



REPORT

THE ISSUE WITH TISSUE: HOW AMERICANS ARE FLUSHING FORESTS DOWN THE TOILET



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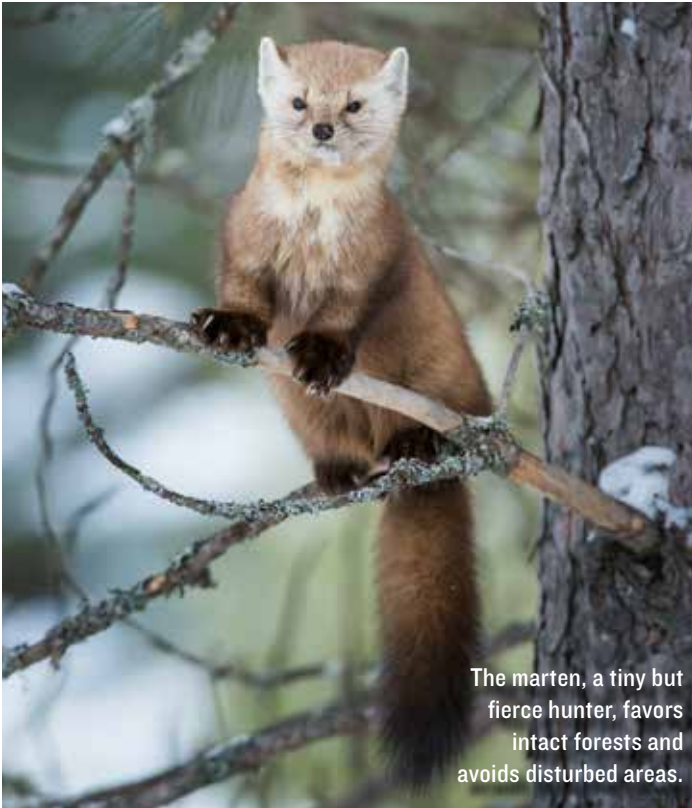
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Executive Summary



Tissue products such as toilet paper, paper towels, and facial tissue are cheap and convenient—but they cost the planet a great deal. The vast majority of the tissue products found in our homes are made from wood pulp, the use of which drives the degradation of forests around the world. Their everyday consumption facilitates a “tree-to-toilet pipeline,” whereby centuries-old trees are hewn from the ground, converted into tissue pulp, rolled into perforated sheets or stuffed into boxes, and flushed or thrown away. The consequences for Indigenous Peoples, treasured wildlife, and the global climate are devastating.

These impacts are compounded by the fact that the United States is a particularly voracious consumer of tissue products. The U.S. tissue market generates \$31 billion in revenue every year, second only to China, and Americans, who make up just over 4 percent of the world’s population, account for over 20 percent of global tissue consumption.^{1,2}

Much of the tissue pulp in the United States comes from the boreal forest of Canada. This vast landscape of coniferous, birch, and aspen trees contains some of the last of the world’s remaining intact forests, and is home to over 600 Indigenous communities, as well as boreal caribou, pine marten, and billions of songbirds. Yet, industrial logging claims more than a million acres of boreal forest every year, equivalent to seven National Hockey League rinks each minute, in part to meet demand for tissue products in the United States.³ This loss of intact boreal forest is impacting Indigenous Peoples’ ways of life. It is also driving the decline of species including boreal caribou, which, as an “indicator species,” serves as a barometer for the health of the boreal forest more broadly.^{4,5}

Maintaining an intact boreal forest, which acts as a massive storehouse for climate-altering carbon, is also vital to avoiding the worst impacts of climate change. Tissue products made from virgin fiber pulp, which comes from trees, are a clear threat to our climate. When the boreal and other forests are degraded, their capacity to absorb man-made greenhouse gas emissions declines. In addition, the carbon that had been safely stored in the forests’ soil and vegetation is released into the atmosphere, dramatically undermining international efforts to reduce greenhouse gas emissions.

Fortunately, solutions to the tree-to-toilet pipeline already exist. Instead of relying on virgin pulp, tissue companies can use recycled content or sustainably sourced alternative fibers such as wheat straw and bamboo. Use of these materials to create tissue can dramatically reduce our destructive impact on the boreal and other forests around the world. Some companies have already begun incorporating these far more sustainable materials into their products.



Yet many of the leading tissue companies in the United States stubbornly continue to rely on virgin fiber pulp in their flagship at-home tissue products rather than investing in existing alternatives. While some have made advances in their away-from-home tissue brands sold to businesses, airports, and other establishments, the three companies with the largest market shares in the tissue sector, Procter & Gamble, Kimberly-Clark, and Georgia-Pacific, still rely almost exclusively on virgin pulp for their at-home tissue brands.

This *Issue with Tissue* report and scorecard evaluates the sustainability of major at-home tissue brands in the United States, based on data we collected from product packaging, product websites, and communications with parent companies. We selected the flagship brands from the three tissue companies with the largest market shares in the United States, Procter & Gamble, Kimberly-Clark, and Georgia-Pacific.⁶ To gauge tissue products' impact on forests, the scorecard examines products' recycled content, Forest Stewardship Council (FSC) certification for their virgin pulp, and their bleaching process. Our methodology gave the products different weights depending on which criteria they satisfy, with the greatest weight given to postconsumer recycled content. For a full methodology, see the Appendix. The scorecard is not a comprehensive overview of all tissue products. For any brands not covered, we encourage readers to look at each brand's recycled content, FSC certification, and bleaching process using the criteria outlined in the Appendix.

Our scorecard shows that there is a strong dichotomy in the tissue industry when it comes to sustainability, with some companies using almost entirely recycled content in their products, and others using none. Tissue products from companies such as Green Forest and Natural Value, for example, contain 100 percent recycled content, with at least 80 percent postconsumer recycled content. Major brands such as Charmin, Cottonelle, and Angel Soft, however, are made entirely from virgin fiber.

The companies with the largest market shares have the power to make a significant difference for the future of our world's forests. Instead, they largely adhere to decades-old tissue formulas that have taken a devastating toll on forests. Recycled content and alternative fibers are readily available solutions, and these large companies need to dedicate their substantial research and development budgets to tackling the problems their products cause for the planet. In the meantime, consumers can push for change with their pocketbooks, buying only those tissue products that minimize their impact on forests. Forests are too vital to flush away.

