



# Green Chemistry and Green Seal

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THE ORIGINAL GREEN SEAL OF APPROVAL SINCE 1989



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**Green Seal is a non-profit organization that uses science-based programs to empower consumers, purchasers, and companies to create a more sustainable world.**

- Independent 501(c)(3) non-profit
- 30 standards, 193 product categories
  - Cleaning and floor care products, building and construction products, paper products, paint, cleaning services, hotels...
  - ISO, ANSI, EPA, GEN
- Educate purchasers
- Institutional Greening



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# The Global Ecolabelling Network (GEN)

founded 1994, currently 26 member programs



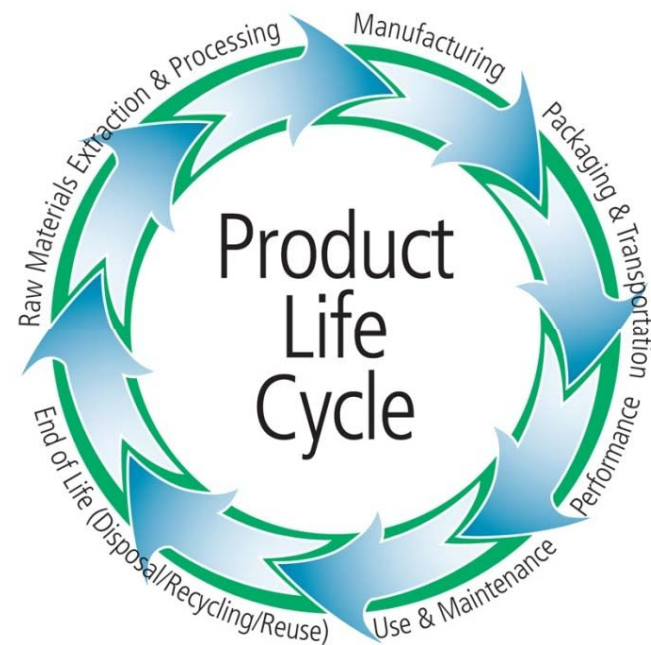


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## Leading Type I Program in USA

ISO 14024: Environmental labels and declarations – Type I environmental labeling – Principles and procedures

- Avoidance of financial conflict-of-interest
- Open stakeholder involvement in standard development
- Certification based on standards with multiple criteria
- Performance requirements
- Packaging and labeling requirements
- On-site audit





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## **How standards can advance green chemistry**

- Consider life cycle of product
- Explicit, meaningful, and consistent criteria
- Provide a goal to work towards
- Eliminate potentially harmful chemicals from marketplace
- Differentiation and recognition in marketplace
- Continuous improvement: standard revision and ongoing monitoring
- Promote innovation and better design



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## **Raising the bar: Revision of GS-37, Fifth edition (2009)**

- Carpet cleaners: pH restriction 3-10
- Product Acute Toxicity Oral LD<sub>50</sub> ≥ 5000 mg/kg
- Carcinogens, mutagens, reproductive toxins "component level"
- Ingredients that cause asthma
- Skin absorption
- Phthalates, 2-butoxyethanol
- VOC levels reduced (<1%)
- Chronic inhalation toxicity
- Bioaccumulating compounds
- Colorants: FDA, natural, heavy metal attestation
- Concentration requirements



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## Familiar Principles?

- Considerations in development of product
- Design for degradation: choice of raw materials
- Energy efficiency: concentration, water temperature
- Prevent waste: packaging, Directions for Use
- Eliminating waste, source reduced: claim verification program
- Inherently safer chemistry





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## **Green Seal™ Certified Hotels**

### **Reduce Greenhouse Gas Emissions**

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Green Seal is the leading environmental labeling organization in the United States for sustainable products and services. Since it was first published in 1999, the Green Seal Environmental Standard for Lodging Properties, GS-33, has represented leadership in the industry.

Green Seal conducted a study to quantify the minimum of greenhouse gas (GHG) reductions of hotels implementing the fundamental of environmentally preferable practices outlined in GS-33.<sup>1</sup> The 2009 study focused on GHG savings for a single, typical hotel in Chicago, IL.<sup>2</sup>

- A hotel implementing a few of the simple measures specified in GS-33 can result in a 55% reduction of GHGs, roughly equal to a reduction of 400 tons CO<sub>2</sub> eq per year.
- This GHG savings from a single hotel is the equivalent of the annual GHG emissions of 73 passenger vehicles or the CO<sub>2</sub> emissions from the energy use of 35 homes for one year.

<sup>1</sup> The complete study is available upon request, followed ISO 14044 and was peer-reviewed.

<sup>2</sup> For 200-room hotel in Chicago, IL with 180,000 square feet. GHG in terms of CO<sub>2</sub> equivalence





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*Thank You!*