



April 20, 2011

PROPOSED CRITERION REVISION: Green Seal Standard for Sanitary Paper Products, GS-1: Contaminant Definition Revision with Corresponding Changes to 4.5.3 and 4.5.7, Addition of Specifications for Center Pull Towels, and Minor Editorial Modifications

Green Seal issued a revised version of the Green Seal Standard for Sanitary Paper Products, GS-1, in December 2010. Since then a technical issue has arisen that was not apparent during the revision process and to the stakeholders and experts involved in the revision. The technical issue is that some papermaking additives contain contaminants above the threshold currently in the standard for carcinogens, mutagens, and reproductive toxins (i.e., at the raw material level). Additional research on this issue has shown that there are no practical alternatives for at least one class of additives commonly used in products. As a result, Green Seal is proposing a revision to the contaminant criterion, which also aligns it with other Green Seal standards, whereby the contaminants are evaluated in the product, not in the raw materials. In addition, product specification data has been further reviewed by Green Seal and it has been found that institutional center pull towels should not be in the same category as hard wound towels, so the specification sections have corresponding proposed revisions. Finally, editorial modifications will be made to the carcinogen definition and the text in Section 3.1.3 and terms defined in the standard will be italicized. This document outlines the proposed revisions to address these items and editorial modifications.

Background

Contaminant: Green Seal's current standard, GS-1, defines a contaminant as a substance not intentionally added, but known to be present above 0.01% (100 parts per million) by weight in the papermaking additives as purchased. Papermaking additives are the materials intentionally added during the papermaking process to deliver product functionality (e.g., strength, sizing) or to facilitate the papermaking process (e.g. defoamer, retention aid). The criteria for 4.5.3 Carcinogens, Mutagens, and Reproductive Toxins (CMRs) and 4.5.7 Additional Prohibited Substances are based on the papermaking process not containing CMRs or the listed prohibited substances as papermaking additives or contaminants. Most of Green Seal's standards prohibit CMRs and specific prohibited substances at the product level (to reduce the levels upstream and downstream). However, GS-1 was developed to evaluate the criteria based on levels in the raw materials because a calculation of levels in the product is not straightforward, and would likely require product testing. Green Seal has evaluated additional information that has shown that there are certain papermaking additives that do not meet the CMR criterion in the standard. This is due to contaminants present in the raw materials above 0.01%. However, these contaminants end up well below 0.01% in the product, and can be demonstrated with product testing.

Specification: During the revision of the specification section of the GS-1 standard, a review of products in the marketplace was done. The data that was reviewed placed institutional hard wound and center pull towels in the same category. However, after additional data review Green Seal has noted that these two paper towel categories are different and therefore should be required to meet separate specifications. Hard wound paper towels are a heavier weight grade, with a higher basis weight, and correspondingly have different specifications than the lighter weight center pull paper towels.

Technical Considerations

Contaminant: The class of papermaking additives that has demonstrated the contamination issues is used by most of the paper industry and thus there are few, if any, products that use this class of additives that could meet the standard as it is written. This class of additives is needed for some product types that require strength during use (e.g., paper towels). The contaminants of concern are included in the State of California's Proposition 65, so manufacturers have to determine if their products comply with the regulation. This may involve product testing. As a result, relying on California Proposition 65 test results, or other data generated by the manufacturer, is a feasible approach to evaluate this class of additives for the GS-1 standard. Not all contaminants for other papermaking additives would require testing to meet this criterion, if calculations or chemical supplier data can demonstrate that the contaminants are below 0.01% in the product. Based on this information, Green Seal is proposing to change the contaminant definition and CMR and prohibited substance criteria in the standard to be based on product levels.

Specification: The institutional paper towel category is broad. The different types of towels produced can each be considered its own category with regard to specifications, including hard wound, center pull, folded, and kitchen roll due to the methods of manufacturing and the target basis weights. Therefore Green Seal is proposing to add center pull towel specifications to the standard.

