Paper Calculator Input:

Paper Name:	Virgin Paper	Paper Name:	30% Recycled Content
Paper Grade:	Uncoated Freesheet	Paper Grade:	Uncoated Freesheet
Quantity (per year):	48.525 tons	Quantity (per year):	48.525 tons
Percent Recycled Content:	0	Percent Recycled Content:	30

Lifecycle Environmental Impact

Wood Use	181 tons	127 tons
Net Energy	1,567 million BTU's	1,414 million BTU's
Purchased Energy	1,076 million BTU's	1,063 million BTU's
SO2	1,295 pounds	1,263 pounds
Greenhouse Gases	292,256 lbs CO2 eqv.	254,009 lbs CO2 eqv.
NOx	462 pounds	445 pounds
Particulates	300 pounds	255 pounds
Hazardous Air Pollutants (HAP)	135 pounds	107 pounds
Volatile Organic Compounds (VOCs)	146 pounds	123 pounds
Total Reduced Sulfur (TRS)	22 pounds	19 pounds
Wastewater	1,078,171 gallons	905,705 gallons
Biochemical Oxygen Demand (BOD)	481 pounds	434 pounds
Total Suspended Solids (TSS)	841 pounds	737 pounds
Chemical Oxygen Demand (COD)	961 pounds	1,089 pounds
Solid Waste	93,256 pounds	82,323 pounds

Explanation of Data Values

The Paper Calculator is based on research done by the Paper Task Force, a peer-reviewed study of the lifecycle environmental impacts of paper production and disposal.

Wood Use

Wood use measures the amount of wood required to produce a given amount of paper.

The number of typical trees assumes a mix of hardwoods and softwoods 6-8" in diameter and 40' tall. Calculated collaboratively by Conservatree and Environmental Paper Network based on data from Tom Soder, Pulp & Paper Technology Program, University of Maine, as reported in Recycled Papers: The Essential Guide, by Claudia G. Thompson, The MIT Press, 1992.

The Virgin Paper Paper uses 181 tons, made from about 1,255 trees
30% Recycled Content would use 54 tons less, made from about 376 fewer trees

Environmental impact estimates were made using the Environmental Paper Network Paper Calculator. For more information visit www.papercalculator.org.

Net Energy

The Paper Calculator includes an energy credit for energy that is created by burning paper – or the methane that decomposing paper creates – at the end of its life. The Net Energy takes the total amount of energy required to make the paper over its life cycle, and subtracts this energy credit. If most of the energy used to make the paper is purchased, then the energy credit might make the Net Energy lower than the Purchased Energy. The average U.S. household uses 91 million BTUs of energy in a year.
The Virgin Paper Paper uses 1,567 million BTU's, the equivalent of about 17 homes/year
30% Recycled Content Paper uses 153 million BTU's less, the equivalent of about 1 fewer homes/year

Purchased Energy

A subset of total energy, **purchased energy** measures how much energy comes from purchased electricity and other fuels. The unit of measure is British Thermal Units (BTUs). The average U.S. household uses 91 million BTUs of energy in a year.
The Virgin Paper Paper uses 1,076 million BTU's, the equivalent of about 12 homes/year
The 30% Recycled Content Paper uses 13 million BTU's less, the equivalent of about 0 fewer homes/year

Sulfur dioxide (SO_2)

Chemical compound produced when boilers burn fuel that contains sulfur. Of the fuels used in the paper industry, oil and coal generally contain the highest quantities of sulfur. **Sulfur dioxide** contributes to air pollution problems like acid rain and smog. The average 18-wheel truck emits 5.5 pounds of SO2 in a year.
The Virgin Paper Paper uses 1,295 pounds, the equivalent of about 235 18-wheelers/year
The 30% Recycled Content Paper uses 32 pounds less, the equivalent of about 5 fewer 18-wheelers/year

Greenhouse Gases

Greenhouse gases, including carbon dioxide (CO_2) from burning fossil fuels and methane from paper decomposing in landfills, contribute to climate change by trapping energy from the sun in the earth's atmosphere. The unit of measure is CO_2 equivalents. The average car emits 11,013 pounds of CO2 in a year.
The Virgin Paper Paper uses 292,256 pounds CO2 equiv., the equivalent of about 27 cars/year
The 30% Recycled Content Paper uses 38,247 fewer pounds CO2 equiv., the equivalent of about 4 fewer cars/year

Nitrogen oxides (NO_x)

