

BATHROOM TISSUE AND PAPER TOWELS

- 40% of trash in U.S. landfills consists of paper products.
- 30% of the timber consumed in the U.S. is used to make paper products.
- Paper use is expected to increase approximately 46% by the year 2040.



The Short Life of Bathroom Tissue and Paper Towels

One of the largest segments of the paper products industry is bathroom tissue and paper towels. Bathroom tissue and paper towels are used once, never to be used again. They cannot be recycled, thereby eliminating the potential for replenishing what has been lost. However, the purchase of tissue and towels containing 100% recycled material and as much postconsumer waste as possible can reduce the impact of these short-lived items. Use of postconsumer fibers reduces the impact on landfills by saving 3.3 cubic yards of space for every ton of paper that is rechanneled.

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This *Choose Green Report* describes the enormous potential environmental impacts of bathroom tissue and paper towel use and how to reduce these impacts. Institutions can contribute greatly to preserving resources, protecting the environment, and reducing scarce landfill space by choosing bathroom tissue and paper towel products made of recovered materials and processed with fewer toxic chemicals.

Green Seal Will Help You Make Sound Choices

To assist you in buying green products we have included two tables at the end of this report: Table 1 covers bathroom tissue, Table 2 paper towels. The tables recommend product brands and provide information with respect to percentage of recycled content, including postconsumer materials, and the bleaching process used (unbleached or process chlorine free); manufacturer contact information is provided at the end of the report.

Startling Statistics About the Advantages of Recycling

Every ton of 100% recycled paper saves an estimated 4,100 kilowatt-hours of energy, 7,000 gallons of water and 60 pounds of air pollutants. If all paper towels were made with 100% recycled materials, approximately 1 million tons of used paper would be kept out of our waste stream. If recycled materials were not used to manufacture bathroom tissue, 3.5 tons of virgin wood would be needed in

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order to manufacture one ton of bathroom tissue. The statistics demonstrate that recycling has dramatically less impact on the environment.

be channeling the greatest amount of waste away from our landfills.

Recovered paper materials include paper waste generated after the completion of a paper making process, such as postconsumer materials; envelope cuttings; bindery trimming; obsolete inventories; and rejected, unused stock. Recovered materials do not, however, include fibrous waste generated during the manufacturing process such as fibers recovered from wastewater or trimmings from paper machine rolls (trimmings are also called “mill broke”). These are not included in the category of recovered materials regardless of whether such materials are used by the same company or by another company. Recovered materials also do not include fibrous by-products of harvesting, extractive or woodcutting processes, nor do they include forest residues such as bark.

Postconsumer Versus Recovered Materials...What's the Difference?

There are two categories of recycled materials. Why distinguish between the two? The difference is significant. Postconsumer materials include any items that have already been used by consumers or businesses and would otherwise be sent to landfills or incinerators. Typical postconsumer materials include used food containers, newspapers, old cardboard boxes and any paper materials set out for pickup at curbside or brought to recycling centers. By purchasing products with the highest percentage of postconsumer materials you will

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Chlorine Bleaching Is Harmful at All Levels of the Food Chain

Chlorine and its derivatives such as hypochlorite and chlorine dioxide should not be used to make recycled paper. Paper towels are sometimes bleached with elemental chlorine (chlorine gas), which causes the release of chlorinated compounds, such as dioxins and furans, which are powerful carcinogens and mutagens. These compounds adversely affect immune systems and reproductive systems and are harmful to aquatic life and wildlife.

In addition, these chemicals are bioaccumulative, meaning they build up increasingly higher concentrations of potentially toxic chemicals in organisms. Organisms at the top of the food chain (such as human beings) may therefore accumulate concentrations a million times higher than those that are present in the environment.

Green Seal recommends choosing unbleached products whenever possible because unbleached products can be just as effective and functional as



bleached products. Generally, the primary difference between bleached and unbleached is the color. However, if unbleached products are not available or if you must choose white, then select products that are process chlorine free (PCF) first (see Brief Glossary). If PCF towels are not available, choose a product that is elemental chlorine

free (ECF). More environmentally responsible bleaching alternatives to chlorine and its derivatives are oxygen, hydrogen peroxide, sodium hydrosulfite, enzyme bleaching and ozone. Use of these compounds prevents the release of highly dangerous chemicals such as dioxins.

