July 10, 2007

The scoping phase of the Green Seal Environmental Standard for Industrial and Institutional Cleaners, GS-37, revision process to define the scope of the revised standard has been completed. The scoping process was intended to identify specific areas of the standard to be opened to modification through addition of criteria, modification of existing criteria, or deletion of criteria that are no longer necessary. Comments from Registered Stakeholders were solicited and this document includes a summary of the comments received.

By participating in Green Seal's standard setting process, the following individuals played an important role in Green Seal's effort to encourage the design, manufacture and end use of environmentally superior products. Their assistance and involvement is greatly appreciated.

Comments received from these organizations and several individuals:

Ashkin Group
ISSA
NY State Chemical Alliance
State of California Dept of General Services
California Department of Health Services, Occupational Health Branch
Simple Green/Sunshine Makers
Earth Alive
BG Service Solutions
Green Purchasing Institute
Stearns Packaging
Alkylphenol Ethoxylates Research Council
NYU School of Medicine
Women's Voices for the Earth
MassCOSH
Reckitt Benckiser
Industrial Cleaning Supply
Green Blue Institute
ICT Chemicals
Carpet and Rug Institute
Johnson Diversey
Betco
Waxie Sanitary Supply
State of Washington Dept of Ecology
Yale
Health Care Without Harm
TD Research Ltd.
Multi-Clean
Inform
University of Washington
Brulin & Company
California Air Resources Board
WoolSafe
Organization West Islip UFSD
State of California OEHHA
Racine Industries
State Indust-Prod
EcoLab
Ouroboros Holdings
Healthy Schools Campaign
Maid to Order
Horseheads School District
King County Hazardous Waste Mgt Program
PortionPac Corporation
Spartan Chemical

Draft GS-37 Scoping Document – Stakeholder Review Comments
Received June 15, 2007

GS-37: General Purpose, Bathroom, Glass, and Carpet Cleaners Used for Industrial and Institutional Purposes

1.0 Scope

This standard establishes environmental requirements for industrial and institutional general-purpose, bathroom, glass, and carpet cleaners. For purposes of this standard, general-purpose, bathroom, glass, and carpet cleaners are defined as those cleaners intended for routine cleaning of offices, institutions, warehouses, and industrial facilities. The standard does not focus on the use of cleaners in households, food preparation operations, or medical facilities.
[**Clarification**: Food preparation operations and medical facilities were specifically excluded because these are specialty cleaning areas with legal requirements governing them, including the use of disinfectants and/or sanitizers.]

Keep as is, delete, or change

- Evaluate expanding the focus of the standard to explicitly identify areas with vulnerable or sensitive populations e.g. schools, day cares
- Consider creation of a two-tier standard

Rationale, type of change, notes, etc.

- Clarify where this standard applies to various institutions.
- To allow for more conservative criteria based on protection of sensitive populations

Do not consider creating a two tiered system. In fact, eliminate any semblance of multiple standards that currently exist. The definition of vulnerable and sensitive populations includes virtually most of the population. It is impossible to conceive of a building that would not have either children, pregnant women, respiratory or immuno impaired employees or visitors. Given that definition, what risk manager would allow the use of non sensitive or vulnerable population certified chemicals in his building. The litigation goes something like “so you had available for use a GS certified product for Sensitive and Vulnerable populations and you used one that wasn’t? That is ”willful negligence”.

There are no buildings where this type of population does not exist. We would simply be giving the opposition to Green Seal more ammunition. Saying even we can’t make up our mind. We should have one set of “Leadership” standards, and only one. When Green Seal certifies something, it should be safe for all. The inclusion of a lesser standard and a higher standard will weaken the Green Seal standard already under attack by those who would like to see Green Seal disappear. In fact, the movement to a dual standard appears to me to be designed to play right into the hands of those who promote other so called flexible standards or non standards.

Consider adding some other specialty cleaners such as graffiti removers, metal polish and furniture polish. There is a lot of use of specialty cleaners in high end offices and lobbies.

Consider creation of a two-tier or three –tiered standard. To allow for more conservative criteria based on protection of sensitive populations and to help educate producers about where additional health and environmental improvement might be found (what to strive for). A three-tiered standard of bronze, silver, and gold is the same as the Olympic awards – everyone knows what they mean. This facilitates public education.

Evaluate chemicals for their potential for causing asthma as well as irritant properties. People who are not yet members of a sensitive population could develop asthma through occupational exposure to cleaners containing asthmagens.

Change bathroom to rest room. Bathrooms are at home, rest rooms are multiple fixture, public spaces

(Sentence 1) Add: This standard establishes environmental and health hazards requirements... As a physician, I focus my comments on potential health effects, which I believe should be given a much higher priority in the Green Seal process. Recognizing that the medical literature regarding human toxicity of many important compounds is very incomplete and rapidly evolving, it is important that a process be in place to make the health hazard requirements as evidence-based and up to date as possible. I agree with the health-related comments already noted in the document.

Add Nursing homes and Senior Care Facilities

Will this 2nd tier include items sold for household use? Can this be considered for at least some of the more toxic cleaners available in stores?

GS-37 should be multi-level, like the LEED building standards. The basic standard would be like the present edition; the second level would be more restrictive in its criteria; etc. I envision three levels - silver, gold, and diamond (or other similar names). To receive more than the basic level, a product would have to meet several secondary criteria, such as revealing all ingredients, meeting lower % ingredient limits, etc.

I think we need to recognize that schools are institutional space and their cleaning and care requires institutional cleaners. If a two tiered approach translates to less effective cleaners on the new tier, then this is not acceptable. Schools in particular are already cleaning with reduced staffing and less money. New standards must maintain the same form, function and efficacy as those products now in use.

The above suggestion would be premature and ill advised. Either make a single Std. that makes products as safe as possible for the general population, or if Green Seal wants to address environmental needs of “sensitive populations, then make separate Standard(s) for sensitive populations. Disagree with the two-tiered approach. It would be impossible to have an all-inclusive definition of ”sensitive populations” or to define their highly varied environmental requirements in a general Standard.

I understand the desire to explicitly identify vulnerable or sensitive populations, but from my experience there are vulnerable populations in all building segments. For example, many office buildings have on site day care centers, and other vulnerable populations such as those with compromised immune systems or pregnant woman can be found anywhere. Thus it is my recommendation that it would be fine to add schools and daycare to the current list of where cleaning is taking place, but to start addressing sensitive individuals may result in some unintended exclusions or mischaracterization of the intent.

An “Institution” is generally recognized to include educational, long-term care, and health care facilities. We feel no clarification is required. GS-42 addresses vulnerable populations through modified cleaning practices. We feel that this issue is best served by the guidelines in GS-42 and *not* by redefinition in GS-37. We strongly discourage the adoption of a multiple-level standard. In practice, the most aggressive requirements in such a system become the de facto requirements. This will add complexity to the standard without providing additional value to registrants or end-users. The marketability of a two-tier system is limited, and could impose unnecessary cost on the process.

Evaluate expanding the focus of the standard to explicitly identify products that meet the highest standards for use with vulnerable or sensitive populations. Re: two-tier standard-- Absolutely must happen to maintain credibility. Any facility may have sensitive populations. We shouldn’t just identify areas with these populations, but identify products that are formulated for these populations, so that any facility can choose to use products that meet the most stringent criteria. It is absolutely essential to be able to easily identify products that meet the highest standards in regards to sensitive populations. Without this type of identification system, the GS-37 standard will lose the support of many of us working in the field. Due to the large number of possible cleaning

products, processes, soil types, and cleaning requirements, the compatibility of cleaners with surface materials is not specifically addressed in this standard. Product users should follow the manufacturers' instructions on compatibility.

Consider having a separate standard, or a separate set of criteria for concentrates. There are some small facilities such as daycare centers that want to buy "green" ready-to-use products but cannot find any certified products on the market. Suggest including air fresheners to the list. *Rationale***-** Not cleaners as defined, but commonly used in bathrooms, from scented oil to toilet blocks.

A two-tier standard would not be appropriate if criteria already address sensitive populations (e.g., proposed criteria that a product not trigger an asthma attack in "susceptible cleaning workers").

DOE does not support a two tier standard-- does not account for the fact that sensitive and vulnerable individuals can be found in any facility. Sensitive and vulnerable populations can be found in most facilities that would not be "identified" as having sensitive or vulnerable populations. As well exposure could sensitize previously "normal" people. Consider extending the standard to look at the non-active ingredients in disinfectants. Consider adding some other specialty cleaners such as graffiti removers, metal polish and furniture polish. Disinfectants are used in many facilities and the surfactants vary. There may be a way to promote the use of disinfectants that have less-toxic ingredients other than the disinfect.

Keep as is, delete, or change

- No change

Each criterion states whether it applies to the undiluted product or to the product as used.

Keep as is, delete, or change

- No change

Rather than "no change:" Each criterion should apply to the undiluted product. Workers in manufacturing plants as well as end users are still exposed to the undiluted products.

Add to Scope:

Keep as is, delete, or change

- Consider adding other products to scope, e.g., laundry, furniture polishes, upholstery, metal cleaners, urinal and bowl cleaners, spot removers

Rationale, type of change, notes, etc.

- To account for other cleaners commonly used by cleaning services

(add) "…and presprays." Some products, such as upholstery cleaners, are the same as carpet cleaners.

Laundry products are significantly different and merit a unique standard. We recommend exploring a generic "all others" green standard, or guideline, that defines baseline green criteria, or applying a "general hard surface cleaner" product category. One contradiction is that many of the products noted above are not generally available as concentrates.

Yes need to extend because of common daily use

Industrial Degreasers or Cleaners are a large volume product category not addressed. Industrial Degreaser play directly into environmental issues more so then the "niche" products listed, through volume of use, material cleaned and worker exposure. This category is clearly different from GP cleaners and can be identified through cleaning performance.

We must be sensitive to cost and reduced staffing in public schools. New standard must be cost effective both in product and labor costs to maintain present standards or better.

(add) cleaners with multi-surface or purpose claims

(add) , floor strippers and polishes; commonly used in institutions; Develop criteria for a multi-surface or purpose cleaners or clarify policy re certification in existing product category.

Do not add products listed. I oppose the suggestion that the committee consider adding laundry, furniture polishes, upholstery, metal cleaners, urinal and bowl cleaners, and/or spot removers to the scope of the standard, and instead suggest creating a new standard for these products, since most of these products will require more VOCs or more toxic constituents than other products currently covered under the standard.

I suggest adding stainless steel cleaners such as Brasso@ and oil based aerosols, etc. I know it is impossible to list every type (Brand) of cleaner but a lot of the smaller companies are used to going to the local wal-mart, dollar general, etc. and buying basic products.

We would be in favor of inclusion of other categories under the GS37 standard

On the one hand I think it would be fine to expand the scope to cover other product areas. However, having served as director of product development for a cleaning products manufacturer, I can tell you that some of the products mentioned in your examples require technologies so that they meet the performance requirements that would not pass the current health, safety, and environmental criteria of GS-37 as it now stands. Thus, I would caution against adding products to the scope of GS37 without having some sense as to whether or not current technologies could meet it.

Rather than “no change:” Each criterion should apply to the undiluted product. Workers in manufacturing plants as well as end users are still exposed to the undiluted products.

Consider extending the standard to look at the non-active ingredients in disinfectants. Consider adding some other specialty cleaners such as graffiti removers, metal polish and furniture polish. Also, disinfectants are used in many facilities and the surfactants vary. There may be a way to promote the use of disinfectants that have less-toxic ingredients other than the disinfecting.

DOE supports.

2.0 Definitions

Bathroom cleaners. This category includes products used to clean hard surfaces in a bathroom such as counters, walls, floors, fixtures, basins, tubs, and tile. It includes products that are 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.

[**Clarification**: the chemical differences between toilet bowl cleaners and bathroom cleaners were considered significant enough that they could not be dealt with under a single set of criteria. Also as specialty cleaners, toilet bowl cleaners have lower volume of use than bathroom cleaners]

Keep as is, delete, or change

Consider rewording the definition to exclude “products designed as toilet bowl cleaners.”

Rationale, type of change, notes, etc.

Already approved GS products can be used to routinely clean urinals and toilet bowls

I am unclear about what products are “specifically intended to clean toilet bowls”. Are solid toilet bowl cleaners such as those made by Clorox and “2000 Flushes” toilet bowl cleaners? Exposure can occurred from the product during flushing (aerosol) or from chemicals coming from the toilet bowls. Does the standard includes air fresheners and deodorizer bocks used in bathrooms? Solid blocks paradichlorobenzene and naphthalene are commonly used in public bathrooms in urinals. Exposure to these chemicals can be significant to the users. “Non-para enzyme” blocks or other enzyme-based cleaners and odor counteractants may not be innoculous as they may cause reactions in sensitive individuals (skin, inhalation). It is important not to exclude products that does not presently fit into the GS-11 criteria. The use of one high VOC product (non-GS 11) could cause human exposure exceeding those from many GS-11 products used in the same location. It is confusing that certain bathroom products registered under FIFRA as disinfectants and sanitizers are included in this standard, but not disinfectants and sanitizers under carpet cleaners, general-purpose cleaners, and glass cleaners registered under FIFRA.

Clarify the difference between tile cleaners for the bathroom versus general purpose tile cleaners. Is there to be a location restriction?

Recommend changing to “Products designed solely for use as toilet bowl cleaners”

EPA registered disinfectants cannot display the Green Seal Logo on the product label/container. Maybe an additional statement based on Green Seal’s experience with this issue.

This is confusing to me. In my experience- employees cleaning bathrooms have been injured from other products getting mixed together accidentally in the toilet bowl.

This differentiation is currently being abused by those that are promoting GS 37 Bathroom cleaners as GS 37 certified disinfectants. Consider putting a disclaimer on GS37 Certified products that are also EPA registered products that essentially says that GS does not make any claim or warranty regarding EPA Products and that no Certification for Disinfectants or other EPA registered products exists under Green Seal.

This makes sense to me.

Alternatively, consider retaining exclusion in definition for products that clean toilet bowls. More transparent approach would be to define urinal and toilet bowl cleaners and set same standard.

While we are interested in the ability to claim bathroom cleaner disinfectants as Green Seal certified, but until the stalemate between US EPA and Green Seal is settled, including mention of FIFRA registered pesticides only causes confusion. Therefore, the standard should reference the problem in some way or remove the reference to FIFRA registered pesticides until the problem is resolved.

Handle bowl cleaners, both acid and alkaline, as a separate item and include them. I would not assume the volume for bowl cleaners to be less. Phosphoric acid bowl cleaners are major item, especially when hard water is present.

Exclude all FIFRA regulated products**.** The safety and efficacy of FIFRA regulated products are already tightly regulated by both the Federal Government and the individual State EPA’s.

This is true only to a limited degree. GS37 restroom cleaners can currently be used as a “daily cleaner” and in areas with soft water. Many schools and other institutions will require a more aggressive bowl cleaner to remove hard water deposits and other accumulated soils. Thus I would encourage you not to confuse the two categories of products.

Carpet cleaners. This category includes products used for routine cleaning of carpets and rugs. This category may include, but is not limited to, products used in cleaning by means of extraction, shampooing, dry foam, bonnet or absorbent compound. It does not include products intended

primarily for spot removal. This category does not include any products required to be registered under FIFRA, such as those making claims as sterilizers, disinfectants, or sanitizers.

[**Clarification**: the chemical differences between spot removers and carpet cleaners were considered significant enough that they could not be dealt with under a single set of criteria]

Keep as is, delete, or change

No Change

Change “extraction” to “water extraction” to clarify; all methods do extraction.

Consider including Cleaners used for spot removal as their use can potentially alter the composition of other products used

Consider including in this category Carpet non-browning chemicals or neutralizers.

Include spot removers in general. Many spot removers are closely related to products used for other purposes, such as traffic lane cleaners, pre-spotters, spray extraction detergents, etc. In fact many of these latter ones can be used as spot removers in a more concentrated form. Spot removers are almost always supplied in ready-to-use form (i.e. not to be diluted).

The exclusion of products requiring FIFRA registration is not consistent with the inclusion of FIFRA registered bathroom cleaners. If a product meets the other criteria it shouldn’t be excluded if it is FIFRA registered particularly sense this type of specialized products is needed to clean up biohazards like blood etc.

Concentrate. This is a product that must be diluted by at least eight parts by volume water (1:8 dilution ratio) prior to its intended use.

Keep as is, delete, or change

No Change

Rationale, type of change, notes, etc.

Consider products used at 4:1. There are a number of cleaners that use this level of concentration

Change – delete at least eight parts by volume water (1:8 dilution ratio). Some products are diluted less than 1:8; many are diluted depending on end-use.

Consider making the dilution ratio at least 1-64 Eliminate the exception for FIFRA-registered bathroom cleaners allowed under current gs37 standards to be Ready to use. To truly impact waste in all forms we must as an industry eliminate ready to use and maximize the concentration of chemicals. The waste of fuel, carbon, dollars, packaging etc of shipping chemicals that are designed to be mixed 1-8 with water is embarrassing. Green Seal should be ashamed to use such a low dilution ratio and pretend to call it a leadership standard.

Discuss the issue of having an additional standard for RTU products. There are some small facilities such as daycare centers that want to buy “green” ready-to-use products but cannot find any certified products on the market.

I highly recommend that you consider increasing the requirement for a “concentrate”. 1:8 is a very low bar to meet. I would suggest that you consider increasing to at least 1:32 or 1:64. This increase takes into account the improvement in “green” formulating and technologies since the initial development of GS37. This would have an enormous impact on reducing packaging and transportation impacts --- and would like result in lower costs to schools and other end-users.

Rather than no change, discuss the issue of having an additional standard for RTU products. There are some small facilities such as daycare centers that want to buy “green” ready-to-use products but cannot find any certified products on the market.

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Discuss creation of an additional standard for RTU products. There are some small facilities such as daycare centers that want to buy “green” ready-to-use products but cannot find any certified products on the market.

Dispensing-system concentrates. These are products that are designed to be used in dispensing systems that cannot be practically accessed by users.

Keep as is, delete, or change

No Change

Rationale, type of change, notes, etc.

Consider embellishing the definition further; “These are products that are designed to be used in *closed-loop* dispensing systems *which prevent exposure of the concentrate to the user.”*

Consider a specification for what constitutes a dispensing system “that cannot be practically accessed by user.” There are significant environmental benefits to the use of concentrates. However, there is also potential for increased worker hazards, especially if the packaging/dispensing system allows easy access to the concentrated product.

Do automatic dispensing systems pose a risk for those who fill them?

Drop “that cannot be practically accessed by users” Eliminate the practice of allowing Dispensing system chemicals to be tested differently than any other chemical. If a chemical is safe then it is safe, It should be safe in any format, not just in dilution. If GS will not eliminate this distinction, then those products that are not safe to come into contact with in the concentrated form should be required to carry a safety warning that states that GS does not certify the concentrated product and that it may contain specific health risks that should be listed. There is no effort on the part of Green Seal to verify the correct use of dispensing system chemicals other that assuming the user follows the manufacturer’s directions. Anyone in the field can produce numerous pictures of Dispensing systems that allow easy access to the concentrate, some as simply as turning off the water and turning on the dispensing system, Again, one system one standard.

Use of dispensing-system concentrates should not justify allowing more hazardous ingredients since there is no guarantee products will be diluted properly and additional impacts may occur after the product is dispensed.

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General-purpose cleaners. This category includes products used for routine cleaning of hard surfaces including impervious flooring such as concrete or tile. It does not include cleaners intended primarily for the removal of rust, mineral deposits, or odors. It does not include products intended primarily to strip, polish, or wax floors, and it does not include cleaners intended primarily for cleaning toilet bowls, dishes, laundry, glass, carpets, upholstery, wood, or polished surfaces.

This category does not include any products required to be registered under FIFRA, such as those making claims as sterilizers, disinfectants, or sanitizers.

Keep as is, delete, or change

No Change

Rationale, type of change, notes, etc.

What are the differences between “industrial” and “institutional” cleaners? Where do drain and grease-trap cleaners and additives belong to? This is confusing. There are many cleaners out there that are multi-purpose. I just do not see how you can categorized a cleaner as “general-purpose” when it can be used on various surfaces, and locations such as bathrooms,and kitchens.

Harmonize with bathroom cleaners in regard to tile cleaners?

Consider removing the exclusion for products required to be registered under FIFRA. If standard where to encompass consumer/retail general purpose cleaners, many make sanitizing/disinfecting claims.

Change category to “Hard surface cleaners.” Change: ~~It does not include cleaners intended primarily for the removal of rust, mineral deposits, or odors.~~ It does not include products intended primarily to strip, polish, or wax floors, and ~~it does not include~~ cleaners intended primarily for cleaning ~~toilet bowls, dishes, laundry,~~ glass, ~~carpets, upholstery,~~ wood. The exclusions are far more numerous than the definition.

