

HSE-103FS Microbiological Resistance Testing

Indoor Environmental Quality

Microbiological Resistance Testing

- SuperDuct® RC Duct Board
- EnviroAire™ Duct Board
- Linacoustic® RC Duct Liner
- Duct Liner PM Insulation
- Linacoustic® HP Duct Liner
- Linacoustic® R-300 Rigid Plenum Liner Board
- Spiracoustic Plus™ Round Duct Liner System

Studies conducted at several independent laboratories show that the Johns Manville products listed above are protected from microbial growth. These products have been tested as required by each of the industry standards as follows:

UL 181 Mold Growth and Humidity Test

Samples of the material are inoculated with mold mycelia and spores and placed in a closed water vapor vessel for 60 days. The samples are then examined visually for extent of growth. The mold shall not spread beyond the inoculated area and no significant growth of mold is to be observed.

Results: Mold did not spread beyond the inoculated areas and no growth of mold was observed.

ASTM C1338 Fungi Resistance Test

This test provides a method to determine the ability of the material to support fungi growth under conditions favorable for their development. A spore suspension consisting of *Aspergillus niger*, *Aspergillus flavus*, *Aspergillus versicolor*, *Penicillium funiculosum* and *Chaetomium globosum* is gently scraped on the sample material and placed in a test chamber at 86°F and 95 percent humidity for 28 days. Test sample cannot show greater growth than a comparative sample.

Results: Test samples did not show any growth.

ASTM G21 Determining Resistance of Synthetic Polymeric Materials to Fungi

Samples were placed on a mineral-salt medium and sprayed with a combined inoculum of the following spore suspensions: *Aspergillus niger*, *Penicillium pinophilum*, *Chaetomium globosum*, *Gliocladium virens*, *Aureobasidium pullulans*, *Cladosporium*, *Alternaria*. After inoculation, the fiber glass samples were placed in a “tropical test chamber” and incubated at a temperature of 30±1°C and relative humidity greater than 85 percent. Total incubation period was 28 days.

Results: ASTM G21 rating of 0: no observed growth.

ASTM G22 Determining Resistance of Synthetic Polymeric Materials to Bacteria

The fiber glass samples were placed on a mineral salts medium and inoculated with the following bacteria: *Pseudomonas* sp, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Flavobacterium* sp, *Staphylococcus pyogenes*, *Serratia marsescens*, *Legionella pneumophilla*. These samples were then incubated 21 days at 35°C and 85 percent relative humidity.

Results: No growth was observed in the fiber glass samples.

Microbiological Resistance Test Summary

The test results referenced above confirm that Permacote® acrylic coating and all mat-faced airstream surfaces are protected from microbial growth. This level of effectiveness is achieved by incorporating an EPA-registered antimicrobial agent into the airstream surface, ensuring performance that is not diminished over time or by exposure to high humidity or incidental exposure to water.

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