UL GREENGUARD

UL GREENGUARD Certification Program
Demonstrating products support healthy indoor air
Low-emitting indoor product certification

Empowering Trust™

UL and the UL logo are trademarks of UL LLC © 2023.
Content

- Overview 01
- Scope 03
- Classify 04
- GREenguARD Advantages 05
- Certification Types 07
- Certification Process 13

- Testing Program 15
- Sustainable Products Database 17
- GREenguARD Recognition 19
- GREenguARD and Green Building 21
- GREenguARD and Healthy Building 23
UL GREENGUARD Certification Program

(Hereinafter referred to as: GREENGUARD)
Interior products have a significant impact on indoor air quality, and can emit hundreds of chemicals into the air that building occupants breathe. GREENGUARD Certification helps ensure compliance that products are low-emitting, and contribute to healthier interiors.

Representative samples of products that have achieved GREENGUARD Certification have been tested and certified to meet some of the world’s most rigorous, third party chemical emissions standards—helping reduce indoor air pollution and the risk of chemical exposure while aiding in the creation of healthier indoor environments.

GREENGUARD Certification has been widely adopted as a trusted standard for low-emitting products. In fact, more than 400 green building codes, standards, guidelines, procurements policies, and rating systems recognize or reference GREENGUARD Certified Products. GREENGUARD Certified products are required to undergo regular compliance testing on critical components.
Scope

All indoor products, including:

- furniture
- flooring
- window treatment
- surfacing materials
- paint
- building materials
- doors
- mattress
- cabinet
- ceiling systems
- adhesives
- children product
- Electronic appliances

Single Product Certification

Single Product Certification means that if a single product passes the test and meets the strictest standard, only this product can use the GREENGUARD Mark.

All Products Certification

All Products Certification covers all kinds of products.
GREenguARD Advantages:

UL GREENGUARD Certification delivers comprehensive value to help you gain a competitive edge and win in the marketplace.

GREenguARD Certification provides a competitive advantage in an increasingly muddled green marketplace by serving as a health-based differentiator. Here are 10 reasons why GREENGUARD Certification delivers this compelling value better than the alternatives:

1. Top Recognition
   UL Mark is trusted and accepted by 88% of U.S. Built Environment Authorities. Additionally, 66% of U.S. retailers express a preference for the UL Mark over other TIC marks.

2. High Acceptance
   GREENGUARD Certified products are recognized, referenced or preferred by more than 400 federal purchasers, retailers, green building rating tools and building codes around the world. UL’s public affairs and outreach teams are dedicated to enhancing market adoptions, setting us apart as a true partner.

3. Reputation Management
   UL and its services are backed by UL’s long time legacy of trust since the founding year of 1894. We are truly committed to enhancing safe living and working environments for people worldwide.

4. Stringent Standards
   GREENGUARD Certified products meet stringent chemical emissions requirements, such as being screened for more than 10,000 volatile organic compounds (VOCs). Products undergo routine monitoring and annual testing to maintain certification. The sound science, robust certification requirements, and third-party status that back the GREENGUARD Certification program differentiate certified products in the marketplace.

5. Health Impact
   People spend 90% of their time indoors*, where air pollution levels are 2 to 5 times higher than those found outdoors*. The largest source of this pollution is volatile organic compound (VOC) emissions from building materials and furnishings. GREENGUARD Certification helps ensure compliance that products are low-emitting, and contribute to healthier indoor environment.

6. Comprehensive Suite of Services
   In addition to GREENGUARD Certification, UL offers product emissions testing, UL ECOLOGO® Certification for multiattribute product sustainability, single attribute environmental claims validations, waste to landfill validation, Environmental Product Declarations, organizational sustainability certifications, and advisory/consulting services. This extensive portfolio allows us to help you tell your sustainability story in all the ways that are meaningful to you and your customers.

7. Greater Timeline Predictability
   We are investing in additional staff and infrastructure resources to make the process easier, faster, and more predictable so you can build GREENGUARD certification into your new product launch timelines.

8. Cost Efficiencies
   Maintaining ecocertifications from multiple certifiers is costly, and potential harm to your brand’s reputation from misuse of environmental claims is even more costly. The new GREENGUARD Mark is the only mark you need and can assist with avoiding greenwashing.

9. Robust Customer Support
   From educational outreach to specifiers, building owners and facility managers; to training programs for your sales staff; to integrated marketing communications initiatives, UL provides a robust support team dedicated to maintaining and increasing the value of GREENGUARD Certification.

10. Environmental Leadership
    GREENGUARD Certification is recognized and referenced in more than 400 building programs, standards and specifications around the world.


GREenguARD Advantages

66% of U.S. retailers express a preference for the UL Mark over other TIC marks.
Certification Types

GREENGUARD Certification is an internationally recognized product emissions certification and labeling program for manufacturers of low-emitting indoor products, furnishings and materials. Products can be certified under two different standards: GREENGUARD Certification and GREENGUARD Gold Certification.