Why isn’t flooring identified scope 1.0.

Consider rewording the “polished surfaces”. Would burnished vinyl floors be considered polished surfaces?

Clarify difference between general purpose cleaner and neutral floor cleaner. The existing standard does not seem to apply to floor cleaners although many of the products are floor cleaners (not necessarily general purpose cleaners.

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Clarify difference between general purpose cleaner and neutral floor cleaner. The existing standard does not seem to apply to floor cleaners although many of the products are floor cleaners, (not necessarily general purpose cleaners.

Glass cleaners. This category includes products used to clean windows, glass, and polished surfaces. This category does not include any products required to be registered under FIFRA, such as those making claims as sterilizers, disinfectants, or sanitizers.

Keep as is, delete, or change

No Change

Consider adding “Glass & Hard Surface Cleaners” and “polished surfaces like stainless steel.” *Rationale:* Would point end users to a product to clean stainless that would be Green Seal certified (already addressed as a potential to add to scope).

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.

Keep as is, delete, or change

- Consider changing to address reaction products, e.g., formaldehyde releasers
- Consider a different approach to defining ingredient, so it is consistent among all criteria
--Consider no change

Rationale, type of change, notes, etc.

- Reaction products can have a significant impact on human health
- Currently, some criteria are evaluated on a product *concentrate* and others on the product *as used*

There are a number of products in the market based on nanotechnology such as “NanoScrub”. Are there plans to look into these products? Cleaning products based on nanotechnology will continue to increase. There should be a standard to assess the safety of these products.

http://www.innovationsgesellschaft.ch/images/fremde_publikationen/Nanotechnology_in_consumer_products.pdf

If this issue is to be addressed, it should be separate. Reaction products are not ingredients.

Consider a different approach to defining ingredient, so it is consistent among all criteria. Reaction products can have a significant impact on human health. For example, d-limonene can react to atmospheric ozone and create formaldehyde.

Reaction products can have a significant impact on human health-For example, d-limonene can react to atmospheric ozone and create formaldehyde.

Request clarification on limits, “intended” or “significant” reaction products, and so forth. Many reactions can occur that are imperceptible and whose products would be below 100ppm. We understand efforts to encourage due diligence in identifying composition of a mixture, but too aggressive of a requirement would impose a high burden upon applicants. If a specific compound should be prohibited (i.e. formaldehyde donors), it would be best addressed in section 4.13. We prefer the current approach to setting a threshold value, and calling out its interpretation per each criteria.

Definition for Ingredient should address specific chemical, such as chemicals of concern. Also, what does “reaction product” mean? The term as shown above needs to be more specific

Consider the following definition: Any constituent of a product that intentionally added or know to be present (including reaction products, contaminants, byproducts, etc.) that comprises at least 0.01% by weight of the product.

Consider adding asthmagen as a component to be considered. Occupational asthma and new onset asthma is common among workers in the cleaning industry who should also be considered

Consider listing ALL ingredients including those that currently fall under the terms of trade secreted information

add “…product, concentrate or ready-to-use solution.”

Consider the impacts of very low exposures of some very toxic chemicals. .01% by weight may provide a loophole for information we want. More data is gathered daily about low dose exposures. We need to be able to accommodate this data in the future.

Agree. Is there a clearer way to identify which is which for those evaluating a product. Again-some small facilities will want to buy RTU. (make over the counter GS products available??*)*

We support the current definition of ingredient at the 0.01% level. The comment above is confusing as Green Seal does NOT currently make a distinction; an ingredient is an ingredient

regardless of concentrate or in use. Perhaps a clarification in the definition is needed to state: "Any constituent of a product that is intentionally added or known to be a contaminant that comprises at least 0.01% of the concentrate?

I would highly encourage that all testing of a product be done on the concentrate, except for performance testing. Whether or not a product is used in a dispensing device if there is damage to a bottle during shipment or because a bottle is inadvertently dropped on the floor and leaks, custodians, occupants and the environment will be exposed to the concentrate. Also from my experience formulating these products there is no reason that these classes of cleaning products can't meet GS37 in the concentrate and this change would NOT create a significant barrier to manufacturers and would improve their overalls safety.

Reaction products are covered as contaminants.

We support.

Optical brighteners. Additives designed to enhance the appearance of colors and whiteness in materials by absorbing ultraviolet radiation and emitting blue radiation. Also known as fluorescent whitening agents

Keep as is, delete, or change

No Change

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

Keep as is, delete, or change

No Change

What does CFC 11 = 1

Product as used. This is the most concentrated form of the product that the manufacturer recommends for a product's intended use. For example, if a manufacturer recommends a product be diluted 1:64 or 2:64 for use as a general-purpose cleaner, the product shall meet the environmental and performance requirements at a dilution of 2:64.

Keep as is, delete, or change

- Consider revising definition and make distinction between use dilution for performance requirements and use dilution for other criteria

Rationale, type of change, notes, etc.

- Performance requirements should be met at a product's recommended dilution level for routing cleaning, not at the most concentrated dilution, while requirements for ingredient toxicity and environmental impacts should apply to the concentrated form of the product or the most concentrated use dilution.

Instead of 2:64, why not use 1:32

One form of a product should not be used to address both safety and environmental concerns. Safety should be evaluated based on the most severe exposure, i.e., concentrate. Environmental impact should be evaluated as used since that is the way that the product will enter the environment.

Performance requirements should be tested at the highest level listed on the label. If a manufacturer shows a dilution ratio of one part concentrate to 1000 parts of water for the purpose

of qualifying for “in use dilution pricing levels” then that product should be performance tested at that level.

Ultimately, it is the non aqueous portion of the products that are of concern. To alleviate deviations, why not propose that all ecotox testing be done on the non aqueous portion of the product. ie, dilutions would be calculated on the actives of the product and this allows for real comparisons.

We support utilization of product dilution for performance criteria as well as for toxicity and environmental criteria. Contact with the concentrated product is unlikely in most use situations through dilution control systems and similar.

Agree

GS37 has a performance requirement. Why not make tie the concentration level of the product to that concentration that meets the performance requirement? I recommend you consider this because suggested label requirements for dilution have no agreed upon industry standards. Thus it is hard to compare “apples to apples”. Tying this to GS37’s performance requirement directly address this and it would be very helpful to formulators and purchasers alike.

Primary packaging. This packaging is the material physically containing and coming into contact with the product, not including the cap or lid of a bottle.

Keep as is, delete, or change

No Change

Recyclable package. This package can be diverted from the waste stream through available processes and programs, and can be collected, processed, and returned to use in the form of raw materials or products.

Keep as is, delete, or change

Consider including clarification for plastics using the Society of Plastics Industry definitions (and excluding plastics not typically recycled like #3)

Rationale, type of change, notes, etc.

Packaging such as #3 PVC can technically be recycled but recycling programs are not readily offered for this material. (Another approach is that plastic packaging must be recovered at a certain rate nationally for the packaging to be acceptable

Product should have recycling programs established in cities representing at least 75% of the population. Packaging such as #3 PVC can technically be recycled but recycling programs are not readily offered for this material. (Another approach is that plastic packaging must be recovered at a certain rate nationally for the packaging to be acceptable.

We support exclusion of plastics not typically recycled.

Given the regional nature of municipal recycling programs, it may be more effective to maintain the standard as “recyclable” versus “typically recycled”. Some areas still do not collect plastic for recycling.

Consider requiring that recyclable packaging qualify to be called “recyclable” under the FTC’s Guides For The Use Of Environmental Marketing Claims at http://www.ftc.gov/bcp/grnrule/guides980427.htm. : FTC’s Guides For The Use Of Environmental

Marketing Claims requires items to be recyclable in the majority of markets if claiming recyclability. This is an appealing definition because vendors and manufacturers should be familiar with the FTC Guides.

We should use this clarification.

Currently, it is not clear what “available processes and programs” means. Being more explicit will remove doubt.

From your research, does anyone use #3’s for cleaning products? Is this just a hypothetical improvement? Please know that I am not opposed to it, I just haven’t seen many manufacturers using packaging other that #1’s and #2’s.

No plastic containers should be excluded from consideration as a packaging material. The SPI code was meant to be a resin identification code, not a recycling code. Misuse of the code has resulted in confusion by the public.

Product should have recycling programs established in cities representing at least 75% of the population. Packaging such as #3 PVC can technically be recycled but recycling programs are not readily offered for this material. (Another approach is that plastic packaging must be recovered at a certain rate nationally for the packaging to be acceptable.)

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

Keep as is, delete, or change

No Change

Add to Definitions:

- Suggested terms to be added: Asthmagen, respiratory irritant, asthma trigger, carcinogen, mutagen, reproductive toxin, neurotoxicants/neurotoxins, biobased

Keep as is, delete, or change

- Consider adding the terms listed to the left to the definitions in the standard

Rationale, type of change, notes, etc.

- Define here rather than in text of criteria

Good

With respect to asthma, there are asthmagens (which are also called respiratory sensitizers) and respiratory irritants. Both can be asthma triggers. Also add skin absorbing chemical. Many GS-37 products contain asthmagens, severe or corrosive respiratory irritants, and/or chemicals with a high potential for skin absorption.

Avoid the use of the term **bio-based** unless there is a clear, unbiased and universally accepted definition.

I agree

(add) ; reaction products. Could provide examples/focus on ingredients including terpenes and PM formation

We believe that the definitions of these terms need to be carefully crafted to ensure the intent is achieved.

Consider adding in the definition of Endocrine disruptors as well

Perhaps a distinction should be made between asthma triggers which exacerbate existing asthma and asthma sensitizers which create new cases of asthma in people who have not suffered from it before. Health Care Without Harm (www.noharm.org) has an excellent report on asthma in health care settings which explains this distinction between asthma triggers and asthma sensitizers

Good

We are in agreement that all Definitions SHOULD be included in the section titled “Definitions” rather than in the body of the text for criteria.

Suggests deleting term “toxin” in favor of “toxicants.”Also suggests additions: --Propose exploring *Biodegradable Packaging* as an additional definition. --Suggest adding definition for reduced source waste packaging such as collapsible bags

Consider adding the terms listed to the left to the definitions in the standard. With respect to asthma, there are asthmagens (which are also called respiratory sensitizers) and respiratory irritants. Both can be asthma triggers. Also add skin absorbing chemical. Many GS-37 products contain asthmagens, severe or corrosive respiratory irritants, and/or chemicals with a high potential for skin absorption.

Include “neurotoxicants/neurotoxins” *(or central nervous system depressants*). . With respect to asthma, there are asthmagens (respiratory sensitizers) and respiratory irritants. Both can be asthma triggers. Also add “Chemicals with high potential for skin absorption” and immune system depressants or toxicants. Many GS-37 products contain asthmagens, severe or corrosive respiratory irritants, immune system depressants/toxicants, and/or chemicals with a high potential for skin absorption.

Add skin absorbing chemicals. Many GS-37 products contain asthmagens, severe or corrosive respiratory irritants, and/or chemicals with a high potential for skin absorption.

3.0 Product Specific Performance Requirements

Each product *as used* when diluted with water from the cold tap at no more than 50° F, shall clean common soils and surfaces in its category effectively, as measured by a standard test method. Carpet Cleaners may be diluted with warm or hot water where required by the test method or performance considerations. Green Seal recommends the following test methods:

Keep as is, delete, or change

- Update if required
- Consider prohibiting the use of warm or hot water.

Rationale, type of change, notes, etc.

- To ensure standard reflects any recently developed and/or accepted protocols
- Products that perform well with cold water are available. Warm or hot water unnecessarily consumes energy.

Harmonize language from “cold” to “unheated”.

Remove reference to 50F. Some regions of the US cannot provide cold tap water to 50F (e.g. AZ). The “cold” municipal supply should be recommended.

Consider removing such testing altogether. Such testing has little relevance or predictability of the success of a product in the marketplace. Having test data under irrelevant conditions can be more misleading than no data. A single test method for General purpose cleaners and another for Bathroom cleaners cannot cover the wide range of performance attributes expected under a wide range of use conditions for these classes of products. The market place will determine if a product is viable.

Disagree with prohibiting the use of warm or hot water. The proposed prohibition (warm/hot water) is unnecessary because test methods define temperature, and for most products, the actual use temperature will be ambient once the product is applied to a surface.

Hot water is beneficial for extraction due to very short contact times of solution/cleaner. Hot water can promote faster drying.

Agree

Add “To receive Green Seal certification the product must successfully meet one or more of the recommended test methods listed below:” A major concern with Green Cleaning products is their efficacy this will ensure the product has successfully passed a least one recognized and validated testing regime

No Change. Products that may clean well will not be as efficient without the use of hot water and will require the use of more Chemicals. Well is not equal to “as well”. The net impact on the environment will be greater due to higher chemical consumption

The ASTM standards are still appropriate for the product categories. If ASTM standards are required for new product categories that may be added to the scope of GS-37, we can provide suggestions. Our company is an ISO certified lab for product performance testing and we have experience in testing performance in some of the suggested additional product categories.

Considerations for the use of hot vs. cold water should be consistent with the performance test methods specified in the standard (e.g., ASTM) The section that describes the ability of a manufacturer also demonstrating product performance as well as a ‘nationally, recognized product’ is too subjective. The proposal to consider changing to “. . . nationally recognized conventional non-green product” is equally subjective. Product performance should be held to a performance standard. This section will need some detailed discussion.

What about hot water extractors and pressure washers or chemicals used with dry vapor machines? Remember that hot water is needed in some cases on carpet and in other heavy soil areas.

"…than 50° F (10°C) shall…" "…considerations, or because of solubility issues (i.e. to speed up dissolving the product)…" Consider ~~prohibiting~~ discouraging the use of warm or hot water. Heat is one of the 4 factors to affect cleaning: more heat is beneficial and prevents use of more chemical or more mechanical action. "To ensure standard reflects any more recently developed and/or accepted protocols. Products that perform well with cold water are available. ~~Warm or hot water unnecessarily consumes energy."~~

The end result is cleaning. If one can add heat to a system and reduce chemical usage, is this is a better toxicological and environmental footprint than higher chemical usage? Some steam systems (handheld) perform very well with no chemicals.

We would support the use of warm or hot water if it can be shown that it can significantly reduce the amount of cleaning product necessary to outperform national brands at a similar temperature. The energy savings from cold to warm may be more than offset by the amount of chemical necessary to perform the task. Betco Corporation believes that cold water criteria may not always be applicable to the Bathroom Cleaner category, specifically for those regulated under FIFRA. Warm water may be necessary in order to achieve antimicrobial efficacy against some organisms.

I would disagree with the "prohibition" of the use of hot water (yes I do understand the impacts associated with heating water). I would just recommend you consider making sure the products meet the performance requirement using cold water. This would accomplish the same thing without "prohibiting" hot water.

Oppose the across the board adoption of a prohibition on the use of warm or hot water.
Rationale- In regard to combination Bathroom Cleaner / Disinfectants registered with EPA, warm water may be necessary to achieve antimicrobial efficacy against target organisms. For such products, warm water directions are required by EPA on the label. To use the product inconsistent with the label (i.e., use cold water) is technically a violation of FIFRA
As it relates to all of the proposed updates to currently required performance testing, we support the inclusion of any new, generally accepted methodologies; but oppose the elimination of current methodologies. ***Rationale***- Currently referenced test methods (such as the ASTM methods) are still generally recognized and used in the industry.

"As used" needs to be defined. Many products can be used at various concentrations. Products should be effective at the most diluted concentration recommended for any application.

We support.

General-purpose cleaners. The product shall remove at least 80% of the particulate soil in the American Society for Testing and Materials (ASTM) D4488-95, A5.

Keep as is, delete, or change

- Update if required

Rationale, type of change, notes, etc.

- To ensure standard reflects any recently developed and/or accepted protocols

Consider revised removal efficacy for GP Cleaners and add removal category for Industrial Degreasers. 80% removal may be a bit high for true GP Cleaners on a particulate/oily soil at high "everyday" use dilutions.

We would oppose changing. Possibly adding additional options would be acceptable. ASTM test methods are recognized and accepted around the world.

Product performance requirements are to low. Both general-purpose cleaners and bathroom cleaners should be in the 90 % plus area in my opinion. If you remove the dirt you remove the smell thus there is no need for adding fragrances.

Evaluate the percentage specified; explain the test and its requirements on the Green seal website.

Consider making the criteria a little bit more stringent, perhaps "The product shall remove 85% of the particulate soil…"*Rationale:* Standard would be able to say the performance bar was raised.

Bathroom cleaners. The product shall remove at least 75% of the soil in ASTM D5343 as measured by ASTM D5343.

Keep as is, delete, or change

- Update if required

Rationale, type of change, notes, etc.

- To ensure standard reflects any recently developed and/or accepted protocols

Is hand soaps considered as bathroom or general-purpose cleaners? Hand soaps must not be anti-microbial, and has pH between 6 and 8.5.

Why is this different than general-purpose?

We would oppose changing. Possibly adding additional options would be acceptable. ASTM test methods are recognized and accepted around the world.

Evaluate the percentage

Should be as effective as the general purpose cleaners. Wouldn't you want more dirt removed from the bathroom? Why are they less effective?

Consider making the criteria a little bit more stringent, perhaps "The product shall remove at least 80% of the soil…"*Rationale:* Standard would be able to say the performance bar was raised.

Carpet cleaners. Using a standard test method, the manufacturer must demonstrate that its product performs as well as a nationally recognized product in its category in both cleaning efficiency and resoiling resistance. Acceptable test methods/procedures to demonstrate performance include, but are not limited to, the following sources: American Association of Textile Chemists and Colorists (AATCC), ASTM, the Institute of Inspection, Cleaning and Restoration Certification (IICRC), The International Organization for Standardization (ISO), Woolsafe, the Carpet and Rug Institute (CRI), or laboratory testing conducted as part of a bid evaluation by a government purchasing entity.

Keep as is, delete, or change

- Update if required
- Consider is all of the listed test methods are effective

Rationale, type of change, notes, etc.

- To ensure standard reflects any recently developed and/or accepted protocols

Remove IICRC. Add ANSI? Define "standard" The IICRC tests people, not products.

Additional tests may be added or deleted, but tests created by or accepted by the industry

creating the surface to be cleaned should be accepted. For this suggested update, I would think that tests created and accepted by carpet manufacturers (CRI, Woolsafe, IICRC, etc.) should remain as acceptable.

(delete first sentence) Add: Using a standard test method, the manufacturer must demonstrate that its product cleaning efficiency of common soils is a minimum of a ½ AATCC Gray Scale step better than using cold tap water, no more than 50°F, as the cleaning solution. The resoiling resistance, according to the AATCC Gray Scale test, must be equal to or better than when cleaned with water only. Carpet cleaners must not contain optical brighteners and pH must be between 4 and 10 to prevent adversely affecting certain fibers, dyes and overall long-term carpet appearance. If efficiency of cleaning using a carpet cleaner is no better than the efficiency of cleaning with cold tap water, it is a waste of a material resource and added cost of using the carpet cleaner. Resoiling after cleaning is a major consumer complaint. There are carpet cleaners available and being used with no resoiling problems. Therefore, carpet cleaners with no resoiling properties should be specified. Carpet cleaners that contain optical brighteners and carpet cleaners and a pH outside of the 4 to 10 range can have a deleterious effect on carpet aesthetics/appearance.

"…the following sources: ~~American Association of Textile Chemists and Colorists (AATCC), ASTM, the Institute of Inspection, Cleaning and Restoration Certification (IICRC), The International Organization for Standardization (ISO),~~ The WOOLSAFE Organisation (The WOOLSAFE Certification Mark), the Carpet and Rug Institute (the CRI Seal of Approval Program), or laboratory testing…
The IICRC and ISO do not have test protocols for carpet care products; AATCC and ASTM only have individual test methods.

I hope you will actually run the same product through each of the currently approved test methods and share information with the entire stakeholder group how they each rate. I am NOT convinced that they are all equal.

Performance should be demonstrated on carpet without stain resistant chemicals added.

Performance should be demonstrated on carpet without stain resistant chemicals added.

Performance should be demonstrated on carpet without stain resistant chemicals added. The current language does not rule out the use of some tests that are not adequate. We should support the standardization of a definite list of analytical tests that meet requirements. Suppliers could then choose a test from the list. Consider removing "include, but are not limited to" and substituting "come from."

Glass cleaners. The product shall achieve at least a rating of three in each of the following Consumer Specialty Products Association (CSPA) DCC 09 categories: soil removal, smearing, and streaking.

Keep as is, delete, or change

- Update if required

Rationale, type of change, notes, etc.