Proposed Revisions

In order to address the unforeseen technical contaminant issue and to maintain consistency among Green Seal standards, Green Seal is proposing to revise the definition of contaminant to apply to the final product instead of the papermaking additive. This results in the need to change the Carcinogens, Mutagens, and Reproductive Toxins and the Additional Prohibited Substances criteria to apply to the product instead of the papermaking process.

In addition, Green Seal is proposing to add separate specification data for institutional center pull paper towels, since these products are significantly different than hard wound towels.

Finally, Green Seal proposes to make editorial modifications to the text, including updating the Carcinogen definition to be consistent with other current Green Seal standards. Other proposed changes include correcting the text in Section 3.1.3 for readability and modifying the format of the standard so that terms that are defined in the standard are italicized.

The proposed revisions are as follows, noted in red text:

Contaminant definition and criterion changes:

2.7 Contaminant. A substance that was not intentionally added, but is known to be present above 0.01% (100 parts per million) by weight, in the **product**.

4.5.3 Carcinogens, Mutagens, and Reproductive Toxins. The **product** shall not contain any papermaking additives or contaminants that are carcinogens, mutagens, or reproductive toxins or that are known to produce or release carcinogens, mutagens, or reproductive toxins. An exception shall be made for titanium dioxide and carbon black used in colorants.

4.5.7 Additional Prohibited Substances. The **product** shall not contain the following substances as papermaking additives or contaminants:

- Chlorophenolic Biocides
- Fragrances
- Heavy metals, including but not limited to lead, chromium, or selenium both in the elemental form or compounds
- Ozone-depleting compounds

Additional specification data:

3.1.1 Basis Weight (grammage). Basis weight (grammage) shall be measured according to Technical Association of the Pulp and Paper Industry (TAPPI) T 410, or International Organization for Standardization (ISO) 536 and shall meet the following requirements when measured as grams per square meter (g/m^2 , SI Units) or pounds/ream (lbs/ream, English units):

Product	Basis Weight	Grammage^(a)
	(lbs/ream ^(b))	(g/m^2)
Institutional paper towels –hard wound	15 – 35	24.4 – 56.9
Institutional paper towels – center pull	11 - 22	17.9 – 35.8
Institutional paper towels –folded	15 - 35	24.4 – 56.9
Institutional paper towels –kitchen roll	11 - 30	17.9 – 48.8
Retail paper towels – folded	15 - 35	24.4 – 56.9
Retail paper towels – kitchen roll	11 - 30	17.9 – 48.8
Paper napkins	9 – 28.5	14.6 – 46.4
Bathroom tissue	8 – 22	13.0 – 35.8
Facial tissue	8 – 19	13.0 – 30.9
Toilet seat covers	8 – 10.5	13.0 – 17.1
Placemats/Tray Liners	26 – 40	38.5 – 59.2
Table coverings	15 - 22	22.2 – 32.6

(a) See TAPPI T 1210 Table 1, Section 1.1 for conversion factors (Basis weight [pounds/ream]*1.6275 = Grammage [grams per square meter]).

(b) Based on a 24 inch x 36 inch -500 sheet ream, or 3000 sq. ft.

3.1.2 Tensile Strength (Dry and Wet). Product characteristics shall be measured for tensile strength in the machine direction (MD) and cross direction (CD) using the methods described in either section 3.1.2.1 or section 3.1.2.2.

3.1.2.1 Tensile strength using TAPPI T 494/456. Product characteristics shall meet the following requirements when tested according to TAPPI T 494 or ISO 1924/3 (dry tensile strength) and TAPPI T 456 (wet tensile strength), as measured in gram force/inch (gf/in, English units):