A BUYER'S GUIDE TO THE SUSTAINABILITY OF AT-HOME TISSUE PRODUCTS

TOILET PAPER

BRAND	GRADE
Green Forest	A
365 Everyday Value, 100% Recycled	A
Earth First	A
Natural Value	A
Seventh Generation	A
Trader Joe's Bath Tissue	A
Marcal 1000 ^a	B
Marcal Small Steps	B
365 Everyday Value, Sustainably Soft	D
Cottonelle Ultra	D
Scott 1000	D
Scott ComfortPlus	D
Trader Joe's Super Soft Bath Tissue	D
Charmin Ultra ^b	F
Kirkland	F
Angel Soft	F
Quilted Northern	F
Up & Up Soft & Strong	F

PAPER TOWELS

BRAND	GRADE
Green Forest	A
365 Everyday Value	A
Earth First	A
Natural Value	A
Seventh Generation	A
Trader Joe's	A
Marcal	B
Marcal Small Steps	B
Viva	D
Bounty	F
Brawny	F
Sparkle	F
Up & Up	F
Kirkland	F

FACIAL TISSUE

BRAND	GRADE
Green Forest	A
365 Everyday Value, 100% Recycled	A
Natural Value	A
Trader Joe's	A
Fluff Out	B
Marcal Small Steps	B
Seventh Generation	B
365 Everyday Value, Sustainably Soft	D
Kleenex Everyday	D
Kirkland	D
Puffs Ultra Soft	F
Up & Up Soft	F

a Due to a fire at their New Jersey paper plant in January 2019, Marcal is suspending manufacture of their at-home products, including all Marcal products listed in this report. However, they could become available again in the future.

b This entry applies to both Charmin Ultra Soft and Charmin Ultra Strong.

Introduction



Forests are the lungs of the earth. For hundreds of millions of years they have been regulating the earth's greenhouse gases, absorbing massive amounts of carbon dioxide and converting it into life-essential oxygen. Each year, they absorb about a quarter of all human-produced greenhouse gases.⁷ These life-sustaining ecosystems are also the homelands of many Indigenous Peoples, who have stewarded them for millennia and possess internationally recognized rights to lands and resources. As some of the last intact, undisturbed places on earth, forests also support wildlife seen nowhere else on the planet, from the orangutans of Indonesia to the caribou of the boreal forest.

Yet, for all forests' value, we are quite literally flushing them down the toilet.

Across the world, forests are being cut down to become throwaway tissue products such as toilet paper, facial tissue, and paper towels. Most of the time, these products end up in the trash can or toilet after one use—their toll on the environment forgotten or ignored. But, although a roll of paper towels may come and go without any significant impact on consumers' wallets, the cost to forests is high and the impact on the environment enduring.

Tissue consumption is taking a substantial toll on forests around the world, from the temperate forests of the southeastern United States to the rainforests of Indonesia. This report examines the impact of tissue products sourced from the Canadian boreal forest, which contains a quarter of the world's remaining intact forests.⁸ Much of the virgin pulp sourced from the Canadian boreal forest ends up in the United States, where throwaway tissue products have become a staple of day-to-day life. Tissue products do not need to be made from virgin pulp,⁹ which is created from trees, yet leading companies have largely failed to adopt more sustainable alternatives. The repercussions of continuing the status quo for Indigenous Peoples, wildlife, and the climate would be felt for centuries to come.

This report provides an overview of the major tissue brands and reveals the worst corporate offenders driving boreal degradation. It describes the environmental effects of virgin pulp production and the United States' strong reliance on tissue products and grades leading brands in the United States based on their impacts on forests. Finally, this report outlines existing solutions that companies can adopt to make their brands more sustainable.

Tissue's Impact on the Boreal Forest



The boreal forest lies just below the Arctic Circle and stretches across Alaska, Canada, Scandinavia, Russia, and China, crowning the earth in a ring of green. The boreal is a paradigmatic wintertime landscape with evergreen spruce and fir trees and reindeer: a species which in North America is called caribou.¹⁰ Canada's boreal is vast, spanning more than 1 billion acres from Newfoundland and Labrador to the Yukon Territory.¹¹ The Canadian boreal is home to more than 600 Indigenous communities, whose cultural identities are often entwined with the forest.¹² In addition to boreal caribou (the ecotype of caribou living in the boreal forest),¹³ species like marten,¹⁴ lynx, and moose¹⁵ rely upon the Canadian boreal.^{16,17} It is also an essential nesting ground for billions of migratory birds that populate the skies of North America.¹⁸

The global boreal is especially vital to worldwide efforts to fight climate change since it stores more carbon per hectare than any other forest biome on earth¹⁹ and holds more carbon than all the currently accessible oil, gas, and coal reserves combined.^{20,21} The Canadian boreal contains at least 12 percent of the world's carbon stores in its plants and soils.²² Every year, the Canadian boreal region, including peatlands, removes carbon dioxide equivalent to the annual emissions of 24 million passenger vehicles.²³

The Canadian boreal, however, is threatened by industrial logging. Between 1996 and 2015, more than 28 million acres of boreal forest were logged, an area roughly the size of Ohio.²⁴ More than 90 percent of this logging was done by clearcutting, which removes nearly all trees from an area.^{25,26} These clearcut forests can take more than a century to return to their pre-logging condition, and some never do.²⁷ Recent research shows that logging also creates "scars" on the landscape from roads, equipment, and piles of wood waste where the forest has failed to return, and these scars of treeless land can last for decades.²⁸

Every year, the Canadian boreal region, including peatlands, removes carbon dioxide equivalent to the annual emissions of 24 million passenger vehicles.

Canada is the world's largest producer of northern bleached softwood kraft (NBSK) pulp, which is favored in virgin pulp tissue production.



© Michael Campbell/BLM

The production of pulp, the foundational ingredient of tissue products, is a substantial driver of logging in the Canadian boreal forest. Virgin pulp accounts for 23 percent of Canada's forest product exports and pulp and paper manufacturing makes up 36 percent of Canada's gross domestic product for forest products.^{29,30} As the markets for printing and writing paper decline, growing global tissue consumption is helping to fill that gap, driving a continued reliance on wood pulp.³¹ Canada is the world's largest producer of northern bleached softwood kraft (NBSK) pulp, which is favored in virgin pulp tissue production.³² Approximately half of Canada's NBSK pulp goes to creating tissue products.

