



GS-44

**GREEN SEAL™ STANDARD FOR
SOAPS, CLEANSERS, AND SHOWER
PRODUCTS**

**THIRD EDITION
SEPTEMBER 1, 2011**

Green Seal, Inc. • 1001 Connecticut Ave. NW, Ste 872 • Washington, DC USA 20036-5525
(202) 872-6400 • FAX (202) 872-4324 • www.green Seal.org

Green Seal's Standards are copyrighted to protect Green Seal's publication rights.
There are no restrictions on using the criteria in the design or evaluation of products.

©2011 Green Seal, Inc. All Rights Reserved

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 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:

Green Seal
1001 Connecticut Avenue, NW, Suite 827
Washington, DC 20036-5525
(202) 872-6400
greenseal@greenseal.org
www.greenseal.org

**GREEN SEAL™ STANDARD FOR
SOAPS, CLEANSERS, AND SHOWER PRODUCTS, GS-44**

TABLE OF CONTENTS

FOREWORD	4
ACRONYMS AND ABBREVIATIONS	5
1.0 SCOPE	6
2.0 PRODUCT-SPECIFIC PERFORMANCE REQUIREMENTS	6
3.0 PRODUCT-SPECIFIC HEALTH AND ENVIRONMENTAL REQUIREMENTS	6
3.1 ACUTE TOXICITY	6
3.2 CARCINOGENS, MUTAGENS, AND REPRODUCTIVE TOXINS	7
3.3 SKIN AND EYE IRRITATION	7
3.4 SKIN SENSITIZATION	8
3.5 SKIN ABSORPTION	8
3.6 COMPONENTS THAT CAUSE ASTHMA	8
3.7 OZONE DEPLETING COMPOUNDS	8
3.8 VOLATILE ORGANIC COMPOUND CONTENT	8
3.9 CHRONIC INHALATION TOXICITY	8
3.10 TOXICITY TO AQUATIC LIFE	9
3.11 BIOACCUMULATING COMPOUNDS	9
3.12 AQUATIC BIODEGRADABILITY	10
3.13 EUTROPHICATION	10
3.14 PROHIBITED COMPONENTS	10
3.15 FRAGRANCES	11
3.16 PRESERVATIVES	11
3.17 COLOR COMPONENTS	11
3.18 NANOSCALE COMPONENTS	11
3.19 OPTICAL BRIGHTENERS	11
4.0 PACKAGING REQUIREMENTS	12
4.1 PRIMARY PACKAGING	12
4.1.1 Source Reduction in Primary Package	12
4.1.2 Concentrated Product Packaging	12
4.1.3 Heavy Metal Restrictions	12
4.1.4 Other Restrictions	12
4.2 SECONDARY PACKAGING	12
5.0 COMMUNICATION AND LABELING REQUIREMENTS	12
5.1 ANTIMICROBIAL CLAIMS	12
5.2 INGREDIENT LINE	12
5.3 ORGANIC CLAIMS	13
5.4 NATURAL AND BIOBASED CLAIMS	13
5.5 FRAGRANCE AND ALLERGEN LABELING	13
5.6 CONSUMER COMMUNICATION	13
5.7 USE LABELING	13
5.8 DISPOSAL LABELING	13
5.8.1 Plastic Labeling	13
5.9 CERTIFICATION MARK	13
5.10 STATEMENT OF BASIS FOR CERTIFICATION	14
ANNEX A	15
APPENDIX 1	19
APPENDIX 2	20

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. 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 sanitary paper products 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 Third Edition from September 1, 2011 (with editorial changes made on October 1, 2011) and replaces the Second Edition from January 25, 2011, including substantive revisions.

Disclaimer of Liability. Green SealTM, 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 standards that involve safety considerations. Adequate safeguards for personnel and property should be employed in conducting such tests.

