



GS-60

**GREEN SEAL[®] STANDARD FOR
PLASTIC TRASH BAGS
AND CAN LINERS**

April 6, 2023

EDITION 1.0

Green Seal, Inc. • www.greenseal.org

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THE MARK OF ENVIRONMENTAL RESPONSIBILITY

GREEN SEAL

Green Seal is a nonprofit organization with a mission to transform the economy for a healthier, greener world. Green Seal sets leadership standards that aim to reduce the environmental and health impacts throughout the life cycle of products, services, and companies, to the extent technologically and economically feasible. The standards may be used for conformity assessment and public education.

Green Seal offers certification of products and services in conformance with its standards. For additional information on Green Seal and contact information, visit [greenseal.org](https://www.greenseal.org).

GREEN SEAL STANDARD FOR PLASTIC TRASH BAGS AND CAN LINERS

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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. Corrections and/or clarifications were last made to this standard on July 26, 2023.¹

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.

¹ <https://greenseal.org/green-seal-standards/library/>

LIST OF ACRONYMS AND ABBREVIATIONS

APR. Association of Plastic Recyclers

ASTM. ASTM International (formerly American Society of Testing and Materials)

BTU. British Thermal Unit

CFC. Chlorofluorocarbon

EPA. U.S. Environmental Protection Agency

GHS. Globally Harmonized Systems for Classification and Labelling of Chemicals

ISO. International Organization for Standardization

PCR. Post-Consumer Recycled Content

PFAS. Per- and Polyfluoroalkyl Substances

TRI PBT. Toxic Release Inventory Persistent, Bioaccumulative, and Toxic

GREEN SEAL STANDARD FOR TRASH BAGS AND CAN LINERS, GS-60

1.0 SCOPE

This standard establishes environmental, health, and social requirements for plastic trash bags and can liners for both *household* and *industrial and institutional use*. For the purposes of this standard, the product category includes but is not limited to wastepaper basket liners, can liners, kitchen garbage bags, bags for outdoor and yard waste, contractor bags, compactor bags, and drum liners. This standard does not include products that are made in part or wholly from biobased materials, products designed for industrial or household composting, or medical waste bags. See Appendix 1 for a list of example products covered by this standard.

Words and phrases used in the standard that appear in *italics* have a corresponding definition in Annex A.

2.0 PRODUCT-SPECIFIC PERFORMANCE REQUIREMENTS

Products shall comply with either the criteria in 2.1 or 2.2 below.

2.1 Product Performance. The product shall demonstrate that it performs effectively as marketed for its intended use, as measured by the following standard test methods.

2.1.1 Puncture Resistance. The product shall demonstrate that it performs as well as or better than a nationally recognized or market-leading product in its *product class* when tested according to ASTM D1709.

2.1.2 Tear Resistance. The product shall demonstrate that it performs as well as or better than a nationally recognized or market-leading product in its *product class* when tested according to ASTM D1922.

2.2 Alternative Performance Requirements. Alternatively, the product shall demonstrate that it performs as well as or better than a nationally recognized or market-leading product in its *product class* for the key parameters required for it to fulfill its intended functions, as defined above. Comparison testing shall use an objective, scientifically validated method conducted under controlled and reproducible laboratory conditions. Test methodology and results shall be documented in sufficient detail.

3.0 PRODUCT-SPECIFIC SUSTAINABILITY REQUIREMENTS

3.1 Maximum Allowed Virgin Material. Products that use virgin material shall not exceed the amount of virgin material per liner, as outlined in the table below:

Product Size Category	Maximum Weight of Virgin Plastic in Liner (lbs) ^(a)
10 gallons	0.011
11 - 19 gallons	0.015
20 - 30 gallons	0.036
31 - 39 gallons	0.041
40 - 49 gallons	0.046
≥ 50 gallons	0.070

^(a) represents the top 30% of the market per size category.

3.1.1 Liner Weight Calculations. The weight of virgin plastic in a product shall be calculated following the equations in Annex B.