- To ensure standard reflects any recently developed and/or accepted protocols

For this suggested update, we would again prefer to see possible additions to acceptable test methods, but not elimination of the CSPA method and rating requirement as currently written. More recently developed does not/should not automatically replace prior accepted tests**.**

We would request links to any acceptable test methods to be included directly in the GS 37 criteria. Hyperlinks do not require much space within the document. Disclaimers concerning use of any links could be added to the document. Using standard test methods, a manufacturer can also demonstrate that its product performs as well as a nationally recognized product in its category or

achieves the removal efficiency defined in this section.
We would request clarification of “Nationally Recognized” product within the standard. Many products available on Consumer Shelves are Ready To Use only and therefore companies would not necessarily be making an “apples to apples comparison”. Should the description of Nationally Recognized be revised? Perhaps to read any “Nationally recognized Concentrated Consumer or Industrial and Institutional product”… within a specified category.

Who wants to keep paying to maintain the certificate if they can’t sell because it doesn’t perform?

Rather vague. We should support the standardization of a definite list of analytical tests that meet requirements. Suppliers could then choose a test from the list.

Using standard test methods, a manufacturer can also demonstrate that its product performs as well as a nationally recognized product in its category or achieves the removal efficiency defined in this section.

Keep as is, delete, or change

- Consider changing to “…nationally recognized conventional (non-green) product…”

Rationale, type of change, notes, etc.

- To assess performance against products with good established performance in the market and to avoid green-to-green product comparisons or comparisons to poorly performing products

Much testing for products is against water, rather than another product. Comparing against other products rather than a standard enters many variables.

We are concerned that this change would perpetuate the attitude that “green products don’t work.”

The inclusion of Non Green Product essentially says that the Green Products already classified by Green Seal are not as good as other non Green products. I would suggest that we should in fact suggest that they intentionally test their products against Green Seal Certified products.

Might this not better be an option for meeting an efficacy standard, rather than an additional requirement? How does the Green Seal Certifier know that the non-green product is being diluted or utilized correctly or fairly against the Green Seal product? There are thousands of non-green all-purpose on the market – how does Green Seal determine what is “nationally recognized?” Also, this is yet another layer of testing that the manufacturer must pay for.

I agree with the intent. However, how the definition of a “nationally recognized product (conventional or green)” is too vague. For example, if I go to Wal-Mart and find a product on their shelf, does that constitute an appropriate product? Can it be a private-labeled store brand? And the fact is, some nationally recognized conventional products are designed for “price conscious” consumers (low cost products) that don’t work very well. Why would Green Seal want to have performance comparable to these? I recommend that the products simply have to meet the established ASTM lab tests. The cost for these tests are low and thus not a barrier, while comparing to some vague unknown and unidentified “conventional” product may result in products that don’t perform in the real world.

Add to performance requirements:

Suggest adding the following test requirements:
1) Performance test for hard-surface cleaners must be compared to similar test results using plain water.
2) Require comparison to unheated water if warm water exception is used for carpets

Keep as is, delete, or change

- Consider adding requirements listed at left to performance criteria
- Investigate and identify other performance tests that may be relevant

Rationale, type of change, notes, etc.

- 1) Tests that find plain water to be an effective cleaning agent are not an effective measure of cleaning performance.
- 2) To justify recommended use of warm water instead of cold/unheated water for carpets

(add) 3) Ensure products are used in a well ventilated area. Consider adding environmental conditions necessary to use product. To prevent any adverse health conditions due to use of product.

Are you suggesting that results from a water only control be added to the testing protocol?

I believe the reason to do this is that the Carpet and Rug Institute tested a number of cleaning products and found that some performed no better than water. So if water meets the GS37 performance requirements, then schools and others should save their money and just clean with water as well. What the performance tests need to prove is that using these products they do it fact clean better than water.

1) Change “plain” to “municipal” or “softened” water for a similar comparison. 2) Several standard test methods (CRI) only use hot water for evaluation.

Add 3) Consider adding a better explanation of how the performance of the products in the ASTM testing compares with “nationally recognized conventional (non-green) product.” *Rationale:* To provide end users with a better understanding of certified products performance.

4.0 Product-Specific Health and Environmental Requirements

4.1 Toxic Compounds

The undiluted product shall not be toxic to humans. Dispensing-system concentrates shall be tested as used. A product is considered toxic if any of the following criteria apply:

Oral lethal dose 50 (LD_{50}) $\leq$ 2,000 mg/kg
Inhalation lethal concentration (LC_{50}) $\leq$ 20 mg/L*

* If the vapor-phase concentration of the product at room temperature is less than 20 mg/L, it should be tested at its saturation concentration. If it is not toxic at this concentration, it passes the inhalation criterion.

Toxicity shall be measured on the product as a whole. Alternatively, a mixture need not be tested if existing toxicity information demonstrates that each of the ingredients complies. Ingredients that are nonvolatile do not require inhalation toxicity testing (Appendix A). It is assumed that the toxicity of the individual component compounds are weighted and summed and that there are not synergistic effects (Appendix A).

The toxicity testing procedures should meet the requirements put forth by the Organization for Economic Cooperation and Development (OECD) Guidelines for Testing of Chemicals. These protocols include Acute Oral Toxicity Test (TG 401), Acute Inhalation Toxicity Test (TG 403), and Acute Dermal Toxicity Test (TG 402).

- Identify the most relevant thresholds and update if necessary
- Editorial correction: delete dermal test reference

Rationale, type of change, notes, etc.
- To harmonize with other relevant efforts including OPPTS EPA harmonization effort, OECD's GHS, possibly others

Change section numbers

4.12 Toxic Compounds. The *undiluted* product shall not be toxic to humans. Dispensing-system concentrates shall be tested as used. A product is considered toxic if any of the following criteria apply:

Oral lethal dose 50 (LD_{50}) $\leq$ 2,000 mg/kg
Inhalation lethal concentration (LC_{50}) $\leq$ 20 mg/L*

4.13 f the vapor-phase concentration of the product at room temperature is less than 20 mg/L, it should be tested at its saturation concentration. If it is not toxic at this concentration, it passes the inhalation criterion.

4.14 Carcinogens and Reproductive Toxins. The *undiluted* product shall not contain any ingredients that are carcinogens 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*.).

Set a limit for individual chemicals. Ie no lethal chemicals even if they meet product level toxicity limits

Good

(add: *Dispensing-system concentrates shall be tested as used.)* Dispensing system chemicals

should be treated as any other chemical. Eliminate the dual standard for Dispensing system chemicals. The distinction between these two products types of packaging is misleading to the users who routinely circumvent the dispensing system especially when the machines themselves are often adjusted by the supplier to increase chemical use or lower dilution. The abuse or misuse of the dispensing system chemical is so rampant that no distinction should be allowed, or Concentrates that in themselves do no meet the GS requirements adhered to by everyone else should carry a human safety warning listing the specific chemical hazards and a GreenSeal disclaimer that states that the concentrate is not certified and is unsafe by Green Seal Standards.

Agree in Theory, but this is too premature to be practical at this point in time.

We agree with Harmonization of Lethal dose and similar consistent with OPPTS and GHS Warning (Caution) Categories.

LD50 and LC50 criteria are necessary but not sufficient to define toxicity. Certainly, substances that meet the stated LD50 and LC50 criteria are toxic, however products that do not meet the stated criteria cannot necessarily be considered nontoxic. For example the LD50 for toluene in rats is 5,000 mg/kg, but I don't know anyone who would consider toluene nontoxic. Not all toxicity involves mortality. Lethality is just one (extreme) indicator of toxicity. This section needs to be completely re-thought by both animal toxicologists and clinical (human) toxicologists. I agree with suggested change from Toxin to Toxicant.

Change to "For dispensing and packaging systems that cannot be practically accessed by the user, concentrates shall be tested as used." The current exemption for all dispensing-system concentrates is not sufficiently protective. Some dispensing systems still allow direct access to product concentrates, thus inviting misuse and creating a substantial workplace hazard. Green Seal's technical consultants should determine a protective definition of acceptable dispensing/packaging systems (see notes above under definitions).

Not applying these toxicity criteria to dispensing concentrates seems like a giant loophole in the standard, which allows corrosive and toxic material to be in certified products. There is no guarantee that the product will be diluted as instructed, especially when products can be diluted to different concentrations for various applications. This seems to set up an unlevel playing field. Allowing toxic chemicals in GS-certified products as long as they are diluted with non-toxic ingredients undermines the credibility of the standard. How do we know these products will not be put into a spray bottle where they can then be inhaled?

The proposed criteria for toxicity (i.e., oral LD50<2000 mg/L, inhalation LC50<20 mg/L) are nonconservative in that these criteria correspond to acute exposure (short duration, relative to development of a response), a median effect (i.e., 50%), and a lethal endpoint (i.e., mortality). More conservative criteria would employ measures of chronic exposure (long duration over a large fraction of the natural lifespan of the test organism), no effect (i.e., no observed adverse effect level [NOAEL]), and sublethal endpoints (e.g., impairments in growth or reproduction, endocrine disruption).

Re the inhalation criterion, chemicals should be considered "volatile" (and therefore included in an inhalation toxicity assessment) if they meet EPA's criteria, i.e., Henry's Law Constant>1E-5 atm-m3/mol and Molecular Weight<200 g/mol (see p. 19 in: http://www.epa.gov/region09/waste/sfund/prg/files/04usersguide.pdf). Henry's Law Constant is a function of vapor pressure (VP), solubility, and molecular weight. A criterion based on VP alone (i.e., chemicals with VP<1 mm Hg defined as nonvolatile, as specified in Appendix A) is less complete.Although more costly, a bioassay is a better measure of mixture toxicity than component analysis (with the assumption of simple additivity), because a bioassay incorporates chemical interactions (e.g., synergism).

Each individual ingredient should meet the toxicity criteria rather than allowing toxic ingredients to be offset by diluting them with less-toxic ingredients.Semivolatile ingredients should require inhalation testing along with volatile ingredients. In fact, all ingredients should undergo inhalation

toxicity testing since products can be dispensed in spray bottles that can result in inhalation.
To harmonize with other relevant efforts including OPPTS EPA harmonization effort, OECD's GHS, possibly others
Not applying these toxicity criteria to dispensing concentrates seems like a giant loophole in the standard, which allows corrosive and toxic material to be in certified products. There is no guarantee that the product will be diluted as instructed, especially when products can be diluted to different concentrations for various applications. This seems to set up an unlevel playing field. Allowing toxic chemicals in GS-certified products as long as they are diluted with non-toxic ingredients undermines the credibility of the standard. How do we know these products will not be put into a spray bottle where they can then be inhaled?

Should not allow dispensing-system concentrates to be tested on diluted product.
--Each individual ingredient should meet the toxicity criteria rather than allowing toxic ingredients to be offset by diluting them with less-toxic ingredients.
--Semivolatile ingredients should require inhalation testing along with volatile ingredients.
--All ingredients should undergo inhalation toxicity testing. since products can be transferred to spray bottles that can result in inhalation hazards.
--Consider synergistic effects and require bioassays of chemical mixtures.
Not applying these toxicity criteria to concentrates that are in dispensing systems seems like a giant loophole in the standard, which allows corrosive and toxic material to be in certified products. There is no guarantee that the product will be diluted as instructed, especially when products can be diluted to different concentrations for various applications. This seems to set up an unlevel playing field where some products are inherently Green and others are barely green but put into closed-loop dispensing systems. Allowing highly toxic chemicals in GS-certified products as long as they are diluted with non-toxic ingredients undermines the credibility of the standard. Inhalation toxicity testing for all ingredients is important because concentrated products can be transferred to spray bottles that can create inhalation hazards.

Should not allow dispensing-system concentrates to be tested on diluted product. Consider using a health effects measure rather than lethal dose.
WA State Department of Ecology recommends replacing Appendix A: Evaluation of Toxicity Data formula with the formula used by the Commission of European Communities.

The critical dilution volume toxicity (CDV_{tox}) is calculated for each ingredient using the following equation:

CDV_{tox}(ingredient i) = $\frac{\text{weight (i) x LF (i)}}{\text{LTE(i)}} \times 1000$
Where weight (i) is the weight of the ingredient per functional unit (for all purpose cleaners) or per 100g of product (cleaners for sanitary facilities), LF is the loading factor and LTE is the long-term toxicity effect concentration of the ingredient.

Each individual ingredient should meet the toxicity criteria rather than allowing toxic ingredients to be offset by diluting them with less-toxic ingredients.
Human equivalency concentration:

- identify species that are most susceptible
- To compare to humans divide by a factor of 10 (assumption that humans are as susceptible as most susceptible species)
- To compensate for sensitive populations, divide by another factor of 10
- To compensate for acute to chronic effects, divide by another factor of 10
- To compensate for uncertainty factors: studies, lack of data, animal to human, divide again by 10
- still making broad assumptions

The proposed criteria for toxicity (i.e., oral LD50<2000 mg/L, inhalation LC50<20 mg/L) are nonconservative in that these criteria correspond to acute exposure (short duration, relative to development of a response), a median effect (i.e., 50%), and a lethal endpoint (i.e., mortality). More conservative criteria would employ measures of chronic exposure (long duration over a large fraction of the natural lifespan of the test organism), no effect (i.e., no observed adverse effect level [NOAEL]), and sublethal endpoints (e.g., impairments in growth or reproduction, endocrine disruption).

Re the inhalation criterion, chemicals should be considered "volatile" (and therefore included in an inhalation toxicity assessment) if they meet EPA's criteria, i.e., Henry's Law Constant>1E-5 atm-m3/mol and Molecular Weight<200 g/mol (see p. 19 in: http://www.epa.gov/region09/waste/sfund/prg/files/04usersguide.pdf). Henry's Law Constant is a function of vapor pressure (VP), solubility, and molecular weight. A criterion based on VP alone (i.e., chemicals with VP<1 mm Hg defined as nonvolatile, as specified in Appendix A) is less complete.

Although more costly, a bioassay is a better measure of mixture toxicity than component analysis (with the assumption of simple additivity), because a bioassay incorporates chemical interactions (e.g., synergism).

The formula used in the GS-37 incorrectly combines the results from LC-50 with LD-50 tests in order to have the units come out correctly. The inhalation rates used in the formula are only for one four hour period. This measures only what the death rate is for inhalation after four hours. Is this really how we want to go about protecting human and environmental health? Using a calculation based on the effects of chronic exposure will do far more to protect human health.

Not applying these toxicity criteria to dispensing concentrates allows corrosive and toxic material to be in certified products. There is no guarantee that the product will be diluted as instructed, especially when products can be diluted to different concentrations for various applications. This seems to set up an unlevel playing field.

Allowing toxic chemicals in GS-certified products as long as they are diluted with non-toxic ingredients undermines the credibility of the standard. How do we know these products will not be put into a spray bottle where they can then be inhaled?

Suggest adding to scope

Add “Synergism” to scope. Consider adoption of criteria for uncertainty introduced when multiple chemicals are use in formula. Synergistic effects unknown so precautionary approach is warranted.

4.2 Carcinogens and Reproductive Toxins

The *undiluted* product shall not contain any ingredients that are carcinogens 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.

…Include any Prop 65 carcinogens that are in addition to carcinogens on other lists. Green Seal should also consider reproductive toxicity data from the NTP Center for the Evaluation of Risk to Human Reproduction, which publishes studies on the reproductive toxicity of various chemicals (but does not maintain a list per se)

Keep as is, delete, or change

- Consider renaming the section from toxins to toxicants
- Consider adding mutagens, resulting in three categories: 1. Carcinogens; 2. Mutagens; 3. Reproductive Toxicants
- Consider CA Prop 65 use of the term developmental toxin, if it is different than suggested categories

Rationale, type of change, notes, etc.

- Toxicant is the accepted term for this usage
- Harmonize with Globally harmonized system (GHS), CCD-146, and other efforts
- To ensure that developmental toxins are included in prohibition of reproductive toxins

OK --- most manufacturers make their products for sale in CA, thus including Prop 65 is not a barrier and can only increase the margin of safety.

"Consider adding mutagens, resulting in three categories: 1. Carcinogens, 2. Mutagens, 3. Reproductive Toxicants. Unlike carcinogens and reproductive toxicants as currently defined in GS37, there are no commonly accepted lists of known or suspected mutagens. The scheme used to classify materials as mutagens by GHS requires evaluation of data from epidemiological, in vivo laboratory animal, and in vitro studies. The possibility of false negatives exists due to incomplete datasets for raw materials and the possibility of false positives exists due to the definition only requiring 'positive findings' in these studies as opposed to consensus decisions based on the weight of the scientific evidence. The GHS definitions for mutagen do not provide guidance as to what is sufficient data, indicating that single tests could be used for the classification. Weight of the evidence classifications, such as those provided by NTP and IARC for carcinogenicity, provide a more robust assessment of the hazard by indicating when insufficient data is available to make accurate classification.

Would not add Mutagens at this point. If this term is used, the Standard would need to be specific about the source of the definition. We agree with the use of CA Prop 65 to promote “safe harbor” provisions to establish no-significant-risk levels. Definitive tests and definitions are still lacking.

What concentrations? All alcohol ethxoxlates for examples contains trace amounts of unsuitable substances without some concentration definition.

We would like for Green Seal to consider “ingredient” as it is presented in the document, and how it is approached in practice. Green Seal would need to adhere to the definition of ingredient during product reviews as presented in the document in section 2. E.g. carcinogens or developmental toxins present at 0.009% or lower as an impurity for example could not be considered carcinogens, developmental toxins, etc. for product “ingredient” review purposes. This has not always happened in practice in the past.

Alternatively, Green Seal needs to potentially add a definition for “Component” and restate that the product cannot contain any “component…”

Encourage adoption on Prop 65 as a reference for restricted compounds.

Add to scope: *The standard should also prohibit any carcinogens that are listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986.* There is a generic link that can be referenced: http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.
Green Seal should maintain a comprehensive list of carcinogens and reproductive toxins that are commonly found in cleaning and floor care products.
Green Seal should also consider reproductive toxicity data from the NTP Center for the Evaluation of Risk to Human Reproduction, which publishes studies on the reproductive toxicity of various chemicals (but does not maintain a list per se).

Include Prop 65 carcinogens (in addition to carcinogens on other lists). Green Seal should also consider reproductive toxicity data from the NTP Center for the Evaluation of Risk to Human Reproduction, which publishes studies on the reproductive toxicity of various chemicals (but does not maintain a list per se). Green Seal should maintain comprehensive list of carcinogens and reproductive toxins that are commonly found in cleaning and floor care product There may be additional chemicals on California’s Prop 65 list that are not on the other lists of carcinogens.
Potential language: The standard should also prohibit any carcinogens that are listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986. There is a generic link that can be referenced: http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html

We support. Consider separating each toxicant into a separate item, i.e. 4.2 Carcinogens, 4.3 Mutagens and 4.4 Reproductive Toxins to allow for separate discussion. Consider CA Prop 65 use of the term developmental toxin, if it is different than suggested categories.
Include any Prop 65 carcinogens that are in addition to carcinogens on other lists. The standard should also prohibit any carcinogens that are listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986. There is a generic link that can be referenced: http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html. Green Seal should also consider reproductive toxicity data from the NTP Center for the Evaluation of Risk to Human Reproduction, which publishes studies on the reproductive toxicity of various chemicals (but does not maintain a list per se)
Green Seal should maintain comprehensive list of carcinogens and reproductive toxins that are commonly found in cleaning and floor care products.

4.3 Skin and Eye Irritation

The *undiluted* product shall not be corrosive to the skin or eyes. Dispensing-system concentrates shall be tested as used. 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.

Keep as is, delete, or change

- Consider adding acceptable pH limits to criterion

Rationale, type of change, notes, etc.

- To harmonize with EPA DfE guidelines and/or GHS classification criteria, Environmental Choice, or others.

The section should include respiratory irritation. Inhalation is a major route of exposure. Asthma, respiratory diseases, and airway hypersensitivity are on the increase, and the potential ability of VOCs in cleaners to induce or exacerbate them should be considered.

(add) 4.3 Skin ~~and~~, Eye, and Respiratory Irritation.

Consider no change--Testing is a much more reliable predictor of hazard. Adding pH limits gains no perceivable benefit.

Undiluted products shall also not be corrosive to the respiratory system. Dispensing-system concentrates should not be allowed to be corrosive. Standard should also ensure that the diluted product is not severely irritating to the eyes, skin or respiratory system. This would include products that can cause burning, swelling, inflammation, pain, conjunctivitis, dermatitis, bronchitis, wheezing, coughing, restricted air flow or other severe, but not permanent health effects. Again, there is no guarantee that products will be diluted properly. Some products can be diluted differently for various applications. This sets an unlevel playing field and greats a big loophole. It undermines confidence in the standard to have products that have corrosive warning on the label being a Green Seal-certified product.

