RESPONSE TO COMMENTS ON PROPOSED REVISIONS TO STANDARD FOR HOUSEHOLD CLEANERS (GS-8)
Proposed Revisions for Public Comment August 14, 2006

(Each section of the proposed standard that received comments is given followed by any comments received on the section and Green Seal's response to the comments. *Revised final standard language is given in italics.*)

General Comments

Comment: The criteria in the standard are hazard-based only, and the limits or cut-off values are not scientifically justified. Ignoring exposure- and hazard-based risk assessment does not provide an environmental or human safety benefit. We do not believe that products that comply with this standard would have any environmental benefits when compared to products that do not meet the standard. This standard provides a much lower level of safety and environmental protection than routine exposure and risk-based safety assessment methods used to assess product safety.

Comment: This standard provides a set of stagnant criteria that ignore progress in technology and innovation and could actually be a hurdle to product innovation.

Comment: The continuous improvement component is missing. There is always a way to improve the environmental profile of a product. It is much more scientifically valid to evaluate raw materials, considering how each is used, rather than having lists of prohibited chemicals. With the Green Seal standard there is no continuous improvement process; once meeting the Green Seal requirements you are done.

Comment: Many of the standards are arbitrary and not based on good science.

Comment: This criterion inappropriately focuses on the hazard potential of ingredients and not the risk they pose from use in cleaning products.

Response: These comments reflect a fundamental philosophical difference between what Green Seal is trying to do with its leadership environmental standards and what is conventionally done in risk assessment. In fact, Green Seal's standards identify the most advanced product/service technologies in the market, because only a minority of products can meet the stringent requirements in the standards. Also, Green Seal attempts to use the best, most current and advanced science as a basis for the criteria in its standards, and the human health and environmental criteria are derived directly from international, national, or other governmental criteria and databases that have been peer-reviewed. The risk assessment approach suggested here by commenters is used by regulators to determine an acceptable level of a potentially harmful substance. Green Seal's approach is to encourage products which do not pose unacceptable risks because their ingredients or design are non-toxic. Certainly, there is a range or gradient between the two, and Green Seal's criteria reflect this by allowing products or ingredients that pass stringent criteria for health or environmental toxicity. But, in general, Green Seal's approach is to minimize the use of more harmful ingredients or products rather than determine at what levels they may be used safely. Green Seal notes that this same philosophical difference arose in the initial development of GS-8 in 1992-93. Since then, the world has moved significantly toward more sustainable products and services, based on the principles Green Seal has espoused:

minimizing hazard through green product identification and selection; green chemistry; precautionary principle; pollution prevention; corporate social responsibility; etc.

Additional Note from Green Seal: During the review of the Proposed Revised Standard it was noted that Green Seal's statement on minimizing animal testing was accidentally omitted. This is included in other Green Seal standards, and is referenced in various criteria throughout the Proposed Revised Standard. As a result, the following will be included in the revision:

Animal Testing. *Green Seal wants to discourage animal testing and will accept the results of past peer reviewed or standard tests demonstrating compliance with a criterion. A mixture need not be tested if existing information demonstrates that each of the ingredients complies with a criterion. Additionally, non-animal (in-vitro) test results may be accepted, providing that the test methods are referenced in peer-reviewed literature and the manufacturer provides the reasons for selecting the particular test method.*

1.0 Scope

This standard establishes environmental requirements for general-purpose, bathroom, glass, and carpet cleaners marketed specifically for use in households or similar residential settings.

Comment: The document covers a very narrow range of household cleaners. Excluded are many common household cleaners such as cooking appliance cleaners, bathroom cleaners, laundry and dishwashing detergents, etc. It is unclear whether some household cleaners are included such as antimicrobial/general-use/heavy-duty hand or body cleaner/soap, bathroom and tile cleaners, and furniture maintenance products. The title is misleading, and suggests changing to "Green Seal Environmental Standard for Selected Household Cleaners".

Response: To further clarify what is covered in the standard, the revised title will be:

Green Seal Environmental Standard for General Purpose, Bathroom, Glass, and Carpet Cleaners Used for Household Purposes.

2.0 Definitions

2.1 Bathroom cleaners: products used to clean hard surfaces in a household bathroom such as counters, walls, floors, fixtures, basins, tubs, and tile. This category may include products required to be registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), such as disinfectants and sanitizers, but does not include products specifically intended to clean toilet bowls.

Comment: This standard should not include FIFRA products of any type. The EPA Office of Pesticide Programs does not allow environmental certifications or claims relating to reduced effects on the environment or humans on product labeling.

Response: Products that are included in FIFRA will need to follow the EPA's rules for labeling, marketing, and advertising, but are not restricted from certifications such as Green Seal. FIFRA has restrictions on including the Green Seal mark and similar certifications on registered disinfectant products, such as bathroom disinfectants in this standard. Green Seal is continuously exploring options with the EPA for products that are Green Seal certified.

2.6 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.

Comment: The proposed standards do not stipulate whether "ingredients" are defined using concentrated or ready-to-use dilutions of the product.

Response: The definition of ingredient will not change, but each individual criterion will clearly indicate whether it applies to undiluted or as used concentrations. For example:

4.2.4 Other Prohibited Ingredients. *The undiluted product shall not contain the following ingredients:…*

2.7 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 the Harmonized System for the Classification Of Chemicals Which Cause Mutations in Germ Cells (UN, 2003).

Comment: Green Seal should maintain a list of mutagens to which formulators and consumers can refer to make sure none made it into the products.

Response: Green Seal uses existing, scientifically-based sources for mutagenic chemicals and recommends those sources to formulators or consumers.

2.9 Ozone-depleting compounds: any compound with an ozone-depletion potential greater than 0.01 (CFC 11=1).

Comment: Green Seal should maintain a list of ozone-depleting substances meeting this definition. In addition, ozone-depleting compounds should be removed from the list of additional prohibited substances because it is redundant with this section.

Response: Green Seal uses existing, scientifically-based sources for information on ozone-depleting potential, and does not maintain its own list. Ozone-depleting compounds are defined in section 2.9 to clarify the criterion in section 4.2.4.

3.0 Product-Specific Performance Requirements

3.2 Alternative Performance Requirements. Alternatively, using standard test methods conducted under objective, reproducible laboratory conditions, a manufacturer can demonstrate that its product performs as well as a nationally recognized product in its category or achieves the removal efficiency defined in this section.

