

RECYCLED PAPERS

There are two basic ways to recycle paper or identify them:

1. **Mill Waste** which has been done for many years is, i.e. paper that is trimmed or waste in the manufacturing process at the paper mill.

Waste from converting operations, i.e.: shopping bag, corrugated, envelopes, shopping bags, boxes, etc. recycled waste from the converting process.

2. **PCW (Post-consumer Waste)** – this is the most desirable use of waste. It is complicated to control the sources, quality and the resulting properties of this waste stream though. The material that is collected from end-users and recycled. PCW is the preferred form of recycled material because it reduces pressure on our remaining forests, saves water and energy, and diverts solid waste from our landfills.

All forms of recycled fibers are compromised in their strength and quality, particularly as post consumer waste which is primarily made up of office waste, newspapers and other less predictable sources.

Energy consumption in the transport of recycled materials is an important consideration in an honest commitment to conservation and recycling. All trucking and fuel consumptions used in the process of recycling, manufacturing and converting all play important factors in the evaluation of environmental accounting.

Paper Chemistry and Strength factors

Recycled fibers are shorter and often compromised in their physical properties. Paper mills that specialize in recycled products have developed processes to add extra virgin fibers in the proper recipes to compensate the recycled fibers. In the past paper mills used 50% recycled & 50% virgin, but with recent technologies is now available a ratio of 80% recycled and 20% virgin. This ratio is more suitable for shopping bags and other packaging products requiring strength.

Alternative fiber additions are also useful in creating more strength in the mix of recycled material.

Best practices

- Choose 100% post-consumer waste (PCW) or treeless paper
- Choose paper that is processed chlorine free (PCF)
- Choose non-toxic water-based vegetable inks
- Choose products and materials that are manufactured with renewable energy
- Choose local materials
- Choose local vendors that utilize renewable energy (to save on transportation waste)
- Keep open discussions about project impact related questions

Chlorine

Chlorine is a chemical to remove *lignin* from paper pulp to increase its strength and also make the paper a brilliant white. However Chlorine also releases deadly organochlorines, PCBs, and dioxin into our water supply (from releases at paper mills.) Animals exposed to these releases have been known to experience a weakened immune system, heart and respiratory problems. (Source: Seventh Generation).

The best choice, when choosing paper, is to select a paper that is Processed Chlorine Free (PCF). Below is a list, in order of environmental preference, of Chlorine free paper types and explanations.

- **Processed Chlorine Free (PCF):** Paper is made from fiber recycled from post-consumer waste (PCW) and unbleached or bleached without Chlorine compounds. PCF paper is the most environmentally friendly type.
- **Totally Chlorine Free (TCF):** Paper made from 100% virgin fiber (including alternative fiber from sources other than trees) that is unbleached or bleached with non-Chlorine compounds. TCF cannot apply to recycled papers, because the source fiber cannot be determined.
- **Elemental Chlorine Free (ECF):** Paper made from virgin or recycled fiber that is bleached using alternative Chlorine compounds as a substitute for elemental Chlorine.

There now exists a few specialty paper mills that specialize in recycled packaging grades. These mills have combined a lot of research and development to now be able to produce a very favorable product. It is possible to custom build papers that are recycled, but also offer good strength, good graphic reproduction qualities and are available even in smaller quantities.

Paper Types

Virgin Fiber

Virgin fiber is new pulp produced from recently cut down trees.

Recycled Paper

Recycled fiber is made from reusing paper

Treeless Paper

Kenaf - Kenaf is a 4,000 year old new crop with roots in ancient Africa. A member of the hibiscus family (Hibiscus, cannabis L) it is related to cotton and okra, and grows well in many parts of the U.S. It offers a way to make paper without cutting down trees. Kenaf grows quickly, rising to heights of twelve-fourteen feet in as little as four to five months.

Cotton - Cotton papers are superior in both strength and durability to wood pulp-based papers, which often contain high concentrations of destructive acids.

Others - Bamboo, banana, hemp are mainly used in specialty papers.

FSC Forest Stewardship Council certified sustainable harvested virgin paper.

Tips for Sustainability

Maximize post-consumer recycled fiber.

Fiber from municipal and office recycling programs – not directly from forests.
Reduces pressure on forest ecosystems.

Explore alternative fibers.

Tree-free fibers from rapidly renewable...

- » [agricultural crops \(bamboo, kenaf, hemp\)](#)
- » [by-products \(cotton linters\)](#)

As strong as wood fiber, or stronger.

Cotton linters are also recognized as recycled fibers by the EPA.

We've made tree-free paper with cotton content since 1883.

Evergreen 50/50 is 50% **bamboo** (farm-grown).

Support sustainable forestry.

Responsibly-managed forests can provide...

- » [Habitat for wildlife](#)
- » [A steady supply of timber and fiber](#)

Avoid chlorine-bleached papers.

Elemental chlorine + water produces dioxin and other chlorinated compounds. These are potentially toxic and do not break down.

- » [ECF bleaching \(Elemental Chlorine Free\)](#) reduces dioxin by 90%.

PCF bleaching (Process Chlorine Free)

uses ozone, oxygen, or hydrogen peroxide – completely eliminating dioxin.

Save energy by using recycled paper.

Recycling paper saves up to 64% of energy costs over virgin paper production.

Explore alternative energy.

Hydroelectric, solar, and wind energy are all renewable.

Cogeneration is very efficient – using thermal energy that would otherwise be wasted.