
- ITW Insulation Systems

Type III—Minimum compressive resistance of 45 psi.

- Duna-USA
- Dyplast Products, LLC
- ITW Insulation Systems

Type IV—Minimum compressive resistance of 21 psi

- Duna-USA
- Dyplast Products, LLC
- ITW Insulation Systems

Type V—Minimum compressive resistance of 80 psi.

- Dyplast Products, LLC
- ITW Insulation Systems

Type VI—Minimum compressive resistance of 125 psi.

- Dyplast Products, LLC
- ITW Insulation Systems

C592

Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type)

Covers metal-mesh covered mineral fiber blanket and blanket-type insulation for use at temperatures up to 1,200°F.

Type I—Maximum use 850°F

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type II—Maximum use 1,200°F

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type III—Maximum use 1200°F

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com

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- Roxul, Inc.

C610

Molded expanded Perlite Block and Pipe Thermal Insulation

Covers expanded perlite block and pipe insulation for use at temperatures up to 1,200°F.

- Johns Manville/Industrial Insulation Group
- ITW Insulation Systems

C612

Mineral Fiber Block and Board Thermal Insulation

Covers mineral fiber board insulation for use at temperatures up to 1,800°F.

Type IA, IB—Maximum use 450°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type II—Maximum use 850°F

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type III—Maximum use 1,000°F

- Knauf Insulation
- Johns Manville/Industrial Insulation Group
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type IVa, IVb—Maximum use 1,200°F

- Johns Manville/Industrial Insulation Group
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type V—Maximum use 1,800°F

- Rock Wool Manufacturing Co.
- Thermafiber, Inc.

C656

Structural Insulating Board, Calcium Silicate

Covers structural insulating board for use in general insulation, fire-resistive, and marine-bulkhead applications at temperatures up to 1,700°F.

Type I—For use up to 1,400°F

Type II—For use up to 1,700°F

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- Grade 1—Typical density 36 lb./ft³
- Grade 2—Typical density 46 lb./ft³
- Grade 3—Typical density 60 lb./ft³
- Grade 4—Typical density 14 lb./ft³
 - Johns Manville/Industrial Insulation Group
- Grade 5—Typical density 18 lb./ft³
 - Johns Manville/Industrial Insulation Group
- Grade 6—Typical density 28 lb./ft³
 - Johns Manville/Industrial Insulation Group
- Grade 7—Typical density 40 lb./ft³
 - Johns Manville/Industrial Insulation Group
- Grade 8—Typical density 60 lb./ft³
 - Johns Manville/Industrial Insulation Group

C665

Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing

Covers mineral fiber blanket insulation used to thermally or acoustically insulate ceilings, floors, and walls in light frame construction and manufactured housing. Replaces federal specification HH-I-521.

Type I—Blankets without membrane coverings

- CertainTeed Corp.
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.

Type II—Blankets with a nonreflective vapor-retarder membrane covering one principal face

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Thermafiber, Inc.

Type III—Blankets with a reflective vapor-retarder covering on principal face

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.
- Thermafiber, Inc.

C667

Prefabricated Reflective Insulation Systems for Equipment and Pipe Operating at Temperatures Above Ambient Air

Covers metal prefabricated, reflective insulation systems for equipment and piping operating at temperatures above ambient in air.

C726

Mineral Wool Roof Insulation Board

Covers mineral wool insulation board used principally above structural roof decks as a base for built-up roofing. Replaces federal specification HH-I-526.

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- Johns Manville Corp.
- Rockfibras Do Brazil Ind Com
- Roxul, Inc.

C728

Perlite Thermal Insulation Board

Covers perlite thermal insulation board used principally above structural roof decks and as a base for built up, modified, and elastomeric membrane roofing. Replaces federal specification HH-I-529.

- ITW Insulation Systems
- Johns Manville Corp.

C764

Mineral Fiber Loose-Fill Thermal Insulation

Covers nodulated mineral fiber thermal insulation for use in attics or enclosed spaces in housing and other framed buildings. Replaces federal specification HH-I-1030.