TISSUE'S IMPACTS ON INDIGENOUS PEOPLES

Much of the logging in the boreal occurs within Indigenous Peoples' traditional territories. While some communities are active stakeholders in resource development on their land, in many cases Indigenous Peoples are forced to deal with the ecological impacts of this logging without having much, if any, input into how their lands are used. Intensive logging destroys the landscapes that have sustained Indigenous communities across generations, threatening

their cultures, health, and relationships to the land. Some communities have only a fraction of their forest left intact.³³ Although Canadian governments have made efforts toward reconciliation and the establishment of Nation-to-Nation relationships with Indigenous Peoples, they have continued to show they are willing to support industry over Indigenous communities' wishes,³⁴ and often communities do not have the power to say no to development on their lands.³⁵

TISSUE'S IMPACTS ON WILDLIFE

Sourcing virgin wood pulp for tissue also takes a devastating toll on wildlife. Boreal caribou, which hold an iconic status in Canada's national consciousness, are barometers for the broader health of the forest because they require large tracts of mature forest and are particularly sensitive to human disturbance.^{36,37} If the boreal caribou are compromised, so are the Canada lynx, the American marten, and billions of migratory birds. Boreal caribou have been hit especially hard by human-caused habitat disturbance, the primary cause of their decline, and today only 50 percent of their original North American forest habitat remains.³⁸ Logging is the most



The boreal caribou.

extensive form of industrial development impacting boreal caribou habitat.³⁹ With ongoing habitat degradation, government reports estimate that boreal caribou are declining at a rate of more than 30 percent every 18 years.⁴⁰ As it stands, only 14 of Canada's 51 boreal caribou ranges are considered sufficient to support self-sustaining boreal caribou populations.⁴¹

Despite the precipitous decline of boreal caribou, Canada's federal and provincial governments have done almost nothing to protect the species. For a 60 percent chance of long-term survival, according to the Canadian government's federal Recovery Strategy, boreal caribou require ranges that are at least 65 percent undisturbed.⁴² The federal government called on provinces and territories to develop conservation plans based on Western and Indigenous knowledge and science for each of Canada's 51 boreal caribou populations by October 2017.⁴³ However, at the time of this writing, no province or territory has finalized a plan in compliance with the Recovery Strategy.⁴⁴ Inaction means governments are leaving it to the marketplace to self-regulate and avoid sourcing from critical boreal caribou habitat. This leaves the fox guarding the henhouse—and so boreal caribou populations continue to decline.⁴⁵

TISSUE'S IMPACT ON THE CLIMATE

The impacts of sourcing tissue products from the boreal forest on the global climate are potentially devastating, threatening to turn one of the earth's most immense carbon vaults into a catastrophe for the climate. The boreal forest is the most carbon-dense forest ecosystem on earth.⁴⁶ When the boreal is deforested and degraded from logging, its capacity to continue sequestering carbon significantly declines and releases into the atmosphere carbon that had been locked up in the trees and soils. According to recent modeling by NRDC, clearcutting in the Canadian boreal releases, on average, 26 million metric tons of carbon dioxide each year, which is equivalent to 12 percent of the emissions Canada agreed to cut annually by 2030 under the Paris Agreement.⁴⁷

FORESTS AS A CLIMATE SOLUTION

Keeping the Canadian boreal forest intact is key to addressing climate change. Under the historic 2015 Paris Agreement, more than 190 countries, including Canada, agreed to limit global temperature rise to "well below" 2 degrees Celsius, and to pursue efforts to limit this increase to 1.5 degrees.⁴⁸ The Paris Agreement identified the world's forests as vital tools for achieving these goals.⁴⁹ The recent Intergovernmental Panel on Climate Change (IPCC) report, which indicated that the consequences of the world warming even 1.5 degrees Celsius would be far more disastrous than previously thought, likewise emphasized that protecting intact forests is essential to holding the worst impacts of climate change at bay.⁵⁰



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PAPER'S DEVASTATING TOLL ON FORESTS IN THE SOUTHEASTERN UNITED STATES

The boreal forest is one of many forests impacted by unsustainable tissue products. The forests of the southeastern United States, for example, have also been decimated to make tissue and paper. The region from Appalachia to the Florida Panhandle, which was once blanketed by near-continuous, biodiverse forests, now supplies the pulp to produce about 27 percent of the world's paper products.⁵¹ Forest harvesting in the region occurs at four times the rate at which it occurs in South American rainforests. Because of this extensive cutting, more than half of all southeastern forests are less than 40 years old.⁵²



Between 1996 and 2015, more than 28 million acres of boreal forest in Canada were logged, an area roughly the size of the state of Ohio.

FOREST DEGRADATION VERSUS DEFORESTATION

In assessing manmade threats to forests, Canadian governments and industry focus on a single indicator: deforestation. The term *deforestation*, however, has a narrow definition and it drastically downplays the impact of logging on the boreal forest.⁵³ Deforestation refers to the conversion of a forested area into something else—such as farmland or roads.⁵⁴ This means that even if a forest has been clearcut, as long as it is not converted to some other use, deforestation has not occurred. Forest *degradation*, on the other hand, much more accurately accounts for the impacts of logging, as it covers any human activity that diminishes the health of a forest.⁵⁵ Although the Canadian government often fails to mention forest degradation statistics, its consequences, including carbon emissions, species loss, and water pollution, can be just as severe as those of deforestation.⁵⁶ Canada ranks third globally in intact forest loss, behind only Russia and Brazil, accounting for 15 percent of the world's intact forest loss between 2000 and 2013.⁵⁷

Degradation's impact is particularly severe since studies indicate that, even where forests regenerate—which they do not always do—they may be a far cry from the forest that existed before the logging occurred.⁵⁸ Research has found forests that regenerate after intensive harvesting “retain less biological and structural diversity than those originating from natural disturbances in which rapidly changing habitats and high species turnover enhance the adaptation potential to new environmental conditions.”⁵⁹ This finding undermines the claims from Canada's federal and provincial governments that logging followed by replanting can aid in ecosystem adaptation to stressors like climate change and suggests that industrial logging has, in fact, “reduced forest biodiversity and resilience.”^{60,61}

What Is Tissue Made Of?

© Ashley Cooper/Alamy



The ingredients for tissue products vary by company and by product.⁶² Because paper towels, toilet paper, and facial tissue are all used differently, they contain different components that affect their characteristics. However, one main ingredient that is common to all tissue products is paper pulp.

Paper pulp can come from several sources, including wood (also known as virgin fiber because it has never been used in any product), postconsumer recycled content, pre-consumer recycled content, and alternative fibers such as wheat straw and bamboo.⁶³

VIRGIN FIBER

Virgin fiber is by far the most environmentally destructive and the most common source of tissue pulp. There are two types of virgin pulp: softwood and hardwood.⁶⁴ Hardwood pulp comes from deciduous trees, whereas softwood pulp derives from spruce and other coniferous trees from regions such as the southeastern United States and the Canadian boreal.⁶⁵ These trees produce longer fibers that help strengthen tissue.^{66,67} Northern bleached softwood

kraft (NBSK), a type of softwood pulp for which Canada is known, is the most desired grade of softwood pulp for tissue products in the United States. Toilet paper and facial tissue in North America typically consist of between 20 to 40 percent NBSK pulp, while paper towels consist of between 25 and 75 percent.

To make pulp using virgin fiber, a pulp mill turns logs into wood chips and sends them through a harsh water- and energy-intensive chemical process to remove lignin and other natural adhesives from the wood's fibers, known as cellulose.⁶⁸ Once the cellulose is separated from the other components, it is sent through a chemical bleaching process to whiten the pulp.⁶⁹

Because forests are vital for storing and sequestering carbon, tissue products made from virgin fiber have a substantially higher carbon footprint than those made from other materials. Considering the emissions created when the tissue decomposes, the carbon released from the soil, and the loss of continued carbon storage from the degraded forest, creating products using 100 percent virgin fiber generates three times as much carbon as products made from other types of pulp.⁷⁰

Creating products using 100 percent virgin fiber generates three times as much carbon as products made from other types of pulp.

