



**GS-41**

**GREEN SEAL™ STANDARD FOR  
HAND CLEANERS FOR INDUSTRIAL  
AND INSTITUTIONAL USE**

**SECOND EDITION  
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THE MARK OF ENVIRONMENTAL RESPONSIBILITY

## **GREEN SEAL™**

Green Seal is a non-profit organization whose mission is to use science-based programs to empower consumers, purchasers, and companies to create a more sustainable world. Green Seal sets leadership standards that aim to reduce, to the extent technologically and economically feasible, the environmental, health, and social impacts throughout the life-cycle of products, services, and companies. The standards may be used for conformity assessment, purchaser specifications, and public education.

Green Seal offers certification of products, services, and companies in conformance with its standards. For additional information on Green Seal or any of its programs, contact:

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## FOREWORD

**General.** The final issued standard was developed in an open and transparent process with stakeholder input that included producers, users, and general interests.

The requirements in the standard are based on an assessment of the environmental, health, or social impacts associated with the products, services, or organizations covered in the scope of the standard. The requirements included in the standard are subject to revision. Provisions for safety have not been included in this standard. This standard neither modifies nor supersedes laws and regulations. Compliance with this Standard is not a substitute for, and does not assure, compliance with any applicable law or regulations. Compliance with all applicable laws and regulations is a required prerequisite for the manufacturing and marketing of the products. This standard (and any corresponding conformity assessment) presumes compliance with all applicable laws and regulations.

Products, services, or organizations that are substantially similar to those covered by this standard in terms of function and life cycle considerations may be evaluated against the intent of the requirements of this standard, accounting for relevant differences between the intended scope of the Standard and the actual product, service, or organization to be evaluated.

This standard may not anticipate features of the product that may significantly, and undesirably, increase its impact on the environment, health, or society. In such a situation, Green Seal will ordinarily amend its standards to account for the unanticipated environmental, health, and societal impacts.

Normative references (e.g., other standards) in this standard intend to refer to the most recent edition of the normative reference.

**Edition.** This version is the Second Edition from September 1, 21011 (with editorial changes made on October 1, 2011) and supersedes the First Edition from June 6, 2006.

**Disclaimer of Liability.** Green Seal<sup>™</sup>, as the developer of this standard, shall not incur any obligations or liability for any loss or damages, including, without limitation, indirect, consequential, special, or incidental damages arising out of or in connection with the interpretation or adoption of, reliance upon, or any other use of this Standard by any party. Green Seal makes no express or implied warranty of merchantability or fitness for a particular purpose, nor any other express or implied warranty with respect to this Standard.

Tests may be required by the standard that involve safety considerations. Adequate safeguards for personnel and property should be employed in conducting such tests.

## ACRONYMS AND ABBREVIATIONS

**ASTM.** ASTM International a standard setting organization formerly known as the American Society for Testing and Materials

**EPA.** United States Environmental Protection Agency

**ISO.** International Organization for Standardization

**NIOSH.** National Institute for Occupational Safety and Health

**OECD.** Organization for Economic Co-operation and Development

## GREEN SEAL™ STANDARD FOR HAND CLEANERS FOR INDUSTRIAL AND INSTITUTIONAL USE, GS-41

### 1.0 SCOPE

This standard establishes environmental requirements for *industrial heavy-duty hand cleaners* and *institutional hand cleaners*. For purposes of this standard, *industrial heavy-duty hand cleaners* are defined as those products advertised for heavy-duty use to remove oil, grease, ink or other hard to remove soils in garages, print shops, and other industrial settings. *Institutional hand cleaners* are defined as those products advertised for routine, nonspecialized hand cleaning in office buildings, schools, retail and other public buildings. The standard does not focus on the use of hand cleaners in households, food preparation operations, or medical facilities. See Appendix 1 for an example list of products included in this standard.

Words and phrases described in the standard that appear in *italics* have a corresponding definition located in the definition section of the standard, Annex A.

### 2.0 PRODUCT-SPECIFIC PERFORMANCE REQUIREMENTS

Using a fixed, repeatable procedure, the product shall demonstrate efficacy against a nationally recognized conventional product showing equivalent or better performance. The testing protocol shall include, at a minimum: cleaning ability, lathering/rinsing, and skin condition after use. A standard soil shall be used and conclusions shall be derived from at least six separate samples. All results, a summary of conclusions and a description of how panelists are chosen shall be submitted.

