

Formaldehyde and Fiberglass Building Insulation

REVEALING THE FACTS

Questions have been raised about formaldehyde and its use in the manufacture of fiberglass insulation and its effect on Indoor Air Quality (IAQ). Confusion within the consumer and contractor sector has surfaced since the introduction of “formaldehyde-free” roll and batt products. The following information is provided to address commonly asked questions.

FORMALDEHYDE AND ITS PURPOSE

Formaldehyde is a naturally occurring organic substance that has always existed in the environment. It is contained and emitted from the human body, animals, plants and trees, and it exists in a wide range of household items such as soap, carpets, fabrics and clothing. In a solution form it is used as a disinfectant. Sunlight and bacteria break it down within the environment to stop it from accumulating. Humans metabolize formaldehyde so that it doesn't accumulate in the body.

Trace amounts of formaldehyde can be contained in many building materials and items in the home, including engineered wood products, furniture, window treatments and consumer products.

Formaldehyde is typically a pungent, colorless gas that is easily dissolved in water to facilitate its use. Guardian uses it as part of the phenol-formaldehyde (PF) resin system used to manufacture some of its fiberglass insulation blanket products. PF resin is a component of the liquid binder made at our plants and is used to bond or “bind” the glass fibers together so batts and rolls will “recover” to their original size after being compression-packaged for shipment. All but trace amounts of formaldehyde in the insulation blanket are reacted or eliminated in the manufacturing process and captured by the pollution control equipment at our plants. PF resins have been used to manufacture fiberglass insulation products throughout the world for over 50 years. The use of PF resins has undergone continuous scrutiny by those affiliated with environmental and health agencies with the conclusion that there are no health problems with traditional fiberglass insulation products as a result of PF resins. These products are safe.

THE FACTS ABOUT GUARDIAN FIBERGLASS INSULATION

Fact: Guardian Fiberglass products are tested by the Air Quality Sciences laboratory in Atlanta, GA on a quarterly basis for the emission of any volatile organic compounds (VOCs) including formaldehyde, and then certified by Greenguard Environmental Institute (Greenguard) - an independent, third-party certification agency that specializes in this type of testing.

Fact: From the time fiberglass insulation was invented, manufacturers have used formaldehyde as a binder ingredient in the manufacturing process to help glue or “bind” the glass fibers together. The binder gives the insulation its shape and the ability to recover from a highly compressed package.

Fact: The U.S. Consumer Product Safety Commission (CPSC) and U.S. Environmental Protection Agency (EPA) do not list fiberglass insulation as a major source of formaldehyde in the home. CPSC tests confirm that the trace amounts of formaldehyde in fiberglass insulation are not a concern to human health or the environment. The North American Insulation Manufacturers Association (NAIMA) also confirms this position with the EPA and CPSC:

“Consistent with the Environmental Protection Agency and the U.S. Consumer Product Safety Commission, we do not consider the trace amounts of formaldehyde found in fiberglass insulation to be a concern to human health or the environment.” (NAIMA, 3-22-02)

Fact: The U.S. Occupational Safety and Health Administration (OSHA) has set an “action level” threshold for formaldehyde at 0.5 parts per million (ppm) which equals 500 parts per billion (ppb). [As defined by OSHA: Action Level means a concentration designated in 29 CFR part 1910 for a specific substance, calculated as an eight (8)-hour time-weighted average, which initiates certain required activities such as exposure monitoring and medical surveillance].

Fact: The standards established to achieve Greenguard product certification are considerably more stringent than those established by OSHA... by a factor of 10! That is, in order to maintain Greenguard certification, Guardian Fiberglass Insulation products must have formaldehyde emissions below 50 parts per billion (ppb).

Fact: Guardian's PF resin-containing batt and roll products have continuously achieved Greenguard product certification since initiating this perpetual testing in 2002.

THE FACTS continued

Fact: Formaldehyde is not used in the manufacture of any Guardian "white fiber" products such as AtticGuard PLUS®, UltraFit DS PLUS®, AsureR PLUS®, Perfect Fill® and Ultra™. The binder is only used in the manufacturing of what are commonly referred to as batts and rolls.

Fact: As always, Guardian continues to be committed to providing safe, quality products for our customers.

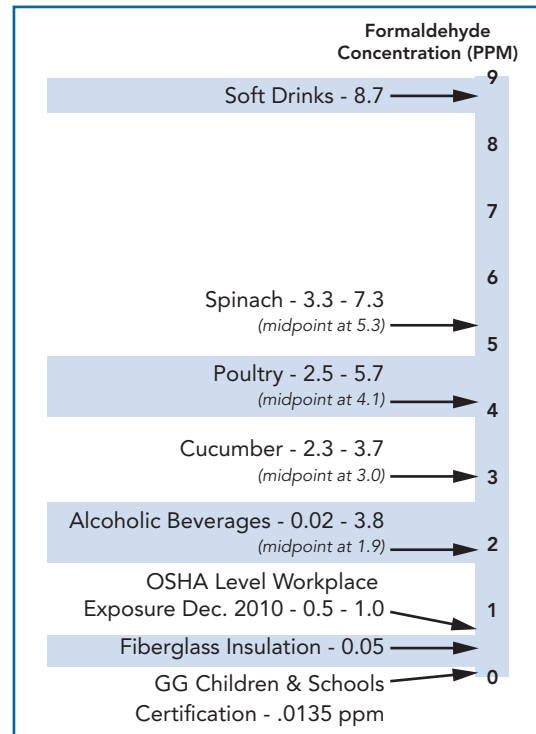
References: www.osha.gov
www.greenguard.org
www.aqs.com
www.epa.gov

PUTTING THE FORMALDEHYDE CONTENT OF INSULATION IN PERSPECTIVE

Product	Formaldehyde Emission Rate (mg2/m-hr)*
Top coat, floor finish after 22 hours	4.66
1/4 inch UF particleboard	1.58
5/8 inch particleboard underlayment	0.508
1/2 inch hardwood veneer plywood	0.17
R-19 Fiberglass Insulation	0.032

* "Emission Rates of Formaldehyde from Materials and Consumer Products Found in California Homes", T.J. Kelly, D.L. Smith and J. Satola, Environmental Science and Technology, 1999, 33, pp. 81-88

Formaldehyde Levels in everyday products (parts per million - ppm) **



** Center for Food Safety, Hong Kong.
 "Risk in Brief - Formaldehyde in Food"

The level of formaldehyde in glass wool insulation is substantially lower in comparison to these everyday food products. It is important to note that fiberglass insulation is not on the US EPA's list of formaldehyde sources in the home.

The California Integrated Waste Management Board Materials Emissions Study compared emissions of many building product categories. In respect to insulation:

- Two "alternative" and two "standard" insulation products were compared.
- The two alternative products both claimed to be "formaldehyde-free".
- **The emissions testing showed both the "formaldehyde-free" fiberglass and the "formaldehyde-free" cellulose products emitted measurable amounts of formaldehyde.**

Integrated Waste Management Board, State of California, Building Material Emissions Study, 2003, publication no 433-03-015



Not all Guardian products are Greenguard certified. See applicable product specifications for details.



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