

## **Carpet and Indoor Air Quality**

### **Indoor Air Quality – General**

Many factors determine the indoor air quality of homes and buildings. Most new interior products may emit volatile organic compounds (VOCs). The extent of the effect on indoor air quality is dependent upon the combined emissions from products such as paint, cleaning materials, building materials, furnishings, fabrics, etc. In order to minimize impact, all products should be low VOC emitters with emissions that dissipate quickly.

Activities and conditions in the building such as tobacco use, pets, and inadequate ventilation add to the potential for poor indoor air quality.

### **Indoor Air Quality and Carpets**

Carpet has been used for years by millions of people. Carpet is made primarily of the same materials found in clothing and other everyday products i.e., polyester, nylon, olefins, and backing materials.

Scientific studies have demonstrated that carpet is one of the lowest emitters of VOCs in the indoor environment. The low-level VOC emissions from new carpet normally dissipate within 48 to 72 hours after installation when accompanied by good ventilation.

The carpet industry has always regarded IAQ safety as important and has worked closely with the Environmental Protection Agency (EPA), the Consumer Product Safety Commission (CPSC), academic institutions, and independent laboratories to evaluate carpet's role in the indoor environment. Throughout those evaluations, scientific evidence has indicated no specific links of adverse human health effects due to chemical emissions from carpet.

The carpet industry members are committed to improving the quality of indoor air and reducing the VOCs from its products. To achieve this goal, CRI established a testing and labeling program. The program's green and white logo displayed on carpet samples informs the consumer that the specific manufacturer's product type has been tested by an independent laboratory and has met the program criteria for very low emissions. The manufacturer's carpet sample is tested for chemical emissions using the most up-to-date dynamic environmental chamber technology. The test methodology was developed by consensus during an official dialogue with the EPA and has been adopted by the American Society for Testing and Materials (ASTM) as D 5116 – Guide for Small-Scale Environmental Chamber Determinations of Organic Emissions from Indoor Materials/Products.

Since the inception of the program in 1992, the carpet industry has reduced the overall level of emissions by selective raw material usage and other process modifications. The program establishes maximum allowable emissions for acceptance. The emissions of 13 target compounds are measured in mg/m<sup>2</sup>•hr. The emissions level required for certification are compliant to the most stringent IAQ standards, like CA 01350. A complete listing of the compounds and target levels can be obtained through the CRI or its website [carpet-rug.org](http://carpet-rug.org).



Carpet manufacturers are encouraged to attach the CRI IAQ Carpet Testing Program label to approved products. The product type number on the label identifies the manufacturer of the carpet and tells the buyer that the manufacturer has produced a product that meets the industry standard for low emissions. Products are monitored quarterly for continued compliance with the test program requirements. Additional information on IAQ and specific indoor environments may be found on the following fact sheets.

IAQ and Schools  
IAQ for Homeowners  
IAQ for Specifiers  
IAQ for Healthcare  
Green Label Plus Program

## **CRI Indoor Air Quality Adhesive Testing Program**

To further improve Indoor Air Quality, in 1996 CRI established a program to test floor covering installation adhesives. The authorized CRI IAQ Adhesive Testing Program label helps the carpet manufacturer, installer, and end-user identify and select low emission adhesives. Those adhesive products meeting the program's emissions criteria are allowed to display the green and white label. Various categories of adhesives, such as multi-purpose floor adhesives, cove base adhesives, seam adhesives, cushion adhesives for tackless installations and contact adhesives are part of the program. Products are regularly monitored for continued compliance with the program. Consumers seeking a low-emitting adhesive can confidently select those bearing the label.

Criteria for acceptance in the program are based on an emission factor measured in  $\mu\text{g}/\text{m}^2\text{hr}$  that takes into account that adhesives are a wet substrate when applied during the installation process.

Program details are available at <http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Plus/Carpet,-Adhesive-Cushion.aspx>

## **Carpet Cushion Program**

Carpet cushion, or carpet pad, became a part of the CRI family of programs designed to aid consumers in selecting low VOC products in 1992. Like carpet and floorcovering adhesives, those cushion products bearing the CRI IAQ Cushion Testing Program green label indicates the product meets strict standards for emissions.

Program details are available at <http://www.carpet-rug.org/CRI-Testing-Programs/Green-Label-Cushion.aspx>

## **Carpet's Holding Characteristics**

Since gravity causes airborne particles to settle on the floor, carpet provides an extra benefit by holding dust and dirt until it can be removed by routine vacuuming with a well-functioning vacuum cleaner. The holding characteristics of carpet, as opposed to a smooth surface floor covering, benefit residents of the home or office by keeping particles of dust from being continually blown around and made airborne by foot traffic and air circulation. Only if particles are airborne might they affect the allergic person.



Additional information may be found at

## **Mold**

[http://www.carpet-rug.org/Documents/Technical\\_Bulletins/0810\\_Mold\\_Indoor\\_Air\\_Quality.aspx](http://www.carpet-rug.org/Documents/Technical_Bulletins/0810_Mold_Indoor_Air_Quality.aspx)

<http://www.carpet-rug.org/About-CRI/News-Room/Press-Releases.aspx>

<http://www.carpet-rug.org/Carpet-for-Business/Carpet-and-Health.aspx>

## **Dust Mites**

[http://www.carpet-rug.org/documents/technical\\_bulletins/Dust\\_Mites.pdf](http://www.carpet-rug.org/documents/technical_bulletins/Dust_Mites.pdf)

## **Asthma and Allergy**

<http://www.carpet-rug.org/Carpet-for-Business/Carpet-and-Health.aspx>

[http://www.carpet-rug.org/Documents/Factsheets/Fact\\_Sheets\\_Asthma\\_Allergy\\_Schools.pdf](http://www.carpet-rug.org/Documents/Factsheets/Fact_Sheets_Asthma_Allergy_Schools.pdf)

[http://www.carpet-rug.org/documents/factsheets/Asthma\\_Allergy\\_Consumers.pdf](http://www.carpet-rug.org/documents/factsheets/Asthma_Allergy_Consumers.pdf)

[http://www.carpet-rug.org/documents/factsheets/Fact\\_Sheets\\_Asthma\\_Allergy\\_Healthcare.pdf](http://www.carpet-rug.org/documents/factsheets/Fact_Sheets_Asthma_Allergy_Healthcare.pdf)

Guidelines for a good routine maintenance program can be found through CRI or on its website at [carpet-rug.org](http://www.carpet-rug.org), Seal of Approval programs <http://www.carpet-rug.org/CRI-Testing-Programs/CRI-Seal-of-Approval-Program.aspx>

## **The Importance of Routine Maintenance**

The most important element in maintaining good air quality in a home is to remove dust and soil often from all surfaces and to maintain a well-functioning heat and air system with effective, clean filters. Regular carpet maintenance is essential to preserve the carpet's initial appearance and for maintaining good indoor air quality. Regular, proper vacuum cleaning with an effective, well-functioning vacuum cleaner that has strong air flow, adjustable brushes, and an enclosed high-efficiency filtration bag removes and traps indoor contaminants. Quick removal of spots and spills is important to avoid stains and fungal growth. Have carpet extraction cleaned, either professionally or with home methods, every 12 to 18 months. Clean more often in high-traffic, commercial areas. Ventilation during the cleaning process is recommended. If a wet method of cleaning is used, do not over-wet and be sure to dry quickly.

Brochures about selection, maintenance, and indoor air quality are available free of charge. Technical materials are available at a nominal charge. Additional information about the CRI Indoor Air Quality programs and other CRI activities is available on our website [www.carpet-rug.org](http://www.carpet-rug.org).