RECYCLED CONTENT

Although tissue itself is generally not recyclable, it can be made of content that has been recycled. Postconsumer content is material that, instead of being thrown away after serving its initial purpose, is reused. Using post-consumer recycled content in tissue products creates a significantly smaller environmental footprint than does virgin fiber because wood does not need to be harvested from a forest to be turned into pulp, and the chemicals used in its whitening process are far less toxic than those used to bleach virgin fiber pulp.^{71,72}

However, not all recycled content is created equal. Often, when products say they are made from recycled content, they contain a mix of postconsumer and pre-consumer recycled content.⁷³ Pre-consumer recycled content, also known as “manufacturing waste,” is made from recovered trimming scraps from in-house manufacturing operations and from previously-manufactured but unused paper products, such as printers’ over-runs or obsolete stocks.⁷⁴ Pre-consumer content helps alleviate pressure on forests, but provides fewer benefits in terms of conserving resources or reducing waste.

Because of recycled pulp’s substantial environmental benefits, the U.S. Environmental Protection Agency (EPA)

has published recommended recovered fiber content for businesses purchasing tissue products.⁷⁵ The EPA recommends, for instance, purchasing paper towels that contain at least 40 to 60 percent postconsumer recycled content and 40 to 100 percent total recovered fiber, and bathroom tissue that contains at least 20 to 60 percent postconsumer recycled content and 20 to 100 percent total recovered fiber.⁷⁶

ALTERNATIVE FIBERS

Tissue pulp can also be made from non-wood alternative fibers, such as those from wheat straw and bamboo. While tissue producers should aim to maximize use of postconsumer recycled content in their products, alternative fibers can, if properly sourced, be a viable, sustainable substitute for virgin wood pulp.⁷⁷

Wheat straw and other substances left behind after harvest (often known as “agricultural residues”) can be particularly sustainable alternatives to wood fibers as long as sufficient residue is left behind in the field to provide nutrients to the soil.^{78,79} As Canopy, an international nonprofit leading the push to grow market demand for agricultural residue, has found, each year, millions of tons of agricultural residue go to waste.⁸⁰ Creating fiber out of agricultural residue,





A bamboo plantation.

since it is a by-product of existing farming practices, does not require expanded land use and can significantly reduce pressure on forests that currently supply wood fiber.⁸¹ Moreover, because agricultural residue is often burned if not put to alternative use, using agricultural residue in tissue is additionally beneficial because it prevents this residue emitting carbon dioxide and other harmful air pollutants.⁸² Wheat straw production and use in the tissue industry is still in its early stages of development. However, some companies have already taken steps to enter this market, including Columbia Pulp, a commercial-scale wheat straw pulp mill in southeastern Washington State that will open in 2019.^{83,84}

Bamboo, like wheat straw, has a fraction of virgin fiber's impact on forests and the climate, but is an "intentional crop" rather than an agricultural residue, meaning it has greater land impacts than products like wheat straw. A highly versatile plant, bamboo requires less land degradation than virgin wood pulp and can grow more than 20 times faster than trees from northern forests such as the boreal.^{85,86} Tissue products made from bamboo release 30 percent fewer greenhouse gas emissions than tissue made from virgin wood.⁸⁷ Consumers and tissue producers must use caution, however, when purchasing products made with bamboo. Bamboo production, like the production of many alternative alternative fiber plants, often lacks robust supply chain monitoring, and bamboo plantations are sometimes grown in recently deforested areas.^{88,89} Thus, producers should look for bamboo that is certified by the Forest Stewardship Council (FSC) to ensure it is sustainably sourced and indicate that certification on their products.

Other alternative fibers such as kenaf, which is similar to cotton, also have the potential to relieve pressure on the world's forests.^{90,91} However, tissue producers must exercise care to ensure any alternative fibers used are produced sustainably with no impacts on the availability of food crops or on high conservation value ecosystems. For many of these alternative fibers, industry needs to rely on robust certification standards like the Green Seal GSI Tissue Standard and the Roundtable on Sustainable Biomaterials Standard to mitigate some of the environmental risks associated with each material and to ensure we do not alleviate one problem affecting the planet only to create another.

THE IMPACTS OF BLEACH

Companies' choice of bleach also has an impact on the environment. Bleach is used to whiten, strengthen, and soften tissue products.⁹² Until the 1990s, tissue producers used elemental chlorine in their bleach, which emitted large quantities of dioxins into the water and air of nearby and downstream communities. Dioxins are persistent toxic chemicals, which means that they do not degrade easily, and they are bioaccumulative, meaning they build up in the food chain, posing significant health risk to animals at the top of the food chain, including humans.⁹³ Dioxins can cause reproductive problems, cancer, birth defects, diabetes, and allergies.^{94,95} People can take in dioxins through the air or water or by eating animal products (like dairy, fish, and meat) that have become contaminated.⁹⁶

As the health repercussions of chlorine bleach became apparent in the mid-1990s, tissue producers transitioned to elemental chlorine free (ECF) processes. This is now overwhelmingly the most common bleaching method used for products made from kraft pulp.⁹⁷ It emits less dioxin than bleach containing elemental chlorine, but it still—despite its name—releases elemental chlorine gas as a by-product into air and water, impacting people, fish, and other animals.⁹⁸

Recycled paper products typically use far less toxic bleaching methods, such as processed chlorine free (PCF).⁹⁹ This bleaching process totally avoids chlorine, instead using oxygen, ozone, and hydrogen peroxide.¹⁰⁰ In addition, recycled tissue often requires less bleach overall, since many recycled fibers have been through the bleaching process once before.¹⁰¹ Where virgin products have been bleached without chlorine, they are labeled as totally chlorine free (TCF).¹⁰²



Operations at a paper and pulp mill.