GREENGUARD Certification is divided into two levels:

- GREENGUARD Certification
- GREENGUARD Gold Certification

To date, more than 900 manufacturers have volunteered to participate in GREENGUARD Certification, with a total of more than 50,000 certified products.
GREENGUARD Certification

- GREENGUARD Certification is the first voluntary North American product emissions certification created specifically for commercial building products. This certification verifies that products meet stringent chemical emission limits originally developed as purchasing specifications for commercial building products for the U.S. Environmental Protection Agency (EPA) and the State of Washington. GREENGUARD Certified products are compliant with stringent emission levels for over 360 VOCs, plus a limit on the total of all chemical emissions combined (TVOC). Furniture products that are GREENGUARD Certified are also compliant with the BIFMA X7.1 standard.

- GREENGUARD Certification Program tests building materials, furnishings, furniture, etc. for chemical emissions (VOCs, formaldehyde, etc.) by applying Dynamic Environmental Chambers. GREENGUARD certified products can be searched in SPOT (the UL sustainable product database) and will not pollute indoor air quality.

Certification Standard

### Applicable to All Products

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Full Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Applicable for Building Construction Materials and finishes, Wood Finishes, Countertops, Casework, Visual Display Products, and Furniture Workstations, Casegood Systems and Movable Walls)</td>
</tr>
<tr>
<td>Individual VOCs</td>
<td>$\leq 0.0065 \text{ mg/m}^3$</td>
</tr>
<tr>
<td>Total VOCs (TVOC)</td>
<td>$\leq 0.0033 \text{ mg/m}^3$</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>$\leq 0.05 \text{ ppm}$</td>
</tr>
<tr>
<td>Total Aldehydes</td>
<td>$\leq 0.025 \text{ ppm}$</td>
</tr>
<tr>
<td>Total TVOCs</td>
<td>$\leq 0.05 \text{ ppm}$</td>
</tr>
</tbody>
</table>

Listing of measured carcinogens and reproductive toxins as identified by California Proposition 65, the U.S. National Toxicology Program (NTP), and the International Agency on Research on Cancer (IARC) must be provided.

### Applicable to Specific Products Only

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Full Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Applicable for OEM Materials, Mattresses and Bedding, Seating, Individual Casegoods, Tables, Workstation Components, Shelving, and Children’s Furniture)</td>
</tr>
<tr>
<td>Phenylcyclohexene</td>
<td>$\leq 0.0065 \text{ mg/m}^3$</td>
</tr>
<tr>
<td>Respirable Particles</td>
<td>$\leq 0.0033 \text{ mg/m}^3$</td>
</tr>
<tr>
<td></td>
<td>$\leq 0.05 \text{ mg/m}^3$</td>
</tr>
<tr>
<td></td>
<td>$\leq 0.025 \text{ mg/m}^3$</td>
</tr>
</tbody>
</table>
GREENGUARD Gold Certification

- GREENGUARD Gold Certification includes safety factors to account for sensitive individuals (such as children and the elderly) and helps demonstrate that a product is acceptable for use in environments such as schools and healthcare facilities. In addition to limiting emissions of over 360 VOCs and total chemical emissions, GREENGUARD Gold Certified products must also comply with requirements of the State of California’s Department of Public Health “Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.1 (2010)” (also known as California Section 01350).

Certification Standard

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Full levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual VOCs</td>
<td>≤ 1/100 TLV and ≤ 1/4 CA chronic REL (Office Seating: ≤ 1/100 TLV and ≤ 1/4 CA chronic REL)</td>
</tr>
<tr>
<td>Total VOCs</td>
<td>≤ 0.22 mg/m³</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>≤ 0.0073 ppm/7.3 ppb (Office Seating: ≤ 0.00365 ppm/3.65 ppb)</td>
</tr>
<tr>
<td>Total Aldehydes</td>
<td>≤ 0.043 ppm/43 ppb</td>
</tr>
<tr>
<td>1-Methyl-2- pyrrolidinone</td>
<td>≤ 0.16 mg/m³ (Office Seating: ≤ 0.08 mg/m³)</td>
</tr>
</tbody>
</table>
## Certification Process

**Certification Process**

### Fill out the manufacturer questionnaire and get the price estimate.

### The review focuses on productive technology and raw materials.

### Select components or raw materials for test

### Issue certificate and authorize use of GREENGUARD Mark

### Undergo both annual re-certification and quarterly quality monitoring test to maintain this elite credential

<table>
<thead>
<tr>
<th>Number</th>
<th>Process</th>
<th>Time</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>Collect information of product and confirm the program</td>
<td>2 weeks</td>
<td>Fill out the manufacturer questionnaire and get the price estimate.</td>
</tr>
<tr>
<td>b</td>
<td>Manufacturer Review</td>
<td>1-2 days</td>
<td>The review focuses on productive technology and raw materials.</td>
</tr>
<tr>
<td>c</td>
<td>Profile Test</td>
<td>3-4 weeks</td>
<td>Select components or raw materials for test</td>
</tr>
<tr>
<td>d</td>
<td>Certification Test</td>
<td>3-4 weeks</td>
<td>Select the representative sample for certification test</td>
</tr>
<tr>
<td>e</td>
<td>Issue certificate</td>
<td>1-2 weeks</td>
<td>Issue certificate and authorize use of GREENGUARD Mark</td>
</tr>
<tr>
<td>f</td>
<td>Annual re-certification and quarterly quality monitoring test</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The methods, and others used by the GREENGUARD Certification programs, follow guidance of ASTM Standards D5116 and D6670, the U.S. Environmental Protection Agency’s (EPA) testing protocol for furniture, the state of Washington’s protocol for interior furnishings and construction materials, Germany’s Blue Angel programs, California’s Department of Public Health Services (CDPH) Standard Practice for Specification Section 01350 and the ISO 16000 environmental testing series.