### 3.0 PRODUCT-SPECIFIC HEALTH AND ENVIRONMENTAL REQUIREMENTS

**3.1 Skin Sensitization.** The product shall not be a *skin sensitizer* as tested by Organization for Economic Co-operation and Development (OECD) Guidelines for Testing Chemicals, Section 406, Buehler (1994), or Magnusson and Kligman (1969) or other peer-reviewed or standard test methods. The product shall not be considered a *skin sensitizer* under the following scenarios:

- if test data shows that the whole-product is not a *skin sensitizer*,
- if test data shows that each *ingredient* present at or above a concentration of 0.1% is not a *skin sensitizer*, or
- if test data shows that any known *skin sensitizers* are non-sensitizing when present at 0.1% or greater in the product.

**3.2 Skin Irritation.** The product shall not be a *skin irritant* as tested by OECD Guidelines for Testing Chemicals, Section 404 or other peer-reviewed or standard test methods. The product shall not be considered a *skin irritant* under the following scenarios:

- if test data shows that the whole-product is not a *skin irritant*,
- if test data shows that each *ingredient* present at or above a concentration of 5% is not a *skin irritant*, or
- if test data shows that any known *skin irritants* are non irritating when present at 5% or greater in the product.

**3.3 Antimicrobial Claims.** The product shall make no antibacterial, *disinfecting*, *antiseptic* or *sanitizing* product claims.

**3.4 Prohibited Ingredients.** The product shall not contain the following *ingredients*:

- Phosphates
- *Nitrilotriacetic acid*
- *Ethylene diaminetetra-acetic acid*
- *Halogenated organic solvents*
- Butoxy-ethanol

**3.5 Fragrances.** The product shall declare any fragrances on the product label and on material safety data sheets. Any fragrances used shall have been produced or handled following the code of practice of the International Fragrance Association.

**3.6 Dyes.** If formulated or manufactured with dyes, the product shall be formulated with only food grade dyes.

**3.7 Carcinogens.** The product shall not be formulated or manufactured with any chemicals that are included in the International Agency for Research on Cancer lists for proven (Group 1), probable (Group 2A), or possible (Group 2B) carcinogens.

**3.8 Photochemical Smog and Indoor Air Quality.** The product shall not contain *volatile organic compounds* in excess of the limits expressed in the table below as measured by U.S. Environmental Protection Agency (EPA) Method 24-24A, 40 Code of Federal Regulations, Part 60, Appendix A (1991), or Method 18,48 Federal Register 48, no. 202, October 18, 1983, or Method 1400 the National Institute for Occupational Safety and Health (NIOSH) Manual of Analytical Methods, Volume 1, February 1984, or EPA Method 8240 GC/MS Method for Volatile Organics, September 1986, or California Air Resources Board Method 310; or as demonstrated through calculation from records of the amounts of constituents used to make the product.

GS 41 A Institutional Hand Cleaners	GS 41 B Industrial Heavy Duty Hand Cleaners
1%	8%

**3.9 Aquatic Biodegradability.** The product shall be *readily biodegradable* as determined by whole formulation testing. In lieu of such data, evidence on the ready biodegradability of each *ingredient* will be accepted if consistent tests have been applied for each *ingredient*;

**3.10 Toxicity to Aquatic Life.** Based on *standard use* of the product, the product shall not be toxic to aquatic life defined as  $IC_{50} > 1000$  mg/L as measured by whole formulation short-term sensitive toxicity test performed on the bacteria *Photobacterium phosphoreum*. Aquatic toxicity shall be measured by one of the following test methods: *Biological Test Method: Toxicity Test Using Luminescent Bacteria (Photobacterium phosphoreum)*, Report EPS 1/RM/24, November 1992, Environment Canada, ASTM International (ASTM) D5660-96 or International Organization for Standardization (ISO) 11348.

**3.11 Packaging.** The product shall not be packaged in *bag in box* packaging and shall be packaged in *recyclable packaging*. An exception shall be made for lightweight flexible packaging (e.g., pouches or bags) that represents at least 20% reduction in material use when compared with rigid packaging. As demonstrated by the due diligence of the manufacturer, efforts have been made to ensure packaging with post-consumer recycled content.