ADDITIONAL IMPACTS OF VIRGIN PULP

The process of making tissue has impacts on the environment at every stage of production. These impacts are typically far more extensive when virgin fiber rather than recycled material is used. The production of virgin wood pulp uses almost twice as much water as producing tissue from recycled materials and generates twice as many hazardous air pollutants.¹⁰³ These air pollutants, such as formaldehyde and acrolein, can lead to respiratory problems; eye, nose, and throat irritation; and possibly cancer.¹⁰⁴ Creating tissue from virgin pulp also generates 40 percent more sulfur dioxide,¹⁰⁵ which can cause respiratory problems and acid rain, and releases thousands of times more particulates, which contribute to smog.¹⁰⁶ In addition, using recycled materials to make tissue products keeps waste out of the landfill for another life cycle, reducing methane emissions and the release of other pollutants.¹⁰⁷



THE BENEFITS OF RECYCLED



 *Little to no chlorine bleach*

40%

less sulfur dioxide,
a main cause of
acid rain

1/2

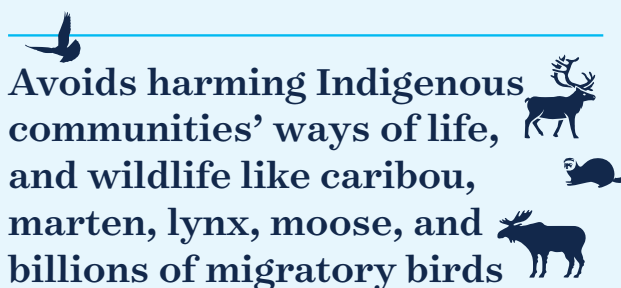
THE HAZARDOUS
AIR POLLUTANTS OF
VIRGIN PAPER

1/2

the water of
virgin pulp

1/3
THE GREENHOUSE GAS
OF VIRGIN PAPER

Avoids harming Indigenous communities' ways of life, and wildlife like caribou, marten, lynx, moose, and billions of migratory birds



Tissue Consumption in the United States

Just 150 years ago, the market for tissue products did not exist. Prior to toilet paper's popularization, people used natural materials such as snow, moss, and, in the United States, corncobs.¹⁰⁸ In an early, albeit slightly uncomfortable, form of recycling, Americans wiped with the *Old Farmer's Almanac*—which came with a built-in hole so it could hang by a nail in outhouses—and later the Sears, Roebuck catalog.^{109,110} Toilet paper, the first of the tissue products, was invented in the United States in 1857.¹¹¹ It took decades for it to catch on, however, due to the taboo around talking about the product's purpose. Yet, with some clever marketing ploys focusing on femininity, hygiene, and absorbency, toilet paper use began taking off in the early 20th century. Facial tissues and paper towels soon followed, nearly all made from virgin fiber.

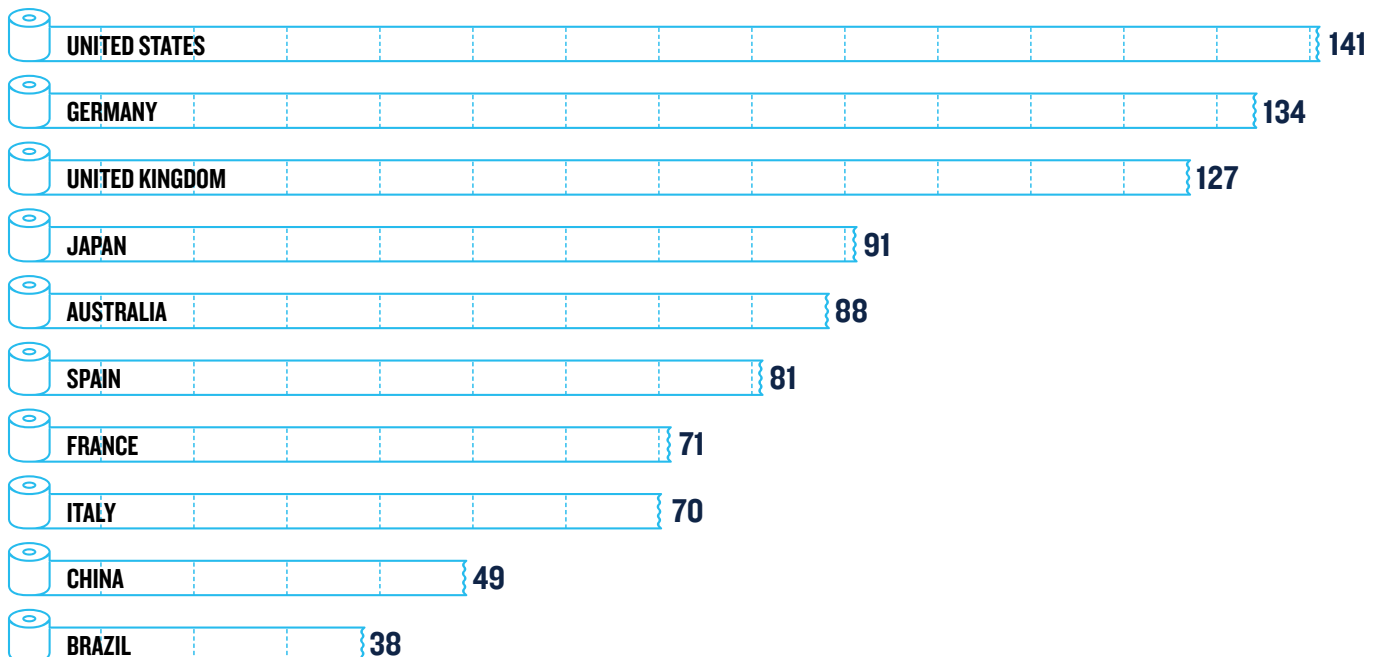
Even as tissue products have spread around the world, Americans remain among their most voracious consumers. The U.S. tissue market generates \$31 billion in revenue every year, second only to China, and Americans, who make up just over 4 percent of the world's population, account for about 20 percent of global tissue consumption.^{112,113} The United States consumes more toilet paper than any other country, using a whopping 9.2 billion pounds of it each year—about 28 pounds per person.¹¹⁴ Canada's forests feed

much of this demand. In 2017, 59 percent of Canada's pulp and paper exports went to the United States.¹¹⁵ Americans also tend to be much more concerned than the rest of the world about ideal toilet paper texture in their homes, largely due to decades of marketing around toilet paper's softness.¹¹⁶

THE GROWING TISSUE MARKET

Globally, tissue is the fastest-growing sector in the paper industry.¹¹⁷ Between 2010 and 2015, tissue production increased by 3.5 percent annually—almost 30 percent faster than the growth of cardboard packaging.¹¹⁸ The tissue sector is expected to grow almost 6 percent annually from 2018 to 2022.¹¹⁹ This rapid expansion, especially in developing countries, offsets much of the environmental benefit of increased digitization and resulting declines in the use of printing and writing paper.¹²⁰ As a result, the need for recycled fibers in tissue is now as urgent as ever, and environmentally sustainable alternative fibers, such as wheat straw, will also be pivotal in preventing increased demand for tissue products from destroying the world's remaining intact forests.

ANNUAL PER CAPITA TOILET PAPER CONSUMPTION WORLDWIDE (IN ROLLS)



Source: Statista, <https://www.statista.com/chart/15676/cmo-toilet-paper-consumption>

MORE SUSTAINABLE VIRGIN FIBER: THE FOREST STEWARDSHIP COUNCIL



Transitioning to recycled content tissue products and sustainable alternative fibers is the only way to reduce demand on the boreal forest and other vulnerable regions that supply these products. However, as companies work to transition to postconsumer recycled content, they must also ensure that the virgin wood they still obtain is

sustainably sourced. To do so, they should purchase pulp sourced only from forests that meet or exceed the standards for Forest Stewardship Council® (FSC®) certification.¹²¹

FSC is the world's most credible independent certifier of responsibly managed forests, rewarding companies that implement sustainable practices and leading the way toward ensuring that logging's impacts on species, the climate, and Indigenous Peoples are minimized.¹²² In Canada, to obtain FSC certification in a given area, a logging company must promote conservation, maintain biodiversity, and seek input from local and Indigenous communities.