Deinking Recycled Paper

The process of deinking requires the removal of coatings, fillers, pigments, inks and dyes from

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BRIEF GLOSSARY

Dioxins: Highly toxic chlorinated organic chemicals linked to cancer and interference with the immune system and reproductive system.

Effluent: Outflow from an industrial facility, typically containing pollutants.

Elemental Chlorine Free (ECF): Bleached with a chlorine derivative such as chlorine dioxide rather than with chlorine gas.

Food Chain: A sequence of organisms each of which uses the next lower member of the sequence as a food source.

Postconsumer: Refers to materials that have served their end-purpose and have been diverted from landfills.

Process Chlorine Free (PCF): Not bleached with chlorine or its derivatives.

Sanitary Landfills: Disposal sites for non-hazardous solid wastes spread in layers, compacted to the smallest practical volume and covered by material applied at the end of each operating day.

Totally Chlorine Free (TCF): Pulp that has never been bleached with chlorine or its derivatives; hence, in practical terms made from 100% virgin components. Not recommended for bathroom tissue or paper towel production.

Virgin Paper: Paper made from pulp that has never been used before in a product.

Waste Stream: Total flow of solid waste from homes, businesses, institutions and manufacturing plants. Waste is recycled, burned or deposited in landfills.

recycled paper before the paper is used to make bathroom tissue and paper towels. Deinking allows the use of the most substantial portion of the paper (the cellulose fiber) to be extracted for recycling.

In deinking it is especially important that disposal of sludge be properly handled. Sludge is a semi-solid residue that remains at the end of the deinking process. Sludge can contain toxic heavy

A deinking mill produces 21-31% less effluent per unit of production than that of a virgin paper mill.



metals such as cadmium, chromium, mercury and arsenic which are in inks and dyes used in printing. Sludge may also contain

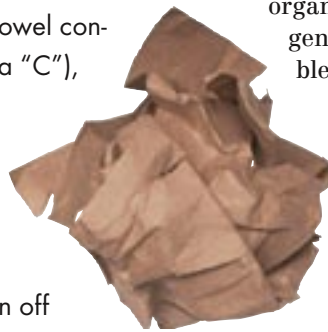
contaminants such as chlorinated organic compounds from the original paper bleaching process. The deinked pulp is often bleached again with chlorinated compounds.

Sludge disposal is properly handled in one of several ways: placed in a special landfill designed with groundwater monitoring systems and leachate collection; sent to an incinerator; “landfarmed” (distributed over farmland soils); or reused in making concrete blocks, among other products. Though none of these options is completely impact-free to the environment, they do not have the harmful effects of using virgin pulp to make bathroom tissue and paper towels. Deinking mills prevent large amounts of refuse from entering our municipal waste stream. A deinking mill produces 21-31% less effluent per unit of production than that of a virgin paper mill. Deinked sludge also contains significantly fewer chlorinated organic compounds than those generated by the original bleaching of wastepaper stock.

HOW UNCONTROLLED USE OF FOLDED TOWELS COSTS MONEY AND CREATES WASTE

Individual paper towels come in different folds: singlefold, multifold and C-fold. Singlefold has one fold, multifold two folds. A C-fold towel is approximately 13" x 10" when fully opened and flat, which rarely ever happens when it is used. The flat towel consists of three different folds (hence, opening up into a "C"), and the final, folded piece is a rectangle measuring about 10" in length and 3½" in width.

Did you ever observe how people pull out folded paper towels by the fistful just to wipe their hands? Or if a cup of coffee is spilled one or two people run off to grab enormous amounts of folded towels as if a gallon of liquid had been spilled. The easy accessibility of folded towels makes them readily available to grab by the handful. In contrast, hardwound roll towels combined with controlled-use dispensers control the amount provided and save huge amounts of paper – 25 to 35%. Roll towels also require up to 80% less packaging. In most applications, roll towel dispensers need to be refilled far less often than folded towel dispensers, saving on maintenance time. Moreover, roll towels are more compact, requiring less storage space.