ACRONYMS AND ABBREVIATIONS

- ACGIH.** American Conference of Governmental Industrial Hygienists
AOEC. Association of Occupational and Environmental Clinics
ASTM. ASTM International, a standard setting organization formerly known as the American Society for Testing and Materials
BOD. Biological Oxygen Demand
CFR. Code of Federal Regulations
DFG. German Deutsche Forschungsgemeinschaft
DOC. Dissolved Organic Carbon
EPA. United States Environmental Protection Agency
GHS. Globally Harmonized System for Classification and Labeling of Chemicals
ISO. International Organization for Standardization
LLNA. Local Lymph Node Assay
NOAEL. No-Observed Adverse Effect Level
OECD. Organization for Economic Co-operation and Development
VOC. Volatile Organic Compound

GREEN SEAL™ STANDARD FOR SOAPS, CLEANSERS, AND SHOWER PRODUCTS, GS-44

1.0 SCOPE

This standard establishes environmental requirements for hand, hair, and body *soaps* and *cleansers* used and rinsed after use. This includes liquid and solid *soap* and *cleansers*, *shampoo*, *conditioner*, and related *shower products* for baby, child, adult, and *professional-use*. This standard does not apply to products used for animal or pet use, those used in commercial or institutional facilities where the products are not intended to be sold to consumers, or products required to be registered under the Federal Insecticide, Fungicide, and Rodenticide Act, such as those making claims as sterilizers, *disinfectants*, or *sanitizers*, or *antimicrobial soaps* and *cleansers*. 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

The product shall perform as well as or better than a conventional, nationally-recognized product in its category and at equivalent concentration using an objective, scientifically-validated method conducted under controlled and reproducible laboratory conditions. The testing protocol shall include, at a minimum: cleaning ability, lathering/rinsing, and skin or hair 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 were chosen shall be submitted.

3.0 PRODUCT-SPECIFIC HEALTH AND ENVIRONMENTAL REQUIREMENTS

3.1 Acute Toxicity. The *undiluted product* shall not be toxic to humans. A product is considered toxic if any of the following criteria apply:

Oral lethal dose (LD ₅₀)	≤ 5,000 mg/kg
Inhalation lethal concentration (LC ₅₀)	≤ 20 mg/L at 1 hr
Dermal lethal dose (LD ₅₀)	≤ 2,000 mg/kg

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. The toxicity testing procedures should meet the requirements put forth by the Organization for Economic Co-operation 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).

Testing is not required for any *ingredient* for which sufficient information exists.

To demonstrate compliance with this requirement. It is assumed that the toxicity of the individual *ingredients* is additive. The toxicity values are adjusted by the weight of the *ingredient* in the product and summed using the following formula:

$$TP = \left(\sum_{i=1}^n \frac{wt_i}{TV_i} \right)^{-1}$$

Where,

TP = toxicity of the product

wt_i = the weight fraction of the *ingredient*

TV = the toxicity value for each *ingredient* (LD₅₀)

n = number of *ingredients*

For inhalation toxicity, it is determined from all *ingredients* with a vapor pressure greater than 1 mm Hg at standard conditions (1 atm and 20-25°C).

3.2 Carcinogens, Mutagens, and Reproductive Toxins. The *undiluted product* shall not contain any *ingredients* or *components* that are *carcinogens*, *mutagens*, or *reproductive toxins*. The product shall not contain any *ingredients* or *components* known to produce or release *carcinogens*, *mutagens*, or *reproductive toxins*.

3.3 Skin and Eye Irritation. The *undiluted product* shall not cause skin irritation, *skin corrosion*, or *serious eye damage* as defined by the Globally Harmonized System for Classification and Labeling of Chemicals (GHS). Further, a product is considered to cause skin irritation, *skin corrosion*, or *serious eye damage* if it has a pH of 2 or less or a pH of 11.5 or greater, unless proven otherwise.

The product shall not cause skin irritation as tested by OECD Guidelines for Testing Chemicals, Section 404 or other peer-reviewed or standard test methods. The product shall not be considered to cause skin irritation 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.

Further, a product shall be evaluated for *skin corrosion* and *serious eye damage* following the testing and evaluation strategy described in the GHS. Green Seal prefers that an *in vitro* test validated by the Interagency Coordinating Committee on the Validation of Alternative Methods or the European Centre for the Validation of Alternative Methods be used. 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 does not cause *skin corrosion* or *serious eye damage*. Testing is not required for any *ingredient* for which sufficient information exists.