3.2 Post-Consumer Material Requirements. Products shall contain a minimum amount of 10% *post-consumer material*.

Exemption: Products below 0.7 mil (17.8 microns) in thickness are exempt from containing *post-consumer material*.

3.2.1 Post-Consumer Material Certification. The manufacturer shall provide sufficient documentation that the *post-consumer material* in the product is certified as such via one of the following methods:

- The *post-consumer material* shall be certified by the Association of Plastic Recyclers' PCR Certification Program.
- The manufacturer shall demonstrate the *post-consumer material* has been evaluated against all relevant attributes for determining validity of PCR content by an independent third-party certifier that conducted an audit and has a valid ISO 17065 accreditation.

3.2.2 Post-Consumer Material Calculations. The manufacturer shall demonstrate it purchases and uses sufficient supplies of *post-consumer material* to produce the amount of product reported. The percentage of *post-consumer material* shall be calculated using the following equation:

$$\% \text{ of } \textit{post-consumer material} = \frac{\text{Mass of } \textit{post-consumer material}}{\text{Mass of finished product}}$$

This calculation shall be based on a mass balance analysis over a period of time not to exceed the previous twelve months.

3.3 Prohibited Components. The product shall not contain any of the following *components*; an exception shall be made for products that would not contain these *components* but for the addition of *post-consumer material*.

- *Carcinogens, mutagens, and reproductive toxins*
- Toxic Release Inventory Persistent, Bioaccumulative, and Toxic (TRI PBT) Chemicals
- Phthalates
- The heavy metals lead, cadmium, mercury, or hexavalent chromium; either in the elemental form or compounds
- *Per- and Polyfluoroalkyl Substances (PFAS)*
- *Fragrances*
- Chlorinated compounds
- Biocides and antimicrobial agents

Exemption: An exception shall be made for titanium dioxide and, for products that are preprinted by the manufacturer, carbon black. As allowed under this exception, carbon black shall be less than or equal to 1% by weight of the product.²

3.4 Manufacturing Requirements - Energy Use Reporting. For each facility that manufactures the product, manufacturers shall disclose the annual *energy intensity*, in BTUs³/year/ton of all products produced at the facility. The estimated percentage of the certified product produced at the facility shall also be provided.

4.0 PACKAGING SUSTAINABILITY REQUIREMENTS

4.1 Primary and Secondary Packaging. *Primary and secondary packaging* shall meet the following requirements, based on the packaging material type:

- Packaging made from paper, paperboard, cardboard, or other nonplastic material shall be *recyclable* and contain at least 30% *post-consumer material*, or demonstrate that efforts were made to use the maximum available *post-consumer material*.
- Packaging made from plastic shall be *recyclable*, be a *source-reduced package*, contain at least 25% *post-consumer material*, or shall be a *refillable package* with an effective *take-back program*.

Alternatively, the *primary and secondary packaging* may use an alternative approach that has been independently proven to have a similar life cycle benefit as one of the options listed above for the packaging type.

² Titanium dioxide: EC Number 236-675-5, CAS Number 13463-67-7; carbon black: EC Number 215-609-9, CAS Number 1333-86-4.

³ Millions of British Thermal Units (BTUs)/T = 1.16 Gigajoules/MT = 323.2 kilowatt-hour /MT

- 4.1.1 Resin Identification Code.** If plastic, the packaging shall be marked with the appropriate Resin Identification Code.
- 4.2 Colorants.** *Primary* and *secondary packaging* may be printed using *colorants*, provided that these *colorants* contain a sum concentration of less than 100 ppm by weight of lead, mercury, cadmium, and hexavalent chromium.
- 4.3 Heavy Metal Restrictions.** The heavy metals lead, mercury, cadmium, and hexavalent chromium shall not be *intentionally introduced* in *primary* and *secondary packaging*. Further, the sum of the concentration levels of these metals shall not exceed 100 ppm by weight (0.01%); an exception is allowed for packaging that would not exceed this maximum level but for the addition of *post-consumer material*.
- 4.4 Other Restrictions.** Phthalates, bisphenol A, and chlorinated packaging material are prohibited from being *intentionally introduced* to plastic *primary* or *secondary packaging*; an exception is allowed for packaging that would not have added phthalates, bisphenol A, or chlorinated packaging material but for the addition of *post-consumer material*.

