

## Formaldehyde

One concern about the effects of carpet on indoor air quality centers around the erroneous belief that new carpet emissions include unsafe levels of formaldehyde. This issue remains a particular concern to individuals with obstructive pulmonary disorders (bronchitis, asthma, emphysema) and fibrotic respiratory diseases, as well as others who suffer from hypersensitivities to products commonly found in home and office environments. According to the board of environmental studies of the National Research Council (the research arm of the National Academy of Sciences), approximately 15 percent of the American population suffers from some form of chemical sensitivity. Approximately 4 percent are sensitive to formaldehyde.

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Since formaldehyde is a naturally occurring substance, it is common to find trace amounts of it in both indoor and outdoor environments. There are many products found in and around the home that use formaldehyde in their formulation. These products include preservatives, disinfectants and antiseptics, certain construction resins, artificial silk, glass mirrors, hide tanning and preservatives, waterproofing fabrics, as a germicide and fungicide for vegetables and plants, as a component of particle board and plywood, and in ceiling and wall insulation. **Formaldehyde is not used in the manufacturing of carpet.** According to an extensive survey conducted by the Carpet and Rug Institute in 1982 it was determined that formaldehyde in any form was no longer being used in carpet manufacturing or in the raw goods materials.

Again, since formaldehyde is a naturally occurring substance, carpet and other products that do not use formaldehyde in their formulation may absorb traces of formaldehyde if exposed to an environment containing this substance. If you consider the number of items within the home that contain formaldehyde it is easy to see how carpet could be wrongfully accused as the source of this substance. Source analysis is especially complicated by the widespread occurrence of formaldehyde in the environment.

Formaldehyde produces a pungent odor that is detectable in one part per million. Exposure to formaldehyde gas can cause irritation of the eyes and respiratory tract, coughing, dry throats, tightening of the chest, bronchitis, laryngitis, pneumonia, headache, dizziness, a sensation of pressure in the head, and palpitations of the heart. According to OSHA, formaldehyde is considered a "probable human carcinogen" with moderate acute toxicity. As a gas, formaldehyde is extremely flammable. In an aqueous state it (formalin) is a combustible liquid. Contact with vapor or solution can cause skin to become

white, rough, hard, and anesthetic. Dermatitis and hypersensitivity frequently develop with prolonged exposure. Following skin contact a symptom free period may occur in sensitized individuals. Subsequent exposures can lead to itching, redness, and the formation of blisters.

As with most irritants the degree of human sensitivity to formaldehyde varies greatly; however, studies by the University of Washington Department of Environmental Health have shown that levels of 0.10 milligrams per meter square/hour (mg/m<sup>2</sup>/hr) are necessary for observable tissue reaction in humans.

Consumer health, safety, and perception of our product are of vital interest to the carpet industry. By establishing the criteria outlined in the Carpet and Rug Institute's voluntary Indoor Air Quality Certification Program we are able to better regulate the use of certain materials to insure that no adverse effects are experienced with our products. Our industry is firmly committed to provide consumers with environmentally safe products.