



GS-41

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

**EDITION 2.1
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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

Edition. This version is Edition 2.1 from May 10, 2013 and replaces the Second Edition from September 1, 2011. This revision includes substantive changes.

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. These requirements are subject to revision, and generally cover aspects above and beyond regulatory compliance. This standard neither modifies nor supersedes laws and regulations. Any conformity assessment to this standard requires compliance with all applicable laws and regulations for the manufacturing and marketing of the products.

Provisions for safety have not been included in this standard, since they are supervised by regulatory agencies. Adequate safeguards for personnel and property should be employed for all stages of production, and for all tests that involve safety considerations.

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 a feature 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 a standard to account for the unanticipated environmental, health, or societal impacts.

Normative references (e.g., other standards) in this standard intend to refer to the most recent edition of the normative reference. Test methods may be required for product evaluation. Unless explicitly stated that a specified method is the only acceptable one, the intent of the standard is that an equivalent test method may be accepted at Green Seal's sole discretion.

Certification to this standard shall be awarded only by Green Seal, or, with Green Seal's explicit written permission, by a third-party certification program conducting on-site audits.

Disclaimer of Liability. Green Seal, 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.

ACRONYMS AND ABBREVIATIONS

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

CARB. California Air Resources Board

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

VOC. Volatile Organic Compound

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

1.0 SCOPE

This standard establishes environmental requirements for *institutional hand cleaners* (GS-41 A) and *industrial heavy-duty hand cleaners* (GS-41 B). 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 include 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*
- Alkylphenol ethoxylates
- *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 Volatile Organic Compound (VOC) Content. VOCs include all organic compounds that have a vapor pressure of greater than 0.1 mm mercury at 1 atm pressure and 20° C. "VOC content" means the total weight of VOCs in a product expressed as a percentage of the product weight.

For *industrial heavy-duty hand cleaners*, the VOC content shall not exceed the current regulatory limits of the Air Resources Board for the State of California (CARB) for its product category.

For *institutional hand cleaners*, VOCs shall not exceed the lower of the following options:

- 1% by weight.
- The current CARB regulatory limit.

The VOC content shall be determined in one of the following ways:

- By summing the percent by weight contribution from all volatile organic *ingredients*.
- According to the California Air Resources Board Method 310 (or equivalent), modified to include all *fragrances* and all volatile organic *ingredients*¹.

Current CARB regulatory limits for VOCs².

Product Category	Effective Date	Limit (%)
<i>Industrial heavy-duty hand cleaners</i> or soap	1/1/2005 (12/31/2013)	8 (1)

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

¹ Evaluation of the VOC content in this standard includes all *fragrances* and volatile organic compounds present in the product at 0.01% or more. Evaluation of the VOC content under Method 310 exempts *fragrances* and all volatile organic compounds present below 0.1%.

² These limits are a reference to the current CARB regulatory limits and will be updated to reflect any amendments made by CARB in the future.

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 CERTIFICATION AND LABELING REQUIREMENTS

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

4.2 Certification Mark. The Green Seal® Certification Mark may appear on the product, packaging, secondary documents, and promotional materials, only in conjunction with the certified product. Use of the Mark must be in accordance with *Rules Governing the Use of the Green Seal Certification Mark*³.

The Green Seal Certification 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.

Green Seal must review all uses of the Certification Mark prior to printing or publishing.

4.3 Use With Other Claims. The Green Seal Certification Mark shall not appear in conjunction with any human health or environmental claims, unless verified and approved in writing by Green Seal.

4.4 Statement of Basis for Certification. Wherever the Green Seal Certification Mark appears, it shall be accompanied by 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, unless an alternate version is approved in writing by Green Seal:

For products certified under GS-41 A:

This product meets Green Seal™ Standard GS-41A based on effective performance and protective limits on VOCs and human & environmental toxicity. GreenSeal.org.

³ www.greenseal.org/TrademarkGuidelines

For products certified under GS-41 B:

This product meets Green Seal™ Standard GS-41B based on effective performance and protective limits on VOCs and human & environmental toxicity. GreenSeal.org.

ANNEX A – DEFINITIONS (Normative)

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. Determined using any one of the five test methods described in OECD 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 liter 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 that 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.

APPENDIX 1 – SCOPE (Informative)

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

Products Included in GS-41

- *A: Institutional hand cleaners*
- *B: Industrial heavy-duty hand cleaners*

Products Excluded from GS-41

- General-purpose, restroom, glass and carpet cleaners for industrial and institutional use (included in GS-37)
- General-purpose, bathroom, glass, and carpet cleaner products marketed specifically for *household use* (included in GS-8)
- Hand cleaning products for household use (covered in GS-44)
- Hand cleaning products in food preparation operations or medical facilities.
- Shampoo, conditioner and related shower products for baby, child, adult, commercial, and professional use (GS-44)
- Personal care products (left on the body) (GS-50)