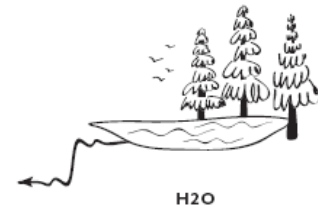


# ENVIRONMENTAL FOOTPRINT COMPARISON TOOL

A tool for understanding environmental decisions related to the pulp and paper industry



## EFFECTS OF RECYCLED FIBER USE ON WATER USE

### Recycled Paperboard Sector

In many segments of the recycled paperboard sector, mills use little, if any, virgin fiber. Recycled fiber-related environmental footprint decisions exist, therefore, only in a few categories where the same general product type can be made using significant amounts of virgin fiber.

This section explains which types of products that are made from recycled paperboard are also commonly made from paperboard containing significant amounts of virgin fiber. It is only in these product segments that recycled fiber-related paperboard sector environmental footprint decisions need be considered.

Recycled paperboard is used for packaging and other uses. In most of the “other” uses, such as tube stock (used to make paper tubes or cores) and gypsum board (used to line gypsum wall panels), the products are made only from recycled fiber. Among the packaging products, a few are wholly or primarily made from virgin fiber – food-grade liquid container packaging, for instance. There are, however, several products that are made from paperboard where the virgin fiber content can range from zero to 100%. Table R2, taken from material assembled by the Finnish Paper Engineers Association, summarizes the

**Table R2. (Source: Paulapuro 2000)**

Product	Typical Board Grades	Description of Fiber Content
Direct food	Folding boxes	Primary virgin fiber
Frozen food	Solid bleached sulfate	Virgin fiber
	Solid unbleached sulfate	Has significant virgin fiber content
Indirect food	White lined chipboard	Primary recovered fiber
Confectionary	Folding boxboard	Primarily virgin fiber
	Solid bleached sulfate	Virgin fiber
Bottle Carriers	Solid unbleached sulfate	Has significant virgin fiber content
Cosmetic, toiletries	Folding boxboard	Primarily virgin fiber
	Solid bleached sulfate	Virgin fiber
Cigarettes, tobacco	Solid bleached sulfate	Virgin fiber
	Folding boxboard	Primarily virgin fiber
Pharmaceuticals	Folding boxboard	Primarily virgin fiber
	White lined chipboard	Primary recovered fiber
Detergents	White lined chipboard	Primary recovered fiber
	Solid unbleached sulfate	Has significant virgin fiber content
Household durable, hobby items	White lined chipboard	Primary recovered fiber
Textiles, clothing, footwear	White lined chipboard	Primary recovered fiber
	Folding boxboard	Primarily virgin fiber
Toys, games	White lined chipboard	Primary recovered fiber
	Solid unbleached sulfate	Has significant virgin fiber content
Paper products	White lined chipboard	Primary recovered fiber
Milk, juices	Liquid paperboard packaging	Primarily virgin fiber

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major uses for paperboard packaging where recycled paperboard competes with board containing significant amounts of virgin fiber. The information in the table should be used with caution, however, because the table does not reflect a large number of situations where product characteristics and furnish quality are tailored to meet the requirements of specific applications.

In general, mills producing paperboard only from recycled fiber use and discharge less water than those making competing products from virgin fiber (assuming that the virgin fiber is produced on site). This finding is confirmed by statistical analysis of NCASI site-specific data.

Table R3 summarizes published data on the effluent discharges from recycled paperboard mills, unbleached kraft (sulfate) mills, and bleached kraft (sulfate) mills. The information makes it clear that while there is significant variability among mills, those producing recycled paperboard have lower effluent flows than those producing paperboard from virgin pulp.

**Table R3.**

Mill Description	Effluent Flow (m <sup>3</sup> /tonne)	Reference
Typical unbleached kraft mills	20 to 60	Springer 2000
Recycled paperboard	0 to 15	Gottsching and Pakarinen 2000
Unbleached kraft pulp mills using Best Available Techniques	15 to 25	EC BREF 2001
Recycled board mills using Best Available Techniques	< 7	
Typical virgin unbleached kraft mills making coated unbleached paperboard	46	Paper Task Force 2002
Typical virgin bleached kraft mills making solid bleached sulfate paperboard	90	
Typical recycled paperboard mill	8	

### Other considerations regarding paperboard mills

Some of the non-environmental issues that may accompany attempts to increase recycled content include the following.

- The potential impact of recycled fibers on strength properties
- The potential impact of recycled fibers on product appearance and odor
- Operational problems that occur at very low levels of discharge
- Operational problems, such as stickies (tacky substances that can deposit on papermaking equipment), that are associated with some grades of recovered fiber.

## Effects of Recycled Fiber Use on Water Use

### *Recycled Paperboard Sector*

## References

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