Type I—Pneumatic application

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Thermafiber, Inc.

Type II—Poured application

- Rockfibras Do Brazil Ind Com
- Thermafiber, Inc.

C800

Glass Fiber Blanket Insulation (Aircraft Type)

Covers glass fiber blanket thermal and acoustical insulation for use up to 700°F in aircraft applications. Replaces MIL-B-59248.

Type I—For use to 450°F

- Johns Manville Corp.

Type II—For use to 700°F

- Johns Manville Corp.

C892

High-Temperature Fiber Blanket Thermal Insulation

Covers high-temperature fiber blanket thermal insulation for use at temperatures from 1,350°F up to 3,000°F.

Type I—Maximum temperature use 1,350°F

- Thermal Ceramics

Type II—Maximum temperature use 1,600°F

- 3M Fire Protection Products
- Thermafiber, Inc.
- Thermal Ceramics
- Unifrax Corp.

Type III—Maximum temperature use 2,400°F

- 3M Fire Protection Products
- Thermal Ceramics
- Unifrax Corp.

Type IV—Maximum temperature use 2,600°F

- 3M Fire Protection Products
- Thermal Ceramics
- Unifrax Corp.

Type V—Maximum temperature use 3,000°F

- 3M Fire Protection Products
- Thermal Ceramics
- Unifrax Corp.

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C916

Adhesives for Duct Thermal Insulation

Establishes minimum material requirements for adhesives to bond thermal insulation duct liner on the interior surfaces of sheet metal air conditioning ducts.

Type I—Nonflammable in the liquid (wet) state and will pass edge-burning test

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.

Type II—Nonflammable in the liquid (wet) state and will not pass edge-burning test

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.

Type III—Flammable in the liquid (wet) state and will pass edge-burning test

- Mon-Eco Industries, Inc.

Type IV—Flammable in the liquid (wet) state and will not pass edge-burning test

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.

C991

Flexible Glass Fiber Insulation for Pre-Engineered Metal Buildings

Covers flexible glass fiber insulation for use as interior surface of walls and roofs of manufactured metal buildings.

Type I—Without vapor-retarder facing

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning
- Rockfibras Do Brazil Ind Com

Type II—With vapor-retarder facing

- Johns Manville Corp.
- Rockfibras Do Brazil Ind Com

C1014

Spray-Applied Mineral Fiber Thermal and Sound Absorbing Insulation

Covers spray-applied mineral fiber thermal or acoustical insulation.

- Thermafiber, Inc.

C1029

Spray-Applied Rigid Cellular Polyurethane Thermal Insulation

Covers spray-applied rigid cellular polyurethane for use as thermal insulation at temperatures between -22° and 225°F.

Type I—Minimum compressive resistance 15 psi

Type II—Minimum compressive resistance 25 psi

Type III—Minimum compressive resistance 40 psi

Type IV—Minimum compressive resistance 60 psi

C1071

Thermal and Acoustical Insulation (Glass Fiber, Duct Lining Material)

Covers fibrous glass insulation used as a thermal and acoustical liner for interior surfaces of ducts, plenums, and other air handling equipment. Replaces federal specification HH-I-545.

Type I—Flat, in rolls

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation

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- Manson Insulation
 - Owens Corning
- Type II—Flat, in sheet form
- CertainTeed Corp.
 - Johns Manville
 - Knauf Insulation
 - Manson Insulation
 - Owens Corning

C1086

Glass Fiber Felt Thermal Insulation

Covers glass fiber unsupported needled felt binder-free insulation used for thermal insulation of machinery and equipment at temperatures up to 1,200°F.

- Alpha Associates, Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.
- Rockfibras Do Brazil Ind Com

C1126

Faced or Unfaced Rigid Cellular Phenolic Thermal Insulation

Covers faced or unfaced rigid cellular phenolic thermal insulation, in either board or tubular form, for use at temperatures between -40°F and 257°F.