Comment: This is a good provision since some companies have very good evaluation methods.

Response: Comment acknowledged.

4.0 Product-Specific Environmental Requirements

4.1 Product Toxicological Requirements

Comment: Exclusion of chemicals. There is no provision in this proposed document to exclude certain chemicals. For example, recently four chlorinated compounds were banned from use in California consumer products. They are para-dichlorobenzene, methylene chloride, perchloroethylene and trichloroethylene.

Response: Para-dichlorobenzene, methylene chloride, perchloroethylene, and trichloroethylene are already prohibited as ingredients in household cleaners based on the Prohibition of Carcinogens and Reproductive Toxins criterion. Therefore, they do not need to be prohibited or excluded explicitly by name.

Comment: Skin absorption is an important issue. It should be included in this proposed standard. I suggest using the language from the cleaning product standards for San Francisco, and Seattle: When tested to the following standard, product as a whole in its diluted-for-use form shall have a low potential to absorb through skin. In addition, each individual ingredient that comprises 1.0% or more of the diluted product by weight shall have a low potential to absorb through skin. A "low potential" for skin absorption shall mean that less than 1.0% of the diluted whole product or individual ingredient test dose absorbs through the skin of the test subject.

Products should not contain ingredients with a "high potential" for skin absorption. Chemicals that absorb through the skin can poison the blood, liver, kidney and other internal organs. The standard could include the following language: "Each individual ingredient shall have a low potential to absorb through skin. Skin absorption shall be determined by test methods specified by OPPTS 870.7600 for Dermal Penetration studies, as published in EPA 712-C-98-350, August 1999.

2-Butoxyethanol [111-767-2] and monoethanolamine [141-43-5] are examples of ingredients that have a high potential for skin absorption, and therefore should not be present as an ingredient in the product.

Other chemicals listed as having the potential to be absorbed through the skin by the Agency for Toxic Substances and Disease Registry (ATSDR), the National Institutes of Occupational Safety and Health (NIOSH), the US Occupational Safety and Health Administration (OSHA), and U.S. Environmental Protection Agency (EPA) should also be prohibited from GS-8 certified products.

Response: Skin absorption is a means for potentially harmful substances to enter the body. Since household cleaners are often used without the use of personal protective equipment like gloves, skin absorption is an important consideration. However, products that meet the definition of ''toxic'', as defined by the Consumer Product Safety Commission regulations in 16 CFR chapter II, part 1500, are not allowed in this standard and include any substance which has the capacity to produce personal injury or illness through ingestion, inhalation, or absorption through any body surface. Further, 2-Butoxyethanol [111-767-2] is currently listed as a possible human carcinogen by the EPA (classification 3) and as a result would be prohibited, however its inclusion on this list changes, and as a result 2-butoxyethanol will be added to section 4.2.4 Other prohibited compounds. Monoethanolamine [141-43-5] is corrosive to skin and eye and not commonly used in cleaners and any product must document that it is not corrosive to the skin and eyes.

Comment: In indoor environments, all VOCs that have a potential impact on human health are important to consider. The VOCs considered are usually those that are regulated by ambient air quality standards (Clean Air Act, etc) and did not include compounds of concern for indoor air quality.

Many VOCs are exempt from the Clean Air Act simply because they are not reactive and therefore, do not contribute significantly to the formation of photochemical smog. Since household cleaners are used indoors, it is a concern that they may emit chemicals that are not considered because they are not regulated or not on the list of ambient chemicals.

Comment: As with GS-37, this proposed document relies on chemical content, and does not address the important issue of occupant exposure. The % by weight does not provide a clear picture of how much of a certain VOC or VOCs of the product is getting into the air. We would like Green Seal to eventually move towards human exposure using methodology to evaluate product chemical emissions under realistic conditions.

Comment: Respiratory Irritation/Sensitization. Inhalation is a major route from exposure to consumer products especially those can come in aerosol cans or sprayers. Asthma, respiratory diseases, and airway hypersensitivity are on the increase, and the potential ability of VOCs in household cleaners to induce or exacerbate them should be considered.

Green Seal should address the issues of respiratory irritation associated with the use of household cleaning products in this standard. Several scientific studies have found elevated rates of asthma and other respiratory health effects among janitors and home-cleaning professionals. While there is not a clear cut test for respiratory irritation and sensitization, the Association of Occupational and Environmental Clinics (AOEC) has identified chemicals known to cause asthma in an occupational setting. The Commonwealth of Massachusetts referenced the AOEC list when it required potential vendors to disclose whether products they were offering for the state contract contained asthmagens and other respiratory irritants. The substances identified as asthmagens found in cleaning products by the State of Massachusetts included: Monoethanolamine, Tall oil or rosin, Chlorhexidine, Chloramine T, and Ammonium quaternary compounds (disinfectants). Also on the list (attached) are several chemicals that can be found in household cleaning products: 2-butoxyethanol (also known as ethylene glycol monobutyl ether), Formaldehyde, Zinc and zinc compounds (sometimes found in floor polishes), Triethanolamine, and Diethanolamine.

Response: Green Seal agrees that indoor air quality, respiratory sensitization and irritation, and asthmagens are important issues to consider with household cleaners. However, the AOEC list and others have been evaluated in the past and found to have limitations when used for product evaluations. If in the future (especially following the detailed evaluation of this issue with regard to vulnerable populations with the revision of GS-37) it is demonstrated to be useful for such a purpose it will be reconsidered. Heavy metals are prohibited in the section 4.2.4 Other Prohibited Compounds, however, zinc is not specifically cited since it is not commonly used in cleaner types included in the scope of this standard. 2-Butoxyethanol [111-767-2] is currently listed as a possible human carcinogen by the EPA (classification 3) and as a result would be prohibited, however its inclusion on this list changes, and as a result 2-butoxyethanol will be added to section 4.2.4 Other prohibited compounds. Formaldehyde would already be prohibited as carcinogenic to humans based on IARC, EPA, and NTP classifications. Triethanolamine, diethanolamine, tall oil, Chlorhexidine, Chloramine T, and monoethanolamine are considered corrosive to the skin and eye and any product must document that it is not corrosive to the skin and eyes. Ammonium quaternary compounds usually are excluded due to aquatic toxicity and by not meeting the biodegradability criteria.