3.4 Skin Sensitization. The *undiluted product* shall not be a *skin sensitizer*, as tested by the Local Lymph Node Assay (LLNA) or following the U.S. Environmental Protection Agency (EPA) test guidelines for skin sensitization (OECD Guideline 429, OPPTS 870.2600). The results of other standard test methods, such as the guinea pig maximization test (OECD Guideline 406) or the Buehler test (OECD 406), will be accepted as proof that the product in its most concentrated form is not a *skin sensitizer* when data from LLNA tests are not available. Any new product or *ingredient* testing should use the LLNA. Testing is not required for any *ingredient* for which sufficient information exists.

3.5 Skin Absorption. The *undiluted product* shall not contain *ingredients*, present at greater than or equal to 1% in the product, that are listed on the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value carrying a skin notation, or substances that are listed on the German Deutsche Forschungsgemeinschaft (DFG) Maximum Allowable Concentrations list with a skin absorption H notation. Further, the product shall not contain *ingredients* that sum to 1% in the formula that are listed on ACGIH or DFG with the same target organ.

3.6 Components that Cause Asthma. The *undiluted product* shall not contain any *components* that have been identified as *asthmagens*.

3.7 Ozone Depleting Compounds. The *undiluted product* shall not contain any *ingredients* that are *ozone-depleting compounds*.

3.8 Volatile Organic Compound Content. The *undiluted product* shall not contribute significantly to the production of photochemical smog, tropospheric ozone, or poor indoor-air quality by containing no more than 1% of volatile organic compound (VOC) content. The VOC content shall be determined either by summing the percent by weight contribution from all *components* of the product that have a vapor pressure of greater than 0.1 mm mercury at standard conditions or by the California Air Resources Board Method 310 modified to not allow the exemption for *fragrances* specified under Method 310.

3.9 Chronic Inhalation Toxicity. The *product as used* shall not contain *ingredients* with a vapor pressure above 1 mm mercury at ambient conditions (1

atm pressure and 20-25° C) that cause chronic inhalation toxicity as evidenced by either of the following:

- Listed by the European Chemicals Bureau as R48/23: Danger of serious damage to health by prolonged exposure through inhalation.
- Classified as producing significant toxic effects in mammals from repeated inhalation exposure at or below 1.0 mg/L as a vapor according to OECD Harmonized Integrated Classification System for Human Health and Environmental Hazards of Chemical Substances and Mixtures. For the purposes of this standard, significant toxic effects in mammals from repeated inhalation exposure at or below 1.0 mg/L as a vapor shall be established by a No-Observed Adverse Effect Level (NOAEL), based on a test duration of 90 days at 6 hours per day; values from other exposure regimes shall be estimated (extrapolated) per the principles of *Haber's rule*. In lieu of a NOAEL, the LOAEL can be used with a ten-fold safety factor (i.e., LOAEL/10).

3.10 Toxicity to Aquatic Life. The *product as used* shall not be toxic to aquatic life. A compound is considered not toxic to aquatic life if it meets one or more of the following criteria:

Acute LC₅₀ for algae, daphnia, or fish ≥100 mg/L

For purposes of demonstrating compliance with this requirement, aquatic toxicity testing is not required if sufficient aquatic toxicity data exist for each of the product's *ingredients* to demonstrate that the product mixture complies, using a weighted average approach (as in section 4.1). Aquatic toxicity tests shall follow the appropriate protocols in International Organization for Standardization (ISO) 7346-2 for fish, OECD test guidance 203 for fish, OECD test guidance 201 for algae, and OECD test guidance 202 for daphnia.

Alternatively, the product shall not be toxic to aquatic life defined as IC₅₀>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 ISO 11348.