Eliminate the dual standard for dispensing system chemicals.

…after a 10-minute exposure… Consider changing to 5 minutes of exposure

Consider more stringent requirements such as moderate irritant or better.

This would be helpful as a universal standard.

pH limits should not be set as skin and eye irritation is influenced by additional factors and not strictly pH. Irritation is influenced by the acid and alkali reserve in a formula and also by the type and concentration of the ingredients, viscosity of the formulation, etc. Therefore the classification should remain criteria based

"Consider adding acceptable pH limits to criterion" Published toxicology studies have demonstrated that alkalinity correlates well to irritation potential (Young et al., 1988 and Craan et al., 1997). Free and total alkalinity/acidity are better predictors of skin and eye irritation than pH since they reflect the 'strength' of the solution more accurately. Free alkalinity is a measure of the ease of dissociation of base in the sample that is available to react with an added acid. Total alkalinity is a measure of the total dissociated and undissociated base in the sample. A material with a high or low pH may not be as irritating to eyes and skin than a material with a more neutral

pH, if the free and total alkalinity/acidity indicates that the more neutral material is more difficult to neutralize fully. Craan A.G. et al. (1997) The use of pH and acid/alkaline reserve for the classification and labelling of household cleaning products: date from a poison control center. International Journal for Consumer Safety, 4: 191-213.
Davidson A. and Milwidsky B.M. (1972) Synthetic Detergents – 5th Edition, Leonard Hill Books, London, UK.
Young J.R. et al. (1988) Classification as corrosive or irritant to skin of preparations containing acidic or alkaline substances, without testing on animals. Toxicology In Vitro 2: 19-26.

Add the term irritant to the definition

Please consider renaming as Corrosivity. Provide guidelines instead of limits. Allowance needs to be made for some products that have high or low pH but are not corrosive or irritating to eyes or skin.

It is a laudable goal, but seems a bit strong to require that the undiluted product not be corrosive to eyes after a 10 minute exposure. I don't know enough about efficacy of cleaning agents to know if this is an achievable goal. If not, consider relaxing to the diluted product as used.

Almost all nonionics have eye corrosion hazards associated with HLBs in the cleaning range. These should be known a use dilutions not in the concentrate form

We are in disagreement with adding specific pH parameters under 4.3 as pH can be an indication but is not always the sole indicator of corrosivity. Products with neutral pH can be corrosive under test methods, and vice versa, products with Basic or Acidic pH can be non corrosive under In Vitro or In Vivo test methods.

Why add pH limits? While we all know that pH can be an indicator to skin and eye irritation, it is not an accurate assessment of this. For example, if we arbitrarily picked a pH value, even one that corresponds to cosmetics or what have you, there are other ingredients in the formula that can irritate both eyes and skin (i.e. surfactants) that could result in a product that meets the pH criteria but will still be irritating. I recommend that you stick with the testing.

Do not recommend reliance on pH limits exclusively. ***Rationale***- While pH may be indicative of corrosivity it is not a definitive measure, i.e., products with a neutral pH can be corrosive under test methods; products with a pH indicating the material is corrosive can be found neutral under test methods. Recommend harmonizing with GHS. ***Rationale-*** it takes a more holistic approach.

pH is not a foolproof indication of corrosivity. Perhaps an evaluation based on DOT packing groups or titrated alkalinity are more appropriate indicators of corrosion.

It undermines the standard to have products that are Green Seal-certified with a pH of 13 (which there are under GS-40 as floor strippers) that state the product can cause blindness. Some of those products have indicated on their MSDSs that the diluted pH is still 12.6, which is still a corrosive product – and that is for normal use diluted 1:4. These products can also be diluted 1:2 for heavy stripping and the pH will be even higher.
Undiluted products shall also not be corrosive to the respiratory system.
Dispensing-system concentrates should not be allowed to be corrosive.
Standard should also ensure that the diluted product is not severely irritating to the eyes, skin or respiratory system. This would include products that can cause burning, swelling, inflammation, pain, conjunctivitis, dermatitis, bronchitis, wheezing, coughing, restricted air flow or other severe, but not permanent health effects.
Re, harmonization with listed guidelines: Again, there is no guarantee that products will be diluted properly. Some products can be diluted differently for various applications. This sets an unlevel playing field and creates a big loophole. It undermines confidence in the standard to have products that have corrosive warning on the label being a Green Seal-certified product.

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One Green Seal GS-37-certified all purpose cleaner's MSDS reads: "Danger. Corrosive to eyes. Causes permanent eye damage, including blindness. Inhalation may cause irritation and corrosive effects to nose, throat and respiratory tract." How is this any different from a non-Green Seal-certified cleaner?

-Undiluted products should also not be corrosive to the respiratory system.
-Dispensing-system concentrates should not be allowed to be corrosive.

-Standard should also ensure that the diluted product as used (in its most concentrated dilution) is not severely irritating to the eyes, skin or respiratory system. This would include products that can cause burning, swelling, inflammation, pain, conjunctivitis, dermatitis, bronchitis, wheezing, coughing, restricted air flow or other severe, but not permanent health effects.

Again, there is no guarantee that products will be diluted properly. Some products can be diluted differently for various applications. Allowing dispensing-system concentrates to be corrosive sets an unlevel playing field and creats a huge loophole. It undermines confidence in the standard to have products that have corrosive warning on the label being a Green Seal-certified product.

Undiluted products shall also not be corrosive to the respiratory system. Dispensing-system concentrates should not be allowed to be corrosive.
Standard should also ensure that the diluted product is not severely irritating to the eyes, skin or respiratory system. This would include products that can cause burning, swelling, inflammation, pain, conjunctivitis, dermatitis, bronchitis, wheezing, coughing, restricted air flow or other severe, but not permanent health effects.
Again, there is no guarantee that products will be diluted properly. Some products can be diluted differently for various applications. This sets an unlevel playing field and greats a big loophole. It undermines confidence in the standard to have products that have corrosive warning on the label being a Green Seal-certified product

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4.4 Skin Sensitization

The *undiluted* product shall not be a skin sensitizer, as tested by the OECD Guidelines for Testing Chemicals, Section 406. Dispensing-system concentrates shall be tested as used. 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.

Keep as is, delete, or change

- Consider adoption of other accepted methods e.g. Local Lymph Node Assay (LLNA)

Rationale, type of change, notes, etc.

- Harmonize criteria with EPA guidelines (OPPTS 870.2600) and GHS classification criteria.

This section should include respiratory sensitization. Skin Absorption. When tested to the following standard, product as a whole in its diluted-for-use form shall have a low potential to absorb through the 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 whole product or individual ingredient test dose absorbs through the skin of the test subject.

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. The following chemicals have a high potential for skin absorption, and therefore shall not be present as an ingredient at or above 1.0% by weight of the diluted-for-use product: 2-butoxyethanol (111-76-2) and monoethanolamine (141-43-5)

www.sfenvironment.com/aboutus/innovative/epp/specs_janchem05.pdf

www.seattle.gov/environment/documents/janitorialspecs.pdf

Combustibles must be added or the product should not be in schools.

Dispensing-system concentrates shall be tested as used. I strongly disagree with this test being done on the at use dilution. Workers are inadvertently exposed to concentrated chemicals during spills, broken cases, dropped bottles, etc. Removing this requirement would improve GS37 and be more consistent with current available technologies and the state of Green Cleaning chemicals.

Eliminate the dual standard for dispensing system chemicals.

Respiratory sensitization is as, or more, important than skin sensitization. Also, animal models of sensitization are sometimes difficult to achieve for many human sensitizers, so medical reports of sensitization in humans should be formally reviewed as well. Consider adding, “Systematic reviews of medical literature in Medline for reports of skin and respiratory sensitization should be done for each ingredient.” Lists of respiratory sensitizers, mostly asthmagens, can be found in textbooks on occupational asthma, and are mostly included in the AOEC asthmagen list.

We are in agreement that Sensitization should be harmonized with US EPA OPPTS Guidelines to include the Buehler Method.

Add respiratory sensitization-- The undiluted product shall not be a respiratory sensitizer. See below under Asthma and Respiratory Irritants.

Again, dispensing system concentrates should not be tested as used but in the concentrated form. Harmonize criteria with EPA guidelines /GHS classification criteria--this is particularly true with sensitizers since there is generally no level that is considered safe.

4.5 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.

Keep as is, delete, or change

- Consider adoption of lower combustibility limits from National Fire Prevention Association (NFPA) or others

Rationale, type of change, notes, etc.

- More conservative value to protect human health and safety

This seems token and unnecessary.

*Cleveland Open Cup Tester (ASTM ~~D92-97~~) (*Should be D92-05a) *or ~~a~~ the Abel closed-cup method (ISO 13736) or Pensky-Martens Closed Cup Method (ISO 2719).*

MSDS usually uses the term flammability

Disagree strongly with this. Leave as is

Disagree with proposed change. Adhering to a different standard would make proper labeling impossible, i.e., how would different GS values be shown on an MSDS or harmonized labels?

What are we protecting human health and safety from --- fires? Please know that I am NOT opposed to do this, I am just curious if there is any evidence that this is a problem?

150F is a reasonable threshold and should not be lowered without scientific cause.

Green Seal could review all certified products to see if most can pass with flash point above 200F.

Green Seal could review all certified products to see if most can pass with flash point above 200F.

4.6 Photochemical Smog, Tropospheric Ozone Production, and Indoor Air Quality

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.

Keep as is, delete, or change

- Consider assessing emissions (including particulate emissions) in addition to VOC content e.g. GreenGuard.
- Consider harmonizing test methods with EPA or SCAQMD
- Consider expansion of VOC list to include VOCs excluded by CARB (e.g. those specific to indoor air); explicitly consider indoor air quality as well as ambient air
- Consider stricter VOC limits
- Reconsider use of word "significantly"

Rationale, type of change, notes, etc.

- GreenGuard tests conditions and comparison values should be evaluated carefully to better understand implications of adoption of approach
- Test methods are not uniform across organizations

Change number from section 4.6 to Section 4.15. Reconsider use of word "significantly" Stability and reactivity of the chemicals in the product?

If particulate emissions are to be considered, emissions from the whole process and after-effects must be considered, e.g. particulate residue from dried cleaners after process is completed. If Green Seal wishes to be considered a science-based organization, more needs to be considered than the levels that CARB sets. CA sets limits based on laws that force them to, not because of scientific findings. When removing VOCs from an environment, some compensate for lack of VOCs in a product by using more chemical, more electricity use or with heat (which generates more VOCs than would have been used in the first place).

Need to define term "poor air quality." Consider harmonizing test methods with EPA or SCAQMD -- Leave 4.6 as is. SCAQMD tests are not applicable to these products. Stay with CARB, which is a conservative Standard.

The product *as used* I recommend that this test be done on the concentrated product because the product can spill, leak, bottles get dropped, etc.

Consider impacts of interactions with other products - like ozone generating machines and air fresheners

Surfactant technology is available to make glass cleaners VOC free. Consider lowering or eliminating VOC allowance. Glass cleaners are typically sprayed which causes atomization.

I agree, Inclusion of different % by weight for different uses in confusing. Will this include Volatile chemicals that contribute to poor IAQ but not ozone oo smog?

We have the following comments applicable to section 4.6 Green Guard and CHPS test methods referencing emissions reference "typical" square footage and similar for emissions, perhaps

resulting in varying actual emissions in “atypical” buildings or regions. % ranges are universal and can therefore be applied across the board, even in “atypical” situations.

VOC definition and test method should be consistent/compatible

The recent study in California on interactions of household cleaners with ozone and air freshener VOCs reveals that these interactions can cause impacts greater than the individual products separately.

While it may be appropriate to include GreenGuard approach as an alternative option, it should not be the sole or exclusive method referenced. ***Rationale-*** GreenGuard approach and methodology may be beyond the means of small to medium sized companies that operate on a limited regional basis. Support harmonizing test methods with CARB and EPA, rather than SCAQMD. ***Rationale-*** These methods are more broadly used than that of SCAQMD

Oppose expansion of VOC list to include VOCs excluded by CARB***. Rationale-*** VOCs excluded by CARB are generally excluded because they are considered to have a very low reactivity and low potential to photochemically react to form smog. Therefore not necessary to address these VOCs in the context of GS-37

Limits should not be any more stringent than limits established by CARB. ***Rationale-*** CARB has established and continues to establish limits that push industry to its technical limits. Any limits that exceed CARB’s may not be technically feasible at this time.

Greenguard was developed with building materials and furniture in mind. Cleaning products may not be appropriate for evaluation. We strongly discourage the adoption of greenguard as a requirement to address IAQ. The use of multiple standards confuses what is actually “green”, imposes unneeded cost, and significantly dilutes the value of both the Green Seal and GreenGuard brands.
We would like to comment that the current VOC limits tend to penalize concentrates for carpet cleaning products. These limits should be revisited during the standard.
Re: considering stricter VOC limits: We recommend harmonizing with US limits; the “one-up” approach is not sustainable.

Product “As used” is too vague. Check MSDSs for currently certified products to see what chemicals of concern are in them that can contribute to poor IAQ and recommend additions to list.

Consider stricter VOC limits Other products are included in the standard (such as floor cleaners) that should have VOC limits. Again, GS could review all products for VOC content to see if it could be lowered and still have significant number of products pass. Some products are used at different dilutions for different applications. The VOC limits should be placed on the most concentrated form that the product can be used for.

Consider assessing emissions (including particulate emissions) in addition to VOC content e.g. GreenGuard. I agree such as semivolatile compounds.
“As used” is too vague.

Consider harmonizing test methods with EPA or SCAQMD

--Consider expansion of VOC list to include VOCs excluded by CARB (e.g. those specific to indoor air); explicitly consider indoor air quality as well as ambient air
--Check MSDSs for currently certified products to see what chemicals of concern are in them that can contribute to poor IAQ and recommend additions to list.

--Consider stricter VOC limits Other products are included in the standard (such as floor cleaners) that should have VOC limits. Again, GS could review all products for VOC content to see if it could be lowered and still have significant number of products pass

--Some products are used at different dilutions for different applications. The VOC limits should be placed on the most concentrated form that the product can be used for.

“As used” is too vague. Check ANSI MSDSs for currently certified products to see what chemicals of concern are in them that can contribute to poor IAQ and recommend additions to list.

Other products are included in the standard (such as floor cleaners) that should have VOC limits. Again, GS could review all products for VOC content to see if it could be lowered and still have significant number of products pass.

Some products are used at different dilutions for different applications. The VOC limits should be placed on the most concentrated form that the product can be used for.

Contact SQAMD, who is currently looking at creating their own product certification; Uniformity would be beneficial to the market.

4.7 Toxicity to Aquatic Life

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

Acute 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.

Keep as is, delete, or change

- Consider combined toxicity and biodegradability approach
- Clarify that weighted average approach for individual chemical data is appropriate for use
- Consider adding the following test methods: OECD 201, 202, 203; remove 40 CFR test method

Rationale, type of change, notes, etc.

- Acknowledges the linkage between toxicity, persistence, and threat to the aquatic ecosystem.
- Already done in practice but only currently specified/explained for acute oral and inhalation toxicity
- All are recognized methods for evaluating eco-toxicity

Change from Section 4.7 to Section 4.16

Disagree. 4.7 should be left as is.

The phrase "as used" is confusing, and seems to conflict with the LC50 < 100 mg/L definition of toxicity. Also, I would hope that the LC50 of antifungal cleaning agents for fungi would be lower than that, or they would not be very effective cleaning agents. If this requirement limits efficacy of cleaning products too much, consider relaxing this requirement.

The product *as used* I recommend that this test be done on the concentrated product because the product can spill, leak, bottles get dropped, etc and when it does it often gets disposed in a way that can find its way into open water ways. This is especially true in large urban areas that use combined storm and sewage treatment systems.

Consider adding chronic toxicity

Set a limit for individual ingredients. Don't want to encourage dilution of highly toxic chemicals. Ie. No ingredients with toxicity <0.1ppm

Most HLB appropriate nonionic surfactants for cleaning have EC50's in the 1-10 mg.l range making them even toxic at use dilution in many cases

We would suggest inclusion of the following test methods: Biological Test Method: Toxicity Test Using Luminescent Bacteria (Photobacterium phosphoreum), Report EPS 1/RM/24, November 1992, Environment Canada, ASTM D5660-96 or ISO 11348.
As already reviewed and accepted by Green Seal under GS41 Hand Cleaner standard. This would offer a fairly quick and cost effective means of determining whole product aquatic toxicity for applicants.

Chronic toxicity will be much more protective of aquatic life (ceriodaphina, minnow, algae)

Suggest retaining the CFR 40 aquatic toxicity test as sufficient for this requirement. ***Rationale***-

the zebrafish required by the OECD tests are unfamiliar to my testing laboratories and expensive to acquire.

We also recommend the addition of the following test methods: Biological Test Method: Toxicity Test Using Luminescent Bacteria, Report EPS1/RM/24, November 1992, Environment Canada, ASTM D5660-96 or ISO 11348. ***Rationale-*** These test methods have been adopted under GS 41, and offer a relatively quick and cost effective means of determining whole product aquatic toxicity.

The proposed criteria for nontoxicity (i.e., LC50 for algae, Daphnia, or fish>100 mg/L) is nonconservative. Also, note that these aquatic life criteria are specified in terms of nontoxicity, while the criteria in section 4.1 are specified in terms of toxicity. Criteria in both sections 4.1 and 4.7 should be specified consistently.

Again, a bioassay is a better measure of mixture toxicity than component analysis (with the assumption of simple additivity), because a bioassay incorporates chemical interactions (e.g., synergism).

Toxicity should be based on the most concentrated form of the product used. Some may pour unused concentrate down the drain to dispose of it so the concentrate should not be toxic to aquatic life.

Consider requiring test to determine that there are no serious synergistic effects. Aquatic toxicity should also consider chronic effects. Toxicity should be based on the most concentrated form the product can be use. Some may pour unused concentrate down the drain to dispose of it so the concentrate should not be toxic to aquatic life.

Support the consideration of combined toxicity and biodegradability approach. “As used” is too vague. The proposed criteria for nontoxicity (i.e., LC50 for algae, Daphnia, or fish>100 mg/L) is nonconservative for the same reasons as stated above (see first paragraph under 4.1). Also, note that these aquatic life criteria are specified in terms of nontoxicity, while the criteria in section 4.1 are specified in terms of toxicity. Criteria in both sections 4.1 and 4.7 should be specified consistently.

A bioassay is a better measure of mixture toxicity than component analysis (with the assumption of simple additivity), because a bioassay incorporates chemical interactions (e.g., synergism).

Toxicity should be based on the most concentrated form the product can be use. Some may pour unused concentrate down the drain to dispose of it so the concentrate should not be toxic to aquatic life.

4.8 Aquatic 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.

Keep as is, delete, or change

- Consider combined toxicity and biodegradability approach
- Consider evaluating criterion with respect to current EU approaches especially for surfactants

Rationale, type of change, notes, etc.

- Acknowledges the linkage between toxicity, persistence, and threat to the aquatic ecosystem.
- Harmonizing with evolving EU approaches to biodegradability

Change from Section 4.8 to Section 4.17. Quaternary ammonium salts that are not readily biodegradable shall not be used. Bioaccumulation? EU considers biodegradability in two parts: aerobic and anaerobic.

Disagree. 4.8 should be left as is

I would support this.

Current definition for aquatic biodegradability is good as the definition is not limited to the 4 ISO/OECD methods listed for readily biodegradability and allows for data from OECD 303A and for data from peer-reviewed literature or data bases or testing in accordance with standard test procedures. It is important to not be limited to the ISO/OECD methods as these methods are not ideally suited for all ingredients, (i.e. poor water solubility, high nitrogen content, volatility). Additionally, the ISO/OECD methods can also result in false negatives as the test ingredient is not only converted to CO2 or a removal of DOC and measured BOD, but is utilized in the test to sustain and grow the biomass. It has been shown in the literature that rapidly degradable ingredients can produce a result lower than the threshold since a significant percent of the carbon has been biodegraded and incorporated into the biomass, (see attached overview by the AISE/CESIO). It is suggested that the standard include a reference to the OECD Guidance Document on the of the Harmonized system for the classification of chemicals which are

hazardous for the aquatic environment, (see attached). On page 47 and 48 are listed the recognized simulation tests (including the ISO/OECD tests) that are used to determine if an ingredient can be considered rapidly biodegradable. having this document will allow participants in the Green Seal program know that they can utilize other simulation tests to show that the product is rapidly biodegradable.