**3.12 Animal Testing.** To avoid new animal testing, previous test results will be accepted as evidence of meeting a criterion. When existing data are not available, the preferred methods for new testing include methods that replace, reduce, or refine animal use, particularly those recommended by the Interagency Coordinating Committee on the Validation of Alternative Methods or the European Centre for the Validation of Alternative Methods, unless indicated otherwise. In addition, other non-animal (in-vitro) test results, modeling data, data from structural analogs, and other lines of evidence may be accepted, provided that the methods are peer-reviewed and applicable. Specific in vitro or modeling methods may be noted in the standard, but additional options may be accepted by the certification program.

Further, a mixture need not be tested if existing information demonstrates that each of the applicable components complies with the criterion.

## 4.0 LABELING REQUIREMENTS

4.1 The product shall be accompanied by detailed instructions for proper use to maximize product performance and minimize waste.

4.2 The Green Seal™ certification mark may appear on the product's packaging.

4.3 The Green Seal Mark shall not be used in conjunction with any modifying terms, phrases, or graphic images that might mislead consumers as to the extent or nature of the certification.

4.4 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:

For products certified under GS 41 A, “This product meets the Green Seal™ Standard for Institutional Hand Cleaners, GS-41, based on its reduced human and aquatic toxicity and reduced smog production potential.”

For products certified under GS 41 B, “This product meets the Green Seal™ Standard for Industrial Heavy Duty Hand Cleaners, GS-41, based on its reduced human and aquatic toxicity and reduced smog production potential.”

## ANNEX A – Normative

### Definitions of Terms

(note that the defined terms are italicized throughout the standard)

**Antimicrobial.** Substances which can kill or inhibit the growth of microorganisms.

**Antiseptic.** Preventing or arresting the growth of microorganisms.

**Bag in box.** A flexible bag held inside a rigid outside container (box) that is not removed prior to use of the bag.

**Disinfectant.** An *antimicrobial* agent capable of destroying pathogenic and potentially pathogenic microorganisms on inanimate surfaces.

**Ethylene Diaminetetra-Acetic Acid.** Ethylene diaminetetra-acetic acid (also known as ethylene dinitrilotetraacetic acid, EDTA) or any of its salts.

**Halogenated Organic Solvent.** Any organic solvent containing halogens including fluorine, chlorine, bromine and iodine.

**Industrial Heavy-Duty Hand Cleaner.** A product advertised for heavy-duty use to remove oil, grease, ink or other hard to remove soils in industrial settings.

**Ingredient.** Any constituent of a product that is intentionally added or known to be a contaminant that comprises at least 0.01% by weight of the product.

**Institutional Hand Cleaner.** A product advertised for routine, non-specialized hand cleaning in office buildings, schools, retail and other public buildings.

**Nitrilotriacetic Acid.** Nitrilotriacetic acid or any of its salts.

**Readily Biodegradable.** Is determined using any one of the five test methods described in Guidelines for the Testing of Chemicals, Test Guidelines 301A - 301E.

**Recyclable Package.** The package can be diverted from the waste stream through available processes and programs, and can be collected, processed, and returned to use in the form of raw materials or products.

**Sanitizer.** A product that reduces the level of microorganisms present to acceptable levels established by federal or provincial health authorities.

**Skin Irritant.** The substance causes erythema or edema of the skin graded at 2 or more as defined by OECD 404.

**Skin Sensitizer.** A substance that causes an immunologically mediated cutaneous reaction, also known as allergic contact dermatitis.

**Standard Use.** The amount of product directed for use and diluted in 1 litre of tap water. If no dose is suggested, 5 ml of liquid hand soap shall be used and 0.9 ml of foam soap shall be used.

**Volatile Organic Compound.** Any organic compound which participates in atmospheric photochemical reactions. It excludes those organic compounds which the ECP and Green Seal designate as having negligible photochemical reactivity. These compounds are taken based on the definition found in U.S Code of Federal Regulations. Title 40 part 51 paragraph s.

**APPEDIX 1- Informative**

Examples of products included and excluded in the scope of GS-41:

**Products Included in GS-41**

- *Industrial heavy-duty hand cleaners*
- *Institutional hand cleaners*

**Products Excluded from GS-41**

- General-purpose, restroom, glass and carpet cleaners for industrial and institutional use without *enzymes* or *microorganisms* (included in GS-37)
- General-purpose, bathroom, glass, and carpet cleaner products marketed specifically for *household use* without *enzymes* or *microorganisms* (included in GS-8)
- Hand cleaning products for household use (covered in GS-44)
- Shampoo, conditioner and related shower products for baby, child, adult, commercial, professional, and pet use (GS-44)
- Personal care products (left on the body) (GS-50)