3.11 Bioaccumulating Compounds. The *product as used* shall not contain any *ingredients* that bioaccumulate or that form degradation products that bioaccumulate. A chemical is considered to bioaccumulate when it has a BCF greater than 100 (or log BCF >2) as determined by ASTM E-1022-94(2007) Standard Guide for Conducting Bioconcentration test with Fishes and Saltwater Bivalve Mollusks or OECD 305 Bioconcentration: Flow-through Fish Test. If the chemical meets the requirement for biodegradability, 3.12, it may be considered

to not bioaccumulate. Testing is not required for any *ingredient* for which sufficient information exists. If no test results are available, a chemical with a log octanol/water partition coefficient $\log K_{ow} > 3$ may be considered to bioaccumulate.

3.12 Aquatic Biodegradability. Each of the individual organic *ingredients* in the *product as used* shall exhibit ready biodegradability in accordance with the OECD definition. Biodegradability shall be measured according to any of the following methods: ISO 7827, 9439, 10707, 10708, 9408, 14593; OECD Methods 301A – F; or OECD 310. 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 > 60%
- % CO₂ evolution of theoretical > 60%

Per OECD guidance the 10-day window requirement does not apply to structurally-related surfactant homologues. 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 DOC removal > 90%.

An exception shall be made for *natural* or *naturally-derived components* that do not exhibit ready biodegradability if it does not have acute aquatic toxicity <100 mg/L (according to 3.10), does not have a chronic toxicity <100 mg/L (tested according to OECD 210, 211, or 201), is not bioaccumulating (3.11), and exhibits biodegradation rates above 70% (measured as BOC, DOC, or COD), per ISO test methods 9887 or 9888; or OECD 302A, B, or C.

Testing is not required for any *ingredient* for which sufficient information exists concerning its biodegradability, either in peer-reviewed literature or databases.

3.13 Eutrophication. The *undiluted product* shall not contain phosphorus at more than 0.2% by weight.

3.14 Prohibited Components. The *undiluted product* shall not contain the following *components*:

- 2-butoxyethanol
- Alkylphenol ethoxylates
- Butylated hydroxytoluene
- Ethoxylated chemicals
- Ethylene diaminetetra-acetic acid or any of its salts

- Formaldehyde donors
- Heavy metals including, lead, hexavalent chromium, or selenium both in the elemental form or compounds
- *Halogenated organic solvents*
- Methylidibromo glutaronitrile
- Monoethanolamine, Diethanolamine, and Triethanolamine alone or in compounds
- Nitro-musks
- Parabens
- Phthalates
- Polycyclic musks

3.15 Fragrances. All *fragrance components* shall be disclosed to the certifying body. Any *fragrances* used shall have been produced and handled following the code of practice of the International Fragrance Association. The product shall declare any *fragrances* on the product label in the ingredient line (see 6.2 and 6.5).

3.16 Preservatives. The use of preservatives for purposes other than preservation of the product is not allowed. Documentation must be provided to demonstrate the dosage necessary to preserve the product.

3.17 Color Components. [Reserved]

3.18 Nanoscale Components. [Reserved]

3.19 Optical Brighteners. The *undiluted product* shall not contain any *ingredients* that are *optical brighteners*.

3.20 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 PACKAGING REQUIREMENTS

4.1 Primary Packaging.

4.1.1 Source Reduction in Primary Package. The *primary package* shall be a *source-reduced package* or *recyclable* and contain at least 25% *post-consumer material* or demonstrate that efforts were made to use the maximum available *post-consumer material* in the package.

4.1.2 Concentrated Product Packaging. *Concentrates* are prohibited from being packaged in ready-to-use forms, including but not limited to pump-dispenser bottles.

4.1.3 Heavy Metal Restrictions. Heavy metals, including lead, mercury, cadmium, and hexavalent chromium, shall not be *intentionally introduced*. Further, the sum of the concentration levels of these metals present shall not exceed 100 parts per million by weight (0.01%); an exception is allowed for refillable packages or packages that would not exceed this maximum level but for the addition of recovered materials. Further, *intentional introduction* does not include the use of one of the metals as a processing aid or intermediate to impart certain chemical or physical changes during manufacturing, where the incidental retention of a residual of that metal in the final packaging or packaging *component* is not desired or deliberate, if the final packaging or packaging *component* complies with the incidental concentration restrictions of 100 ppm.