My key problem with the aspect of a cleaning solution qualifying, is that it should be biodegradable in 28 days. This notion of 28 days was established during a period where the traditional chemical cleaners ruled the market... today, there are products that are using ingredients from renewable resources, natural sources, from vegetative sources etc.. and as such, may not be harmful to the environment (or in our case, beneficial for the environment) as were chemicals of past... In the case of Earth Alive products, where we are at the highest human and personal safety level, as well as being the most concentrate product in a powder form - plus - plus - plus.... our tree bark (microbial based) cleaning solution did not biodegrade within the 28 days. Since no individual would state that trees are a harm to the environment, as they do not degrade within 28 days, the same is applied to our products. It is therefore my recommendation that the new protocol for the GS37 be changed to reflect newer technologies on the market. I think that even more so, the GS 37 should be changed so much so that "GS37" itself be issued a new code! And that the notion of biodegrading within 28 days or a product is not accepted - should have exemptions that allow for the new technologies such as Earth Alive.. .so that "truly" GREEN products can be a part of this whole GREEN objective. Just because something can biodegrade in 28 days, does not necessarily mean that all the dirt/substrate lifted into the bucket of mop water, is going to biodegrade in 28 days as well.. further more, even if it degrades in 28 days, there are numerous products that are still very harmful to humans interacting with the chemicals itself... When compared to Earth Alive products, ours starts to remediate the substrate from the moment it is in contact with it, and continues to remediate at the source to the end of the process... with a pH neutral solution using cold water...

Consider requiring aquatic biodegradability to be based on concentrate since the concentrated chemical may be poured down the sink to dispose of it or if accidentally spilled during mixing.

"…*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%.* Harmonizing with evolving EU approaches to biodegradability

You might want to get away from the terminology of ready biodegradability because it is confusing given the changes with the EU Detergent Directive. This must be resolved because it is too confusing for international companies. 10-day window was eliminated in EU for surfactants. Need to re-evaluate. May still want to keep it. What other requirements are there for the safety of the polymer portion of the carpet cleaner

** need specific criteria for polymer portion of carpet criteria

Support EU surfactant directive, and recommend revision to remove the 10 day requirement.

Consider requiring aquatic biodegradability to be based on concentrate since the concentrated chemical may be poured down the sink to dispose of it or if accidentally spilled during mixing.

Do polymers need to be in carpet cleaners? Consider requiring aquatic biodegradability to be based on concentrate since the concentrated chemical may be poured down the sink to dispose of it or if accidentally spilled during mixing.

Again, support the consideration of combined toxicity and biodegradability approach Consider requiring aquatic biodegradability to be based on concentrate since the concentrated chemical may be poured down the sink to dispose of it or if accidentally spilled during mixing.

4.9 Eutrophication

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

Keep as is, delete, or change

- Consider prohibiting phosphate from products within this standard other than trace amounts e.g. CCD-146

Rationale, type of change, notes, etc.

- Not commonly used in these product classes

Phosphorous on land is a good thing. Before restricting further, consider that some products don't get into the water system and actually serve as fertilizer.

Phosphate substitutes are readily available. Should be eliminated.

Recommend limiting *elemental* phosphorus to 0.1%, which is currently the lowest level in the US.

Support prohibiting phosphate from products within this standard other than trace amounts.

4.10 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.

Keep as is, delete, or change

- Consider adding packaging compliance with CONEG requirements
- Consider the prohibition of the use of some plastics (e.g. ABS, PVC) to conform with adv packaging guidelines
- Consider making post-consumer plastic requirements consistent with CA.
- Consider changing the requirement from "recyclable" to material "recycled" using common processes (and adjust the definition in section 2.0 as needed)
- Clarify the quantity needed to qualify for a significant reduction in material use

Rationale, type of change, notes, etc.

- Widely accepted guidelines to limit heavy metal use in packaging
- ABS and PVC pose unacceptable lifecycle- based threats to human health. Neither is routinely recycled.
- Require post consumer content in packaging
- Focus packaging on materials routinely recycled using traditional processes

If other facilities such as schools and day care are to be included in this standard then child resistant packaging has to be considered.

It is still very difficult to find consistent, good recycled packaging, cost effective or no.

"…change "primary" to "entire"…" Consider requiring packaging to be screened onto bottles eliminating the label and waste of paper and backings.

Add source-reduced plastic to this consideration – also allowable under CIWMB. We recommend following California's Integrated Waste Management Board's Rigid Plastic Packaging Container law.

The PCR supply is limited – adding a requirement may be cost prohibitive to manufacturers as the low availability of PCR is certain to drive costs upward. Also, See comments in section 2.0 RE recycling

Make the dilution ratio listed a minimum of 1-64. If you want to minimize waste, and eliminate plastic in landfills, the biggest thing we could do is to maximize the concentration of safe chemicals in the green seal certification process. 1-8 is a joke.

There should not be a "prohibition." Compatibility of package and product must be taken into account. Standard should encourage but not require use of post consumer content. Compatibility of package and product must be taken into account. "Recycled" is not practical since it can't be controlled.

We have no objections to brining post consumer content requirements in line with CA as long as all exceptions present in CA are retained.

I have to admit that I am not up-to-date on what CA is requiring on this. But if there is a specific requirement for the amount of post-consumer recycled content in bottles used to these products, I would first do an assessment to make sure they are readily available. Otherwise this could create an unanticipated barrier to either supply or drive up the cost making it difficult for schools and others to purchase adequate quantities of product. ABS and PVC packaging are not commonly

used for the packaging of concentrated commercial cleaning products. While I don't want to say "never used" but I've been in the industry for over 25 years and I can't think of any.

Please confirm the exception for lightweight, flexible packaging, (pouches or bags) to the recyclable requirement. ***Rationale-*** Although our packages are No. 4 LDPE, and are so marked, the markets for raw post-consumer No. 4 LDPE are few to non-existent.
Please exempt lightweight, flexible packaging from the recycled content requirement. ***Rationale***- The manufacturing process of the packaging film will not tolerate the variation in physical properties inherent with reclaimed resin. Increased cost and waste from leaking pouches would also be a problem. The tight process controls currently required to maintain the leakproof integrity of liquid pouch production would be frustrated with post-consumer based film stocks.

Support making post-consumer plastic requirements consistent with CA, with Qualifications. ***Rationale***- We do not object to the inclusion of a post-consumer content requirement consistent with CA law. However, in the event GS pursues this course of action, we would request that the other provisions of CA's rigid plastic container regulations be followed also (i.e., post consumer content; reusable or refillable; source reduced; and exceptions)

Consider requiring child resistant packaging. ***Rationale***- schools and daycares are places where kids may come into contact with chemicals.

All packaging should be recyclable. . I agree that the term recyclable is too vague. There should be some goals set: packaging is only considered to be recyclable if it a recycling infrastructure is established in most municipalities or national recycling rate for that material in packaging must meet a certain goal (at least 50%).

All packaging should be recyclable. recyclable is too vague. There should be some goals set: packaging is only considered to be recyclable if it a recycling infrastructure is established in most municipalities or national recycling rate for that material in packaging must meet a certain goal (at least 50%).

There should be no categorical prohibition against PVC, ABS or any other type of plastic packaging. These claims regarding lifecycle-based threats from PVC, ABS or other plastic packaging are not supported.
The CA law requirements inhibit innovation in plastic packaging. – requiring post-consumer content in packaging often leads to an increase in packaging rather than a reduction in waste. Also, the CA state agency charged with overseeing the plastic recycled content law issued a White Paper stating that the program has been ineffective and has run up costs for government oversight as well as being costly for businesses.

Consider the prohibition of the use of some plastics (e.g. ABS, PVC) to conform with adv packaging guidelines. Require 30% or 50% post consumer material in packaging.

All packaging should be recyclable. Packaging is only considered to be recyclable if it a recycling infrastructure is established in most municipalities or national recycling rate for that material in packaging must meet a certain goal (at least 50%).
Consider adding development of packaging take-back programs paid for by manufacturers.

4.11 Concentrates

The product must be a concentrate, except for FIFRA-registered bathroom cleaners and absorbent compound carpet cleaners.

Keep as is, delete, or change

No change

Rationale, type of change, notes, etc.

Change from Section 4.11 to Section 4.18

See spot removers, above.

Eliminate any non concentrated or Ready to use liquid chemical product. There are numerous concentrated chemicals available for use for bathroom cleaning. The FIFRA-registered bathroom cleaner exception is contrived. Either make it concentrated or give up the Green Seal certification.

I don't really understand this requirement. Why are you making an exception for FIFRA registered products when this standard specifically excludes FIFRA products? I recommend that GS37 simply REQUIRE the products to be concentrates without exception.

4.12 Fragrances

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

Keep as is, delete, or change

- Consider restricting the type or presence of fragrances
- Consider relying on testing for respiratory irritation/sensitization and skin sensitization.

Rationale, type of change, notes, etc.

- Fragrances or their chemical components are recognized as asthma triggers. Their composition is typically protected trade secret information

Change from Section 4.12 to Section 4.19. No fragrance containing nitro-musks or polycyclic musks are allowed

Why not promote the idea of “no-added fragrances” under GS-37?

Manufacturers shall identify any fragrance compounds (**it’s not sufficient to say “identify any fragrances” -- because a “fragrance” can contain numerous compounds that are classified as toxic) on their material safety data sheets (MSDSs). Any ingredient added to a product as a fragrance must follow the Code of Practice of the International Fragrance Association. (**this Code of Practice does not adequately address the range of toxic compounds in fragrances and their health effects)
Consider restricting the type or presence of fragrances (**prohibit synthetic fragrances; see next section). Consider relying on testing for respiratory irritation/sensitization and skin sensitization. Also investigate other health effects (e.g., neurotoxicity) associated with fragrance compounds. (**but you can run a GC/MS on the fragranced product to identify the chemical compounds)

Testing rather than restricting all fragrances is less limiting yet thorough.

Disagree. 4.12 should not be changed.

I do not like fragrances since they cover up poor cleaning and would like to see them eliminated all together.

"Consider relying on testing for respiratory irritation/sensitization and skin sensitization" There are no validated and commonly accepted methods for testing for respiratory sensitization. Testing for respiratory irritation can be done by measuring something like the RD50, but there is no commonly accepted definition of what is an "acceptable" RD50. Testing all fragrances for skin sensitization will result in significant animal testing due to the number of fragrances in commerce today. Relying on IFRA guidelines is adequately protective today and continues to improve the safety of fragrances.

Consider making all products fragrance free. Same rationale as above- it is not a necessary ingredient in making a product effective

Fragrances are an important component of cleaners. Require fragrance manufacturer to confidentially disclose components and prohibit known sensitizers.

We support that fragrance components that are known respiratory or skin sensitizers, or respiratory irritants should not be included in Green Seal product formulations. However Section 4.4. already addresses sensitization for product as a whole and/or ingredients, therefore

specifically isolating fragrances for specific restriction or prohibition does not seem necessary.

Recommend full disclosure of all fragrance ingredients (not just active ingredients) for certification. Otherwise no certification

Please believe me when I say that I understand the concern here regarding the asthma epidemic among children, increases in occupational asthma, MCS, etc. But typically I find that irritation is concentration related and we know very little about what causes sensitization. Furthermore, having been a formulator, I have found that many consumers wrongly believe that a cleaning product without any fragrance would smell like water. Rather the reality is that many cleaning products and the chemicals that constitute them smell "bad" or musty on their own and a small amount of fragrance is a valuable contributor to how building occupants perceive that their space is clean. While we do NOT want to overdo the use of fragrance, I am just concerned about going to the other extreme and banning it. Thus I would be very careful how this is addressed.

Consider no change--EPA does not list fragrance as asthma trigger. Asthma experts agree that most reactions are caused by animal and insect allergens, house dust mites, air pollution, respiratory or sinus infections, stress and other substances.
Realistically anything in an environment may trigger an asthma attack. In fact, cold air or dry air alone can trigger an asthma attack Given the numerous substances and conditions that can contribute to aggravating asthma and allergies, public policies that focus on controlling only a single potential trigger are ineffective and do a disservice to the general population.
Fragrances have been enjoyed for thousands of years and contribute to people's individuality, self-esteem and personal hygiene
Trade secret is not an issue. Green Seal will not approve any unknown components greater than 0.01%, whether it is from fragrance or other ingredients.
IFRA Standards employ testing to ensure safe use of ingredients. Where a safe level of use cannot be established, the Standard bans the ingredient.

Much of the sensitization data available is associated with Dermal testing. Also, an *in vitro* inhalation method is not widely available. We feel that IFRA adequately addresses safety in fragrances.
We strongly discourage language that associates "Fragrance free" with "green". Fragrance is one of the most significant contributors to the marketability of a cleaning product. End-users often associate a pleasant fragrance with cleaning performance. Imposing a fragrance-free requirement puts green products at a significant disadvantage.

Consider restricting the type or presence of fragrances- I agree. Ingredients in all allowed fragrances must be fully disclosed. Note that Fragrances and fragrance carriers can also be respiratory irritants and sensitizers.

I agree. Also restrict phthalates in fragrances.

Consider prohibiting use of fragrances. There is no product efficacy need for adding fragrances, and fragrances may potentially mask important warning properties of the chemicals used, thereby increasing the potential for exposure. Individuals may be sensitive not only to fragrances but to the chemicals that are used as fragrance carriers. In addition, full disclosure of the chemicals in a product should be a goal of Green Seal certification (see comment 4, above), and specific fragrance ingredients are not required in the U.S. to be listed on the product label.

4.13 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

Keep as is, delete, or change

- Evaluate removing ingredients already prohibited by other criteria.
- Consider adding compounds readily absorbed by skin: e.g., Methoxyethanol, Ethoxyethanol
- Consider prohibiting phthalates as a class or specific phthalates that are listed in CA Prop 65
- Editorial correction: "The *undiluted* product shall not …"

Rationale, type of change, notes, etc.

- This category may be needed for certain chemicals or classes of chemicals where specification of health and environmental criteria may be too difficult or cumbersome.
- Editorial correction to clarify criterion and reflect current product evaluation approach

Change from Section 4.13 to Section 4.20. Add colorants to list. Coloring agent can cause skin sensitization. Clorants used must be including in the "List of Colouring Agents Allowed in Cosmetic Products" in Annex IV of the European Commission Directorate 76/768EEC, 1976. US Color requirements?

Synthetic fragrances (**I'd recommend the restriction of all fragrances, because even "botanical" or "all-natural" fragrances can be adulterated or contain toxic compounds, but that may not be practical -- so at least prohibit the most toxic types of fragrances -- those that contain synthetic organic compounds)

Consider adding Phosphates

Consider adding inert ingredients. They make up much of the product and the inert ingredients should be identified and assessed. This may be hard to do because of "proprietary secrets". Inert ingredients are starting to be viewed as possible environ/health problem suspects.

Consider adding synthetic musks which tend to be persistent (unless addressed by other criteria). Synthetic musks tend to be persistent and toxic.

- Add perfluorinated compounds to the list of prohibited ingredients. Recently, a few companies have started manufacturing cleaning products that contain Teflon-life 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).
- Add chemicals known to cause central nervous system (CNS) depression. The inclusion of these ingredients that are known to cause permanent CNS damage (e.g., peripheral neuropathy, respiratory arrest, loss of consciousness, coma, death) or severe CNS effects (e.g., blurred vision, tremors, convulsions, depression, numbness in extremities, nervous system injury, narcosis, loss of coordination). These effects are often listed on the MSDS.
Consider excluding 2-butoxyethanol

There should be no need to a prohibited list of ingredients. If the chemical/product attributes are clearly defined and the threshold for these attributes established, the intent to prohibit specific ingredients will have been met without the need to call them out specifically. For example, the document states a consideration to prohibit compounds readily absorbed by the skin. If this were to be an attribute with a defined threshold, then there is no need to specifically list methoxyethanol as a prohibited ingredient. It would automatically need to be excluded from a certified product.

(add dye to the list of prohibited ingredients) Allow for the lack of dye – color is less necessary with improved training; keep dye out of the waste stream

Add ethylene glycol and diethylene glycol ethers as a class to list of prohibited ingredients if not otherwise addressed in sections relating to skin absorption and central nervous system depression
- Add chemicals known to cause central nervous system (CNS) depression. The inclusion of these ingredients that are known to cause permanent CNS damage (e.g., peripheral neuropathy, respiratory arrest, loss of consciousness, coma, death) or severe CNS effects (e.g., blurred vision, tremors, convulsions, depression, numbness in extremities, nervous system injury, narcosis, loss of coordination). These effects are often listed on the MSDS.

Proposed changes would require identification of and rationale for each designated chemical. In addition there would need to be a public process to review additions to the list.

I suspect you have done your homework and have found products in the categories covered by GS37 to contain phthalates. If so, I would appreciate you sharing this with the entire stakeholder group, because from my experience they don't except potentially as a small component of a fragrance.

There needs to be a *science-based* process for determining the prohibition of a chemical. ***Rationale:*** We believe that it is inappropriate for Green Seal to consider prohibitions on specific chemicals and materials without defining a process for how such decisions are to be made. The draft of the scoping document suggests that for certain chemicals "specification of health and environmental criteria may be too difficult or cumbersome." This simply is not an acceptable justification for prohibiting a chemical. If Green Seal wishes to insist on using lists of chemicals, the only lists referenced should be "authoritative lists" defined by specific scientific criteria. ***Rationale****:* We also need to comment on Green Seal's use of "chemical lists." The scoping document mentions a number of lists that might be used to prohibit ingredients. Some of these lists (e.g., the CEC endocrine list) are unofficial documents. It is wholly inappropriate to reference these.

Oppose the consideration to add criteria that would prohibit the use of ingredients that have evidence of potential endocrine disruption, based on CEC 2004 Commission Staff Working Document list of endocrine disruptors***. Rationale-*** It is premature to adopt such a criterion until more definitive research has been conducted. For example EPA will begin evaluating various pesticide chemicals for their potential as endocrine disruptors

Consider removing optical brightener restriction—FDA finds no significant impact in food contact paperboard packaging. Information on DFE website does not indicate a strong case for an outright ban. No clear rationale. If laundry detergents are to be considered for addition to the categories, optical brighteners should be considered as they are an intrinsic part of virtually all formulations.

If not addressed by other criteria (i.e. tox/carc), heavy metals should be called out directly (we suggest striking "Including" from the requirement)

Comments on listed ingredients:
- Dibutyl phthalate Dibutyl phthalate no longer needs to be listed here because it is now on the Prop 65 list as a reproductive toxin so listing it here is redundant.
- Heavy metals including arsenic, lead, cadmium, cobalt, chromium, mercury, nickel, or selenium (Delete most of the heavy metals listed; they would 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.
- Add ethylene and diethylene glycol ethers as a class to list of prohibited ingredients if not otherwise addressed in sections relating to skin aborption and central nervous system depressionOzone-depleting compounds (need to define)

- Optical brighteners -
- Add perfluorinated compounds to the list of prohibited ingredients. Recently, a few companies have started manufacturing cleaning products that contain Teflon-life 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).
- Add chemicals known to cause central nervous system (CNS) depression. The inclusion of these ingredients that are known to cause permanent CNS damage (e.g., peripheral neuropathy, respiratory arrest, loss of consciousness, coma, death) or severe CNS effects (e.g., blurred vision, tremors, convulsions, depression, numbness in extremities, nervous system injury, narcosis, loss of coordination). These effects are often listed on the MSDS.
- Add xylene to the prohibited ingredients list because it is commonly contaminated with ethyl benzene, a Prop 65 carcinogen.
- EDTA should also be prohibited.
Green Seal should maintain a comprehensive list of chemicals found on all the “prohibited” lists that are commonly found in institutional cleaning products so that manufacturers and consumers can have quick access to all prohibited ingredients.

Related to listed ingredients:
- Dibutyl phthalate (Dibutyl phthalate no longer needs to be listed here because it is now on the Prop 65 list as a reproductive toxin so listing it here is redundant.
- Heavy metals including arsenic, lead, cadmium, cobalt, chromium, mercury, nickel, or selenium (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.
- Add ethylene and diethylene glycol ethers as a class to list of prohibited ingredients if not otherwise addressed in sections relating to skin aborption and central nervous system depression
Ozone-depleting compounds (need to define)
- Optical brighteners
- Add perfluorinated compounds to the list of prohibited ingredients. Recently, a few companies have started manufacturing cleaning products that contain Teflon-life 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).
- Add chemicals known to cause central nervous system (CNS) depression. The inclusion of these ingredients that are known to cause permanent CNS damage (e.g., peripheral neuropathy, respiratory arrest, loss of consciousness, coma, death) or severe CNS effects (e.g., blurred vision, tremors, convulsions, depression, numbness in extremities, nervous system injury, narcosis, loss of coordination). These effects are often listed on the MSDS.
- Add xylene to the prohibited ingredients list because it is commonly contaminated with ethyl benzene, a Prop 65 carcinogen.
Green Seal should maintain a comprehensive list of chemicals found on all the “prohibited” lists that are commonly found in institutional cleaning products so that manufacturers and consumers can have quick access to all prohibited ingredients.
-All prohibited ingredients should be excluded from the packaging as well as the product.
-This would effectively prevent manufacturers from packaging their products in PVC or applying labels printed with heavy metal-based inks.