Comment: Chronic Toxicity: Green Seal should prohibit all ingredients with an OSHA permissible exposure limit (PEL), a NIOSH Recommended Exposure Limit (REL) or an American Industrial Hygiene Threshold Limit Value (TLV) of 100 ppm or less. It is appropriate to apply occupational health

and safety standards to household cleaning products since they are commonly used by home cleaning service staff.

Comment: We have serious concerns with certain chemicals with strong central nervous system depression, which may produce effects such as peripheral neuropathy, respiratory arrest, or loss of consciousness. These chemicals should be added to the prohibited ingredients list.

Response: Green Seal prohibits products that fall under the labeling requirements as a toxic or highly toxic product as defined by the Consumer Product Safety Commission. In addition, Green Seal excludes other long-term exposure concerns such as carcinogens, mutagens, and reproductive toxins. The suggested lists have limitations for use with product evaluations, but this issue is continually evaluated, and if an option proves to be useful for such a purpose it will be reconsidered.

4.1.1 Toxics Labeling. The product shall not be required to be labeled because it is toxic or highly toxic, as defined by Consumer Product Safety Commission regulations found at 16 C.F.R. Chapter II, Part 1500.

Comment: I do not see the purpose of not labeling the product as toxic or highly toxic. This standard should inform the public in their decision to procure green cleaning products.

Comment: This wording of this section is confusing. It sounds like Green Seal is saying that the product should not be labeled even if it is toxic. Are they saying that products qualifying as 'toxic' or 'highly toxic' under the labeling rules should not be certified? If so, this should be written more clearly and have a different title.

Response: The section will be revised as follows to clarify the original meaning:

4.1.1 Toxicity. *The product shall not have toxic characteristics such that it falls under the labeling requirements as a toxic or highly toxic product, as defined by Consumer Product Safety Commission regulations found at 16 C.F.R. Chapter II, Part 1500.*

4.1.2 Prohibition of Carcinogens and Reproductive Toxins. The *undiluted* product shall not contain any ingredients that are carcinogens, mutagens or that are known to cause reproductive toxicity. Carcinogens are defined as those chemicals listed as known, probable, or possible human carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), the U.S. Environmental Protection Agency, or the Occupational Health and Safety Administration. Chemicals known to cause reproductive toxicity are defined as those listed 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*.).

Naturally occurring elements and chlorinated organics, which may be present as a result of chlorination of the water supply, are not considered ingredients if the concentrations are below the applicable maximum contaminant levels in the National Primary Drinking Water Standards found in 40 Code of Federal Regulations (CFR) Part 141.

Comment: The prohibition of Carcinogens and Reproductive hazards as defined by IARC, NTP, and CA Prop 65 does not allow for risk assessment approach to be used which would allow acceptable level of these chemicals if below the no significant risk level as defined by a product specific

exposure/risk assessment. Low insignificant levels of carcinogen are found throughout the environment. Apple seeds contain cyanide. We suggest that the requirement is that these ingredients are not intentionally added to the product and are below the "no significant risk" limit as defined in Prop, 65.

Response: Green Seal's approach is to encourage products which do not pose unacceptable risks because their ingredients or design are non-toxic. As a result, the aim is to minimize the use of more harmful ingredients or products rather than determine at what levels they may be used safely. An ingredient is defined as any constituent of a product, which is intentionally added or known to be a contaminant and which comprises at least 0.01% by weight of the product. Green Seal excludes any ingredients that are included on the California Proposition 65 list for reproductive and developmental toxicity. Green Seal also accepts the information developed by the National Toxicology Program, the International Agency for Research on Cancer, the US Environmental Protection Agency, and OSHA for carcinogens.

Comment: Exposure plays a role in determining the risks from chemicals on California's Proposition 65 chemical list. Ethanol is considered a reproductive toxin through ingestion. Not only should ethanol be excluded from the prohibition, but this section should be modified to allow the use of other Prop 65 chemicals where the chronic hazard is due to exposures not likely to occur from the use of a product.

Response: Ethanol is listed in Proposition 65 as "ethyl alcohol in alcoholic beverages" and for that reason would not be prohibited from a cleaning product. Any other specific restrictions in listings as to chemical form or exposure route would be considered as well.

Comment: The standard should also exclude any carcinogens that are listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986.

Response: Green Seal gives priority to international and nationally generated lists, and thus uses the international and national lists of carcinogens cited in the definition for carcinogens.

Comment: It would be helpful to reference the specific lists of carcinogens identified by each of the programs. For example, three IARC lists include carcinogens to be prohibited. Green Seal can consider the following language to be included in the standard. "This shall include any chemicals in IARC Group 1: Carcinogenic to Humans (http://monographs.iarc.fr/ENG/Classification/crthgr01.php), Group 2A: Probably Carcinogenic to Humans (http://monographs.iarc.fr/ENG/Classification/crthgr02a.php), or 2B: Possibly Carcinogenic to Humans/Known Animal Carcinogens (http://monographs.iarc.fr/ENG/Classification/crthgr02b.php)."

Response: Green Seal does not cite specific URL's since these internet locations often change. However, to clarify the definition, and reference lists of carcinogens used by Green Seal, a definition of carcinogen will be added in the standard as follows:

Carcinogen: *A chemical listed as a known, probable, or possible human carcinogen by the International Agency for Research on Cancer (IARC) (Groups 1, 2A, and 2B), the National Toxicology Program (NTP) (Groups 1 and 2), the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) known, probable, and possible carcinogens (weight-of-evidence classifications A, B1, B2, and C), or the Occupational Safety and Health Administration (OSHA).*

4.1.3 Aquatic Toxicity. 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 LC_{50} for algae, daphnia, or fish	$\geq$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. Aquatic toxicity tests shall follow the appropriate protocols in ISO 7346.2 for fish and in 40 CFR 797, Subpart B for other aquatic organisms.

Comment: Consideration of aquatic toxicity should only be done in the context of environmental risk assessment. The aquatic toxicity criteria alone fail to consider the environmental fate of aqueous cleaning products, which are typically disposed into wastewater treatment systems rather than directly entering the environment. The aquatic toxicity of a product is a function of many factors including fate and dilution upon discharge into the environment.