4.1.4 Other Restrictions. Phthalates, Bisphenol A, and chlorinated packaging material are prohibited from being *intentionally introduced*; an exception is allowed for packages that would not have these added compounds but for the addition of recovered material.

4.2 Secondary Packaging. *Secondary packaging* shall only be used for *concentrates*. An exception may be made for packaging of multiple units when up to one of the units is a ready-to-use form, including but not limited to pump-dispenser bottles, and total packaging (*primary plus secondary packaging*) is a reduction in packaging material use.

5.0 COMMUNICATION AND LABELING REQUIREMENTS

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

5.2 Ingredient Line. The product shall list the product *components* using the naming convention of the International Nomenclature of Cosmetic Ingredients in order of predominance. The general term '*fragrance*' may be used for *fragrance*

components. The product shall also follow any additional labeling regulations that apply to that product.

5.3 Organic Claims. Organic claims must be supported with documentation that they meet the U.S. Department of Agriculture National Organic Program or meet the NSF International 305 standard.

5.4 Natural and Biobased Claims. Only the following *natural* and *biobased*, or related, claims are allowed when the product meets the criteria outlined:

- “100 percent Natural,” “All Natural,” “100 percent Biobased,” or “All Biobased” shall only contain *natural* or *biobased components*, respectively, with no synthetic, petroleum, silicone, or artificial *components*. An exception is permitted for lye used to produce *soap*.
- “Natural” or “Biobased” products shall contain 95% *natural*, *naturally-derived*, or *biobased components*, respectively, with no synthetic, petroleum, silicone, or artificial *components*.
- Claims on specific product *ingredients* being “natural” or “biobased” may be permitted if it is a *natural* or *biobased ingredient*.

5.5 Fragrance and Allergen Labeling. The product label shall declare, separate from the ingredient line, if a *fragrance* has been added or if no *fragrance* has been added and if the product contains any *allergen ingredients*.

5.6 Consumer Communication. The product ingredient line (6.2) shall be made available to consumers in an easily accessible means besides the product package, such as the company website.

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

5.8 Disposal Labeling. The label must include proper disposal instructions including clear package recycling instructions, if applicable.

5.8.1 Plastic Labeling. If plastic, the packaging must be clearly marked with the appropriate Society of the Plastics Industry symbol to identify the type of plastic for recycling and appropriate qualification of recyclability as referenced in 4.1.1 such as “may be *recyclable*, see if accepted by your local program” or “only a few communities accept this package for recycling, check with your local program.”

5.9 Certification Mark. The Green Seal Certification Mark may appear on the packaging and may appear on the product itself. 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.

5.10 Statement of Basis for Certification. 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 the Green Seal™ Standard for Soaps, Cleansers, and Shower Products, GS-44, based on its low impact on aquatic life, minimized use of hazardous substances, and increased health protection.

ANNEX A – Normative

Definitions of Terms

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

Allergen. Allergenic substances listed by the European Commission in the Cosmetic Directive and those listed by the U.S. Food and Drug Administration (including food allergens).

Antimicrobial. Substances that are intended to kill or inhibit the growth of microorganisms including *antiseptic*, *disinfectant*, and *sanitizer* substances.

Antiseptic. Substances that are intended to prevent or arrest the growth of microorganisms.

Asthma. Asthma is a chronic inflammatory disorder of the airways that impairs breathing. Asthma affects children and adults, may be intermittent or persistent, and is further classified as mild, moderate, or severe. The chronic inflammation associated with variable airflow obstruction commonly causes difficulty breathing, coughing, wheezing, shortness of breath, and/or chest pain. Symptoms may resolve completely between active episodes. Symptoms may occur during exposure, immediately after exposure, or up to 24 hours later in a “late phase,” frequently interrupting sleep.

Asthmagen. A substance designated as *asthma* causing agents by the Association of Occupational and Environmental Clinics (AOEC), which after review by AOEC have met the AOEC sensitization criteria.