Type I—For use as roof insulation board

Type II—For use as sheathing or rigid panel for non-load bearing applications

- ITW Insulation Systems
- Polyguard Products

Type III—For use as pipe insulation

- ITW Insulation Systems
- Polyguard Products

C1136 Flexible, Low Permeance Vapor Retarders for Thermal Insulation

Covers vapor retarders for thermal insulation, specifically flexible materials with permeance of 0.10 perm or lower and surface burning characteristics of 25 flame spread/50 smoke or lower, for use indoors between temperatures of -20°F and 150°F. For use indoors or outdoors with weather protection. Replaces federal specification HH-B-100.

Type I (0.02 perm max, high strength)

- Lamtec Corp.
- Johns Manville Corp.

Type II (0.02 perm max, moderate strength)

- Lamtec Corp.
- Johns Manville Corp.

Type II (0.10 perm max, high strength)

- Lamtec Corp.
- Johns Manville Corp.

Type IV (0.10 perm max, moderate strength)

- Lamtec Corp.
- Johns Manville Corp.

Type VII (0.01 perm max, high strength)

Type VIII (0.02 perm max, moderate strength)

Type IX (0.00 perm max)

- Dyplast
- HiCube Coating, LLC
- K-Flex USA

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- Pittsburgh Corning LLC
- Polyguard Products
- 3M/Venture Tape

Type X (0.02 perm max)

- Lamtec

C1139

Fibrous Glass Thermal Insulation and Sound Absorbing Blanket and Board for Military Applications

Covers unfaced flexible fibrous glass blanket and faced board used as thermal and sound absorbing insulation at temperatures up to 450°F for military applications as a replacement for MIL-I-22023D.

Type I—Unfaced thermal blanket

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning

Type II—Unfaced sound absorbing blanket

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning

Type III—Faced, thermal and sound absorbing board

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation

C1289

Faced Rigid Cellular Polyisocyanurate Thermal Insulation

Covers various types (I through VI) faced boards. Replaces ASTM C1013-94. See specifications for a more detailed description. The service temperature ranges from -40°F to +200 °F.

- Johns Manville Corp.

C1290

Flexible Fibrous Glass Blanket Insulation Used to Externally Insulate HVAC Ducts

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning

C1393

Specification for Perpendicularly Oriented Mineral Fiber Roll and Sheet Thermal Insulation for Pipes and Tanks

- CertainTeed Corp.
- Knauf Insulation
- Johns Manville/Industrial Insulation Group
- Owens Corning
- Rockfibras Do Brazil Ind Com
- Rock Wool Manufacturing Co.

C1410

Specification for Melamine Thermal and Sound-Absorbing Insulation

C1427

Specification for Flexible Cellular Polyolefin Thermal Insulation in Sheet and Tubular form

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- Aeroflex USA, Inc.
- Armacell, LLC
- K-FLEX USA

C1482

Standard Specification for Polyimide Flexible Cellular Thermal and Sound Absorbing Insulation.

C1534

Specification for Flexible Polymeric Foam Sheet Insulation Used as a Thermal and Sound Absorbing Liner for Duct

Type I—Closed-Cell Flexible Foam

- Aeroflex USA, Inc.
- Armacell, LLC
- K-FLEX USA

Type II—Open-Cell Flexible Foam

C1594

Standard Specification for Polyimide Rigid Cellular Thermal Insulation

C1676

Standard Specification for Microporous Thermal Insulation

Non-Hydrophobic, Type II, Grade 2A

- Promat
- Thermal Ceramics

Hydrophobic, Type II, Grade 2B

- Promat
- Johns Manville/Industrial Insulation Group
- Thermal Ceramics

C1695

Standard Specification for Fabrication of Flexible Removable and Reusable Blanket Insulation for Hot Service

- Auburn Mfg., Inc.