Response: In developing this standard, Green Seal is identifying the attributes of products that demonstrate environmental leadership. Green Seal will keep the aquatic toxicity criteria because compounds can cause toxic effects before they biodegrade.

4.2 Product Environmental Requirements

4.2.1 Biodegradability. Each of the organic ingredients in the product *as used* shall exhibit ready biodegradability in accordance with the OECD definition except for a FIFRA-registered ingredient in a bathroom cleaner and the polymer portion of a carpet cleaner. However, all other ingredients in a FIFRA-registered bathroom cleaner or carpet cleaner must comply. Biodegradability shall be measured by one of the following methods: ISO 9439 carbon dioxide (CO_2) evolution test, ISO 10708 (two-phase closed-bottle test), ISO 10707 (closed bottle test), or ISO 7827 (dissolved organic carbon removal). 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 (ThOD)	> 60%
% CO_2 evolution of theoretical	> 60%

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 dissolved organic carbon (DOC) removal > 90%.

Testing is not required for any ingredient for which sufficient information exists concerning its biodegradability, either in peer-reviewed literature or databases or proving that the ingredient was tested in accordance with standard test procedures.

Comment: For biodegradability, the EU standard for the Detergents Directive doesn't use the "10-day window" requirement. It is generally not designed for mixtures. If it is used as indicated in this document then it is possible to have a mixture of readily biodegradable materials that as a whole is then not readily biodegradable. In general this criterion makes it less likely to pass, but also more difficult to determine (since surfactants will no longer be tested to this standard).

Comment: The requirement that all organic ingredients are readily biodegradable effectively excludes the use of certain performance chemicals such as polymers and chelants that provide significant performance improvements. From a life-cycle viewpoint, products without these performance chemicals may have a worse environmental profile than products containing them.

Response: The intention of this criterion is to ensure that the components in the product do not accumulate in the environment. The ready biodegradability from the tests indicated is not intended for mixtures. Polymers in carpet cleaners are exempted from this criterion, as well as FIFRA-registered ingredients in bathroom cleaners. This criterion has been used for industrial and institutional cleaners (GS-37) and it has been shown that polymers and chelants that do not meet this biodegradability criterion can be replaced with alternatives. Further, it is noted that the EU's Detergents Directive excludes the need for surfactants to pass the 10-day window requirement. As a result, The OECD TG 301A-F methods will be used to update the methods for testing biodegradability. The 10-day window requirement will apply to the areas the OECD method cites. As a result, the 10-day window requirement will be removed from being specifically cited in the criterion and will be revised as follows:

Aquatic Biodegradability. *Each of the organic ingredients in the product as used shall exhibit ready biodegradability in accordance with the OECD definition except for the polymer portion of a carpet cleaner or a FIFRA-registered ingredient in a bathroom cleaner. However, all other ingredients in carpet cleaner or a FIFRA-registered bathroom cleaner must comply. Biodegradability shall be measured by one of the following methods: OECD TG 301A-F, ISO 9439 carbon dioxide (CO_2) evolution test, ISO 10708 (two-phase closed-bottle test), ISO 10707 (closed bottle test), or ISO 7827 (dissolved organic carbon removal).*

Removal of dissolved organic carbon (DOC)	*> 70%*
Biological oxygen demand (BOD)	*> 60%*
% of BOD of theoretical oxygen demand (ThOD)	*> 60%*
% CO_2 evolution of theoretical	*> 60%*

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 dissolved organic carbon (DOC) removal > 90%.

4.2.2 Eutrophic Agents. The product *as used* shall not contain more than 0.5% by weight of total phosphorus.

Comment: The relative phosphorus contribution from household cleaning products has been demonstrated to be negligible or non-existent (see Minnesota Pollution Control Agency 2004 report).

Response: Phosphorus is known to tax the efficiency of waste water treatment facilities and contribute to eutrophication of bodies of water after disposal. This has prompted many states to limit phosphorus concentrations to 0.5% in household cleaning products. Further, it is the aim of Green Seal to encourage the design of products that do not to contribute to environmental degradation. As a result, the standard will not be changed.

4.2.3 Air Pollutants. The product *as used* shall not contain substances that contribute significantly to the production of photochemical smog, tropospheric ozone, or poor indoor-air quality. The volatile organic content of the product as used shall not exceed the following

- 0.1% by weight for dilutable carpet cleaners
- 1% by weight for general-purpose and bathroom cleaners
- 3% by weight for glass cleaners
- 3% by weight for ready-to-use carpet cleaners

The volatile organic content shall be determined by California Air Resources Board Method 310.

Comment: VOC standards. These are stricter than CARB and would virtually ban aerosols. The current glass cleaner CARB standard for non-aerosols is 4%; Why does GS proposes 3%. What is the basis? CARB is the acknowledged expert, and no one can claim CARB does not push technology hard enough. We argued to CARB that you need a minimum of 4% to prevent streaking; and CARB agreed. General Purpose (GP) Cleaner standard proposed by GS is 1%. CARB is 4% for non-aerosols. CARB has reviewed this category twice and found that for certain soils and surfaces, GP cleaners need more than 1% VOC. Now for some soils/surfaces (bathroom tile, for example) you can have 1%; but the whole point of a *general purpose* cleaner is that is for a *variety of uses.*

Comment: 1% is the new CONS-2 proposed VOC limit for "non-aerosol bathroom and tile cleaners," and this one was agreed to by CSPA. But for "aerosol general purpose cleaners the CONS-2 proposed limit is 7%, and CSPA is asking for 8%. Less than 10% of the GP aerosol market currently would meet this standard even with the 7% limit. This would virtually eliminate all aerosol bathroom cleaners being acceptable. Aerosol bathroom cleaners have a significant market share of the bathroom cleaners market.

Comment: For aerosol glass cleaners, California proposed a VOC limit of 7%, and ~18% of the market currently complies. Glass cleaners would only be allowed 3% by Green Seal.

Comment: GS's proposal would significantly hurt this category and render GP products unacceptable to consumers for many common uses.

Comment: Green Seal should consult the rules as applied by CARB, EPA, and other regulatory bodies in determining VOC levels and align the standard within those rules.