Biobased. The content of a product that is from biological products or renewable materials, forestry, or agricultural materials (including plant, animal, and marine materials).

Carcinogen. A chemical listed as a known, probable, reasonably anticipated, or possible human carcinogen by the International Agency for Research on Cancer (Groups 1, 2A, and 2B), National Toxicology Agency (Groups 1 and 2), EPA Integrated Risk Information System (weight-of-evidence classifications A, B1, B2, C, carcinogenic, likely to be carcinogenic, and suggestive evidence of carcinogenicity or carcinogen potential), or by Occupational Safety and Health Administration (as carcinogens under 29 Code of Federal Regulations (CFR) 1910.1003(a)(1)).

Cleanser. A product intended to clean the body or hair that has detergent properties that are not necessarily due to alkali-fatty acid compounds, and may contain synthetic detergents.

Color Component. A product *component*, such as a dye or pigment, whose only function is to change the product’s color.

Component. A deliberate addition to the product, where it is added for its continued presence in the final product to provide a specific characteristic, appearance, or quality. Naturally occurring elements and chlorinated organics, which may be present as a result of chlorination of the water supply, are not considered intentional *components* if the concentrations are below the applicable maximum *contaminant* levels in the National Primary Drinking Water Standards found in 40 CFR Part 141.

Concentrate. A product, as sold, that must be diluted by water prior to its intended use.

Conditioner. A product that is intended to alter the texture or appearance of hair or scalp, used after *shampoo* and rinsed off after use. This can include products called rinses but does not include leave-in products.

Contaminant. A product constituent that was not added for its functionality, but is known to be present.

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

Haber's Rule. For a given toxic gas, the concentration of the gas multiplied by the duration of exposure equals a constant ($C \times t = k$); for example, doubling the concentration will halve the time for a given toxic effect.

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

Fragrance. An additive, often (but not limited to) a multi-*component* additive, used in a product with the purpose of imparting or neutralizing a scent in the product.

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

Intentional Introduction. The act of deliberately utilizing a material in the formation of a package or packaging *component* where its continued presence is desired in the final package or packaging *component* to provide a specific characteristic, appearance, or quality.

Mutagen. A chemical that meets the criteria for category 1, chemicals known to induce heritable mutations or to be regarded as if they induce heritable mutations in the germ cells of humans, under GHS Chemicals Which Cause Mutations in Germ Cells.

Nanoscale Component. A *component* that is roughly 1 to 100 nanometers in size, enabling novel applications that a larger-sized version of the *component* could not achieve.

Natural Component. A *component* that comes from materials and found in nature including mineral, forestry, agricultural, or biological materials; do not contain transgenic hybrid organisms; have been processed without irradiation; and are not chemically altered.

Naturally-Derived Component. A *component* that is partially chemically altered without petroleum *components* and have been minimally processed such that they not be altered to such an extent that they are no longer biodegradable and non-toxic (examples of potentially acceptable processes are included in Appendix B).

Optical Brightener. An additive designed to enhance the appearance of colors and whiteness in materials by absorbing ultraviolet radiation and emitting blue radiation. These compounds are also known as fluorescent whitening agents.

Ozone-Depleting Compound. A compound with an ozone-depletion potential greater than 0.01 (CFC 11=1) according to the EPA list of Class I and Class II Ozone-Depleting Substances.

Post-Consumer Material. Material that would otherwise be destined for solid waste disposal, having completed its intended end-use and product life cycle. Post-consumer material does not include materials and by-products generated from, and commonly reused within, an original manufacturing and fabrication process.

Product As Used. The amount of product directed for use and diluted in 1 liter of tap water. If no dose is suggested, 5 ml of liquid *soap* or *cleansers* shall be used and 0.9 ml of foam *soap* or *cleansers* shall be used, or the equivalent for solid or semi-solid products.

Professional-Use. Trained or paid workers, such as, but not limited to, hair stylists, that use the products included in the scope of this standard and such products are available for sale to the consumer.

Primary Package. A package that is the material physically containing and coming into contact with the product, not including the cap or lid of a bottle.

