



Box or Bag?

Paper vs. Plastic

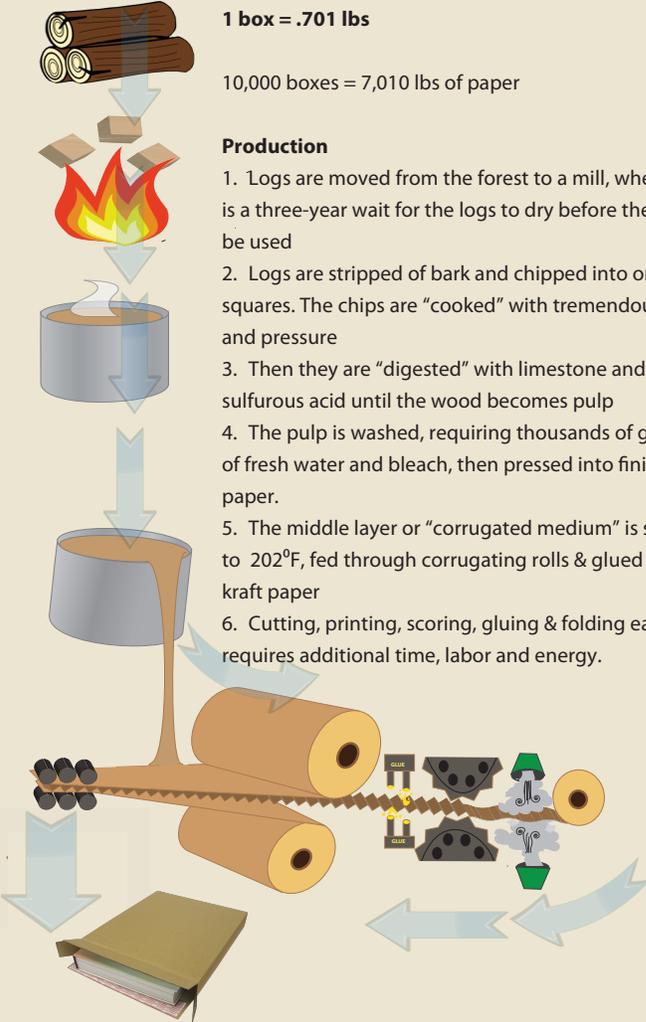


Paper - Corrugated box (13" x 19" x 2")
1 box = .701 lbs

10,000 boxes = 7,010 lbs of paper

Production

1. Logs are moved from the forest to a mill, where there is a three-year wait for the logs to dry before they can be used
2. Logs are stripped of bark and chipped into one-inch squares. The chips are "cooked" with tremendous heat and pressure
3. Then they are "digested" with limestone and sulfurous acid until the wood becomes pulp
4. The pulp is washed, requiring thousands of gallons of fresh water and bleach, then pressed into finished paper.
5. The middle layer or "corrugated medium" is steamed to 202°F, fed through corrugating rolls & glued to flat kraft paper
6. Cutting, printing, scoring, gluing & folding each box requires additional time, labor and energy.



Wood Used

10,000 boxes equals 11 tons of wood, made from 73 trees

Energy Used

(Includes process energy, transportation energy, and energy of material resource.)

10,000 boxes uses 108,000,000 BTUs

Green House Gas Emissions

(Includes production, transportation, and disposal)

10,000 boxes uses 17,718 lbs CO₂

Recycling

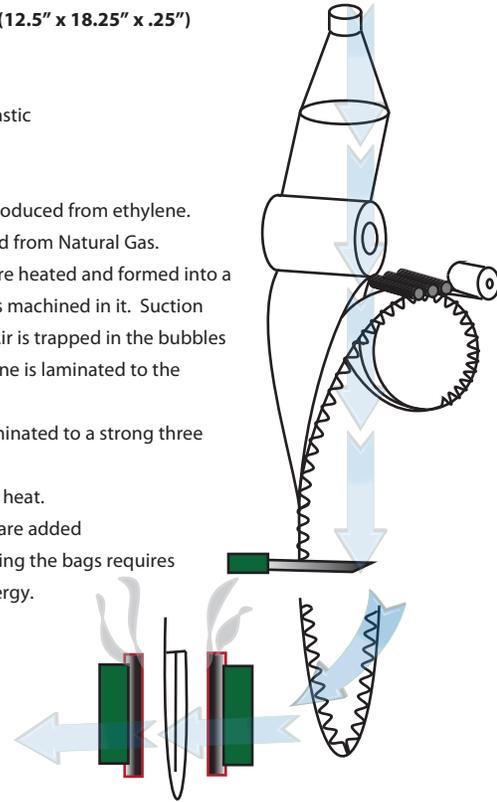
Can be reused or recycled

Plastic - Poly Bubble Mailer (12.5" x 18.25" x .25")
1 Mailer = .052 lbs

10,000 mailers = 520 lbs of plastic

Production

1. Polyethylene pellets are produced from ethylene. Ethylene is generally produced from Natural Gas.
2. The polyethylene pellets are heated and formed into a film around a drum with holes machined in it. Suction forms this film into bubbles. Air is trapped in the bubbles as another layer of polyethylene is laminated to the bubbles.
3. The bubble film is then laminated to a strong three layered outer film
4. Side seals are created with heat.
5. Hot melt and release tape are added
6. Cutting, printing & packaging the bags requires additional time, labor and energy.



The weight of the packaging is the most critical factor influencing the environmental burdens. Burdens for material production, transportation, and disposal all relate .

A Corrugated Box uses 23 times more energy and produces 6 times more CO₂ than a Bubble Mailer.

It takes 91% less energy to recycle a pound of plastic than it takes to recycle a pound of paper.

Oil Used

(Includes oil used for process energy and to create the raw material)

10,000 poly bubble mailers equals 3.48 barrels of oil

Energy Used

(Includes process energy, transportation energy, and energy of material resource.)

10,000 poly bubble mailers equals 4,550,000 BTUs

Green House Gas Emissions

(Includes production, transportation, and disposal)

10,000 poly bubble mailers equals 3,132 lbs of CO₂

Recycling

Can be reused or recycled

SOURCES: Juerg, "Plastic bags and plastic bottles - CO₂ emissions during their lifetime", *Time for Change*. Retrieved from <http://timeforchange.org/plastic-bags-and-plastic-bottles-CO2-emissions>

"Lifecycle Environmental Impact", *Environmental Paper Network*. Retrieved from <http://c.environmentalpaper.org>

Nolan-ITU Pty Ltd 2002, Plastic Shopping Bags - Analysis of Levies and Environmental Impacts, prepared for the Department of Environment and Heritage, Canberra.

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