Comment: The generic VOC restrictions imposed by this standard eliminate the ability of aerosol products to participate in the Green Seal program. The VOC's used in consumer products generally have low MIR values, contributing minimally to ozone production. The hydrocarbon propellants used in aerosol products have an even lower MIR value than most of the other solvents used in liquid products and may actually contribute even less to ozone formation. Furthermore, as there are already stringent VOC regulations in place and further restrictions being put in place, this section of the standard is unnecessary.

Comment: The volatile organic content (weight %) limits of the product categories in this proposed document have not changed since the early draft of GS-37 (2000/2001). Lower limits are achievable, and an updated standard should try to push the envelope forward. The volatile organic content should be lowered to 0.05% by weight for dilutable carpet cleaners, 0.5% by weight for general-purpose and bathroom cleaners, and 1.5% by weight for glass cleaners and ready-to-use carpet cleaners. As far as we know there is no scientific basis for the proposed % by weight content of the cleaners, and believe these % by weight are too high. There should be a goal to move green products to 0% VOCs. Green seal should review the availability of products that meet

the lower suggested VOC standard, and should set the standard at more health protective but achievable threshold.

Response: In a survey conducted by Environment Canada's Chemical Sector Division in 2006, it was found that 92% of the bathroom and tile cleaners (non-aerosol) products survey met the proposed VOC limit of 5%; 67% met the proposed 3% limit for ready-to-use carpet and upholstery cleaners; 78% met the proposed 0.1% limit for dilutable carpet and upholstery cleaners; 80% met the proposed 4% limit for general purpose cleaners; 69% met the proposed 4% limit for glass cleaners. As a result, Green Seal maintains the point of view that the proposed criteria are achievable. However, Green Seal will adjust the limit on general purpose cleaners to be at the level of glass cleaners, at 3%, since the comments state that household uses of general purpose cleaners often include glass cleaning. Green Seal will apply these levels for both ready-to-use and aerosols since these products are used indoors where air quality is an additional concern.

4.2.4 Other Prohibited Ingredients. The product shall not contain the following ingredients:

- Alkylphenol ethoxylates
- Dibutyl phthalate
- Heavy metals including arsenic, lead, cadmium, cobalt, chromium, mercury, nickel, or selenium
- Ozone-depleting compounds
- Optical brighteners

Comment: All product ingredients should be assessed against the same criteria.

Response: This section addresses potentially harmful substances that aren't addressed by previous criteria, but have detrimental environmental or health effects.

Comment: Prohibiting all members of a class of ingredients (e.g., optical brighteners) inappropriately captures chemicals of varied environmental impacts and creates disincentives to innovation within the class.

Comment: Optical brighteners should be removed from the list of prohibited ingredients.

Response: There have been issues with the biodegradation, effects on microflora and fish, and skin sensitization or irritation of traditional, fluorescent, optical brighteners. Therefore, Green Seal will keep optical brighteners on the list of other prohibited chemicals.

Comment: APEs biodegrade under anaerobic conditions and their removal is greater than 99% in sewage treatment plants. APEs are in the environment at concentrations well below effects concentrations. Because there is low likelihood of injury to the environment, APEs should be deleted from the criterion.

Response: Green Seal believes that sufficient evidence exists to prohibit the use of alkylphenol ethoxylates in environmentally preferable cleaners. Alkylphenol ethoxylates degrade into nonylphenol and other products which are known to persist and bioaccumulate in waterways and aquatic life and act as endocrine disrupters. Further, there is sufficient availability of alternatives to APEs. Therefore, they will remain on the list of prohibited substances.

Comment: Synthetic dyes and fragrance should not be added to green cleaners as they can cause allergic reactions or skin irritation.

Response: All components of the product are evaluated on the criteria included in the standard. As a result, dyes and fragrances can only be included in the product if they meet all the criteria of the standard, including skin irritation. Further, dyes often present the functional benefit of easy product identification.

Comment: This list should not include any substances that were screened out in other sections. As presented, that is not the case. Delete dibutyl phthalate because it is already disallowed as a Prop 65 reproductive toxin. Delete most of the heavy metals listed; they are already be excluded because they are on the Prop 65 list. Listing them separately is redundant. Two exceptions: all chromium and selenium compounds – as well as elemental chromium and selenium – should be prohibited. Prop 65 only excludes hexavalent chromium and one selenium compound.

Response: Since dibutyl phthalate is qualified as a reproductive toxin in Prop 65, it will be removed from this section and the group of phthalates will be listed instead to ensure the inclusions of similar compounds. Nickel, arsenic, mercury, cadmium, and cobalt will be removed since they are classified as carcinogens on the IARC list. Lead, selenium, and chromium heavy metals and their compounds will remain on the list.

Comment: Add glycol ethers as a class to the list of prohibited ingredients.

Comment: Add perfluorinated compounds to the list of prohibited ingredients. Recently, a few companies have started manufacturing cleaning products that contain Teflon-like ingredients. Most of these products are designed for bathroom cleaning and advertise that they reduce the frequency in which toilet bowls need to be cleaned. These chemicals and/or their precursors and breakdown products are increasingly being deemed persistent and bioaccumulative toxic chemicals (PBTs).

Comment: Add xylene to the prohibited ingredients list because it is commonly contaminated with ethyl benzene, a Prop 65 carcinogen.

Comment: Other ingredients that should be included as prohibited (some may overlap with Proposition 65 or other prohibitions): 1,1,1-TCE [71-55-6]; acetone [67-64-1]; benzyl alcohol [100-51-6]; butoxy propanol [5131-66-8]; Coconut diethanolamide [8051-30-7]; coconut oil diethanolamine [68603-42-9]; cyclohexanol [108-93-0]; diethanolamine [111-42-2]; diethylene glycol [111-46-6]; diethylene glycol monobutyl ether [112-34-5]; diethylene glycol monoethyl ether [111-90-0]; diethylene glycol monomethyl ether [111-77-3]; ethylene glycol [107-21-1]; hexylene glycol [107-41-5]; methyl ethyl ketone [78-93-3]; naphtha [8030-30-6]; n-hexane [110-54-3]; propylene glycol [57-55-6]; propylene glycol monomethyl ether [107-98-2]; stoddard solvent [8052-41-3]; triethanolamine [102-71-6].