Recyclable. The package can be collected in a substantial majority of communities, separated or recovered from the solid waste stream and used again, or reused in the manufacture or assembly of another package or product through an established recycling program.

Reproductive Toxin. A chemical listed as a reproductive toxin (including developmental, female, and male toxins) 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., also known as Proposition 65).

Sanitizer. A product intended to reduce the level of microorganisms present to acceptable levels established by federal or provincial health authorities.

Secondary Packaging. Packaging used to contain *primary package/s* and typically used for merchandizing. This does not include case or shipping packaging or the *primary package*, cap, or lid.

Serious Eye Damage. The production of tissue damage in the eye, or serious physical decay of vision, following application of a test substance to the anterior surface of the eye, which is not fully reversible within 21 days of application.

Shampoo. A *soap* or *cleanser* used to clean the hair and scalp and rinsed off after use. This can include combination shampoo and *conditioner* or shampoo and rinse products.

Shower Product. A product that is used on the body or hair with the intention that they are washed off the body. This may include bubble bath, exfoliating scrubs, and other rinse-off products.

Skin Corrosion. The production of irreversible damage to the skin; namely, visible necrosis through the epidermis and into the dermis, following the application of a test substance for up to 4 hours. Corrosive reactions are typified by ulcers, bleeding, bloody scabs, and, by the end of observation at 14 days, by discoloration due to blanching of the skin, complete areas of alopecia, and scars.

Skin Sensitizer. A substance that will lead to an allergic response following skin contact.

Soap. A product used to clean the body or hair in which most of the nonvolatile matter consists of an alkali salt of fatty acids and whose detergent properties are due to these alkali-fatty acid compounds (21 CFR 701.20).

Source-Reduced Package. A package that has at least 50% less material (by weight) compared to containers commonly used for that product type.

Undiluted Product. The most concentrated form of the product produced by the manufacturer for transport outside its facility.

APPENDIX 1 - Informative

Examples of products included and excluded in the scope of GS-44:

Products included in GS-44

- Body wash
- Bubble bath and bath salts
- *Cleansers*
- *Conditioner*
- Exfoliant products (if intended to rinse off)
- Face wash
- Makeup remover (if intended to rinse off)
- Moisturizing products (if intended to rinse off)
- *Shampoo*
- Shaving cream, gel, and foam
- *Shower products*
- *Soap*

Products excluded from GS-44

- Aftershave (included in GS-50)
- Astringent/toner (included in GS-50)
- Cleaning wipes that don't require rinsing after use (included in GS-50)
- Cuticle cream, lotion, and oil (included in GS-50)
- Deodorant and antiperspirant (included in GS-50)
- Feminine deodorant
- Fragrance Products/perfume and body spray
- Hair shine products (included in GS-50)
- Hair spray (included in GS-50)
- Hair styling products (e.g., balm, gel, mousse) (included in GS-50)
- Hair dye, color, and bleach
- Hair relaxant
- Hand *sanitizer*
- Insect repellents (included in GS-50)
- Leave-on hair *conditioner* (included in GS-50)
- Lip products (included in GS-50)
- Makeup and bronzers (e.g., foundation, concealer, bronzer, mascara, eyeliner, eye shadow, blush) (included in GS-50)
- Massage oil (included in GS-50)
- Nail polish remover
- Oral care products (toothpaste)
- Skin care products (e.g., lotions) (included in GS-50)
- Sunless tanning products (included in GS-50)
- Sunscreen (included in GS-50)

APPENDIX 2 - Informative

Examples of Potentially Acceptable Processing Methods of *Naturally-Derived Components* (which must also meet all the requirements in the standard)

- Esterification, Etherification, and Transesterification (to produce esters and ethers like polyglycerols)
- Glucosidation (to produce glucosides)
- Hydrogenation (of fats and oils)
- Hydrolysis and Hydrogenolysis (to produce hydrolyzed proteins, glycerin and fatty acids, and fatty alcohols)
- Other Condensation Reactions like Acylation of proteins and Sulfation of fatty alcohols
- Saponification (to produce *soap*)