This section should be eliminated in favor of relying on health and environmental criteria for ALL ingredients based on scientific data. Health and environmental criteria should apply equally to all ingredients. A list of prohibited ingredients is not defensible unless there is a transparent, science-based process for developing the list.
The potential consideration prohibiting phthalates as a class or specific phthalates that are listed in CA Prop 65 should be deleted. The weight of scientific evidence overwhelmingly supports the safety of phthalates as a class.

Add “Fragrances” to list of prohibited ingredients. Consider prohibiting phthalates as a class or specific phthalates that are listed in CA Prop 65.
- Heavy metals including arsenic, lead, cadmium, cobalt, chromium, mercury, nickel, or selenium

(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.
- Add ethylene and diethylene glycol ethers as a class to list of prohibited ingredients if not otherwise addressed in sections relating to skin absorption and central nervous system depressionOzone-depleting compounds (need to define)
- Ozone-depleting compounds need to be defined.
- 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).
- Add chemicals known to cause central nervous system (CNS) depression. The inclusion of these ingredients that are known to cause permanent CNS damage (e.g., peripheral neuropathy, respiratory arrest, loss of consciousness, coma, death) or severe CNS effects (e.g., blurred vision, tremors, convulsions, depression, numbness in extremities, nervous system injury, narcosis, loss of coordination). These effects are often listed on the MSDS.
- Add xylene to the prohibited ingredients list because it is commonly contaminated with ethyl benzene, a Prop 65 carcinogen.
- All prohibited ingredients should be excluded from the packaging as well as the product. This would effectively drive manufacturers to package their products in PVC or apply labels printed with heavy metal-based inks.
- Green Seal should maintain a comprehensive list of chemicals found on all the “prohibited” lists that are commonly found in institutional cleaning products so that manufacturers and consumers can have quick access to all prohibited ingredients.

4.14 Training

The product manufacturer, its distributor, or a third party shall offer training or training materials in the proper use of the product. These shall include step-by-step instructions for the proper dilution, use, disposal, and the use of equipment. Manufacturers shall have product labeling systems to assist non-English-speaking or illiterate personnel.

Keep as is, delete, or change

- Consider requiring written training materials
- Consider required training content included in materials

Rationale, type of change, notes, etc.

- To strengthen requirements to ensure that training reaches end-users

(add) *Instruction for the proper dilution shall include how much to dilute product, how to dilute product in a safe manner (i.e. always add water to product), how to prevent spills (i.e. splashing or dispersion of product onto employee) and the proper personal protective equipment to be worn to participate in the dilution process. The training shall also include discussion of the physical and health hazards associated with the product, personal protective equipment to be worn while using product and review of material safety data sheet.* Considering adding specific subjects to be covered during dilution training. May want to consider re-emphasizing importance of employee personal protective equipment in section 3.0 "Product Specific Performance Requirements." Consider adding a list of specific items to be covered during training. Ensure employee is working in a safety environment by ensuring all reasonable safety precautions are taken. To comply with hazardous communication regulations. OSHA 29 CFR 1900.1200

Sending a training manual with every bottle of something is cost-prohibitive and wasteful.

Agree- need a good guidance document for training. Materials, factsheets, work signs should be in other languages. Color coded systems to help low-literacy workers use the right product for the right purpose. Absolutely! Training is necessary for ensuring the success of using the products and for the health and safety of the workers.

Agree as long as training materials do not circumvent OSHA requirements. Also, purchasers are responsible for training users. From a practical standpoint, GS37 Standard can encourage training but cannot enforce it.

Consider requiring use of personal protective equipment - face shields/safety glasses, proper ventilation, and wear gloves.

Like this line. It's a must and should be required of all suppliers.

"…*and the use of ~~equipment~~ the product*…" See 5.0 below

Keep as is. For rather simple cleaning products, this seems rather moot when the label (already certified by Green Seal) contains complete usage instructions, and dilution equipment comes with complete Owner's Manual. I don't know that cleaning <u>product</u> manufacturers should be responsible for determining <u>how</u> or <u>how often</u> a janitor or cleaning contractor should clean a building. Might this be something better handled by the US Green Building Council – or through the certification offered by Green Seal GS-42?
For manufacturers that sell through distribution or catalog-houses, even if a manufacturer writes training materials and gets them certified by Green Seal, how will the manufacturer or Green Seal ensure that they end up in the hands of the end-user and that the user actually follows them?

"These shall include step-by-step instructions for the proper dilution, use, <u>disposal</u>, and the use of equipment." ***Rationale***- "Disposal" should be clarified to state that the instructions shall include how to properly dispose of unused/excess/spilled product and how to properly dispose (e.g., recycle) of empty packaging. –Mark Petruzzi, Green Seal : These shall include step-by-step instructions for the proper dilution, use, disposal, and the use of <u>equipment</u>." ***Rationale***-

“Equipment” should be clarified to state that the instructions shall include the use of equipment required for cleaning (e.g., autoscrubbers, mops, cleaning cloths, spray bottles, etc.) and personal protective equipment (PPE) required.
“Manufacturers shall have product labeling systems to assist non-English-speaking or illiterate personnel.” ***Rationale***- This requirement should be moved to 5.0 (currently) to the labeling requirements. This applies to the product label and is intended to ensure that labels are bi-lingual or feature graphic icons to meet the requirement, but is listed under the “training materials” section.

Oppose the consideration of requiring written training materials***. Rationale***- Written materials may be an inappropriate medium particularly for illiterate or non-English speaking workers. The nature of the training materials should be left to the discretion of the supplier so that they have the flexibility to provide such materials in a format that effectively communicates the information to the workers.

Every sale of GS certified products must be accompanied by training. A list of criteria included in that training must be developed. Written training content could be supplied with the material safety data sheets, but interactive training must be provided. (Could include the GS –42 Best Practices section.). Training is not reaching end users. Vendors say that the end users don’t request it. Many of them don’t even know it is available.

I agree with both of these suggestions.

We support. Consider adding that cleaning not be conducted at night, on weekends, or during holidays unless adequate ventilation is ensured. *Rationale:* Nights, weekends and holidays are the least likely time periods to encounter adequate building ventilation. Ventilation systems are often turned off or operating at reduced levels during these time periods, a situation compounded by the fact that is not possible to open windows in many buildings. Workers are included in the population of building occupants that may be more sensitive to these products, and worker exposure must also be controlled by engineering or other control measures so that all exposed populations will be protected.

4.15 Animal Testing

This section applies to Sections 4.1, 4.3, and 4.7. 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, Green Seal may accept non-animal (in-vitro) test results, providing that the test methods are referenced in peer-reviewed literature and the manufacturer provides the reasons for selecting the particular test method.

Keep as is, delete, or change

No change

Perhaps Green Seal could maintain a database of information about test results for various chemicals so that the same tests don't have to be repeated by various manufacturers. This would make it easy for formulators to more easily avoid using animal tests.

The issue of animal testing needs to be addressed to support the commitment to comprehensively address the issue of skin and respiratory irritants and asthmagens (sensitizers). Its ridiculous to think that we can simply wait for published Epidemiological data to appear in the literature on the multitude of chemicals being used in these products- its just wishful thinking. I'm strongly in favor of developing methodologies to have products with toxic chemicals to be tested using the ASTM 981 to ensure that it is not an significant irritant. Recall that: The ASTM E981 method was developed by Yves Alarie, Ph.D., in the 1960s under the direction of the U.S. Department of Defense. It was specifically developed to reliably extrapolate mouse data to humans. It has been recommended as a reliable product test in a report commissioned by the Consumer Product Safety Commission (CPSC) and also by Daniel Costa, of EPA's Health Effects Research Laboratory, Pulmonary Toxicology Branch. (2, 18) Costa wrote regarding the ASTM E981, "We support the use of the mouse irritancy test for detecting, and possibly for comparing potencies among, indoor air contaminants...We believe that if the mouse irritancy test is positive upon exposure to a suspected indoor contaminant, then the atmosphere is likely to be irritating to humans." (18)
This method has been used extensively by both government and industry over the years to determine irritant effects of chemicals and to extrapolate those results to humans. A recent review article found that at least 295 chemicals had been evaluated by the ASTM E981 method in the published scientific literature. Eighty-nine of those chemicals have occupational exposure limit values (threshold limit values) against which the adequacy of the ASTM E981 tests were compared. The ASTM E981 was found to be a reliable indicator for human occupational exposure limit values, and the author concluded, "There are no other toxicological methods that have been validated, calibrated, and used with results available on such a large number of airborne chemicals. ... Certainly, the bioassay has withstood the test of time and the various mechanisms by which sensory irritation
occur have now been well-delineated. ... Analysis of the now much larger database proves that the bioassay is even better at predicting safe levels of exposure for humans

Add to health and environmental requirements:

<u>Asthmagens</u>

We wanted to express to you our support for the prohibition of asthmagens and asthma triggers/respiratory irritants in the Product-Specific Health and Environmental Requirements as suggested in the GS-37 draft scoping document (after item 4.15). We also support using the Association of Occupational and Environmental Clinics (AOEC) list of asthmagens. The potential for cleaning products to cause or aggravate asthma is substantial, but not widely recognized. Between 1993-1997, NIOSH's Sentinal Event Notification System for Occupational Risk (SENSOR) program identified a total of 1915 confirmed cases of work-related asthma in four states. Of the 1915 cases of asthma, 236 (12%) were associated with cleaning products. Over half (55%) of the asthma cases associated with cleaning products occurred in janitors, cleaners, housekeepers, nurses, nurses aides and clerical workers. These documented cases of asthma

related to cleaning agents likely understate the health risks because there are significant barriers to illness reporting. Moreover, workers who become sensitized may be unable to continue to work at their job. The most effective way to prevent these cases of asthma is to eliminate the agents that cause asthma from cleaning products. (Rosenman KD, Reilly MJ, Schill DP, Valiente D, Flattery J, Harrison, R, Reinisch F, Pechter E, Davis L, Tumpowsky CM, Filios M. Cleaning Products and Work-Related Asthma. JOEM, Volume 45, Number 5, May 2003.)

"Consider addition of new criterion for prohibiting asthmagens and rely on AOEC list of asthmagens." We strongly believe the AOEC methodology for classifying substances as asthmagens is not sufficiently vetted by scientists. From our discussions with them, it appears that one physician can classify a substance as an asthmagen based on a single poorly designed case study.

Is this different for Asthma triggers in the next section? I know that asthma is a serious disease. What concerns me is that we know so little about what causes it. While I am a firm believer in the precautionary principle, I believe that many ingredients considered asthmagens have only been observed in their concentrate, and not at the level that they appear in a concentrated cleaning product.

Care must be taken to not make this standard too restrictive and thus reduce available products. The professional facility director can address the need of the highly chemically sensitivity individual in their work environment or place of learning.

Similar to comment above in "Definitions", consider both asthma triggers and asthma sensitizers in this section.

These additions would be premature since the current science is still crude.

I agree. Many workplaces are cleaned when the ventilation systems are shut off.

We wanted to express to you our support for the prohibition of asthmagens and asthma triggers/respiratory irritants in the Product-Specific Health and Environmental Requirements as suggested in the GS-37 draft scoping document (after item 4.15). We also support using the Association of Occupational and Environmental Clinics (AOEC) list of asthmagens. The potential for cleaning products to cause or aggravate asthma is substantial, but not widely recognized. Between 1993-1997, NIOSH's Sentinal Event Notification System for Occupational Risk (SENSOR) program identified a total of 1915 confirmed cases of work-related asthma in four states. Of the 1915 cases of asthma, 236 (12%) were associated with cleaning products. Over half (55%) of the asthma cases associated with cleaning products occurred in janitors, cleaners, housekeepers, nurses, nurses aides and clerical workers. These documented cases of asthma related to cleaning agents likely understate the health risks because there are significant barriers to illness reporting. Moreover, workers who become sensitized may be unable to continue to work at their job. The most effective way to prevent these cases of asthma is to eliminate the agents that cause asthma from cleaning products. (Rosenman KD, Reilly MJ, Schill DP, Valiente D, Flattery J, Harrison, R, Reinisch F, Pechter E, Davis L, Tumpowsky CM, Filios M. Cleaning Products and Work-Related Asthma. JOEM, Volume 45, Number 5, May 2003.)

AOEC- List is not publicly available.

Asthmagens--Nearly every floor stripper product certified under GS-40 contains some level of Monoethanolamine, which is on the AOEC asthmagen list, although the levels vary widely from none to as much as 30% by weight. Some GS-37-certified products are also reporting the presence of Monoethanolamine. Other asthmagens that may be found in cleaning products that have not yet been specifically addressed by the current standard include formaldehyde, chlorine (gas), and quaternary ammonium compounds (disinfectants). Since sensitizers have no safe level of exposure, these should be added to the prohibited ingredients list. However, since the list of chemicals that may be identified in the future as asthmagens may increase due to additional research, the addition of those chemicals to the asthmagen list by AOEC should trigger their prohibition in the future.

Nearly every floor stripper product certified under GS-40 contains some level of Monoethanolamine, which is on the AOEC asthmagen list, although the levels vary widely from none to as much as 30% by weight. Some GS-37-certified products are also reporting the presence of Monoethanolamine. Other asthmagens that may be found in cleaning products that have not yet been specifically addressed by the current standard include formaldehyde, chlorine (gas), and quaternary ammonium compounds (disinfectants). Since sensitizers have no safe level of exposure, these should be added to the prohibited ingredients list. However, since the list of chemicals that may be identified in the future as asthmagens may increase due to additional research, the addition of those chemicals to the asthmagen list by AOEC should trigger their prohibition in the future.

Indoor Air Emissions

Keep as is, delete, or change

- Consider addition of new criterion for prohibiting asthmagens and rely on AOEC list of asthmagens.

We support this change. We believe that Green Seal already does its due-diligence regarding indoor air emission levels as they relate to industrial cleaning products via sections 4.6 VOC content, 4.12 Restriction of fragrances, 4.13 Prohibition of ozone-depleting compounds, and possible addition of adding Asthmagens to prohibited ingredients.

- Consider the addition of new criterion for indoor air emission levels, including tests such as those GreenGuard conducts and cites in their standards

(Note only – the comments in the delete and rationale sections regarding adding new criterion for indoor air emission levels are confusing. The GS-37 Scoping Document addresses only General Purpose, Bathroom, Glass, and Carpet Cleaners Used for Industrial and Institutional Purposes. Therefore, only the organic compound emissions from the cleaner or the organic compound emissions in the space the cleaner is being applied should be addressed or specified.)

Rationale, type of change, notes, etc

- Cleaning materials are the second most frequent source of work-related asthma (NIOSH Worker Health Chartbook 2004)
- GreenGuard emissions tests conditions should be evaluated carefully to better understand implications of adoption of approach

Green Seal should maintain a database of all certified products listing the chemicals on the MSDS so consumers can see the types and quantities of asthmagens and other chemicals of concern they contain.

Since sensitizers have no safe level of exposure, these should be added to the prohibited ingredients list. However, since the list of chemicals that may be identified in the future as asthmagens may increase due to additional research, the addition of those chemicals to the asthmagen list by AOEC should trigger their prohibition in the future.

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Asthma Triggers and Respiratory Irritants

Keep as is, delete, or change

- Consider addition of criteria that would require product to be non-irritating or not likely to trigger an asthma attack in susceptible cleaning workers or building occupants, based on an appropriate RD_{50} limit

Rationale, type of change, notes, etc.

- Cleaning products contain respiratory irritants and are reported to trigger asthma attacks.

Harmonize with fragrance section?

We wanted to express to you our support for the prohibition of asthmagens and asthma triggers/respiratory irritants in the Product-Specific Health and Environmental Requirements as suggested in the GS-37 draft scoping document (after item 4.15). We also support using the Association of Occupational and Environmental Clinics (AOEC) list of asthmagens. The potential for cleaning products to cause or aggravate asthma is substantial, but not widely recognized. Between 1993-1997, NIOSH's Sentinal Event Notification System for Occupational Risk (SENSOR) program identified a total of 1915 confirmed cases of work-related asthma in four states. Of the 1915 cases of asthma, 236 (12%) were associated with cleaning products. Over half (55%) of the asthma cases associated with cleaning products occurred in janitors, cleaners, housekeepers, nurses, nurses aides and clerical workers. These documented cases of asthma related to cleaning agents likely understate the health risks because there are significant barriers to illness reporting. Moreover, workers who become sensitized may be unable to continue to work at their job. The most effective way to prevent these cases of asthma is to eliminate the agents that cause asthma from cleaning products. (Rosenman KD, Reilly MJ, Schill DP, Valiente D, Flattery J, Harrison, R, Reinisch F, Pechter E, Davis L, Tumpowsky CM, Filios M. Cleaning Products and Work-Related Asthma. JOEM, Volume 45, Number 5, May 2003.) Note that IFRA uses the RD 50 test http://www.encyclopedia.com/doc/1G1-20596015.html

Is there an established and recognized limit for asthmagens? Or will Green Seal and its advisory board create their own? While some areas have more research such as carcinogens and even endocrine disrupter, the study of asthmagens is still in its infancy. Frankly, I hope you can do it --- but if so, do something that is meaningful, and not just based on good intentions.

"Consider addition of criteria that would require product to be non-irritating or not likely to trigger an asthma attack in susceptible cleaning workers or building occupants, based on an appropriate RD50 limit." See comments above regarding fragrances. There is no 'appropriate RD50 limit' that is commonly accepted as preventative for persons with asthma. Establishment of such a limit would be arbitrary and capricious. Cold air or changes in relative humidity can trigger an asthma episode, so it is dangerous to endorse limits that are "non likely to trigger an asthma attack". Sticking with emissions testing and GREENGUARD criteria and VOC content appears to be a more valid approach.

Reference GHS for respiratory irritants. Europe is using this designations to identify respiratory irritants.

Redundant. These products would already be addressed in 4.13

I agree with addition of asthmagens and asthma triggers to the health requirements. I would add that these lists are rapidly evolving, and periodic reviews of the medical literature and the AOEC and other lists of asthmagens and respiratory irritants should be done.

Please see our comments under section 4.6

Suggest including respiratory irritation. ***Rationale-*** Inhalation is a major route of exposure. Asthma, respiratory diseases, and airway hypersensitivity are on the increase, and the potential ability of VOCs in cleaners to induce or exacerbate them should be considered.

See my comments in 4.12 – Fragrance. Asthma experts agree that most reactions are caused by animal and insect allergens, house dust mites, air pollution, respiratory or sinus infections, stress and other substances.
Realistically anything in an environment may trigger an asthma attack. It would be difficult, if not impossible to establish criteria that could be empirically supported to not likely to trigger an asthma attack.

Chemicals can be compared quantitatively by measuring the airborne concentration required to elicit a 50% depression in respiratory rate (RD50).

Also, using reputable sources such as OSHA, ATSDR and others, it can be determined that certain chemicals can cause scarring or other permanent (corrosive damage) to the respiratory system, respiratory sensitization (asthma), or severe respiratory irritation effects such as coughing, sore throat, shortness of breath, wheezing, inflammation, bronchitis, and increased susceptibility to respiratory infection).
Undiluted product should not be corrosive and diluted product should not be severely irritating to the respiratory system.

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Endocrine Disruptors

Keep as is, delete, or change

- Consider addition of criteria that would prohibit the use of ingredients that have evidence of potential endocrine disruption, based on CEC 2004 Commission Staff Working Document list of

endocrine disruptors

Rationale, type of change, notes, etc.
- Cleaning products are widely identified sources of endocrine disruptors found in the environment

These additions would be premature. What test methods would be referenced? The EPA is still developing tests. In order to make these additions valid, GS would need to set up an Expert Panel whose members have appropriate credentials and expertise to make recommendations based on robust science.

I would support this.

I would leave this alone and add prohib substances as the science gathers steam. It is not defensible as it sits.

We would support holding off until US EPA Office of Pesticide Programs has concluded their evaluations of Endocrine disruptors***.***

"Consider addition of criteria that would prohibit the use of ingredients that have evidence of potential endocrine disruption, based on CEC 2004 Commission Staff Working Document list of endocrine disruptors" I'm not familiar with this list, but I would caution against use of "Working Document" lists that have not received peer review evaluation. Endocrine disruption is very complicated and many materials can yield positive results in in-vitro and in-vivo studies that are not relevant endocrine disruptors in humans.

Must be addressed

This category must be included.