Response: The majority of compounds listed are not commonly used in the types of cleaners included in the scope of this standard (most are more commonly used in paint products). However, each product must pass all the environmental and health criteria in the standard. For example, 1,1,1-TCE [71-55-6] is an ozone-depleting compound; 2-Butoxyethanol [111-767-2] is currently listed as a possible human carcinogen by the EPA (classification 3) and as a result would be prohibited (however its inclusion on this list changes, thus it will now also be listed in section 4.2.4 Other prohibited compounds); diethanolamine compounds are corrosive to skin and eye and any product must document that it is not corrosive to the skin and eyes.

Comment: Green Seal should maintain a comprehensive list of chemicals found on all the "prohibited" lists that are commonly found in household cleaning products so that manufacturers and consumers can have quick access to all prohibited ingredients.

Response: Green Seal uses existing, scientifically-based resources for such prohibited compounds, and reference to these are included in the definitions. Other prohibited compounds are also cited in the standard which are not included in these lists.

Comment: Combustibility: Green Seal should include a standard prohibiting ingredients that are combustible. Proposed language could include the following: "The product or 99% by volume of the product ingredients shall have a flashpoint above 150 degrees F, as tested using either the Cleveland Open Cup Tester (ASTM D92-97) or a closed cup method based on International Standards Organization (ISO) 13736 or ISO 2719. Alternatively, the product shall not sustain a flame when tested using ASTM 4206."

Response: It is important to consider the combustibility of a product as a whole. For example, a dilute solution of ethanol in water would not be flammable or combustible. However, a cleaner containing high concentrations of pine oil, d-limonene, or other solvents could easily be flammable or combustible. As a result, the revised standard will include criteria on combustibility of the product:

Combustibility. *The* undiluted *product shall not be combustible. The product or 99% by volume of the product ingredients shall have a flashpoint above 150 °F, as tested using either the Cleveland Open Cup Tester (ASTM D92-97) or a closed-cup method International Standards Organization (ISO) 13736 or ISO 2719. Alternatively, the product shall not sustain a flame when tested using ASTM D 4206.*

4.2.5 Skin and Eye Irritation. The *undiluted* product shall not be corrosive to the skin or eyes. The undiluted cleaning product shall not be corrosive to the skin, as tested using the Human Skin Construct systems (Liebsch et al. 2000; Fentem et al. 1998). The undiluted cleaning product shall also not be corrosive to the eye as tested using the bovine opacity and permeability test (BCOP) (Sina et al. 1995) after a 10-minute exposure. 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 is not corrosive.

Comment: Green Seal should strengthen its criteria for screening out skin and eye irritants. Currently, the criteria are relatively weak: the ingredients must be "corrosive", meaning that they are prohibited only if they cause permanent damage to the skin or eyes. The standard should be made stronger by including those substances that can cause serious damage that is not necessarily permanent. For example, some substances are able to cause severe pain, conjunctivitis, and/or corneal clouding. Similarly, some ingredients that are not corrosive to the skin, are known to cause severe pain, swelling; skin sensitization, and/or severe allergic skin reactions. Ingredients known to cause these effects should also be prohibited.

Response: Green Seal agrees with this comment. However, there is not a widely accepted definition for severe skin or eye irritant with readily available and non-subjective data. Green Seal also prefers the use of in vitro testing if testing is needed for criterion in a standard and current methodology has limitations for such use. If developments are made in this area, the issue will be reconsidered. Household products must comply with the Consumer Product Safety Commission regulations

found at 16 Code of Federal Regulations (CFR) Chapter II, Part 1500, which require irritants to be labeled on the product.

Comment: Skin sensitization should be included as in GS-37. Products shall not contain ingredients known to be skin sensitizers as tested by the OECD guidelines for testing chemicals, Section 406. Green Seal may also accept the results of other standard test methods, such as those described in Buehler (1994) or Magnusson and Kligman (1969) as proof that the ingredients are not skin sensitizers

Response: As suggested, the standard will include a criterion and definition on skin sensitization as used in GS-37 for industrial and institutional cleaners:

Skin Sensitization. *The undiluted product shall not be a skin sensitizer, as tested by the OECD Guidelines for Testing Chemicals, Section 406. Green Seal shall also accept the results of other standard test methods, such as those described in Buehler (1994) or Magnusson and Kligman (1969), as proof that the product or its ingredients are not skin sensitizers.*

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

4.2.6 Fragrances. Manufacturers shall identify any fragrances on their material safety data sheets (MSDSs) and product labels. Any ingredient added to a product as a fragrance must follow the Code of Practice of the International Fragrance Association.

Comment: This requires us to *identify* fragrances on the MSDS and product labels. Unless there are hazardous ingredients we feel this is unnecessary and dilutes the purpose of the MSDS. Fragrances are complex mixtures and are typically considered confidential by the fragrance manufacturer. Describing fragrance ingredients in any meaningful way to the consumer would be very difficult. We currently do describe fragrances in some products by descriptors such as "orange scent" or " fresh lemon scent". This would not be a problem

Comment: This section is not clear whether the compounded fragrance must be listed on the MSDS and the label or the ingredients in the fragrance must be listed. Fragrances are proprietary blends; the formulas are not available to most product manufacturers and it is not practical to list all the fragrance ingredients on the MSDS or the label. This information provides no benefit to the user of a product or to the environment.

Response: The criterion is revised to clarify that the use of an *added* fragrance must be *disclosed* on an MSDS – it is not requiring the identification of the fragrance name or its ingredients.

Fragrances. *Manufacturers shall disclose the use of any added fragrances on their material safety data sheets (MSDSs) and product labels. Any ingredient added to a product as a fragrance must follow the Code of Practice of the International Fragrance Association.*

Comment: We are concerned regarding the products of chemical reactions between terpenes and oxidants such as ozone and certain nitrogenous species. Terpenes such as α-pinene and d-limonene are used as degreasers and fragrances. In the presence of oxidants terpenes react to form formaldehyde and ultrafine particles, as well as hydroxyl radicals, which can further react to form other toxic compounds. We are especially concerned about the creation of formaldehyde indoors. …

Repeated use of a product over a number of hours could result in an exposure above accepted health benchmark levels. [links and references provided]. … Because of the potential for formation of unhealthy levels of formaldehyde and ultrafine particles, we recommend the GS standard disallow products that use terpenes only for their fragrance properties, and require a cautionary note on products that contain terpenes for their degreasing capabilities.