Product	Dry Tensile Strength ^(a)		Wet Tensile Strength	
	MD	CD	MD	CD
	(gf/in)	(gf/in)	(gf/in)	(gf/in)
Institutional paper towels – hard wound	1700 - 3100	600 - 2000	250 - 850	100 - 700
Institutional paper towels – center pull	400 - 1500	100 - 800	100 - 500	50 - 200
Institutional paper towels – folded	800 - 2700	200 - 1300	230 - 600	90 - 400
Institutional paper towels – kitchen roll	400 - 1300	100 - 650	100 - 350	50 - 200
Retail paper towels – folded	800 - 2700	200 - 1300	230 - 600	90 - 400
Retail paper towels – kitchen roll	400 - 1200	100 - 640	100 - 300	50 - 170
Paper napkins	400 - 1100	230 - 570	--	--
Bathroom tissue	140 - 900	50 – 450	--	--
Facial tissue	250 - 750	80 - 250	15 - 80	8 - 40
Toilet seat covers	2 - 10	0.5 - 2	--	--
Placemats/Tray liners	--	--	--	--
Table coverings	--	--	--	--

(a) See TAPPI T 1210, Table 1, Section 2.1 for conversion factors (1 gf/in = 0.3886 newton/meter (N/m); 1 ozf/in = 10.945 N/m) requirement

-- = no

3.1.2.2 Tensile strength using TAPPI T 576. Product characteristics shall meet the following requirements when tested according to TAPPI T 576 (dry and wet tensile strength), as measured in gf/3in (English units):

Product	Dry Tensile Strength ^(a)		Wet Tensile Strength	
	MD	CD	MD	CD
	(gf/3in)	(gf/3in)	(gf/3in)	(gf/3in)
Institutional paper towels –hard wound	5100 - 9300	1800 - 6000	750 - 2550	300 - 2100
Institutional paper towels – center pull	1200 - 4500	300 - 2400	300 - 1500	150 - 600
Institutional paper towels –folded	2400 - 8100	600 - 3900	690 - 1800	270 - 1200
Institutional paper towels –kitchen roll	1200 - 3900	300 - 1950	300 - 1050	150 - 600
Retail paper towels – folded	2400 - 8100	600 - 3900	690 - 1800	270 - 1200
Retail paper towels – kitchen roll	1200 - 3600	300 - 1920	300 - 900	150 - 510
Paper napkins	1200 - 3300	690 - 1710	--	--
Bathroom tissue	420 - 2700	150 - 1350	--	--
Facial tissue	750 - 2250	240 - 750	45 - 240	24 - 120
Toilet seat covers	6 - 30	1.5 - 6	--	--
Placemats/Tray liners	--	--	--	--
Table Coverings	--	--	--	--

(a) See TAPPI T 1210, Table 1, Section 2.1 for conversion factors
 (1 gf/3in = 0.3886 newton/meter (N/m); 1 ozf/in = 10.945 N/m)
 requirement

-- = no

Editorial change to carcinogen definition:

2.5 Carcinogen. Chemicals listed as a known, probable, reasonably anticipated, or possible human carcinogen by the International Agency for Research on Cancer (IARC Groups 1, 2A, and 2B), National Toxicology Program (NTP Groups 1 and 2), United States Environmental Protection Agency Integrated Risk Information System (EPA IRIS weight-of-evidence classifications A, B1, B2, C, carcinogenic, known/likely human carcinogen, likely to be carcinogenic to humans, and suggestive evidence of carcinogenicity or carcinogen potential), by the Occupational Safety and Health Administration (OSHA as carcinogens under 29 Code of Federal Regulations (CFR) 1910.1003(a)(1)), or under the Globally Harmonized System for Classification and Labeling of Chemicals (GHS) Hazard Categories 1 (H350, may cause cancer) and 2 (H351, suspected of causing cancer).

Editorial change to text:

3.1.3 Stretch and Water Absorbency. Product characteristics shall **meet the following requirements when tested** according to TAPPI T 494 or ISO 1924/3, or TAPPI T 576 for stretch, and TAPPI T 432 for water absorbency, as measured in % stretch or seconds of water absorbency:

Product	Stretch	Water Absorbency
	(%)	(seconds)
Paper towels-institutional	2 - 22	0 - 160
Paper towels - retail	2 - 22	0 - 160
Paper napkins	2 - 22	0 - 180
Bathroom tissue	2 - 24	--
Facial tissue	2 - 24	--
Toilet seat covers	1 - 10	--
Placemats/Tray liners	1 - 10	--
Table Coverings	--	--

-- = no requirement