

MOLD RESISTANCE OF K-FLEX DUCT® LINER GRAY

K-Flex Duct® Liner Gray manufactured by K-Flex USA has been thoroughly tested and shown to be mold resistant. This performance is verified by the “no growth” rating attained when tested in accordance with ASTM G21, “Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi”, and similar tests such as UL 181. K-Flex Duct® Liner Gray has been tested by Underwriters Laboratories (UL) in accordance with UL 2824 / ASTM D6329 and is UL Validated as “mold resistant”. K-Flex Duct® Liner Gray achieves this performance level through a combination of intrinsic physical properties and well-conceived chemistry.

First, K-Flex Duct® Liner Gray’s key physical properties are a result of its closed cell structure, which resists moisture, and a smooth surface skin that resists dirt accumulation. For mold to actively grow, it requires three components: moisture, warmth and a food source. If this chain is broken, mold can not propagate. By resisting moisture, K-Flex Duct® Liner Gray is inherently mold resistant. Any mold that could grow is confined to limited areas, as closed cell materials resist wicking. Fibrous or open cell materials are not inherently resistant to moisture. They rely on a concentrated moisture vapor barrier (foil jacket or surface-applied coating) to resist moisture. If the jacket is damaged (even a pinhole) or the edges are not properly sealed, they are susceptible to moisture intrusion and thus mold growth. Once moisture penetrates, it can wick and involve large areas in the mold growth process.

As a second level of protection, K-Flex Duct® Liner Gray contains a powerful anti-microbial agent to enhance the mold resistance of the product. This additive has been proven effective in inhibiting growth of mold, mildew, fungi, algae and bacteria. The active ingredient is an EPA-registered product approved for use in ventilation systems. It has passed the most stringent testing procedures for efficacy and safety. The use of this product provides additional long-term protection against biological contaminants.

There is a wide range of chemistries available to evaluate when considering additives to prevent mold growth. Products that contain a “biocide” or “anti-microbial agent” must be very careful with the claims they make. Additives for fungi resistance are usually very different than additives for bacteria resistance. Anti-bacterial agents used in common consumer products that are prone to bacteria, e.g. countertops, tooth brushes, etc., may have no effect on mold resistance. The primary issue with duct liner materials is fungal, mold and mildew resistance – not bacterial.

Additionally, anti-microbial agents (both anti-bacteria and anti-mold additives) are generally low volatility products. This means they are susceptible to evaporation or decomposition in the manufacturing process. Any additives used in a product must be screened for volatility to be sure they are present in the final product after manufacturing in order to be effective. Typical processing temperatures for closed cell polymeric foam insulation products exceed 300°F. Any additive used must have a thermal stability above the process temperatures. The additive used in K-Flex Duct® Liner Gray is thermally stable above the process temperature and remains effective in the final product.

The addition of a particular biocide additive may offer no benefit in mold-resistance performance. For example, the active ingredient in a common biocide additive is Triclosan. Triclosan is very effective against bacteria, but the bacterial inhibiting mechanism is not very effective against fungi. Further, the boiling point of Triclosan is 248°F. This makes it likely that the Triclosan would be volatilized or decomposed during the insulation manufacturing process, negating any possible beneficial effects from its addition.

As stated earlier, the antimicrobial additive used in K-Flex Duct® Liner Gray is an EPA-registered fungicide and has a volatility temperature above process temperatures so it remains effective in the final product. It provides long lasting protection – inhibiting the growth of fungi, mold, mildew and other organisms that are key indoor air quality concerns.

Elastomeric closed cell insulation materials have over a 20 year history of successful use as duct lining material with no known indoor air quality-related problems. K-Flex USA is the only North American manufacturer of elastomeric insulation whose products are UL Validated for Mold Resistance. K-Flex USA is dedicated to providing innovative, value-added products that meet consumer concerns and needs.

