



GS-3

**GREEN SEAL™ STANDARD FOR
RE-REFINED ENGINE OIL**

**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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RE-REFINED ENGINE OIL, GS-3**

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FOREWORD

Edition. This version is Edition 2.1 from May 10, 2013 and replaces the Second Edition from February 2, 1992 (with editorial changes made on October 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

API. American Petroleum Institute

EPA. United States Environmental Protection Agency

GREEN SEAL STANDARD FOR RE-REFINED ENGINE OIL, GS-3

1.0 SCOPE

This standard establishes requirements for internal combustion engine lubricating oil for gasoline or diesel engines manufactured in whole or in part from re-refined petroleum based oil. 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

2.1 American Petroleum Institute Service Requirements. The product must comply with any of the following American Petroleum Institute (API) engine service classifications: “SG,” “CF-4,” “CF,” or “DC-II.”¹ “SG” classified products must also meet the requirements for “ENERGY CONSERVING-II” designation.²

2.2 Viscosity Classification. The product must comply with the viscosity requirements as described in the Society of Automotive Engineers standard J300 “Engine Oil Viscosity Classification.”

3.0 PRODUCT-SPECIFIC ENVIRONMENTAL REQUIREMENTS

3.1 Re-refined Oil Base Stock Requirements.

3.1.1 The *base stock* portion of the product shall contain at least 25% by volume *re-refined oil*.

3.1.2 The product shall contain at least 40% by volume *re-refined oil* in the *base stock*.

3.1.3 The *re-refined oil base stock* content of the product shall be measured using a weighted average over a 3 month period.

3.2 Toxic Chemical Contaminant Restrictions.

3.2.1 The product shall contain in the *base stock* less than 5 parts per million total organic halides or the product shall contain in the *base stock* less than 1

¹ As described in the Society of Automotive Engineers’ standard J183 “Engine Oil Performance and Engine Service Classification (other than “ENERGY CONSERVING).”

² As described in the Society of Automotive Engineers’ standard J1423 “Classification of Energy-Conserving Engine Oil for Passenger Car, Vans, and Light-Duty Trucks.”

part per million total polychlorinated biphenyls, and less than 1 part per million Resource Conservation and Recovery Act solvent wastes F001 and F002³ (as determined by electron capture detection technique no. 8120, as defined in U.S. Environmental Protection Agency (EPA) Test Methods for Evaluating Solid Wastes, SW-846, United States Government Printing Office).

3.2.2 The product shall contain in the *base stock* less than 10 parts per million of arsenic, cadmium, chromium, lead, barium, and zinc, with no single element exceeding 2 parts per million (as determined by inductively coupled plasma technique no. 3040, as defined in EPA Test Methods for Evaluating Solid Wastes, SW-846, United States Government Printing Office).

3.2.3 The product shall contain in the *base stock* less than 5 parts per million each for benzo(a)pyrene and benzo(a)anthracene (as determined by gas chromatograph/mass spectrometry techniques no. 8270, as defined in EPA Test Methods for Evaluating Solid Wastes, SW-846, United State Government Printing Office).

3.3 By-Product Restrictions. The manufacture of the product shall not result in the generation of by-product sulfuric acid sludge.

4.0 PACKAGING REQUIREMENTS

4.1 Toxics in Packaging.

4.1.1 Packaging must not contain inks, dyes, pigments, stabilizers, or any other *additives* to which any lead, cadmium, mercury or hexavalent chromium has been introduced.

4.1.2 The sum of the concentration levels of lead, cadmium, mercury, and hexavalent chromium present in any package, or packaging ink, dye, pigment, stabilizer or *additive* component must not exceed 100 parts per million by weight.

4.1.3 The sum of the concentration levels of cadmium, mercury, and hexavalent chromium present in any package or packaging component must not exceed 250 parts per million by weight..

4.1.4 The sum of the concentration levels of lead, cadmium, mercury, and hexavalent chromium present in any package or packaging component must not exceed 100 parts per million by weight.

³ RCRA hazardous substances categories F001 and F002 defined in: 51 Federal Register 6537 9February 25, 1986), Hazardous Waste Management System: Identification and Listing of Hazardous Waste.

4.2 Post-Consumer Material in Packaging.

4.2.1 Packaging of the product shall contain a minimum of 10% by weight *post-consumer materials* (cap excluded).

4.2.2 Packaging of the product shall contain a minimum of 25% by weight *post-consumer materials* (cap excluded).

5.0 CERTIFICATION AND LABELING REQUIREMENTS

5.1 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*⁴.

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.

5.2 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.

5.3 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:

This product contains XX% re-refined oil in the base stock and meets Green Seal™ Standard GS-3 based on protective limits on contaminants. GreenSeal.org.

⁴ www.greenseal.org/TrademarkGuidelines

ANNEX A – DEFINITIONS (Normative)

Note that the defined terms are italicized throughout the standard.

Base Stock. The hydrocarbon-based constituents of lubricating oil excluding *additives*.

Additive. A chemical component added to lubricating oil *base stock* to affect its performance, durability and viscosity.

Re-Refined Oil. Used petroleum based lubricating oil which has been refined to remove physical and chemical impurities, as well as spent and unspent *additives*.

Post-Consumer Material. Only those finished products, packages, or materials generated by a business or consumer which have served their intended end uses, and which have been separated or diverted from the waste stream for the purposes of collection, recycling and disposition.

APPENDIX 1 - SCOPE (Informative)

Examples of products included in or excluded from the scope of GS-3:

Products Included in GS-3

- Re-processed engine oil
- Re-processed lubricating oil
- *Re-refined* and virgin engine oil blend
- *Re-refined* petroleum and non-petroleum engine oil blend

Products Excluded from GS-3

- *Re-refined* 100% non-petroleum based oil
- Virgin engine oil
- Virgin lubricating oil
- Virgin non-petroleum based oil