C1728

Standard Specification for Flexible Aerogel Insulation

Type I, Grade 1B

- Aspen Aerogels

Type III, Grade 1A

- Aspen Aerogels

Type III, Grade 2

C1729

Standard Specification for Aluminum Jacketing for Insulation

- ITW Insulation Systems/Pabco-Childers Metals
- RPR Products, Inc.

C1767

Standard Specification for Stainless Steel Jacketing for Use over Thermal Insulation

- ITW Insulation Systems/Pabco-Childers Metals

C1775 Standard Specification for Laminate Protective Jacket and Tape for Use over Thermal Insulation for Outdoor Applications

Type I

- HiCube Coating, LLC
- Ideal Tape

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- 3M/Venture Tape
- Type II
- HiCube Coating, LLC
 - 3M/Venture Tape
- Type III
- HiCube Coating, LLC
 - Ideal Tape

D1784

Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

Covers rigid PVC and CPVC compounds intended for general purpose use in extruded or molded form, including piping applications involving special chemical and acid resistance or heat resistance, composed of poly (vinyl chloride), chlorinated poly (vinyl chloride), or vinyl chloride copolymers containing at least 80 percent vinyl chloride, and the necessary compounding requirements.

- GLT Products and Speedline Corp.
- Johns Manville Corp.
- Proto Corp.

Federal Specifications

Federal Law (Public Law 132) has mandated that Federal and Military Specifications shall be replaced with consensus or performance standards available in the public domain. To comply with this federal law, some of the following Federal or Military Specifications either have been made obsolete or soon will be obsolete. These obsolete specifications are included for reference only, and the new appropriate specifications are indicated.

HH-B-100B Canceled. Replaced by ASTM C 1136.

Barrier Material, Vapor (for Pipe, Duct and Equipment Thermal Insulation)

Vapor barriers (jackets and facing) applied over thermal insulation for pipes, ducts, and equipment.

Type I—Low vapor transmission, high puncture resistance (for use on insulation for piping, ducts, and equipment)

Type II—Medium vapor transmission, moderate puncture resistance (for use on insulation for ducts and equipment)

HH-I-515E Canceled. Replaced by ASTM C 739.

Insulation, Thermal (Loose Fill For Pneumatic or Poured Application): Cellulosic or Wood Fiber

Covers chemically treated, recycled cellulosic fiber (wood base) loose-fill thermal insulation for use in attics or enclosed spaces in housing, and other framed buildings at ambient temperatures ranging from -50° to 180°F, by pneumatic or poured application. Last revised June 1992.

Type I—Pneumatic application

Type II—Poured application

HH-I-521F

Insulation Blankets, Thermal (Mineral Fiber, For Ambient Temperatures)

Canceled. Replaced by ASTM C 665.

HH-I-523C

Insulation, Block and Pipe Covering, Thermal (Calcium Silicate for Temperatures to 1,200°F)

Canceled. Replaced by ASTM C 533.

HH-I-524C

Insulation Board, Thermal (Polystyrene)

Canceled. Replaced by ASTM C 578.

HH-I-525A

Insulation Board, Thermal (Cork)

Cork insulation board for thermal insulation.

Canceled. Replaced by ASTM C 640.

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HH-I-526C

Insulation Board, Thermal (Mineral Fiber)
Canceled. Replaced by ASTM C 726.

HH-I-592B

Insulation Board, Thermal (Mineral Aggregate)
Canceled. Replaced by ASTM C 728.

HH-I-530B

Insulation Board, Thermal, Unfaced (Polyurethane or Polyisocyanurate)
Canceled. Replaced by ASTM C 591.

HH-I-545B

Insulation, Thermal and Acoustical (Mineral Fiber, Duct Lining Material)
Canceled. Replaced by ASTM C 1071.

H-I-551E

Insulation, Block and Board, Thermal (Cellular Glass)
Canceled. Replaced by ASTM C 552.

