

## 1. Product Name

SafeDuck Closed Cell Duct Insulation

## 2. Manufacturer

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Website: [www.mysafeduck.com](http://www.mysafeduck.com)

## 3. Product Description

### BASIC USE AND APPLICATIONS

SafeDuck Closed Cell Duct Insulation is a flexible, low density, foam insulation produced in sheet form with excellent thermal and sound insulating properties when used for duct liner applications, as well as duct wrap.

SafeDuck Closed Cell Duct Insulation is light weight, fiber-free, and tested for compliance with performance requirements of ASTM C1071 with respect to the following characteristics: corrosiveness, water-vapor absorption and transmission, fungi resistance, erosion resistance, odor emission, and bacteria resistance.

### BENEFITS

**Consistent Insulating Properties:** SafeDuck Closed Cell Duct Insulation presents a uniform thickness across the profile and length of the duct providing consistent thermal insulation and sound insulation properties.

**Thermal Insulation:** Standard 1.0inch thickness of SafeDuck Closed Cell Duct Insulation provides an R-4.4 and is approved for use on both above and below ambient temperature systems. Our SafeDuck + product, available soon features an R-6 value at 1.375" inch thickness (best in class!)

**Sound Insulation:** SafeDuck Closed Cell Duct Insulation provides the following sound absorption coefficient when tested per ASTM C423

**Low Moisture Pickup:** The closed cell structure of SafeDuck Closed Cell Duct Insulation is inherently water vapor transmission resistant without the application of a separate vapor retarder product.

**Resistance to Fungi and Bacteria:** SafeDuck Closed Cell Duct Insulation is shown through comprehensive testing to resist microbial growth in the air stream. Meets ASATM C1338 Requirement

**Non-fibrous and Non-dusting:** SafeDuck Closed Cell Duct Insulation is especially suited for critical installations such as health care and laboratory

facilities where cleanliness requirements are high. The material meets requirements of NFPA 90A and 90B for duct liner materials that will not interfere with in-duct smoke detectors.

**Combustion Characteristics:** SafeDuck Closed Cell Duct Insulation exhibits a flame spread index of 10 and smoke developed index of 30 when tested in accordance with ASTM E84.

**Cleanable Surface:** The surface of SafeDuck Closed Cell Duct Insulation is easily maintained through industry standard duct cleaning procedures without the need for added facers or coatings.

**Tear Resistant:** SafeDuck Closed Cell Duct Insulation is highly resistant to damage from handling and duct cleaning when installed according to manufacturer's written instructions.

**Ease of Fabrication and Installation:** SafeDuck Closed Cell Duct Insulation is easily cut to size, fitted, and adhered within ductwork components using standard tools and methods.

### LIMITATIONS

Surface temperatures of SafeDuck Closed Cell Duct Insulation should not exceed 250 deg. F (121 deg C).

### PHYSICAL/CHEMICAL PROPERTIES

Density: 26 +/- 10% kg/m3

Thickness: Up to 1.0 inch. Product data shown in this sheet is based upon 1.25 PCF material

Operating Temperature, ASTM C411: -297 to 250 deg F (-183 to 121 deg C).

Maximum Air Velocity, ASTM C1071/UL 181: 5,000 fpm (25 m/s).

Water Vapor Sorption (by weight), ASTM C1104: 3 percent at 120 deg F (49 deg C), 95 percent RH.

Water Vapor Permeability, ASTM E96: 0 perm.

Thermal Conductivity, ASTM C177: 0.18 Btu-in/h-sq ft (R 4.4) at 1.0 inches thick at 75 deg. F.

Combustion Characteristics, ASTM E84: Maximum flame-spread index of 10 and smoke-developed index of 30.

Sound Absorption, ASTM C423, Mounting A: Min 0.49 sound absorption coefficient at 500 Hz.

Fungi and Bacterial Resistance, ASTM C1338 and ASTM G21: Meets requirements.

### MATERIAL SIZES

SafeDuck Closed Cell Duct Insulation is available in sheets and rolls in widths from 47-1/2 to 59-1/2 inches (1206 to 1511 mm). Thicknesses of 1.0 inch (31.75 mm) and 1.50 inch (38.1 mm) are available.

### ACCESSORY MATERIALS

Liner Adhesive: Duct liner manufacturer's recommended UL-classified water-based adhesive complying with NFPA 90A and NFPA 90B and with ASTM C916, with VOC less than 25 g/L.

## 4. Technical Data

### REFERENCED STANDARDS

ASTM International (ASTM): [www.astm.org](http://www.astm.org):

- ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- ASTM C411 - Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation.
- ASTM C423 - Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.
- ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation.
- ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material).
- ASTM C104 - Standard Test Method for Determining the Water Vapor Sorption of Unfaced Mineral Fiber Insulation.
- ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation.

- ASTM C1338 - Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- ASTM E795 - Standard Practices for Mounting Test Specimens During Sound Absorption Tests.
- ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

National Fire Protection Association (NFPA): [www.nfpa.org](http://www.nfpa.org):

- 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.

North America Insulation Manufacturers Association (NAIMA): [www.insulationinstitute.org](http://www.insulationinstitute.org):

- NAIMA AH124 - Fibrous Glass Duct Liner Standard.

Sheet Metal & Air Conditioning Contractors' National Association (SMACNA): [www.smacna.org](http://www.smacna.org):

- HVAC Duct Construction Standards - Metal and Flexible.

Underwriters Laboratories (UL): [www.ul.org](http://www.ul.org):

- UL 181 - Standard for Factory-Made Air Ducts and Air Connectors

### SUSTAINABILITY AND LEED

LEED v4 and v4.1: Low-Emitting Materials - Adhesives and Sealants: Applies to liner adhesive and joint adhesive.

Insulation material for HVAC ducts is excluded from requirements of LEED v4 and v4.1.

Low-Emitting Materials:

- VOC Emissions: None.
- Formaldehyde Emissions: None.
- CFC, and HCFC Content: None.

## 5. Application

### SHOP-FABRICATED LINED DUCTS

Verify that duct liner substrate is clean and free of oils, and ready to receive adhered liner. Verify adhesion prior to proceeding with installation.

Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 7-11, "Flexible Duct Liner Installation" and duct liner manufacturer's written installation instructions.

Adhere single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area, completely covering duct.

Butt transverse joints without gaps, and coat joints with adhesive. Utilize metal nosing on exposed leading edges of duct liner and where upstream edges face velocity in excess of 4,000 fpm. Fold and compress duct liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping

#### **HANDLING OF INSULATED DUCTS**

Store, handle and install insulated ducts in accordance with duct liner manufacturer's written installation instructions. Avoid contacting insulated surfaces with shipping wrap materials or damaging leading edges of installed insulation.

#### **6. Availability**

Contact Manufacturer for a list of distribution outlets in your region.

#### **7. Warranty**

Manufacturer's standard one-year warranty against failure due to materials.

#### **8. Maintenance**

##### **DUCT CLEANING**

SafeDuck Closed Cell Duct Insulation may be cleaned with industry-recognized dry methods; refer to North American Insulation Manufacturers Association (NAIMA) Manual.

#### **9. Technical Services**

Detailed information including product literature, test reports, installation instructions, and information custom sizing and on special applications is available through SafeDuck Manufacturing, LLC By Nomaco

#### **10. Available Resources**

Section 233553 METAL DUCT LINERS CSI 3-Part Guide Specification for SafeDuck Closed Cell Duct Insulation is available through SafeDuck Manufacturing, LLC.