There is currently no widely accepted list of endocrine disruptors. It would be inappropriate to reference any list, including as this CEC staff working document. “Endocrine disruption” describes a mechanism of action by which exposure to a substance induces an adverse effect. It is not considered a toxicological endpoint as such. When substances are identified as carcinogens, reproductive toxins, neurotoxins, etc. those substances that do so through endocrine mediated activity will be appropriately captured.
There are yet no internationally recognized, validated screens or tests for assessing whether a substance could affect the endocrine system to cause an adverse effect. Therefore, there is no way to create a definitive list of endocrine disruptors at this time.

Chronic toxicity

Keep as is, delete, or change
- Consider the adoption of criteria to evaluate chronic toxicity effects to humans from cleaning chemicals

Rationale, type of change, notes, etc.
- Chemicals used routinely in cleaning may pose chronic as well as acute toxicity effects

The criteria should be well founded and the method for evaluation should be accepted by formulators as being feasible. I would prefer that they simply add to the "Prohibited List" if there are materials of specific concern.

These additions would be premature. What test methods would be referenced? The EPA is still developing tests. In order to make these additions valid, GS would need to set up an Expert Panel whose members have appropriate credentials and expertise to make recommendations

based on robust science.

A nightmare could occur without much greater defining of criteria. I would let the science develop

We support review of chronic effects, however, chronic effects such as sensitization, carcinogenic potential and similar are already covered in existing sections of the standard. So the scope of "chronic toxicity" may not be necessary. Perhaps limiting to Target Organ effects as suggested by Human or animal data may be more appropriate?

Chronic toxicity should apply to aquatic life also. Chronic aquatic toxicities can occur in much lower concentrations than acute toxic exposures.

Green Seal should prohibit all ingredients above 1% 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.

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Skin absorption

Keep as is, delete, or change

- Consider the adoption of criteria to evaluate or restrict the use of chemicals that are highly absorbent through skin.

Rationale, type of change, notes, etc.

- Skin absorption is a recognized and common route of exposure during cleaning operations

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. "

The following chemicals are examples of ingredients that have a high potential for skin absorption, and therefore should not be present as an ingredient in the product:

- Ethyl alcohol [64-17-5]
- Isopropyl alcohol [67-63-0]
- Benzyl alcohol [100-51-6]
- 2-Butoxyethanol [111-76-2]
- Diethylene glycol monomethyl ether [111-77-3]
- Diethylene glycol monoethyl ether [111-90-0]
- Diethylene glycol monobutyl ether [112-34-5]
- Ethylene glycol phenyl ether [122-99-6]
- Monoethanolamine [141-43-5]

There may be more; these are ones that have been reported in GS-40-certified floor care products.
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." Again, a good first step would be for Green Seal to report on all of the chemicals found in its products and determine which have a high potential for skin absorption. Priority should be placed on those that also have the potential to cause other serious effects when they do penetrate the skin such as poison organs or depress the central nervous system.

These additions would be premature. What test methods would be referenced? The EPA is still developing tests. In order to make these additions valid, GS would need to set up an Expert Panel whose members have appropriate credentials and expertise to make recommendations based on robust science.

Agree

Could this potentially undermine the use of protective equipment during cleaning operations? Would this lead the public to believe that any Green Seal certified product could be used without proper PPE, perhaps leading to unknown or unintended reactions ? Alternatively should this be addressed under chronic effects (target organ effects) rather than separate criteria?

Suggest adding the following criteria: When tested to the following standard, product as a whole in its diluted-for-use form shall have a low potential to absorb through the 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 whole product or individual ingredient test dose absorbs through the skin of the test subject. 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. The following chemicals have a high potential for skin absorption, and therefore shall not be present as an ingredient at or above 1.0% by weight of the diluted-for-use product: 2-butoxyethanol (111-76-2) and monoethanolamine (141-43-5) –
www.sfenvironment.com/aboutus/innovative/epp/specs_janchem05.pdf
www.seattle.gov/environment/documents/janitorialspecs.pdf

May want to consider restricting ingredients that have an exposure limit set by ACGIH (i.e.TLV or STEL) with a skin notation. A skin notation is for ingredients with the potential to have a significant potential for exposure via the skin.

In order to be considered a dangerous compound that can be absorbed, the compound should have demonstrated toxicity or damage to a target organ when applied to the skin.

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.
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- Monoethanolamine [141-43-5]

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."

Again, a good first step would be for Green Seal to report on all of the chemicals found in its products and determine which have a high potential for skin absorption. Priority should be placed on those that also have the potential to cause other serious effects when they do penetrate the skin such as poison organs or depress the central nervous system.

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There may be more; these are ones that have been reported in GS-40-certified floor care products.
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A good first step would be for Green Seal to report on all of the chemicals found in its products and determine which have a high potential for skin absorption. Priority should be placed on those that also have the potential to cause other serious effects when they do penetrate the skin such as poison organs or depress the central nervous system.

Colorants

Add criteria for colorants***. Rationale***- Coloring agent can cause skin sensitization. Colorants used must be including in the "List of Colouring Agents Allowed in Cosmetic Products" in Annex IV of the European Commission Directorate 76/768EEC, 1976. US Color requirements?

Reaction Products (e.g., ozone/formaldehyde)

Keep as is, delete, or change

- Consider adoption of criteria to restrict the release of specific reaction products such as those from aerosol reactions or oxidation reactions (e.g., terpenes, ozone)

Rationale, type of change, notes, etc.

- Aerosol reaction products may contribute to environmental and human health impacts

Rather than banning certain ingredients, such as d-Limonene, perhaps whole product reaction testing or checking for stabilized ingredients should be considered first.

From a scientific perspective, I actually like this. They could rely on the ACGIH "Skin" designation to ban some raw materials. JohnsonDiversey needs to study the impact of such a proposal.

These additions would be premature. What test methods would be referenced? The EPA is still developing tests. In order to make these additions valid, GS would need to set up an Expert Panel whose members have appropriate credentials and expertise to make recommendations based on robust science.

Support.

Biobased Ingredients

Keep as is, delete, or change

- Consider addition of criteria based on verification of % biobased ingredients, possibly looking at the USDA final rule for biobased procurement programs

Rationale, type of change, notes, etc.

- Reduce reliance on petroleum and its associated environmental impacts

Good idea, but the program is still in development and doesn't include categories for all the product in this scope.

Biobased material should not be a part of the revised standard merely on consideration of coming from a renewable source as it is not consistent with the intent of GS-37. Biobased as a class of chemicals, do not necessarily meet the described attributes and thresholds of the standard on a chemical by chemical basis. Biobased ingredients should first be considered as any other chemical and assessed against the criteria of this standard. Incorporating environmental sustainability elements arguing for biobased ingredients can only be done by considering life-cycle thinking/assessment attributes to compare against non-biobased ingredients for the same

purpose.

Consider a tiered approach to the standard as mentioned earlier- one could apply to biobased vs. conventional

Agree

Must address sustainable biobased – otherwise, biobased not necessarily better

Considering that some biobased products or ingredients require more energy to be produced and they can create more waste than petroleum based products, life cycle analysis should be used to determine the advantage or disadvantage of incorporating biobased products.

While we support to strive for Biobased content, we do not believe that this should be Green Seal criteria at this time. Many current biobased compounds available on the market would contradict other existing Green Seal criteria such as irritancy, VOC content, sensitization, combustibility, and others.

Suggest not banning petrochemical-based ingredients**.** ***Rationale*****:** It is debatable how much environmental benefit comes from replacing petroleum or natural gas feedstocks with palm-derived materials when the atmosphere-cleansing properties of the rainforest are subtracted. Reducing reliance on petroleum and natural gas feedstocks also has a political aspect. Further, here in the Midwest, the rush to convert corn to motor-fuel has made dairy and livestock production more expensive than ever and groceries are already high-priced. I think that there is more to the banning of petro-chemical and natural gas derived ingredients than meets the eye. Please do not do it.

Oppose the considered addition of criteria based on verification of % biobased ingredients, possibly looking at the USDA final rule for biobased procurement programs. ***Rationale-*** Oppose for the following reasons: 1) Not all biobased products may possess the environmentally preferable criteria desired by Green Seal; 2) It is not certain when USDA will finalize its biobased criteria for cleaning products
Biobased ingredients - should not make biobased components a requirement. Life Cycle Analysis (LCA) has shown that the environmental impact of a biobased material can be greater than a synthetic homolog, (i.e. simply, greater energy is consumed and waste produced with some biobased materials). Additionally using biobased products could result in a larger quantity of chemicals and energy used to achieve the appropriate level of performance vs a system with no or low levels of biobased content. It is better to allow the formulator to use intelligent design to create a formula that will minimize overall chemical usage to achieve the required level of performance. This is difficult to address, but consideration could be given to measuring the relative sustainability of a product by possibly limiting the amount of organic carbon in a particular formula vs performance, (i.e. measure the COD of a formula vs performance). In short, it is possible that a biobased product will use less chemical and energy than a synthetic product and therefore be more sustainable, but we should not suggest that having biobased content is automatically better for the environment as this is not supported by LCA.

We discourage the inclusion of a biobased requirement, as this is largely a political debate that has no substantial environmental benefit. The use of palm, corn, and soy feedstocks presently poses alarming problems for rainforests, energy, and water resources. Additionally, the chemical industry currently employs natural feedstocks (oleochemicals) where it is effective.

Consider requiring a minimum 30% biobased ingredient requirement for products and packaging

Other Suggested Additions:

Air Fresheners/Odor Counteractants??? Not cleaners as defined, but commonly used in

bathrooms. From scented oil to toilet blocks.

Neurotoxicity - should be included as a product-specific health endpoint. Use the ACGIH Threshold Limit Values list of chemicals that neurotoxicity is based on. See www.acgih.org/TLV/PolicyStmt.htm.

Consider addition of criterion for neurotoxicity. The acute toxicity tests conducted on animals, and human data are usually the basis for identifying a chemical as a neurotoxicant. The Occupational Safety and Health Administration Permissible Exposure Limits (PELs) provide incomplete but nevertheless helpful guidance for neurotoxicity as a health endpoint. A number of the PELs are protective for acute neurotoxic effects. The organic solvents are probably the best examples. In addition, the American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) booklet lists those chemicals for which neurotoxicty is the basis for the TLV. We recommend that this list be used to incorporate neurotoxicity as a product-specific health endpoint. See http://www.acgih.org/TLV/PolicyStmt.htm

Consider adoption of criteria for liver toxicity.

5.0 Labeling Requirements

The manufacturer's label shall state clearly and prominently that dilution with water from the cold tap is recommended and shall state the recommended level of dilution. Carpet cleaner labels shall specify the use of cold water for products that do not suffer significant performance degradation in cold water. The manufacturer shall also include detailed instructions for proper use and disposal and for the use of personal protective equipment.

Keep as is, delete, or change

No change

Rationale, type of change, notes, etc.

Again, harmonize "unheated" water rather than cold.

Again, Eliminate the dual standard exception for FIFRA-registered products.

5.1 The manufacturer's label shall state clearly and prominently the correct level of dilution and that dilution with water from the cold tap is recommended ~~and shall state the recommended level of dilution~~. Carpet cleaner labels shall specify the use of cold water for products that do not suffer significant performance degradation in cold water. The manufacturer shall also include detailed instructions for proper use
5.2 and disposal and for the use of personal protective equipment.

Dilution instructions should feature prominently in clearly identifiable numerical way (i.e.1:10), not hidden in text. Encourage use of pictorials for explaining usage and dilution, especially for multiple use products.
5.2 again, as much as possible in pictorial way to avoid overload.

The rate of dilution is the most important information, it should be found at a glance. An overload of text makes finding the correct information very much more difficult, even for English speaking operatives.

The current description is too vague. If product does not have reduced toxicity because it is simply in a closed-loop dispensing system then consumers should know that.

Wherever the certification mark appears on a package, the package shall contain a description of

the basis for certification. The description shall be in a location, style, and typeface that are easily readable. Unless otherwise approved in writing by Green Seal, the description shall read as follows:

"This product meets Green Seal's environmental standard for industrial and institutional cleaners based on its reduced human and aquatic toxicity and reduced smog production potential."

For FIFRA-registered bathroom cleaners, replace "toxicity" with the word "impacts."

Keep as is, delete, or change

No change

This statement is limiting, considering that the standard includes more than the points in the description. Suggest rewording/broadening while keeping it concise.

For FIFRA-registered bathroom cleaners, replace "toxicity" with the word "impacts". I could be wrong, but I do not believe the EPA would allow placing these statements on the package/label of an EPA registered disinfectant.

Make this section 5.3

Keep the word "toxicity" and not replace it with impacts (people reading the label will notice toxicity more readily that impacts).

"This product meets Green Seal's environmental standard for industrial and institutional cleaners based on its reduced human and aquatic toxicity and reduced smog production potential and has been certified as an effective cleaner." If the standard is to promote effective and environmentally safe cleaning products labeling must be consistent with that goal

Please do not change this wording if the change will cause the reader to down play the effects

"The manufacturer shall also include detailed instructions for proper use and disposal and for the use of personal protective equipment." – ***Rationale:*** "Disposal" should be clarified to state that the instructions should include how to properly dispose of unused/excess/spilled product and how to properly dispose (e.g., recycle) of empty packaging.

The current description is too vague. If product does not have reduced toxicity because it is simply in a closed-loop dispensing system then consumers should know that.

Add to labeling requirements:

Keep as is, delete, or change

No change

Rationale, type of change, notes, etc.

The manufacturer's label shall describe how to safely recycled or manage any left-over product and its container. Consider addition of instructions for handling left-over or unused product and for managing left over container. Encourage recycling of containers and to educate users.

Split it up into different categories: 5.1 instructions for use, 5.2 safe handling, 5.3 display of certification marks

Labeling needs to be easy to understand for low-literacy workers, in other languages, perhaps uniform color coding for purpose/use

Consider adding requirement, at least for “sensitive population” tier, for full ingredient disclosure on the label (or elsewhere). Although cleaning products are a leading cause of asthma, in many cases the actual ingredient causing the asthma or triggering the asthma is not known. Full ingredient disclosure will assist product users, in the case of occupational health problems, to identify the problematic ingredient. In addition, sensitive populations may have particular, unique chemical sensitivities. Full ingredient disclosure will assist users in determining if particular products are appropriate for particular populations. In addition, new information about chemical health effects is continually being created. Full ingredient disclosure will allow customers to identify products containing (and not containing) chemicals recently discovered to be problematic. Regarding trade secret and market objections to this requirement, a number of cleaning product manufacturers already fully disclose ingredients and this has not caused the financial collapse of their company due to other companies copying their products. Also, competing companies can easily identify ingredients in their competitors’ products through analytical chemistry. Refusing to give full ingredient disclosure has the major effect of denying customers the ability to make a fully informed decision, without giving manufacturers documented market advantages.

Labels should include complete list of ingredients in product. As consumers become more informed and aware of specific chemicals of concern, (whether due to toxicity or specific allergies) this requirement is crucial to provide that information that more and more consumers are looking for.

Include where the product is manufactured so that entities can buy products manufactured closed to them and calculate their carbon footprint

Include where the product is manufactured so that entities can buy products manufactured closed to them and calculate their carbon footprint.

Add whole new type(s) of criteria (e.g., explicit QA/QC criteria)

Good Management Practice

Keep as is, delete, or change

- Consider inclusion of good process management practice into the standard through the development of a specific criterion (e.g. ISO 9001 or 14001 certification)

Rationale, type of change, notes, etc.

- Good process mgmt is already verified through the GS certification process but is not currently a written criterion in the standard.

Any certification prerequisite that is not explicit in the standard should be included.

Social Responsibility criteria (CERES) should be looked at in the future but are expensive

Is this for the manufacturing or use of the product?

… or, for smaller companies, having an EMS. Such third party standards are very expensive for SME firms and the overall quality benefits are not clear. I would leave it alone.

ISO certification is expensive and may exclude smaller companies

We object to specific inclusion of ISO Certification. Green Seal currently inspects facilities, making this requirement redundant. This could also subject companies not otherwise required to obtain ISO Certification to additional expense.

This is suitable for large companies like Reckitt Benckiser, but could be discriminatory against smaller companies. Consider allowing other GMP standards***.***

Oppose the inclusion of good process management practice into the standard through the development of a specific criterion (e.g. ISO 9001 or 14001 certification) ***Rationale-*** Requiring ISO certification is likely to impose substantial costs which would be a true economic barrier to small to mid-size companies that would otherwise be interested in certification.

Consider inclusion of good process management practice into the standard through the development of a specific criterion (e.g. ISO 9001 or 14001 certification)

Adequate Testing and Full Disclosure of Chemical Composition

Keep as is, delete, or change

- Evaluate adding requirements for adequate testing and full disclosure to Green Seal of all ingredients and/or test results of chemical composition of final product

Note: GS currently requires disclosure of all ingredients down to 100 ppm, but this requirement is not explicitly stated in the standard

Rationale, type of change, notes, etc.

- Adequate testing and full disclosure should be required to inform health assessment

Again, any certification prerequisite that is not explicit in the standard should be included.

Should be disclosed to Green Seal and to others for medical purposes as needed. MSDS on GS website. As a service, GS should post the MSDS and it should be written by Green Seal so that all of the warnings are comparably written

Full disclosure must include all fragrance ingredients – not just fragrance actives

Consider asking for disclosure of the percentage of ingredients or setting a minimum percentage of ingredients which have publicly available a basic SIDS (Screening Information Data Set). See the Manual for Investigation of HPV Chemicals at http://www.oecd.org/document/7/0,2340,en_2649_34379_1947463_1_1_1_1,00.html for information on SIDS. Many chemicals in commerce today do not have adequate toxicity testing available, and are being dispersed in our environment without adequate information on what they may do there.

Many compounds are sensitizers and even frankly toxic at concentrations below 100 ppm. Medical evaluation of individuals exposed to specific products is impeded by incomplete ingredient listing on MSDSs, and it is often difficult to obtain complete ingredient lists from manufacturers. Consider adding, “Manufacturers will be required by GS to agree to disclose complete a ingredients list of a product to a physician conducting a medical evaluation of a patient with exposure to that product and a reasonable suspicion that the product is causing an adverse health effect. This disclosure will also require the physician to provide written assurance that to protect trade secrets, the product ingredients list will be treated confidentially, will be used only for medical and public health purposes, and will not be divulged publicly.” This is a very important public health issue, very sensitive for manufacturers. I believe, given the intense focus on protection of confidentiality in the medical community, that adequate protection of manufacturers’ trade secrets can be achieved with careful crafting of legal language of the information request forms that physicians would be required to sign.

This information should be available to end-users. Currently, if end-users want to find the MSDS

for a Green Seal-certified product they have to call the manufacturer or search around on the Internet, hoping to find a current version. As a service, Green Seal should post links to the manufacturers' websites where full disclosure MSDSs may be downloaded. GS-37 certified products should also have a complete and downloadable technical datasheet that explains how the product should be mixed and used. The overall goal is to safely attain clean buildings at the lowest risk to the worker. Clear and readily available use instructions help attain that goal.

Similar to comments above, when it comes to very toxic chemicals and vulnerable populations, is 100ppm an appropriate cutoff, or should it be lower?

This requirement is known to applicants, MSDS submitted to Green Seal by applicants are Full Disclosure MSDS. If there is a need to declare this information in explicit terms within the standard we support this inclusion.

All full-disclosure MSDSs should be posted on the Green Seal website for easy access. Currently, if end-users want to find the MSDS for a Green Seal-certified product they have to call the manufacturer or search around on the Internet, hoping to find a current version. As a service, GS should post the MSDS and it should be written by Green Seal so that all of the warnings are comparably written.

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All full-disclosure MSDSs should be posted on the Green Seal website for easy access
Adequate testing and full disclosure should be required to inform health assessment
Currently, if end-users want to find the MSDS for a Green Seal-certified product they have to call the manufacturer or search around on the Internet, hoping to find a current version. As a service, GS should post the MSDS and it should be written by Green Seal so that all of the warnings are comparably written.
The high prevalence of inaccurate and/or incomplete MSDSs, coupled with an increasing lack of ready access to MSDSs on the internet, are substantial barriers to selecting environmentally-preferable products.
Product specific health and environmental requirements should be expanded to include the option of full disclosure of all chemical constituents of a product. *Rationale:* The integrity of a Green Seal label is undermined by a lack of disclosure of every chemical constituent in a product bearing the Green Seal label. The present and unfortunate reality is that complete health data are lacking for the vast majority of chemicals in use.