Buy Towels in High-Capacity Rolls

Look for paper towels that are wrapped around a central core of 100% recycled fiber and allow the dispensing of only the amount needed (controlled-use dispensing). Seek out the item that contains more square feet than that of other standard rolls. Some manufacturers “puff up” their products with air to make the diameter the same as that of bigger rolls, but the inflated roll

continued on page 6

WAYS YOU CAN HAVE LESS IMPACT ON THE ENVIRONMENT

Published environmental standards for bathroom tissue and paper towels were reviewed, including standards of the U.S. Environmental Protection Agency (USEPA), U.S. Department of the Interior, and Green Seal. Including the largest amount of recycled and postconsumer wastepaper is the best way to save used materials from the waste stream. Accordingly, bathroom tissue should contain 100% recycled content, including a minimum of 20% postconsumer waste. Paper towels should contain 100% recycled content, including a minimum of 40% postconsumer waste. Also, bathroom tissue and paper towels should contain no added pigments, inks, dyes or fragrances, and should be unbleached or bleached preferably without any chlorine derivatives to minimize release of toxic chemicals in production. In addition, choosing products with environmentally preferable packaging further diverts materials from the waste stream and avoids contamination of the environment with toxins and other harmful chemicals.

*T*hese Are the Selection/Recommendation Criteria for Environmentally Preferable Bathroom Tissue and Paper Towels:

- Where available, purchase bathroom tissue and paper towels certified as environmentally preferable under Green Seal's environmental standards, GS-1 and GS-9, respectively.
- Purchase bathroom tissue and paper towels made of 100% recovered materials.
- Bathroom tissue should contain a minimum of 20% postconsumer waste; paper towels should contain a minimum of 40% postconsumer waste.
- Choose unbleached paper towels first; process chlorine free (PCF), second; elemental chlorine free (ECF), third.
- Select packaging having minimum environmental impact: made of recycled and recyclable materials; imprinted with safe inks; and containing no toxic metals, dyes, inks or fragrances. Avoid products which are packaged in outer cartons that are inappropriately sized or which contain excessive inner packaging materials.
- Seek items having the largest amount of product. For example, each roll of bathroom tissue should contain at least 40 square feet of product.
- Select high-capacity hardwound roll towels (800 feet or more).



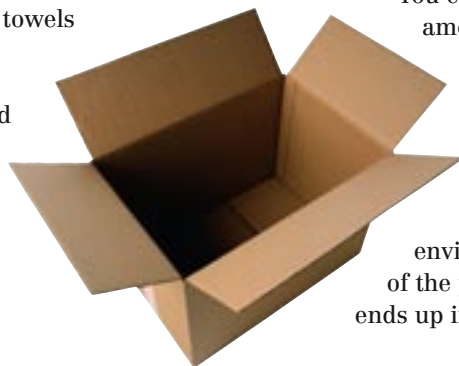
has fewer sheets. By choosing the product having more square feet, you can be sure of getting the maximum amount of towel for the cost.

Choose paper towels that are hardwound roll towels (800 feet or more). When possible, use hardwound roll towels with a controlled-use

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dispenser that reduces the amount of paper used by dispensing only a predetermined towel length, which may be reduced appropriately. Uncontrolled folded towels, such as C-fold towels, generate considerable waste in the use phase and can be more costly to purchasers (see sidebar on page 4).

There are additional benefits of hardwound roll towels compared to individual, folded towels. Hardwound roll towels often require less packaging per weight than do individual, pre-folded towels.



You can diminish the amount of waste generated by choosing packaging that has little impact on the environment. Much of the packaging ends up in the solid



Less packaging consumes less fiber, resulting in fewer air, water and solid pollutants, as well as conservation of fossil fuels.

Packaging *Potentially Hidden Costs to You and the Environment*

waste stream, so how the package is made is almost as important as how the product is made. Packaging should not contain excess materials to “bulk up” the product. A box properly sized to the product reduces waste and saves the purchaser money. Boxes made of corrugated cardboard or paperboard should contain recycled and recyclable materials. The box should be made and printed without toxic metals and other harmful chemicals. Some vendors of bathroom tissue and paper towels may be well informed about the manufacture of recycled paper products, but might unknowingly purchase their packaging materials from companies who have no knowledge of or interest in what least impacts the environment.

THE ADVANTAGES OF GREEN SEAL CERTIFICATION

Green Seal, Inc., is an independent, non-profit organization whose mission is to create a more environmentally sustainable economy by identifying and promoting environmentally preferable products and services. Green Seal has developed environmental leadership standards for dozens of product and service categories, including bathroom tissue and paper towels, and its certification program verifies that products meet these stringent standards. Therefore, when purchasers see that a product is Green Seal-certified, they know that it is environmentally preferable because it has been validated by a reputable third party with no financial interest in the product or company that manufactures it. In this report Green Seal has independently verified product information only for those products indicated as Green Seal certified; other product information has not been verified by Green Seal.

