

ENVIRONMENTAL/HEALTH CRITERIA FOR CLEANING PRODUCTS (GS 37)

The criteria listed below apply to General Purpose Cleaners, Bathroom Cleaners, Carpet Cleaners and Glass/Window/Mirror Cleaners. They are taken from the GS-37 standard for Industrial and Institutional Cleaners maintained by Green Seal Inc.

1. The undiluted compound shall not be hazardous to humans (as defined below).
 - Dispensing-system concentrates shall be tested as used.
 - A product is considered hazardous if any of the following criteria apply:
 - Oral lethal dose 50 (LD_{50}) \leq 2,000 mg/kg
 - Inhalation lethal concentration (LC_{50}) \leq 20 mg/L*
 - If the vapor-phase concentration of the product at room temperature is less than 20 mg/L, it should be tested at its saturation concentration. If it is not toxic at this concentration, it passes the inhalation criterion.
 - Toxicity shall be measured on the product as a whole. Alternatively, a mixture need not be tested if existing toxicity information demonstrates that each of the ingredients complies.
 - Ingredients that are nonvolatile do not require inhalation toxicity testing
 - It is assumed that the toxicity of the individual component compounds are weighted and summed and that there are not synergistic effects
 - The toxicity testing procedures should meet the requirements put forth by the Organization for Economic Cooperation and Development (OECD) Guidelines for Testing of Chemicals. These protocols include Acute Oral Toxicity Test (TG 401), Acute Inhalation Toxicity Test (TG 403), and Acute Dermal Toxicity Test (TG 402).

2. The undiluted product shall not contain any ingredients that are carcinogens or that are known to cause reproductive toxicity.
 - Carcinogens are defined as those chemicals listed as known, probable, or possible human carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), the U.S. Environmental Protection Agency, or the Occupational Health and Safety Administration.
 - Chemicals known to cause reproductive toxicity are defined as those listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (California Code of Regulations, Title 22, Division 2, Subdivision 1, Chapter 3, Sections 1200, *et seq.*).
 - Naturally occurring elements and chlorinated organics, which may be present as a result of chlorination of the water supply, are not considered ingredients if the concentrations are below the applicable maximum contaminant levels in the National Primary Drinking Water Standards found in 40 Code of Federal Regulations (CFR) Part 141.

3. The undiluted product shall not be a skin sensitizer as tested by the OECD
 - Guidelines for Testing Chemicals, Section 406. Dispensing-system concentrates shall be tested as used. Green Seal shall also accept the results of other standard test methods, such as those described in Buehler (1994) or Magnusson and Kligman (1969), as proof that the product or its ingredients are not skin sensitizers
4. The *undiluted* product shall not be corrosive to the skin or eyes. Dispensing system concentrates shall be tested as used.
 - The undiluted cleaning product shall not be corrosive to the skin, as tested using the Human Skin Construct systems (Liebsch et al. 2000; Fentem et al. 1998).
 - The undiluted cleaning product shall also not be corrosive to the eye as tested using the bovine opacity and permeability test (BCOP) (Sina et al. 1995) after a 10-minute exposure.
 - Green Seal will also accept the results of other peer reviewed or standard in vitro or in vivo test methods demonstrating that the product mixture is not corrosive.
5. The undiluted product shall not be combustible.
6. The product as used shall not contain substances that contribute significantly to the production of photochemical smog, tropospheric ozone, or poor indoor air quality.
 - The volatile organic content of the product as used shall not exceed the following
 - 0.1% by weight for carpet cleaners
 - 1% by weight for general-purpose and bathroom cleaners
 - 3% by weight for glass cleaners
 - The volatile organic content shall be determined by California Air Resources Board Method 310.
7. The product as used shall not be toxic to aquatic life.
8. Each of the organic ingredients in the product as used shall exhibit ready biodegradability in accordance with OECD definition except for a FIFRA-registered ingredient in a bathroom cleaner and the polymer portion of a carpet cleaner. However, all other ingredients in a FIFRA-registered bathroom cleaner or carpet cleaner must comply.
 - Biodegradability shall be measured by one of the following methods: ISO 9439 carbon dioxide (CO₂) evolution test, ISO 10708 (two-phase closed-bottle test), ISO 10707 (closed bottle test), or ISO 7827 (dissolved organic carbon removal). Specifically, within a 28-day test, the ingredient shall meet one of the following criteria within 10 days of the time when biodegradation first reaches 10%:
 - Removal of dissolved organic carbon (DOC) > 70%
 - Biological oxygen demand (BOD) > 60%
 - % of BOD of theoretical oxygen demand (ThOD) > 60%
 - % CO₂ evolution of theoretical > 60%
 - For organic ingredients that do not exhibit ready biodegradability in these tests, the manufacturer may demonstrate biodegradability in sewage treatment plants using the Coupled Units Test found in OECD 303A by demonstrating dissolved organic carbon (DOC) removal > 90%.

- Testing is not required for any ingredient for which sufficient information exists concerning its biodegradability, either in peer-reviewed literature or databases or proving that the ingredient was tested in accordance with standard test procedures.
9. The product as used shall not contain more than 0.5% by weight of total phosphorus.
 10. The primary packaging shall be recyclable. Alternatively, manufacturers may provide for returning and refilling of their packages.
 11. The product must be a concentrate, except for FIFRA-registered bathroom cleaners and absorbent compound carpet cleaners.
 12. Manufacturers shall identify any fragrances on their MSDS's. Any ingredient added as a fragrance must follow the Code of Practice of the International Fragrance Association.
 13. Prohibited ingredients include:
 - Alkylphenol ethoxylates
 - Dibutyl phthalates
 - Heavy metal including arsenic, lead, cadmium, cobalt, chromium, mercury, nickel or selenium.
 - Ozone-depleting compounds
 - Optical brighteners

14. Training

The product manufacturer, its distributor, or a third party shall offer training or training materials in the proper use of the product. These shall include step-by-step instructions for the proper dilution, use, disposal, and the use of equipment. Manufacturers shall have product labeling systems to assist non-English-speaking or illiterate personnel.

15. Animal Testing

Green Seal wants to discourage animal testing and will accept the results of past peer-reviewed or standard tests demonstrating compliance with a criterion. A mixture need not be tested if existing information demonstrates that each of the ingredients complies with a criterion. Additionally, Green Seal may accept non-animal (in-vitro) test results, providing that the test methods are referenced in peer-reviewed literature and the manufacturer provides the reasons for selecting the particular test method.

16. Labeling Requirements

The manufacturer's label shall state clearly and prominently that dilution with water from the cold tap is recommended and shall state the recommended level of dilution. Carpet cleaner labels shall specify the use of cold water for products that do not suffer significant performance degradation in cold water. The manufacturer shall also include detailed instructions for proper use and disposal and for the use of personal protective equipment. Whenever the Green Seal certification mark appears on a package, the package shall contain

a description of the basis for certification. The description shall be in a location, style, and typeface that are easily readable. Unless otherwise approved in writing by Green Seal, the description shall read as follows:

“This product meets Green Seal’s environmental standard for industrial and institutional cleaners based on its reduced human and aquatic toxicity and reduced smog production potential.” For FIFRA-registered bathroom cleaners, replace “toxicity” with the word “impacts”.