Green Seal should harmonize with or exceed the specifications of the European eco-label. The European Union ecological criteria for the Community eco-label for all-purpose cleaners. (http://europa.eu.int/comm/environment/ecolabel/pdf/all-purpose_cleaners/all_pupose_cleaners_en.pdf) are more health protective than the proposed GS-37 standard in a number of ways, for example by: (1) prohibiting EDTA, NTA, quaternary ammonium compounds, and glutaraldehyde; (2) prohibiting ingredients in a variety of categories, including those which may impair fertility, cause harm to the unborn child, or cause heritable genetic damage, according to the EU classification of chemicals; and (3) prohibiting substances that may cause sensitization by inhalation or contact. Green Seal should incorporate the lists and chemical classifications the EU has produced by using these standards in all cases when harmonization would increase the health protectiveness of the Green Seal label.

General Comments

* Definition of "Dispensing and packaging system that cannot be practically accessed by the user"
* Addition of asthma sensitizers and respiratory irritants limitations
* Revised definition of recyclable plastic containers
* Add Prop 65 carcinogens and repro toxins limitations
* Add glycol ethers as limitations
* Add central nervous system depressors and xylene as limitations
* Require listing of place of manufacture

- GS-37 should be multi-level, like the LEED building standards.
- Full disclosure MSDSs and a product use guide should both be published for any GS-37 certified product. In other words, consider adding a criterion to GS-37 relating to quality of product documentation.
- GS-37 certified products should also have a complete and downloadable technical datasheet that explains how the product should be mixed and used. The overall goal is to safely attain clean buildings at the lowest risk to the worker. Clear and readily available use instructions help attain that goal.
- Harmonize the references to California's Prop 65. This list applies to carcinogens as well as reproductive toxins.
- Explain the basic tests used to document product performance, so that users need not track down the ASTM standard themselves.

We wish to state its concerns for the record regarding the GS-37 process for reviewing the GS-37 standard.

We believe that it is inappropriate for Green Seal to consider prohibitions on specific chemicals and materials without defining a process for how such decisions are to be made. The draft of the scoping document suggests that for certain chemicals "specification of health and environmental criteria may be too difficult or cumbersome." This simply is not an acceptable justification for prohibiting a chemical. There needs to be a ***science-based*** process.

We also need to comment on Green Seal's use of "chemical lists." The scoping document mentions a number of lists that might be used to prohibit ingredients. Some of these lists (e.g., the CEC endocrine list) are unofficial documents. It is wholly inappropriate to reference these. If Green Seal wishes to insist on using lists of chemicals, the only lists referenced should be "authoritative lists" defined by specific scientific criteria.

Thank you for this opportunity to comment for the record.

General commentary from Ecolab: We recommend excluding FIFRA disinfectants and sanitizers from the standard. Current EPA enforcement activities have resulted in the inability for any company to market a GS-37 Certified disinfectant cleaner as "green". Until this matter is officially resolved with the EPA Office of Pesticides, the definition of a "Green" disinfectant opens manufacturers of GS-37 products to punitive action from the EPA. We recommend pursuit of a "Green Disinfectant" standard that is developed in concert with EPA.

At several points in the scoping document, several of the proposed changes get away from the cleaning *product* and instead address the cleaning *process*. The scope of this standard as defined in section 1.0 explicitly covers the *products* only.

Supporting comments re Sect. 7.0 suggestions:
Note 1: It is not possible to make an informed decision about the relative safety of various products without ready access to accurate and complete MSDSs. Moreover, incomplete and/or inaccurate MSDSs seriously erode a worker's right to know what they are being exposed to and how to use the product safely, undermining the assurance implied by the Green Seal training requirement (section 4.4.12). Illustrative of this problem is that among the 236 cases of work-related asthma associated with cleaning chemicals identified by SENSOR, more than a third of the cases could not identify the specific product or ingredient that was associated with their symptoms. Green Seal is in a position to verify the information on a product's MSDS because Green Seal must be provided with complete information about a product in order to certify the product. We believe that making readily available, complete and accurate MSDS a Green Seal requirement would substantially enhance the integrity of the Green Seal label.

Specifically, criteria for Green Seal certification should be that a product's MSDS is accurate and complete based on: (1) a comparison of the information provided to Green Seal from the product manufacturer to the information provided by the manufacturer to the public on the MSDS; (2) the inclusion on the MSDS of the most health protective (i.e., lowest) Permissible Exposure Levels (PELs) issued by a state or federal occupational health and safety, environmental, or other regulatory agency.

For example, the PELs set by Cal-OSHA may be lower than exposures permitted by other states. Workers and consumers should be informed of the most restrictive levels; (3) the inclusion on the MSDS of Recommended Exposure Levels issued by the National Institute for Occupational Safety and Health, and the Threshold Limit Values issued by the American Conference of Governmental Industrial Hygienists; (4) the inclusion of a statement on the MSDS that the absence of a regulatory or recommended exposure limit does not imply that the product does not have the potential to cause adverse health effects; (5) the inclusion of a recommendation that individuals who experience symptoms associated with the use of the product report their symptoms to a health care provider and in the case of workers, to their employer; and (6) the inclusion of clear statements about what is not known about the chemical because of a lack of data. For example, for chemicals that lack data on chronic effects such as cancer and reproductive/developmental effects, an MSDS could state: " tests for long-term health effects are not available" (or have not been conducted or something to that effect). Finally, to be certified by Green Seal it should be required that the products MSDS be available on line for easy access.

Note 2: Adequate data about a chemical should include an assessment of effects on the developing nervous, endocrine and immune systems, however, very few chemicals have been tested for these effects. Therefore decision makers are faced with the untenable choice between products that include ingredients that have known deleterious health effects with alternative products with yet unknown effects. Although we support Green Seal's efforts to eliminate certain recognized hazards from products bearing the Green Seal label, we are concerned that Green Seal has no requirement to address the issue of what is not known about the alternatives used. We believe that without some mechanism to address the problem of the limitations of the available data, Green Seal certification will in effect reward ignorance. We recognize that a complete remedy to this problem is well beyond the scope of Green Seal. However, an optional requirement of full disclosure of **all** product constituents, coupled with accurate and complete MSDSs (see comment 3, above) would be critical and feasible first steps in addressing this shortcoming.

We recognize that the obstacle to full disclosure is the manufacturers' concerns about the release of proprietary information ("trade secrets") to the public. However, workers and consumers who do not know what they are being exposed to cannot fairly judge the relative risks among products, cannot take the necessary steps to prevent their exposure, and cannot link potential adverse health impacts with their exposure. In some contexts, the lack of full disclosure may represent a more serious potential health hazard than the safe use of a product known to have the potential to cause health impacts.

Green Seal should at a minimum disclose to workers and consumers which manufacturers are providing the public with the names of all the chemical constituents in their products. For example, there could be a "***Green-Seal Plus***" designation, indicating that all product constituents, and all

known toxicological or other health information that the chemical manufacturer may have about these chemicals, has been disclosed to workers and the public on the MSDS. This would allow manufacturers the option of full disclosure, and purchasers and the option of buying products based on complete information about what is in the product.

There is one major issue that I hope you will discuss with your technical committee, executive committee and Green Seal. Because GS37 is a voluntary standard, there are many things that will affect its success in the marketplace. Ultimately, our goal is to use it as a "tool" to help schools and others by products that further reduce potential harm to both human health and the environment. But to achieve this, schools have to be able to purchase and successfully use the products.

While the current standard does a pretty good job addressing product performance, health, safety, training, etc., what we have to be very careful about is the impact that new testing requirements will have on the cost of the products. From my experience, the current testing package for GS37 is between $40,000 and $60,000 per product. And because many of these tests are done routinely by manufacturers, the actual incremental cost for GS37 is even less.

However, what I would encourage you and your development team to do is to add a column that addresses the cost of any recommended test. Some new tests may be relatively inexpensive costing under $10,000 per test. While others may cost tens of thousands of dollars if not more.

Ultimately the cost of these tests will be amortized over the sale price of the products. If we inadvertently increase the testing package to the point that increases the cost of green cleaning products by 25%, 50% or more than the traditional products, from my experience I would suggest that schools and others will NOT use these products, regardless of what a state or other entity mandates. And I would be happy to discuss this at length with the folks from New York State and others if they care to.

Please know that I am NOT against adding additional tests and raising the bar for GS37. Actually I think it should have been done a few years ago.

What I am suggesting is that you simply add another column so that you and the rest of the stakeholders including end-users can understand what the potential financial impact is for adding a particular test or assay. Without doing this, we really don't have all the information to make an informed decision.

I do have one additional technical concern that I would like to share. There definitely are some ingredients such as those that are bioaccumulative and persistent in the environment or human tissue that should be excluded at any level. I think the same is true for those that are carcinogenic and similar classes of compounds. But in others the toxicity is clearly concentration related. I just caution you to NOT confuse the two and make a clear distinction between them. This is especially true with those compounds considered to be asthmagens.

Please know I understand the issue about asthma and understand how serious this disease is. The problem is that we know so little about it. And while I am a believer in the precautionary principle, I would be concerned about our haste in the name of protecting kids from asthma that we prohibit ingredients that are problematic due to their concentration and not to some inherent characteristic of the ingredient itself.

The following comments are offered in response to the request for information as part of the Scoping activity relating to the planned revision of Green Seal Standard GS-37 *General Purpose, Bathroom, Glass, and Carpet Cleaners Used for Industrial and Institutional Purposes,* which currently lists "alkylphenol ethoxylates" as ingredients prohibited from products with GS-37 certification.

This is then followed by a discussion of a series of issues/concerns relating to the process for revising the GS-37 standard. These comments and suggestions are provided in the utmost interest of enhancing the overall standard being developed by Green Seal (GS) in cooperation

with the University of Tennessee (UT).

I. Scoping Process

It is our understanding that the current "Scoping" process is intended to "identify specific areas of the standard to be opened to modification through addition of criteria, modification of existing criteria, or deletion of criteria that are no longer necessary." At the same time, the document that has been circulated clearly goes well beyond and begins to identify suggested changes to the Standard.

Prohibited Ingredients

Our primary concern with the Draft GS-37 Standard is the inclusion of a section on "prohibited ingredients." We believe that there should be a sound scientific basis to prohibit a particular ingredient or class of ingredients from the standard and believe that this can best be addressed by defining criteria rather than specifying specific materials.

The standard contains several criteria addressing toxicology, ecotoxicology and biodegradation properties. The standard allows for the cleaning product as a whole or its individual ingredients to be evaluated and assessed relative to these defined criteria. There does not appear to be any technically sound reason to include in the Standard a list of prohibited ingredients and as such recommend that this section be removed. To the extent that there are perceived needs to restrict certain ingredients that would not be covered by the existing criteria, it would be more appropriate to define new criteria, rather than to adopt a potentially biased list of prohibited ingredients.

The Scoping document circulated contains the suggestion that "compounds readily absorbed by skin (e.g., methoxyethanol, ethoxyethanol)" should be added "to the list of prohibited ingredients." If compounds "readily absorbed by skin" are deemed to be a concern, then it is suggested that scientifically based and measurable criteria defining this property should be added to the GS-37 standard; as such, it would be applicable to all ingredients.

There is a comment in the Scoping document that a list of prohibited ingredients "may be needed for certain chemicals or classes of chemicals where specification of health and environmental criteria may be too difficult or cumbersome." This is an inadequate rationale for creating restricted classes of compounds for it in essence means there is no definable scientific basis for the concern.

In summary, if a compound has a property of concern sufficient to prompt its listing on a "prohibited list" then that property certainly should warrant the development of a criterion to ensure evaluation of all ingredients in a similar fashion. A shift in the scope of the GS-37 from the list of prohibited ingredients to science-based criteria for properties of concern will enhance the scientific credibility of the standard.

Endocrine Disruptors

The Scoping document also suggests that consideration be given to adding criteria for "endocrine disruptors." Specific suggestion is made to incorporate a criterion" that would prohibit the use of ingredients that have evidence of potential endocrine disruption, based on CEC 2004 Commission Staff Working Document list of endocrine disruptors." There does not appear to be any sound technical basis for including an "endocrine disruptor" criterion to the scope of GS-37; moreover, the CEC report cited does not provide a list of endocrine disruptors1, rather it is a list of compounds for further evaluation.

The priority list of substances defined in the CEC Working Document was developed to prioritize compounds for further evaluation. Listing of a compound in this document was not intended to

1 It is important to recognize that "estrogenic activity" is a term considered by many scientists to be a mechanism of action rather than a toxicological endpoint - or effect - in and of itself.

establish a list of compounds with conclusive evidence. Rather, chemicals identified through screening tests, will likely need more robust studies to evaluate their effects in animal systems in order to establish whether such compounds present a risk. In fact, OECD and EPA are still in the process of validating screening methods to identify potential endocrine disruptors.

It is significant to note that only a few cleaning product ingredients have ever been tested for endocrine activity using any screening method. NPEs, the most commonly used APEs in cleaning products, have been extensively evaluated using validated well-recognized methods. An assessment conducted by the Canadian government concluded that NPEs of longer chain lengths (NPE4, NPE9 and NPE12), which are the NPEs of commercial interest, were not estrogenic in *in vivo* studies and in a sensitive *in vitro* test. [1]

It is even more significant to consider that the more expansive studies intended to assess potential risk from chemicals deemed to be positive from an endocrine screen have been conducted on both NPE and NP. Studies in rats have evaluated reproductive and developments effects in multiple generations. Numerous studies - some conducted over two or three generations - have evaluated whether the alleged weak estrogenic activity of NP affected reproductive or developmental end points in rats.[2,3,4,5, 6,7 8] These studies uniformly concluded that there are no effects on reproductive function or performance from NP at any of the doses tested. These findings are consistent with and support the results of a multi-generation rat study conducted by the US National Institute of Environmental Health Sciences, which concluded, "NP was not a selective reproductive or developmental toxicant."[9] To the best of our knowledge, few other cleaning product ingredients have the same extent of test data available. It is further relevant to note that the existing GS-37 standard includes a criterion under section 4.2 which states the *undiluted* product shall not contain any ingredients that are "*known to cause reproductive toxicity*."

Product Scope

There is a suggestion in the GS-37 draft scoping document that the standard should be expanded to include other types of products including laundry products. If the ultimate decision is made to expand the Scope of the standard, we suggest limiting to products that have similar use and exposure patterns to the products currently covered by GS-37. Industrial and institutional laundries typically use automatic charging of laundry detergent to washers. Worker exposure to laundry detergent is significantly limited, unlike exposures to products intended for cleaning bathrooms or carpets, which are much more likely to result in direct dermal or inhalation exposure. As such actors that should be considered in assess industrial laundry products would arguably be different than the products in the existing standard.

II. Process Concerns

ISSUE: The Process And Opportunities For Stakeholder Review Should Be Clarified Including The Purpose Of The Stakeholder Subcommittee Groups And Role And Responsibility Of The Elected Representatives For The Different Stakeholder Subgroups.

According to the May 16 Clarification memo from Green Seal, "[T]he standard development process is designed to provide open and fair public access, providing stakeholders opportunity to review and offer input throughout the process. It further states that "All 341 stakeholders officially registered by the posted deadline of Feb. 15, 2007, may provide input on key discussion drafts *both during scoping and throughout the entire process*."

While we appreciate Green Seal's intent to solicit input from all stakeholders throughout the review process, we also recognize that there have been changes to the process which led GS to organize the Registered Stakeholders (RS) into 9 Stakeholder Subcommittees as well as direct that representatives be elected to the Stakeholder Committee. Despite the brief descriptions of the review process, from our perspective, the explicit role and relationship of the Standard Development Team (SDT), the Stakeholders Committee (SC), the nine Stakeholder Subcommittees and their elected representatives to the SC remains unclear.

With regards to the latter, there has been a bit of confusion over to what extent the elected representatives are required to represent the interests of their Subcommittee. To date, we are not aware of any effort that has been made for the elected representatives to solicit input.

SUGGESTION: We suggest that the role and responsibility of the elected representative should be explained. Also, we recommend that clarification should be provided regarding the various anticipated opportunities when input from RSs will be sought as well as from the Stakeholder Subcommittees.

For example, it is not clear whether the output from the Scoping activity will be shared for review with the RS. We suggest that as soon as the issues for review have been identified through the Scoping phase, that the list of issues be circulated to all RSs for review as well as to solicit information on the issues. This should facilitate the collection of information and views for consideration by the SDT and the SC in preparing a revised draft standard.

We also believe that circulating the specific issues identified through the Scoping phase is an important step to maintain transparency. We believe that at each stage of the process, all RSs should have the opportunity to express a concern as well as support.

ISSUE: The Current Process Does Not Provide Adequate Opportunity To Consider Different Views, Most Notably Minority Interests

It is our understanding that the Stakeholder Subcommittee concept arose as a means of reducing the number of different individuals/interests that would need to be accommodated as part of the review process. We very much understand and appreciate the need for a streamlined process given the large number of Stakeholders. At the same time, we do not believe that the nine Subgroups that have been convened (i.e., manufacturers, NGOs, academic and professional, etc.) will provide the range of viewpoints that we believe should be considered in order to enhance the quality of the standard.

The GS May 16 Process Clarification memo suggests that there will be an opportunity for opposing views to be considered, although no where do we find this process explained. The memo states: "Green Seal will review votes to determine sustained opposition within any constituency, or across groups such as manufacturers, facility managers, non-profits, among others. It further states that "The 21-member Stakeholder Committee representing all 341 stakeholders will work to facilitate consensus among stakeholders, but where it is unable to do so, the Executive Committee will provide final resolution."

If the goal of the review is to consider different viewpoints, we believe that a somewhat modified system should be employed. We believe there is still ample opportunity to employ such an approach within the time frame for the standard development process.

SUGGESTION: We believe there are several alternative approaches that could effectively be used to provide the SDT and the SC an opportunity to consider different viewpoints.

One approach to consider, which could be an outgrowth of the scoping exercise, would be to identify the various set of issues/specifications etc. that are the most controversial, and to characterize each issue in the context of the different viewpoints. Rather than ask all the RSs or even each of the 9 Stakeholder Subcommittees to develop a view on these issues, we suggest asking the RS to organize subgroups based on the views of the different issues. Then each issue specific subgroup would be well positioned to develop a position paper reflecting the different position of the RS's that were, for example, supportive and those that were against.

We suggest circulating a list of the issues to all stakeholders and asking anyone that has a strong view to note that view. Thus natural groups would form that were reflective of the different views. In doing so, the EC and the SDT would be well positioned to understand the different views, could request any supplemental information or clarifications and ultimately make a decision after more fully understanding the different issues.

The Prohibited Ingredients list is a good example to demonstrate this suggestion. This issue would be included on a list of issues circulated following review and categorization from the Scoping activity. RSs would then be asked to declare whether they feel strongly about this issue and if so, whether they believe such a section should or should not be maintained. Those RS's that feel strongly in support, and those that are against, should be asked to work together to develop a Position Paper for consideration by the EC and SDT.

ISSUE: The Goals And Objectives Of Undertaking A Revised GS-37 Standard Should Be Clearly Articulated Along With A Clear Statement Regarding The Basis To Be Used For Decision-Making.

One of the criticisms of the existing standard is the lack of clearly articulated justification for the provisions in the standard. According to the initial press release from Green Seal, the stated goal for review and revision of GS-37 "is to ensure that it continues to represent an environmental leadership standard in the marketplace and to incorporate criteria that fully protect human health, including that of children and custodial workers." We appreciate that Green Seal prides itself on being "fair, unbiased and credible." It is our understanding that GS strives to use state-of-the-art science in its evaluations and decision-making.

We strongly support science based decision-making. As UT and GS are well aware, the entire green movement is fraught with commercial interests which at times have used environmental goals to foster a commercial agenda even when there is no real scientific benefit.

To the extent that GS desires to remove such biased consideration, it is important to establish a process that seeks to assure that decisions are grounded in science rather than commercial interests.

SUGGESTION: It would be beneficial to clearly articulate the basis by which the SDC is to make decisions. Different standards of evidence/justification exist and a clearly stated and agreed upon set of principles would go along way to assisting in the review and design of a new standard.

ISSUE: The Environmental and Health Evaluation Step Should Be Explained

The June 5 correspondence from GS contains a timeline and description of tasks. Task 3: states that: SDT and SC perform an Environmental and Health Evaluation (EHE) and begin drafting proposed revised standard. Task 4 is an opportunity for the RS to comment on the EHE and draft of the proposed standard. A deadline of August 17 is specified for Task 3 and November 9 for Task 4. The schedule further states that there will be a 2-3 week comment period for the RS.

We have not found any explanation of the Environmental and Health Evaluation (EHE). Its name suggests a technical scientific review document that will consider the various issues and describe the basis (i.e., justification) for the decisions that are made in revising the specifications.

SUGGESTION: Clarify the scope and content of the EHE. Provide opportunity to the RS to review the EHE as early as possible in the process. Recommend circulating different sections as they are developed rather than waiting for the entire document to be finished as a means of providing ample opportunity for RS review and input.

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