HH-I-558C

Insulation, Blankets, Thermal (Mineral Fiber, Industrial Type)
Covers industrial mineral fiber insulation. Last revised January 1992. Replaced by numerous ASTM documents.

HH-I-573B

Insulation, Thermal (Flexible Unicellular Sheet and Pipe Covering)
Canceled. Replaced by ASTM C 534.

HH-I-574B

Insulation, Thermal (Perlite)
Canceled. Replaced by ASTM C 549.

HH-I-585C

Insulation, Thermal (Vermiculite)
Canceled. Replaced by ASTM C 516.

HH-I-1030B

Insulation, Thermal (Mineral Fiber, for Pneumatic or Poured Application) Canceled. Replaced by ASTM C 764.

HH-I-1252B Cancelled—No Replacement

Insulation, Thermal, Reflective (Aluminum Foil)
Aluminum foil insulation.

Form 1-Materials providing a minimum 19 millimeters (3/4-inch) reflective air space having an effective emittance (E) of 0.05 maximum

Form 2-Materials providing a minimum 10 millimeters (3/8-inch) reflective air space having an effective E of 0.05 maximum

HH-P-31F

Packing and Lagging Material, Fibrous Glass Metallic and Plain Cloth and Tape

Covers fibrous glass metallic cloth and tape packing for boiler casing access openings or insulation lagging pads and heavyweight, rubber-treated fibrous glass cloth and tape for pipe flange joint gaskets.

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

L-P-535E Inactive

Plastic Sheet (Sheeting); Plastic Strip; Poly (Vinyl Chloride) and Poly (Vinyl Chloride-Vinyl Acetate), Rigid

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Covers rigid unsupported poly (vinyl chloride) and poly (vinyl chloride-vinyl acetate) sheets (sheeting) and strip.

- Proto Corp.

L-T-80B

Tape, Pressure-Sensitive Adhesive (Aluminum-Backed)

Covers aluminum foil-backed pressure-sensitive adhesive tape designed for use in sealing applications where the properties of good weather resistance, reflectivity, and moisture vapor transmission resistance are required.

- Ideal Tape Co.
- Venture Tape Corp.

LLL-I-535B

Insulation Board, Thermal (Cellulosic Fiber)

Canceled. Replaced by ASTM C 208, and others.

SS-C-160A

Cements, Insulation Thermal

Heat-resisting cements. Canceled. Replaced by ASTM C 195 (Type III Grade U), ASTM C 196 (Type IV), and ASTM C 449/C 449M (Type III Grade F).

Type III—Mineral Wool

Type IV—Vermiculite (100°-1,800°F)

Type V—Diatomaceous Silica (100°-1,900°F)

SS-S-111C

Sound Controlling Materials (Trowel and Spray Applications).

Covers acoustical materials for trowel or spray applications.

Type I—Cementitious materials

Type II—Fibrous materials

Type III—Synthetic Polymeric materials

- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.

Military Specifications

(Please see note under Federal Specifications regarding Public Law 132)

MIL-A-23054A

Acoustic Absorptive Board, Fibrous Glass Perforated Fibrous Glass Cloth Faced

Covers fibrous glass cloth facing.

MIL-A-24179A

Adhesive, Flexible Unicellular-Plastic Thermal Insulation

Covers high initial strength, heat- and water-resistant, contact-type adhesives for bonding flexible unicellular-plastic thermal insulation to itself and to metal surfaces.

- Aeroflex USA, Inc.
- Armacell LLC
- Foster Products (HB Fuller Construction Products)
- K-Flex USA
- Mon-Eco Industries, Inc.

MIL-A-24699

Acoustical Transmission Loss Barrier Material

Covers two types of acoustical transmission loss barriers. Canceled without replacement.

Type I—Barium sulfate-loaded vinyl with fibrous glass facing

Type II—Wire-reinforced lead

MIL-A-3316C

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Adhesive, Fire-Resistant, Thermal Insulation

Covers fire-resistant adhesives for securing cloth and tape to certain thermal insulations and for securing thermal insulations to metal surfaces.