Nitrogen Oxides (NOx, which include NO and NO_2) are products of the combustion of fuels that contain nitrogen. NOx contribute to acid rain and can react with volatile organic compounds and sunlight in the lower atmosphere to form ozone, a key component of urban smog. The average 18-wheel truck emits 261 pounds of NOx in a year.
The Virgin Paper Paper uses 462 pounds, the equivalent of about 2 18-wheelers/year
The 30% Recycled Content Paper uses 17 pounds less, the equivalent of about 0 fewer 18-wheelers/year

Particulates

Particulates are small particles generated during combustion, and pose a range of health risks, including asthma and other respiratory problems, when inhaled. The average urban bus emits 11.2 pounds of particulate matter in a year.
The Virgin Paper Paper uses 300 pounds, the equivalent of about 27 buses/year
The 30% Recycled Content Paper uses 45 pounds less, the equivalent of about 4 fewer buses/year

Hazardous Air Pollutants (HAP)

Hazardous Air Pollutants are any of a group of 188 substances identified in the 1990 Clear Air Act amendments because of their toxicity.
The Virgin Paper Paper uses 135 pounds
The 30% Recycled Content Paper uses 28 fewer pounds

Volatile Organic Compounds (VOCs)

Volatile Organic Compounds (VOCs) are a broad class of organic gases, such as vapors from solvent and gasoline. VOCs react with nitrogen oxides (NOx) in the atmosphere to form ground-level ozone, the major component of smog and a severe lung irritant.

The Virgin Paper Paper uses 146 pounds
The 30% Recycled Content Paper uses 23 fewer pounds

Total Reduced Sulfur (TRS)

Total Reduced Sulfur compounds cause the odor associated with kraft pulp mills. Exposure to TRS emissions has been linked to symptoms including headaches, watery eyes, nasal problems, and breathing difficulties.
The Virgin Paper Paper uses 22 pounds
The 30% Recycled Content Paper uses 3 fewer pounds

Wastewater

Wastewater measures the amount of process water that is treated and discharged to a mill's receiving waters. Wastewater volume indicates both the amount of fresh water needed in production and the potential impact of wastewater discharges on the receiving waters. 1 Olympic-sized swimming pool holds 660,430 gallons.
The Virgin Paper Paper uses 1,078,171 gallons, the equivalent of about 2 swimming pools
The 30% Recycled Content Paper uses 172,466 gallons less, the equivalent of about 1 fewer swimming pools

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand (BOD) measures the amount of oxygen that microorganisms consume to degrade the organic material in the wastewater. Discharging wastewater with high levels of BOD can result in oxygen depletion in the receiving waters, which can adversely affect fish and other organisms. Average home discharges 186 pounds of Biochemical Oxygen Demand (BOD) in a year.
The Virgin Paper Paper uses 481 pounds, the equivalent of about 3 homes/year
The 30% Recycled Content Paper uses 47 pounds less, the equivalent of about 1 fewer homes/year

Total Suspended Solids (TSS)

Total suspended solids (TSS) measure solid material suspended in mill effluent, which can adversely affect bottom-living organisms upon settling in receiving waters and can carry toxic heavy metals and organic compounds into the environment. The average home discharges 207 pounds of Total Suspended Solids (TSS) in a year.
The Virgin Paper Paper uses 841 pounds, the equivalent of about 4 homes/year
The 30% Recycled Content Paper uses 104 pounds less, the equivalent of about 0 fewer homes/year

Chemical Oxygen Demand (COD)

Chemical Oxygen Demand (COD) measures the amount of oxidizable organic matter in the mill's effluent. Since wastewater treatment removes most of the organic material that would be degraded naturally in the receiving waters, the COD of the final effluent provides information about the quantity of more persistent substances discharged into the receiving water. The average home discharges 465 pounds of Chemical Oxygen Demand (COD) in a year.
The Virgin Paper Paper uses 961 pounds, the equivalent of about 2 homes/year
The 30% Recycled Content Paper uses 128 pounds more, the equivalent of about 0 more homes/year

Solid Waste

Solid Waste includes sludge and other wastes generated during pulp and paper manufacturing, and used paper disposed of in landfills and incinerators. 1 fully-loaded garbage truck weighs an average of 28,000 pounds (based on a rear-loader residential garbage truck).
The Virgin Paper Paper uses 93,256 pounds, the equivalent of about 3 garbage trucks
The 30% Recycled Content Paper uses 10,933 pounds less, the equivalent of about 0 fewer garbage trucks