FSC's standards are a floor, not a ceiling, for responsible forestry, and still need to undergo significant improvements before they can fully protect forests, species, and Indigenous rights. However, FSC certification is constantly getting better and is the only certification system that comes anywhere close to promoting sustainable practices. Currently, FSC's Canada chapter is in the process of adopting a new standard for boreal caribou conservation that will align FSC certification even more closely with the federal government's requirements under the boreal caribou Recovery Strategy.¹²³

The industry-led Sustainable Forestry Initiative (SFI),¹²⁴ which touts itself as equivalent to FSC, is a far weaker system that misleads consumers into thinking their products are sustainably sourced. Among its weaknesses, SFI allows companies to engage in ecologically damaging practices, including the unsustainable conversion of intact, natural forests to monoculture tree plantations, and has no protections for old-growth forests. SFI also fails to adequately protect threatened and endangered species and does not meaningfully incorporate standards to mitigate logging's effects on climate change.¹²⁵

If virgin fiber tissue products are the only option, consumers should avoid products with other certifications including SFI, opting only for those that have the FSC label. Similarly, other certification systems like the Programme for the Endorsement of Forest Certification (PEFC),¹²⁶ do not have the same stringency, international consistency, or rigor in implementation as FSC. In fact, PEFC now recognizes SFI certification as meeting the requirements for its chain of custody certification.¹²⁷



Early toilet paper marketing emphasized femininity and softness.

The Laggards and the Leaders



In the past few decades, recycling has become more commonplace, and some companies have begun manufacturing tissue products composed primarily, or entirely, of postconsumer recycled materials. Recycled materials are more commonly used in away-from-home tissue brands, like those found at offices or airports, where marketing for softness is less crucial. However, this market makes up only about one-third of the entire tissue industry.¹²⁸ The rest of tissue production goes toward at-home tissue, which has not seen the same progress toward recycled materials.

Today, the three biggest tissue producers in the United States are Procter & Gamble, Georgia-Pacific, and Kimberly-Clark.¹²⁹ These companies have some of the most recognizable brands in the at-home tissue market including Charmin, Angel Soft, Cottonelle, Brawny, Bounty, Kleenex, Quilted Northern, and Viva. All three companies have significant room to grow when it comes to the sustainability of their at-home products. They each have

made varying commitments to environmental sustainability that impact the boreal forest, as outlined in this section. However, none of their flagship at-home brands contain recycled materials or alternative fibers, and each company misses other key commitments necessary to ensure their products do not come at the expense of the boreal forest. Given these companies' substantial market shares, if they were to embrace recycled or sustainable alternative fibers throughout their product lines, it would lead to dramatic, positive changes in the industry.¹³⁰

FSC AND FSC-MIX CERTIFICATION ARE NOT ENOUGH

Procter & Gamble, Kimberly-Clark, and Georgia-Pacific all have, to some degree, incorporated FSC certification. However, FSC certification alone is not a long-term solution for the impact of tissue on the forest.

First, FSC does not alleviate the significant demand for virgin fiber. Only transitioning away from forest content by incorporating postconsumer recycled materials and alternative fibers will stop the needless and unsustainable use of trees for throwaway tissue products. Second, although FSC is in the process of adopting new standards for caribou habitat protection and the recognition of Indigenous rights, the standards in place as of February 2019 do not adequately ensure critical caribou habitat is protected or that Indigenous Peoples have consented to logging in their territories. Finally, FSC certification is granted by an independent auditor. This means that FSC certification is only as strong as the integrity and stringency of its audit.

The standards for FSC-Mix certification, which is the certification for products like Charmin, are even more relaxed than full FSC certification. FSC-Mix certification guarantees only that the product's contents satisfy FSC's Controlled Wood standards, meaning they do not come from illegally harvested forests, forests harvested in violation of traditional and civil rights, forests in which high conservation values are threatened, forests being converted to plantations or non-forest use, or forests in which genetically modified trees are planted. These standards do not provide for the sustainability of boreal caribou populations, the protection of intact forests, or that the wood is obtained with the free, prior, and informed consent of Indigenous Peoples. In addition, as with full FSC certification, FSC-Mix certification relies on an independent audit that can vary in stringency depending on the auditor.

To make tissue truly sustainable, companies need to transition to recycled content or, at a minimum, responsibly sourced alternative fibers. However, Procter & Gamble, Kimberly-Clark, and Georgia-Pacific all have yet to take significant steps to achieve this.

PROCTER & GAMBLE

In Procter & Gamble's Wood Pulp Procurement Policy, the corporation has expressed its support for Indigenous rights, pledged to avoid purchasing wood sourced from high conservation value forests, and said it would innovate to reduce its reliance on virgin forest fiber.^{131,132} Unfortunately, they have made little progress toward this commitment. The company continues to source from intact boreal forests. Furthermore, all its at-home tissue products—Charmin, Bounty, and Puffs—continue to rely entirely on virgin forest fiber, and the company has made little progress on increasing its use of alternative fibers or recycled content in its at-home brands.

Procter & Gamble has commitments to FSC and is promoting efforts to increase the supply of FSC-certified wood fibers.¹³³ Furthermore, the company gives “preference” to FSC certification over other certification systems.¹³⁴ As of 2014, 54 percent of Procter & Gamble's virgin tissue pulp was under the FSC label.¹³⁵ However, particularly in its at-home tissue brands, much of this is FSC Mix-certified pulp, which is a far less stringent designation than full FSC certification. Charmin, the company's flagship toilet paper brand, and Puffs, its flagship facial tissue brand, are both FSC Mix-certified.¹³⁶ In addition, Procter & Gamble continues to rely on other, less credible, forms of certification such as SFI and PEFC and has not made a commitment to transition to virgin fiber that is 100 percent FSC certified.¹³⁷

Furthermore, Procter & Gamble's commitments to addressing climate change contain a glaring hole. While the company has pledged to reduce its operational emissions by 50 percent by 2030, this commitment does not include the emissions associated with the harvesting of trees to manufacture their tissue products.¹³⁸ This means the corporation is failing to account for the majority of emissions created by the production, consumption, and disposal of their products. However, the company has begun looking into mechanisms for incorporating these “Scope 3” emissions into its climate commitments.