Class 1

Grade A—Pigmented white

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.
- Vimasco Corp.

Grade B—Pigmented red

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.
- Vimasco Corp.

Class 2

Grade A—Pigment white

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.

Class 3

Grade A—Pigmented white

- Foster Products (HB Fuller Construction Products)
- Mon-Eco Industries, Inc.

MIL-B-5924B

Batting, Insulation, Glass Fibers

Canceled. Replaced by ASTM C 800.

MIL-C-2861E

Cement, Insulation, High Temperature

Covers high temperature insulation cement for thermal control of irregular surfaces and for piping operating at temperatures between 100° and 1,800°F. Future replacement is ASTM C195.

- Johns Manville/Industrial Insulation Group
- Rock Wool Manufacturing Co.

MIL-C-19565C

Coating Compounds, Thermal Insulation, Fire- and Water-Resistant, Vapor-Barrier

Covers an interior vapor-barrier coating for insulated refrigerant and chilled water lines.

- Foster Products (HB Fuller Construction Products)
- ITW Insulation Systems/Pabco-Childers Metals
- Mon-Eco Industries, Inc.
- Vimasco Corp.

MIL-C-20079H

Cloth, Glass; Tape, Textile Glass; and Thread, Glass and Wire-Reinforced Glass

Covers fibrous glass cloth, tape, and sewing thread for use as thermal insulation compounds.

Type I—Cloth

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

Type II—Tape

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

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Type III—Sewing thread

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Lewco Specialty Products, Inc.

MIL-C-24576A

Cloth, Silica Glass; Cloth, Coated, Glass, Silicone-Rubber Coated

Covers two types of woven cloth intended for use in protecting equipment and personnel from spatter from metal welding and cutting operations.

Type I—Silica glass

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

Type II—Fibrous glass coated with silicone rubber

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

MIL-I-742F

Insulation Board, Thermal, Fibrous Glass

Covers fire resistive fibrous glass thermal insulation board.

Type I—Fibrous glass cloth-faced board

Type II—Unfaced board

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation

MIL-I-2781F

Insulation, Pipe, Thermal

Covers preformed thermal insulation for use on pipes at surface temperatures up to 1,200°F.

- Johns Manville/Industrial Insulation Group

MIL-I-2818 C

Insulation Blanket, Thermal, Fibrous Mineral

Covers wire-reinforced fibrous mineral wool insulation blanket.

Cancelled.

MIL-I-2819F

Insulation Block, Thermal

Covers thermal insulation block for use on machinery and equipment at surface temperatures up to 1,500°F.

Class 2—Temperatures up to 1,200°F

- Johns Manville/Industrial Insulation Group

Class 3—Temperatures up to 1,500°F

- Johns Manville/Industrial Insulation Group

MIL-I-13042A

Insulation Sleeving, Thermal, Tubular Flexible

Flexible braided or woven tubular thermal insulation sleeving intended primarily for covering heater ducts, exhaust pipes, and other tubes in vehicles. Canceled without replacement.

Composition I—Asbestos mixture

Composition II—Glass fiber

- Lewco Specialty Products, Inc.

MIL-I-15475C

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Insulation Felt, Thermal, Fibrous Glass, Semi-rigid

Covers fibrous glass felt sheets for thermal insulation. Canceled without replacement.

- Johns Manville, Corp.
- Knauf Insulation

MIL-I-16411F

Insulation Felt, Thermal, Glass Fiber

Covers glass fiber insulation felt for thermal insulation of machinery and equipment.

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

MIL-I-16562A

Insulation, Synthetic, Rubber-Like, Chemically Expanded, Cellular (Sheet Form)

Covers chemically expanded synthetic rubber-like material (sheet form) for insulation purposes.

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

MIL-I-22023D

Insulation Felt, Thermal and Sound Absorbing Felt, Fibrous Glass, Flexible

Covers lightweight, faced and unfaced flexible fibrous glass felt for thermal and sound absorbing insulation for use up to 400°F. Replacement is ASTM C 1139.