Response: Indoor air quality and emissions are important considerations and Green Seal is engaged in the issue and intends to include appropriate tests and thresholds when they become available. It's worth noting that the level of terpenes used as a fragrance in a product is typically lower than when added to function as a degreaser component. As a result, an upper threshold for total terpene use in the product may prove to be a direction in the future. However, additional research is needed to determine such a threshold, or determine another means to limit undesirable air emission products.

5.0 Packaging Requirements

Comment: For types of packaging listed in the US EPA Comprehensive Procurement Guidelines: Paperboard and Packaging, packaging shall contain post-consumer recycled content levels that meet or exceed the guidelines.

Response: The US EPA Comprehensive Procurement Guidelines for paperboard and packaging apply to shipping and packing materials. Green Seal's packaging criteria apply to primary and secondary packaging materials, not shipper or case packaging. This will be clarified in the definition of secondary packaging as follows:

Secondary Packaging: *Any packaging or material other than primary packaging, including wrappers, boxes, and blister packs, but excluding shipping containers.*

Comment: Plastic packaging shall have at least 25% post consumer resin content. Preferred plastic resin types are PET or HDPE.

Comment: Green Seal should also encourage the inclusion of minimum post-consumer recycled content and bio-based plastics in the packaging of products it puts its label on.

Response: Green Seal agrees that the use of post consumer material is preferred. As a result, the standard will be revised to state:

Recovered Material Content. *The primary packaging shall contain the state-of-the-art amount of recovered and post-consumer content. Where a product's packaging is below these levels, the manufacturer must demonstrate that efforts have been made to use the maximum available post-consumer material in packaging.*

Comment: PVC should be prohibited.

Comment: All prohibited ingredients should be excluded from the packaging as well as the product. This would effectively prohibit manufacturers from packaging their products in PVC or applying labels printed with heavy metal-based inks.

Comment: Even if PVC was proven to meet the recyclability test, it should be disallowed because it can contribute to dioxin emissions in trash incinerators and contains toxic materials that can be released during manufacturing and use. Its use in flexible packaging should be prohibited because PVC is inherently rigid and becomes flexible only with the addition of phthalate softening agents such as DEHP, which is on the Prop 65 list as a carcinogen and reproductive toxin.

Comment: The requirement that the primary packaging be "recyclable" is too vague. Nearly all materials can technically be recycled; but not all can be economically recycled. Since #1 and #2 plastics are typically accepted in municipal recycling programs, the standard could state the following: "All primary packaging shall be in #1 (PETE) and #2 (HDPE) plastics or demonstrate that other packaging materials are accepted in a majority of municipal recycling programs in the United States. Products packaged in polyvinyl chloride (PVC) (including labels and flexible) shall be prohibited."

Response: PVC is used to a limited extent for household cleaning product packaging and is not widely recycled. Since PVC is not commonly recycled it would not be allowed by this standard. To clarify this, the definition for recyclable will revised as stated below.

Recyclable package: *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.*

Further, a commenter suggests prohibiting compounds in the packaging that are prohibited in the product. Green Seal agrees and will include those that apply to packaging; these include plasticizer phthalates and the heavy metals (lead, mercury, cadmium, and hexavalent chromium) cited in The Model Toxics in Packaging Legislation adopted by the Coalition of Northeast Governors. As a result, Green Seal will add a section of Prohibited Additives for packaging as stated below.

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.*

Other Restrictions. *Phthalates are prohibited from being intentionally introduced, an exception is allowed for packages that would not have added phthalates but for the addition of recovered material.*

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

5.1 Primary Packaging. The primary package shall be recyclable. Alternatively, manufacturers may provide for returning and refilling of their packages. An exception may be made for lightweight flexible packaging (e.g., pouches or bags) that represents a significant reduction in material use when compared with rigid packaging.

Comment: Include a definition or insert text that explains that refillable means that the container is reused/refilled at least five times with the same product. (This will make it consistent with Title 14, California Code of Regulations, Section 17944.)

Response: The clarifying definition will be added and the criterion will be revised as follows:

***Refillable Package** : A rigid plastic packaging container that can be refilled by the product manufacturer at least five times with the original product held by that package and is proven to be routinely returned to the product manufacturer by the consumer for such a purpose*

Comment: GS-8 certified household cleaners should not be sold as concentrates in trigger spray bottles.

Response: Green Seal agrees with this comment since such packaging encourages use of the most concentrated form of the product, rather than the preferred diluted concentration. The standard will be changed to now include the following criterion:

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

5.2 Aerosol Cans. Manufacturers of products packaged in aerosol cans must show that the aerosol cans can be collected after consumer use and recycled, and that recycling programs are in place everywhere the product is sold.

Comment: The requirement for aerosol cans is a higher standard than the requirement for plastic packaging. For plastics one need only use materials which *are capable* of being recycled; you need not certify they are being recycled everywhere. We recommend that the recycling symbol and a Please Recycle statement be required on all aerosol cans. Recycling programs can not be required in all locations a product is sold. For aerosol can recycling, we recommend that the producer show that recycling is "widely available." The aerosols are effectively eliminated due to the requirement of recycling of empty aerosol cans everywhere the product is sold. We recommend that recycling data demonstrates that recycling is "widely available."

Comment: Aerosol cans are collected in over 5300 municipal locations nationwide. Additionally, aerosol cans contain an average of 25% recycled content. There is no requirement that other types of packaging demonstrate that recycling programs are in place everywhere the product is sold. So why is this extra burden placed on aerosol packages?

Comment: There are not any environmentally sound reasons for eliminating these two forms of cleaners (aerosol cans and towelettes) and in some cases they can actually be environmentally preferred if you look at the LCA of these forms. These are important forms of cleaners for the consumer market. We can not support a standard the effectively eliminates these two form options for the consumer.

Comment: The City and County of San Francisco do not allow aerosol cans for industrial cleaning products. Intuitively, the aerosol can is more resource intensive. Is there any environmental or performance benefit of using aerosol over a pump spray? Address this issue by adding this text, “The manufacturer shall demonstrate the environmental or performance benefits outweigh the costs, if aerosol cans are used over other packaging options.”