5.0 TRADEMARK USE REQUIREMENTS

- 5.1 Trademark Use.** Any use of the Green Seal® Certification Mark or the Green Seal name, e.g., on the product, product label, packaging, secondary documents, or promotional materials, must be in accordance with Green Seal's Trademark Use Guidelines.⁴
- 5.2 Misleading Claims.** Green Seal trademarks 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 www.greenseal.org/trademark-use-guidelines

ANNEX A – DEFINITIONS (Normative)

The following terms are italicized throughout the standard.

Carcinogen. A substance listed as a known, probable, reasonably anticipated, or possible human carcinogen by any of the following agencies or programs: International Agency for Research on Cancer (IARC Groups 1, 2A, and 2B); National Toxicology Program (NTP Groups 1 and 2); U.S. Environmental Protection Agency Integrated Risk Information System (EPA IRIS weight-of-evidence classifications A, B1, B2, C, carcinogenic, known/likely human carcinogen, likely to be carcinogenic to humans, and suggestive evidence of carcinogenicity or carcinogen potential); Occupational Safety Health Administration (OSHA as carcinogens under 29 Code of Federal Regulations (CFR) 1910.1003(a)(1)); and those chemicals that fall into Carcinogenicity Hazard Category 1A and 1B under the GHS.

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

Component. A constituent that is deliberately added at any level for its continued presence in the final product to provide a specific characteristic, appearance, or quality, or a contaminant that was not deliberately added but is present in the product at least at 0.01% by weight.

Energy Intensity. The quantity of energy required per unit of output or activity.

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.

Household Use. Use of products that are typically sold to consumers (usually through retail outlets, such as stores or online sites) for their own personal use rather than for professional use. This typically includes, but is not limited to, cleaning their households or personal property.

Industrial and Institutional Use. Use of products that are typically sold to cleaning professionals for use in commercial and institutional facilities. This typically includes, but is not limited to cleaning government buildings, factories, sanitariums, prisons, restaurants, hotels, stores, automobile service and parts centers, health clubs, theaters, transportation companies, hospitals, schools, libraries, auditoriums, office complexes, and similar properties where any residential areas and common or public spaces are typically cleaned by professionals (e.g., in-house or contract service providers rather than when the residents are responsible for cleaning tasks).

Intentionally Introduced. The use of substances for their desired or deliberate presence in the primary package for the purpose of providing a specific characteristic or quality. It does not refer to the use of substances as processing aids or the use of an intermediate that imparts certain chemical or physical changes during manufacturing, as long as the substance or intermediate is present in the primary package at concentrations below 100 ppm.

Mutagen. A substance designated as known to induce, is regarded as if it induces, or which causes concern for humans because it may induce heritable mutations in human germ cells and thus meets the criteria for germ cell mutagenicity hazard categories 1 and 2 (H340 and 341) under the GHS.

Per- and Polyfluoroalkyl Substances (PFAS). A class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom. This includes but is not limited to PFAS identified via the U.S. EPA's CompTox database PFAS Master List.⁵

Post-Consumer Material. Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.⁶ Also referred to as post-consumer recycled content.

Pre-Consumer Material. Material diverted from the waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.⁴ Also referred to as post-industrial recycled content, or pre-consumer recycled content.

Primary Package. Material that physically contains and is in physical contact with the product.

Product Class. A category of products that are manufactured and labeled for similar use scenarios.

Recyclable. The package can be collected in a substantial majority of communities,⁷ separated or recovered from the solid waste stream for reuse or used in the manufacture of another package or product through an established recycling program.⁸

Refillable Package. A package that has been demonstrated to be routinely (at least five times) returned and refilled with the same product it originally contained. For the purpose of this standard, either the product manufacturer or its agent may refill a package.

