

Mold Resistance of Aerocel® EPDM Insulation

Molds belong to the fungi kingdom, and unlike plants, they lack chlorophyll and must survive by digesting plants and other organic materials. Molds generate tiny spores to reproduce, and these spores are ever-present in both indoor and outdoor air currents. When mold spores land on a damp or wet surface, they begin to grow and reproduce from the organic food (i.e. dust, dirt, etc.) and moisture on the material's surface.

It has been well documented that mold growth causes toxic risks to human health such as headaches, breathing difficulties, allergic and irritant reactions, asthma, hypersensitivity pneumonitis and opportunistic infections.

Mechanical insulation, the type that insulates building mechanical systems such as pipes, ducts and equipment, is subject to mold growth when not properly protected. Although closed cell elastomeric foam insulation offers excellent performance with controlling condensation due to its closed-cell structure and built-in vapor retarder, it is still subject to attack by mold.

Some closed cell elastomeric insulation products are manufactured with organic ingredients such as oils, plasticizers and binders that serve as organic food sources for mold spores. Additionally, these insulation products are hygroscopic (polar) in chemical structure which means that they are inherently attracted to moisture. With the introduction of moisture on the insulation surface and unsealed seams, mold can grow.

Hygroscopic closed cell elastomeric foam insulation products typically promote an added "EPA-Registered Antimicrobial" product during manufacturing offering mold protection. These chemicals are designed to inhibit the growth of microbes.

However, the International Living Future Institute, in their Living Building Challenge Red List, calls out "antimicrobials marketed with a health claim" as Red List chemicals. Antimicrobial chemicals in building materials are regulated by the EPA as pesticides. The human health

concern with some antimicrobial chemicals is that they have shown to disrupt endocrine functions, and human health benefits have not yet been proven.

Aeroflex USA's Aerocel brand of EPDM closed cell elastomeric foam insulation does not contain any added EPA-Registered antimicrobial chemicals marketing a health claim. Aerocel is inherently non-polar (hydrophobic) which means that it is not attracted or induced by moisture; it actually repels moisture. Aerocel also does not contain organic food sources such as oils, plasticizers and binders. Finally, safe proprietary chemicals utilized during the manufacturing process naturally inhibit mold growth potential.

To learn more about the chemical polarity of Aerocel EPDM insulation, please read our [White Paper](#).

Source: International Living Future Institute, Living Building Challenge, Red List