Products are tested in dynamic environmental chambers where air flow is modeled to simulate actual product use. Measurements for chemical and particle emissions are taken at intervals during testing. Most building materials and furnishings are required to meet allowable emission levels within 7 to 14 days of installation. And we test formaldehyde and TVOC and calculation emissions.
UL SPOT is a trusted sustainable product database that can provide architectural designers or professional procurement with comprehensive attribute information from product environmental protection attributes, functionality, safety, and even manufacturer technical specifications, thereby greatly improving the efficiency of finding sustainable products and ultimately transformed into company benefits.

SPOT is by far the world’s largest sustainable product database, and the most comprehensive and rigorous database of low-emitting products and green building materials. It provides material usage guidelines for users who are committed to green construction and environmental protection.

SPOT currently covers more than 130,000 products, and users can search for these products through standard format: numbers, manufacturers, certification categories (such as GREENGUARD Certification, GREENGUARD Certification for Homes) or Rating Systems/Sustainable Credits (such as LEED, BREEAM, WELL, Fitwel, CALGreen Code, ASHRAE 189.1 and more).

So far, more than 150,000 unique visitors from around the world, including renowned architects, developers and owners, visit SPOT.

SPOT is the only sustainable product database linked by the GSA and DOD.

- All GREENGUARD certified products are featured in SPOT.
- UL SPOT is a trusted sustainable product database that can provide architectural designers or professional procurement with comprehensive attribute information from product environmental protection attributes, functionality, safety, and even manufacturer technical specifications, thereby greatly improving the efficiency of finding sustainable products and ultimately transformed into company benefits.
- SPOT is the only sustainable product database linked by the GSA and DOD.
GREENGUARD Certification is recognized and referenced in more than 400 building programs, standards and specifications around the world, including WELL, fitwel®, LEED®, CHPS, ASHRAE, Green Globes, NAHB, IgCC, and more.

UL continues to add programs.

The GREENGUARD Mark leverages the trusted reputation of UL (UL Mark is trusted and accepted by 88% of U.S. Built Environment Authorities. 66% of U.S. retailers express a preference for the UL Mark over other TIC marks.)
## GREENGUARD and Green Building

### GREENGUARD Gold

<table>
<thead>
<tr>
<th>LEED v4 BD&amp;C</th>
<th>LEED v4.1 BD&amp;C</th>
<th>LEED v4.1 ID&amp;C</th>
<th>LEED v4.1 O&amp;M</th>
</tr>
</thead>
</table>

### LEED v4 ID&C

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LEED v4 BD&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 ID&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 O&amp;M Low-Emitting Materials Furniture</td>
</tr>
<tr>
<td>LEED v4 BD&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 ID&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 O&amp;M Low-Emitting Materials Furniture</td>
</tr>
<tr>
<td>LEED v4 BD&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 ID&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 O&amp;M Low-Emitting Materials Furniture</td>
</tr>
<tr>
<td>LEED v4 BD&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 ID&amp;C Low-Emitting Materials Furniture</td>
<td>LEED v4.1 O&amp;M Low-Emitting Materials Furniture</td>
</tr>
</tbody>
</table>
6.3 Adopt and implement an Indoor Air Quality Policy for the Workplace criteria requires low-emitting permanently installed products and furniture and GREENGUARD Gold is the first compliance pathway recognized.

6.4 Adopt and implement a Green Purchasing Policy focuses on green cleaning products and UL ECOLOGO® Certification is one of the first compliance pathways recognized.

X11 Long-Term Emission Control
Part 1 — Furniture Emissions: GREENGUARD Gold shows compliance
Part 2 — Flooring and Insulation: GREENGUARD Gold shows compliance

X12 Short-Term Emission Control
Part 1 — Adhesives & Paints emissions: GREENGUARD Gold shows compliance
Part 2 — Adhesives & Paints content: UL ECOLOGO® Certification shows compliance

X14 Material Transparency
Ingredient transparency down to 1000ppm; Product Lens™ Certification shows compliance

X09 Cleaning Products and Protocol
Part 1 — carcinogenic, mutagenic, reprotoxic substance minimization, skin and respiratory irritation minimization and systemic toxicity/organ effects; some UL ECOLOGO® standards show compliance

WELL v2 (Pilot)

- Product Lens™ MATERIALS TRANSPARENCY AND DISCLOSURE.
  VIEW SPECIFIC INGREDIENTS AND EVALUATIONS: UL.COM/PL