KIMBERLY-CLARK

Although Kimberly-Clark still relies almost exclusively on virgin fiber for its at-home tissue products, Kimberly-Clark has taken meaningful steps to alleviate the pressure its products place on forests, committing to reduce its “natural forest fiber” footprint by 50 percent relative to 2011 by 2025.¹³⁹ To meet this commitment, Kimberly-Clark has conducted life cycle analyses to evaluate the most viable

alternative fibers and begun incorporating materials, such as wheat straw, into its away-from-home tissue brands.¹⁴⁰ Its Professional Greenharvest line is now made with 20 percent alternative fiber.¹⁴¹ Kimberly-Clark's total tissue fiber is 24 percent postconsumer recycled, 60 percent of its tissue fiber is under the FSC label,¹⁴² and its flagship at-home tissue brands are fully FSC certified.¹⁴³ The company has also innovated to create more sustainable packaging, including by introducing a tube-free brand of Scott toilet paper.¹⁴⁴

Like Procter & Gamble, Kimberly-Clark does not yet incorporate Scope 3 emissions into its greenhouse gas emissions reduction strategy. It is looking to reduce its emissions through mechanisms such as using alternative fibers and implementing user waste initiatives to reduce end-of-life emissions.^{145,146}

GEORGIA-PACIFIC

Georgia-Pacific relies more on forests in the southeastern United States than on the boreal forest.¹⁴⁷ However, it does have its own logging operations in Canada, from which it gets some of its wood pulp. Georgia-Pacific has commitments to protecting forests with high conservation value.¹⁴⁸ It also has promised that it will “actively support collaborative and science-based efforts to identify, map and protect endangered species in the boreal region to help achieve the recovery of species at risk, including woodland caribou.”¹⁴⁹ Still, the company has not committed to stop operating in severely degraded boreal caribou habitat.

Georgia-Pacific also continues to rely on virgin fiber for its flagship at-home tissue brands. In addition, none of these tissue brands are FSC certified. Instead, Georgia-Pacific says it “supports all of the recognized forest certification programs,” including SFI.¹⁵⁰ It is committed only to ensuring it sources from areas that meet SFI standards, which are far below those of FSC.¹⁵¹

However, Georgia-Pacific has begun incorporating some postconsumer recycled material into its away-from-home tissue products. Envision bath tissue, for example, is made of 100 percent recycled material, including 20 percent postconsumer recycled fiber. The company has also launched a campaign to reduce postconsumer waste, including through innovations that make paper towels recyclable.¹⁵² While Georgia-Pacific is making strides in its away-from-home market, the company needs to begin incorporating these changes into its at-home tissue brands.

GRADING CHARTS

The choices consumers make in the grocery store impact tissue companies' sourcing decisions. The scorecard below is a sustainability guide for purchasers of at-home tissue products. By opting to buy only the tissue products with the highest grades in our buyer's guide, consumers can help alleviate the impact their use of throw-away tissue products

has on the boreal and other forests. The scorecard includes brands chosen based on metrics specified in the Appendix. There are many brands not on the scorecard. However, we urge consumers to evaluate products not included in the scorecard according to the same criteria outlined in the Appendix.

The scorecard evaluates each brand’s recycled content, bleaching process, and whether it is made from fiber sourced from FSC-certified forests.¹⁵³ These are the criteria

NRDC and Stand.earth deemed the best indicators of how the brands impact virgin forests. Because no major tissue brands include alternative fibers at this time, this criterion was not included; we hope to use it in future versions of this scorecard. We would also, in the future, like to grade companies on their commitments to purchasing boreal wood pulp only from suppliers that support Indigenous-led boreal caribou range plan development. For a full methodology, please see the Appendix.

A BUYER’S GUIDE TO THE SUSTAINABILITY OF AT-HOME TISSUE PRODUCTS

TOILET PAPER	
BRAND	GRADE
Green Forest	A
365 Everyday Value, 100% Recycled	A
Earth First	A
Natural Value	A
Seventh Generation	A
Trader Joe’s Bath Tissue	A
Marcal 1000 ^a	B
Marcal Small Steps	B
365 Everyday Value, Sustainably Soft	D
Cottonelle Ultra	D
Scott 1000	D
Scott ComfortPlus	D
Trader Joe’s Super Soft Bath Tissue	D
Charmin Ultra ^b	F
Kirkland	F
Angel Soft	F
Quilted Northern	F
Up & Up Soft & Strong	F

PAPER TOWELS	
BRAND	GRADE
Green Forest	A
365 Everyday Value	A
Earth First	A
Natural Value	A
Seventh Generation	A
Trader Joe’s	A
Marcal	B
Marcal Small Steps	B
Viva	D
Bounty	F
Brawny	F
Sparkle	F
Up & Up	F
Kirkland	F

FACIAL TISSUE	
BRAND	GRADE
Green Forest	A
365 Everyday Value, 100% Recycled	A
Natural Value	A
Trader Joe’s	A
Fluff Out	B
Marcal Small Steps	B
Seventh Generation	B
365 Everyday Value, Sustainably Soft	D
Kleenex Everyday	D
Kirkland	D
Puffs Ultra Soft	F
Up & Up Soft	F

a Due to a fire at their New Jersey paper plant in January 2019, Marcal is suspending manufacture of their at-home products, including all Marcal products listed in this report. However, they could become available again in the future.

b This entry applies to both Charmin Ultra Soft and Charmin Ultra Strong.

REDUCE TISSUE CONSUMPTION

The surest way to reduce the tissue industry's impact on the boreal and other forests is to lower our consumption of tissue products. Until the middle of the 20th century, reusable products such as kitchen cloths and fabric napkins were far more common. The reliance on single-use products, encouraged by marketing around a culture of convenience, is needlessly driving tissue demand to new highs. If individuals returned to reusable wipes for kitchen counters, cloth napkins, and even bidets, which are favored by people in many parts of the world and by many doctors, it could considerably slow forest degradation.

SOURCE AT LEAST HALF OF PULP FROM POSTCONSUMER RECYCLED CONTENT

The only way for tissue products to become sustainable is for companies to stop the tree-to-toilet pipeline. The best way to achieve this is to transition to recycled fibers, including the highest feasible percentage of postconsumer recycled content.

As the market for tissue grows around the world, recycled products and alternative fibers will be the only way to accommodate increased demand without creating further strain on Indigenous Peoples, the climate, and biodiversity.

The technology to create effective recycled-content tissue products already exists. Companies such as Seventh Generation and Planet Inc. have shown that there is a market for more sustainable tissue in the United States. Major tissue companies have substantial research and design budgets that can be tasked with creating soft recycled products. Between 2012 and 2017, Procter & Gamble spent nearly \$10 billion on research and development.¹⁵⁴ Kimberly-Clark spent \$311 million in 2017 alone.¹⁵⁵ Much of this money went into developing non-tissue products. If even a fraction of these budgets were dedicated to innovation in recycled-content tissue products, companies could create quality products that reduce their dependence on intact forests worldwide.