Type I—Unfaced, thermal felt

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning

Type II—Unfaced, sound absorbing felt

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning

Type III—Faced, thermal and sound absorbing felt

- CertainTeed Corp.
- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation

MIL-I-22344D

Insulation, Pipe, Thermal, Fibrous Glass

Covers fibrous glass pipe insulation for use as thermal control on pipes, valves, and fittings for temperatures up to 370°F.

- Johns Manville Corp.
- Knauf Insulation
- Manson Insulation
- Owens Corning

MIL-I-23128B

Insulation Blanket, Thermal, Refractory Fiber, Flexible

Covers asbestos-free thermal insulation, cement, and adhesives, and asbestos containing thermal insulation tape, all with special corrosion, chloride, and fluoride requirements.

Types I through XVII (see specifications)

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MIL-DTL-24244D (SH)

Insulation Material, with Special Corrosion, Chloride, and Fluoride Requirements

Covers asbestos-free thermal insulation, cement, and adhesives, and asbestos containing thermal insulation tape, all with special corrosion, chloride, and fluoride requirements.

Types I through XVIII (see specifications)

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Foster Products (HB Fuller Construction Products)
- Integrated Marketing Group
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- Knauf Insulation
- Lewco Specialty Products, Inc.
- Manson Insulation
- Owens Corning
- Pittsburgh Corning LLC
- Rock Wool Manufacturing Co.
- Roxul, Inc.
- Thermafiber, Inc.
- Unifrax Corp.
- Vimasco Corp.

MIL-P-15280J Inactive

Plastic Material, Unicellular (Sheets and Tubes)

Covers chemically expanded unicellular elastomeric plastic foam material for thermal insulation.

Form T—Tubular

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

Form S—Sheet

- Aeroflex USA, Inc.
- Armacell LLC
- K-Flex USA

MIL-S-24149C

Studs, Welding, and Arc Shields (Ferrules)

Covers studs for welding with stud welding equipment and arc shields (ferrules) for shielding studs where applicable.

- Midwest Fasteners, Inc.

MIL-T-23397B

Tapes, Pressure Sensitive Adhesive for Masking During Paint Stripping Operations. Covers tapes for masking during paint stripping operations.

Type I—Three-hour protection

- Ideal Tape Co.
- Venture Tape Corp.

Type II—72-hour protection

- Venture Tape Corp.

MIL-W-23680E

Stud Welding Systems, DC, Integral Power Source and Control Unit, Electric Arc and Capacitor Discharge

Covers portable electric arc and capacitor discharge stud welding systems consisting of an integral direct current (DC) power source, timer controls, stud gun(s), and cables.

- Midwest Fasteners, Inc.

MIL-W-80110C

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Stud Welding Units, Independent DC Power Source with Separate Control Unit, Electric Arc
Covers independent, direct current (DC) welding power sources and separate control units designed for electric arc stud welding with equipment and accessories.

- Midwest Fasteners, Inc.

MIL-Y-1140H

Yarn, Cord, Sleeving, Cloth, and Tape—Glass

Covers the basic forms of untreated glass fiber used by themselves or as components of other materials.

Class C—Continuous filament

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

Class S—Staple fiber

Form 1—Yarn

- Lewco Specialty Products, Inc.

Form 2—Cordage

- Lewco Specialty Products, Inc.

Form 3—Sleeving

- Integrated Marketing Group
- Lewco Specialty Products, Inc.

Form 4—Cloth

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

Form 5—Tape

- Alpha Associates, Inc.
- Auburn Mfg., Inc.
- Ideal Tape Co.
- Integrated Marketing Group
- Lewco Specialty Products, Inc.

