GUARDIAN BUILDING PRODUCTS

Children & Schools

GREENGUARD®

Indoor Air Quality Certified

ENSURING A HIGHER QUALITY OF LIFE

Guardian Fiberglass Insulation - Exceeds the toughest indoor air quality standards.

The Greenguard Children and Schools Standard in modeled specifically for educational classroom environments. In addition to the traditional GREENGUARD standards for low emitting products, GREENGUARD Children & Schools, has been adjusted to allow no greater that 1/100 OSHA exposure limits or no greater than 1/2 California's Chronic Reference Exposure Levels (CRELs), which is lower.

FOR YOUR HEALTH

Indoor air quality is a growing concern with today's tighter construction practices for homes and buildings. According to the U.S. Environmental Protection Agency most people spend about 90% of the time indoors where "thousands of chemicals and biological pollutants are found", thus negatively affecting their health. That is why Guardian Fiberglass has made a point to achieve the highest possible product certification - Greenguard Certification™. Greenguard Certified Products can reduce indoor air contaminants and promote a better indoor environment.

WHAT IS THE GREENGUARD CERTIFICATION PROGRAM[SM]?

The Greenguard Certification Program was founded in 1999 to establish a true third party certification based on proven emissions criteria used by U.S. Environmental Protection Agency, the state of Washington, the U.S. Green Building Council's LEED program, OSHA and the World Health Organization.

RIGOROUS TESTING

(see back for testing standards)

Greenguard Certified Products must pass rigorous emissions testing for certification. Critical components (such as volatile organic compounds, formaldehyde and other product specific components) are monitored quarterly. All products are fully retested each year. This ensures that products, such as Guardian Fiberglass loose fill and batt insulation to meet the Greenguard Certification Program's established emission standards.

IDENTIFYING A CERTIFIED PRODUCT

Look for the Greenguard Indoor Air Quality® mark prominently displayed on all Guardian Fiberglass packaging. You can be confident that you are insulating your home with the best fiberglass available and that you are choosing the most effective means of creating a quality home environment.

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TESTING STANDARDS

TESTING PROCEDURES

The most reliable and scientifically proven way to test for product emissions is through environmental chamber testing. Guidelines for measuring chemical emissions using environmental chambers were established by the American Society of Testing Materials (ASTM). The standards, ASTM D5116-97 and D6670-01, are the foundation for all product-specific test protocols.

Products are loaded into controlled environmental chambers. These testing chambers are dynamic, which means that purified air streams into the chamber and we collect samples from the exhaust air. This dynamic process resembles the airflow patterns in rooms and buildings and provides data, which can be easily translated into real world scenarios. Environmental chamber testing provides a controlled and representative indoor environment that allows the product to produce the emissions in a realistic manner similar to the way the product would emit in a home or office. Products are tested for formaldehyde, volatile organic chemicals (VOCs), respirable particles, ozone, carbon monoxide, nitrogen oxide, and carbon dioxide emissions. Environmental chamber testing allows the wide spectrum of VOC emissions to be determined rather than just the primary components of the product. Many times, the primary components of a product are not the primary volatile emissions from a product. Frequently, the reaction by-products of the primary components or contaminants in the primary components comprise the majority of the volatile emissions from a product. Environmental chamber testing emissions data can be mathematically modeled to determine exposure concentrations produced by the use of the product in many different indoor environments. Modeling of a product's emission data allows the product use to be evaluated for health, irritation, and odor concerns for a wide range of indoor environments.

WHAT MEASUREMENTS ARE TAKEN

The three basic measurement values are needed to get how much a product emits at a certain point in time; the emission rates or to what degree do the emissions change over time; and the predicted air concentrations or how the test results translate into real building environments.

For more information go to www.greenguard.org.

PERFORMANCE STANDARD FOR INSULATION

Individual VOCs[1]	≤1/100 TLV and ≤½ CA chronic REL
Formaldehyde[2]	≤ 0.0135 ppm 13.5 ppb
Total VOCs[3]	≤ 0.22 mg/m³
Total Aldehydes[4]	≤ 0.043 ppm/ 43 ppb
Total Phthalates[5]	≤ 0.01 mg/m³
Total Particles[6] **(≤10 µm)**	≤ 0.02 mg/m³

[1] Any VOC not listed must produce an air concentration level no greater than 1/100 the Threshold Limit Value (TLV) industrial workplace standard (Reference: American Conference of Government Industrial Hygienists, 6500 Glenway, Bldg D-7, Cincinnati, OH 45211-4438) and/or no greater than 1/2 the CA Chronic Reference Exposure Level (CREL) (http://www.oehha.ca.gov/air/chronic_rels/AllChrels.html - (CRELS) Adopted by the State of California Office of Environmental Health Hazard Assessment (OEHHA), February 2005).

[2] Formaldehyde criteria established so that emission levels reach 0.014ppm (13.5ppb) within 14 days of installation (meeting CA 1350 requirements).

[3] Defined to be the total response of measured VOCs falling within the C6-C16 range, with responses calibrated to a toluene surrogate.

[4] Defined to be the total response of a specific target list of aldehydes (2-butenal; acetaldehyde; benzaldehyde; 2,5-dimethylbenzaldehyde; 2-methylbenzaldehyde; 3-and/or 4-methylbenzaldehyde; butanal; 3-methylbutanal; formaldehyde; hexanal; pentanal; propanal), with each individually calibrated to a compound specific standard.

[5] Defined to be the total response of a specific target list of phthalates including dibutyl (DBP), diethylhexyl (DEHD), diethyl (DEP), butylbenzyl (BBP), di-octyl (DOP), and dimethyl (DMP) phthalates (conducted using a modified phthalate specific analytical method, OSHA 104).

[6] Particles applicable to fibrous, particle-releasing products with exposed surface area in air streams (a forced air test with specific test method).

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FIBERGLASS INSULATION

1000 EAST NORTH STREET, ALBION, MI 49224
517-629-9464, 800-211-8430

WWW.GUARDIANBP.COM

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