Comment: Green Seal-certified products should not be allowed to be packaged in aerosol cans. Aerosol mists can more easily penetrate the lungs than mists from trigger spray bottles, unnecessarily increasing exposure to potentially harmful ingredients. Additionally, the requirement that manufacturers show that aerosol cans are able to be recycled everywhere in the US is unlikely to be met in the near future without a manufacturer-financed collection and recycling program. Perhaps Green Seal could consider allowing aerosol containers only after it has been demonstrated that all potentially hazardous ingredients are eliminated from these products and that aerosol can recycling is available nationally. This could spur a manufacturer-financed aerosol can recycling program.

Response: Green Seal agrees that the proposed provision sets a higher standard for aerosol cans than for other types of packaging, which need only be recyclable. There is a concern that aerosol cans are not generally recyclable. However, to make the requirements equitable, the provision will be revised to say that manufacturers must show that recycling programs are widely available where the product is sold. It should be understood that a mere recitation of the number of recycling locations nation-wide that offer aerosol can recycling is not sufficient for this demonstration. The concerns expressed by other commenters that aerosol cans are not compatible with environmentally preferable products because of their weight or because they produce mists that can be more harmful to human health raise a more fundamental issue about this packaging. Therefore, a provision will be added requiring that manufacturers demonstrate why aerosol cans are the most suitable packaging for a given product, considering environmental, health, and performance considerations, the product will need to meet the other criteria in the standard. The revised language reads as follows:

Aerosol Cans. *Aerosol cans shall be recyclable. Further, manufacturers of products packaged in aerosol cans must show that recycling programs are widely available where the product is sold. In addition, manufacturers of products packaged in aerosol cans must demonstrate why aerosol cans are the most suitable packaging for a given product, considering environmental, health, and performance considerations.*

5.3 Secondary Packaging. Secondary packaging shall not be employed at the point of sale unless the product is a concentrate.

Comment: This requirement ignores the current demands of the marketplace for consumer products. Warehouse clubs frequently require multiple packages be bundled together using shrink wrap or other means of secondary packaging (as defined in section 2.13). Other retail outlets require manufacturers to provide bonus packs that include two or more product packages be bundled together. The requirements of this section would prohibit a certified product from being sold in such stores, reducing the marketability of the product.

Response: Secondary packaging may be necessary when selling concentrated products, or as the commenter illustrates, for merchandizing at certain retail outlets. However, increased use of packaging is not aligned with the goals of this Green Seal standard. As a result, Green Seal will revise the standard to allow for secondary packaging, when such packaging results in a reduction in total packaging. The revised standard will read as follows:

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 and total packaging (primary plus secondary) is a reduction in packaging material use.*

5.4 Ancillary Products. The products shall not contain disposable towelettes or other disposable wiping materials.

Comment: Toweletts can provide a benefit as demonstrated by an LCA. They can be manufactured of biodegradable materials from renewable resources and can reduce the GHG by being more economic to ship. These are also seen as a very convenient form of cleaning products by the consumer. Research has shown that often the consumer will use less chemical and less paper towels when cleaning with premoistened wipes rather than traditional methods. We cannot support a standard that eliminates a convenient cleaning form that is widely acceptable by the consumer.

Comment: We recommend the removal of this criterion. LCA studies demonstrate that cleaning wipes are not environmentally inferior to other forms of cleaning products.

Comment: Wipes are a practical and economic way of applying product. Providing an application tool eliminates the need for the consumer to use paper towels to wipe up liquids. The wipe contains a set amount of liquid, so there is no waste or overuse of product or excess use of paper towels, which are disposed of in the trash.

Response: Green Seal has not received the LCA studies cited, but was able to consult other resources to reconsider the function of disposable towelettes. There was an LCA study by the AFISE in France that demonstrated similar overall environmental impact between wipes, spray, and dilutable kitchen cleaners. However, the wipes had higher household and total solid waste than the other products tested; this was when a sponge was used for the other cleaners. As a result, Green Seal agrees that under certain circumstances they can be made to be compatible with an environmentally preferable product. Arguably, in some cases, the use of disposable products may provide for less waste when compared to the use of paper towels. Specifically, Green Seal prefers to minimize waste generated from the use of these products. Further, the product must meet all other criteria in the standard (such as toxicity, VOC, etc.). The standard will require that any disposable towelettes be derived from renewable materials and must have the maximum recovered material content. Finally, proper disposal of the towlettes will need to be ensured, so municipal waste streams (especially sewers) are not overburdened. The revised language shall read:

Ancillary Products. *Products may contain disposable towelettes or other disposable wiping materials if they are made from 100% renewable materials including, but not limited to cellulosic materials, and meet the state-of-the-art for recovered material content.*

If the product is a towelette or other disposable wipe product, the label must clearly indicate proper disposal of the wipes.

6.0 Labeling Requirements

6.4 The label must include detailed instructions for proper use to maximize product performance and minimize waste.

Comment: We do not know what this means. The label needs to have "detailed instructions" for proper use which will minimize waste.

Response: The label should include directions for use that provide the most effective performance for the product so the consumer uses the least amount of the product necessary.

6.5 Where a product is intended to be diluted with water by the consumer prior to use, the label shall clearly and prominently state that dilution is recommended and shall state the recommended level of dilution in commonly understood measurements. It shall also state that unheated water should be used for the dilution.

Comment: This section is inconsistent with the performance standard requirements for carpet cleaners outlined in Section 3.1. The carpet cleaner standards in Section 3.1 allow the use of warm or hot water where required by a test method or performance consideration, while Section 6.5 specifically requires the use of unheated water for dilution purposes. We also feel that a generic prohibition on heated water for any product is inappropriate. Test methods will specify water temperature when appropriate, so this restriction is unnecessary and could restrict legitimate performance claims. Green Seal should actually promote the use of warm or hot water when its use increases the performance of products, possibly allowing for lower doses, therefore reduced chemical use.

Response: Use of heated water has proven to dramatically impact the environmental effects of the product. However, carpet cleaner's performance may require the use of warm or heated water as the reviewer mentions, this section will be clarified as follows:

Where the product is intended to be diluted with water by the consumer prior to use, the label shall state clearly and prominently that dilution with water from the cold tap is recommended and shall state the recommended level of dilution in commonly understood measurements. Carpet cleaner labels shall specify the use of cold water for products that do not suffer significant performance degradation in cold water.