ELECTRIC BOAT SPECIFICATION – EB 4013

Anti-Sweat and Refrigerant Insulation Systems (Sheet and Tubes)

- Armacell LLC
- K-Flex USA

DOD-I-24688 / MIL-DTL-24688A

Insulation; Polyimide, Sheet and Tube

Miscellaneous Specifications and Standards

American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE)

- ANSI/ASHRAE/IES 90.1, “Energy Conservation in New Building Design”
 - ASHRAE/IES 90.1, “Energy Efficient Design of New Buildings Except New Low-Rise Residential Buildings”
 - Terminology of Heating, Ventilation, Air Conditioning, and Refrigeration
 - ASHRAE 90.1 “Energy Standard for Buildings Except Low-Rise Residential Buildings”
- www.ashrae.org*

Corps of Engineers, Department of the Army

- Guide Specification for Military Construction CECS 15250, “Thermal Insulation for Mechanical Systems”

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Energy Codes

- International Code Council (ICC), www.iccsafe.org
- ASHRAE 90.1, www.ashrae.org

Federal Construction Guide Specifications (FCGS)

- FCGS—07250 Sprayed Fire Protection
- FCGS—07260 Firestopping Division 15-Mechanical
- FCGS—15180 Insulation of Mechanical Systems

Manufacturers Standardization Society of the Valve and Fitting Industry, Inc.

- MSS Publication SP-69, “Pipe Hangers and Supports-Selection and Application” (1983)

Midwest Insulation Contractors Association (MICA)

- *National Commercial and Industrial Insulation Standards* (2011, Seventh Edition)

Model Building Codes

- NFPA 5000, www.nfpa.org
- International Code Council (ICC), www.iccsafe.org
- Council of American Building Officials (CABO)

National Insulation Association (NIA)

- Insulation Science Glossary
- Insulation Specifications Chart

Naval Facilities Engineering Command (NAVFACENCOM)

- Guide Specifications (NFGS) for Use in Regular Military Construction Projects
 - NFGS—07211 Loose Fill (Cellulosic and Mineral Fiber) Insulation
 - NFGS—07218 Spray Applied Cellulose Insulation
 - NFGS—07220 Roof Insulation
 - NFGS—07221 Masonry Wall Insulation
 - NFGS—07222 Tapered Roof Insulation
 - NFGS—07230 Perimeter and Under-Slab Insulation
 - NFGS—07232 Ceiling, Wall, and Floor Insulation
 - NFGS—07250 Spray-On Fireproofing
 - NFGS—07250 Fireproofing
 - NFGS—15250 Insulation of Mechanical Systems

Nuclear Regulatory Commission

- Regulatory Guide 1.36, “Non-Metallic Insulation for Austenitic Stainless Steel”

National Fire Protection Association (NFPA)

- NFPA 90A—*Standard for the Installation of Air Conditioning and Ventilating Systems*
- NFPA 90B—*Standard for the Installation of Warm Air Heating and Air Conditioning Systems*
- For the latest version, contact NFPA at 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9109, (800) 344-3555, Fax (800) 593-6372, www.nfpa.org.

SCAQMD

- Regulation 1168-adhesives and coatings

Adhesives

- Aeroflex USA
- Armacell
- Foster Products (HB Fuller Construction Products)
- Johns Manville/Industrial Insulation Group
- Johns Manville Corp.
- K-Flex USA

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- Pittsburgh Corning LLC
- Vimasco Corp.

Type II—72-hour protection

- Armacell
- Foster Products (HB Fuller Construction Products)
- K-Flex USA
- Pittsburgh Corning LLC
- Vimasco Corp.

U.S. Coast Guard

- 46 CFR 1 164.006 Deck Covering for Merchant Vessels
- 46 CFR 1 164.007 Structural Insulations
- 46 CFR 1 164.008 Bulkhead Panels
- 46 CFR 1 164.009 Noncombustible Materials
 - Integrated Marketing Group

- 46 CFR 1 164.010 Structural Ceiling
- 46 CFR 1 164.012 Interior Finished

THIS REVISION AND CORRECTIONS DATED: **April 2019**

2019 REVISION

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