Reproductive Toxin. A substance 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); or a substance designated as Category 1 (H360), known or presumed reproductive toxicant, or Category 2 (H361), suspected human reproductive toxicant, or having adverse effects on or via lactation (H362), under the GHS.

⁵ <https://comptox.epa.gov/dashboard/chemical-lists/PFASMASTER>

⁶ ISO 14021:2016 Section 7.8.1.1

⁷ Substantial Majority is considered to mean at least 60% of consumers or communities where the item is sold have access to recycling facilities for that item, as defined in the U.S. Federal Trade Commission Green Guides.

⁸ Established recycling programs include municipal collection programs and front-of-house recycling (i.e., store drop-off programs).

Secondary Package. Packaging that contains the primary package(s), typically used for merchandizing or labeling. It does not include the primary package itself or any additional shipping packaging.

Source-Reduced Package. A package or packaging item that has at least 20% less material by weight for a given product unit compared to the packaging for a given product unit (of the same size), commonly used for that product.

Take-Back Program. A program sponsored by the original product manufacturer that has been demonstrated to receive at least 50% of sold packages for recycling or reuse.

ANNEX B – CALCULATING THE WEIGHT OF A LINER

The weight of virgin material in a liner shall be calculated using the following equations.

Overall Weight of Liner

$$\text{Overall Weight (lbs)} = ((A \times B \times C)/15/1000)$$

Where:

- A = product width
- B = product length
- C = product gauge (mil)

Amount of Non-Virgin Material in Liner

$$\text{Non-Virgin Material Weight (lbs)} = (D \times E)$$

where:

- D = Overall weight of liner
- E = % of non-virgin material in product*

*Non-virgin material includes *pre-consumer material*, *post-consumer material*, and mineral additives.

Virgin Weight in Liner

$$\text{Virgin Weight (lbs)} = (D - E)$$

where:

- D = Overall Weight of Liner
- E = Amount of Non-Virgin Material in Liner

Example:

- A= 28 in wide
- B= 45 in long
- C= 0.8 mil gauge
- E = 30% non-virgin material

Overall Weight of Liner

$$((28\text{in} \times 45\text{in} \times 0.8 \text{ mil})/15/1000) = 0.067 \text{ lbs of plastic per liner}$$

Amount of Non-Virgin Material in Liner

$$0.067 \text{ lbs} \times 30\% = 0.020 \text{ lbs non-virgin plastic material}$$

Virgin Weight in Liner

$$0.067 \text{ lbs overall plastic} - 0.020 \text{ lbs non-virgin plastic} = \mathbf{0.047 \text{ lbs of virgin plastic in the liner}}$$

APPENDIX 1 – SCOPE (Informative)

The product types in each section below are identified as eligible or not to pursue certification under GS-60. The most commonly available gallon sizes per type are shown below but other gallon sizes are also eligible. This is not an exhaustive list of all possible sizes or products in or out of scope.

Eligible Product Types

- Wastepaper basket liners at 10 gallons or above in capacity
- Can liners (generic term, often 13 gallons)
- Kitchen garbage bags (13, 20 gallons)
- Compactor bags (18 gallons)
- Bags for outdoor and yard waste (39 gallons)
- Contractor bags (42 gallons)
- Drum liners (55 gallons)

Ineligible Product Types

- Products with a gallon capacity below 10 gallons
- Products made from fiber material
- Pet waste bags
- Products made from bioplastic materials
- Products labeled as “oxo-degradable” or “oxo-biodegradable”
- Products intended for household or industrial compost
- Grocery carry-out bags
- Retail carry-out bags (e.g., bags for merchandise from retail stores)
- Shrink film case wrap
- Industrial stretch wrap
- Agricultural films
- Construction films
- Bags designed for medical waste isolation such as infectious waste or soiled linens