THE NEED FOR IMPROVED RECYCLING PRACTICES IN THE UNITED STATES

The way we recycle materials in the United States needs to change. Last year, China, which had been the destination for about half of the world's paper and plastic recyclables, implemented new, more stringent regulations on what recycling materials they will import.¹⁵⁶ China's new regulation limiting "foreign garbage" is a response to the glut of contaminated recycled material it was receiving, particularly with the proliferation of single-stream recycling.^{157,158} China will no longer import unsorted paper or materials that are more than 0.5 percent impure—meaning they contain food waste or other forms of contamination. Now, recycled materials in the United States are piling up.¹⁵⁹

Americans, who use four times as much paper per capita as the global average, clearly need to cut back on consumption. However, there is also significant room for paper and tissue manufacturers to increase the demand for recycled content, as well as their ability to process recovered paper. If tissue manufacturers expanded their use of recycled pulp, it would help increase the reuse of these materials and promote the development of expanded recycling infrastructure.

SUPPLEMENT RECYCLED CONTENT WITH ALTERNATIVE FIBERS

The sector for alternative fibers has grown rapidly in the past 10 years. Canopy's Ecopaper Database¹⁶⁰ lists 92 tissue, towel, and napkin products with up to 100 percent recycled content or alternative fibers. As companies transition to using alternative fibers, they need to be sure that they are, in fact, sustainably sourced. When creating bamboo-based products, suppliers should source only from FSC-certified operations and include this certification on their product labels. For other alternative fibers, currently the two best sustainability standards are the Green Seal GSI Tissue Standard, which will require wheat straw and other residue fibers to come from Sustainable Agriculture Network-certified crops or other approved third-party standards, and the Roundtable on Sustainable Biomaterials Standard for End-of-Life Products, By-products and Residues.^{161,162}

Conclusion



We already know of options for more sustainable tissue production—specifically by using recycled materials and responsibly-sourced alternative fibers. Yet, major companies have largely failed to adopt them. Instead, they have mostly adhered to the status quo and kept consumers in the dark about the true environmental cost of their tissue purchases. The sales revenues of many of these companies are larger than many countries' GDPs.¹⁶³ They are companies with substantial global power that can make a significant difference in the overall health of the world's forests.

Given tissue's extreme cost to Indigenous Peoples, the global climate, species, and forests like the boreal, it is time to reexamine current norms of tissue production and consumption. It is also time for companies to act more as global citizens and usher the world into a more sustainable paradigm. Fortunately, solutions promoting healthy forests and a healthy planet already exist. Companies and consumers simply need to embrace them.

Appendix: The Issue With Tissue Grading Methodology

The following is the methodology used in this report for grading the toilet paper, paper towel, and facial tissue brands. The evaluations include brands on the market in the autumn of 2018 and are based off data taken from product websites, packaging, and company communications.

The scorecard includes the flagship brands from the three tissue companies with the largest market shares, Procter & Gamble, Kimberly-Clark, and Georgia-Pacific. Given that private label products (store brands) cumulatively also constitute a substantial portion of the marketplace, the scorecard includes a selection of these products. To provide a representative cross-section of recycled tissue products, we also included a selection of tissue brands made primarily from recycled material. There are many brands not on the scorecard. However, we urge consumers to evaluate products not included according to the same criteria used in this scorecard.

The grading system evaluates the brands on the basis of their pre-consumer and postconsumer recycled content, whether the virgin fiber used is fully FSC certified or FSC-Mix certified, and their bleaching practices. These are the criteria NRDC and Stand.earth deemed the best indicators of how the brands impact virgin forests. Because no major brand includes alternative fibers, this was not a grading criterion.

First, baseline quantitative measures were created for each brand according to the percentage of each fiber type used. For example, if a brand were comprised of 60 percent virgin fiber and 40 percent postconsumer recycled fiber, virgin fiber would have a baseline quantitative measure of 60 and postconsumer recycled fiber would have a baseline quantitative measure of 40.

Each criterion was assigned a different weighting factor, depending on its estimated relative value. The weighting factors were as follows:

Postconsumer recycled content: 3

Pre-consumer recycled content: 1.5

Virgin fiber with full FSC certification: 1

Virgin fiber with FSC-Mix certification: 0.5

Virgin fiber that uses nonchlorine bleaching methods: 0.5

Since all recycled tissue uses PCF bleach, we automatically incorporated this variable into the weight assigned to recycled content and only separately evaluated only the bleach type of virgin fiber content.

Each brand's baseline quantitative measures for each type of fiber were multiplied by the corresponding weighting factors and added together to produce a raw score. For example, if the baseline quantitative measure of postconsumer recycled content were 40, this number would be multiplied by 3, the weighting factor for postconsumer recycled content. While the weighting factors for recycled materials were static, the weighting factors applied to the quantitative measures for virgin fiber content depended on whether that fiber was FSC certified and what kind of bleaching process was used.

The formula is as follows:

$$\begin{aligned} \text{Raw score} = & 3 \times [\% \text{ of postconsumer recycled content}] \\ & + 1.5 \times [\% \text{ of pre-consumer recycled content}] \\ & + 1 \times [\% \text{ of virgin fiber that has full FSC certification}] \\ & + 0.5 \times [\% \text{ of virgin fiber that has FSC-Mix certification}] \\ & + 0.5 \times [\% \text{ of virgin fiber that uses non-chlorine bleaching processes}] \end{aligned}$$

For example, if a brand had 20 percent postconsumer recycled content, 40 percent pre-consumer recycled content, and 40 percent virgin fiber content that has full FSC certification but the company uses an ECF bleaching process, the score would be calculated as follows:

$$[3 \times 20] + [1.5 \times 40] + [1 \times 40] + [0.5 \times 0] + [0.5 \times 0] = 160$$

The grading scale is as follows:

250-300 = A

175-249 = B

125-174 = C

100-124 = D

< 100 = F

The score of the above example would be a C.

A BUYER'S GUIDE TO THE SUSTAINABILITY OF AT-HOME TISSUE PRODUCTS



TOILET PAPER

BRAND	COMPANY	TOTAL % RECYCLED	% POST-CONSUMER RECYCLED	% VIRGIN FIBER	BLEACHING PROCESS	VIRGIN FIBER IS FSC CERTIFIED? ^a	SCORE/GRADE
Green Forest	Green Forest	100	>90	0	PCF ^b	N/A	285/A
365 Everyday Value, 100% Recycled	Whole Foods Market	100	80	0	PCF	N/A	270/A
Earth First	Royal Paper	100	80	0	PCF	N/A	270/A
Natural Value	Natural Value	100	80	0	PCF	N/A	270/A
Seventh Generation	Seventh Generation	100	>80	0	PCF	N/A	270/A
Trader Joe's Bath Tissue	Trader Joe's	100	80	0	PCF	N/A	270/A
Marcal 1000 ^c	Marcal	100	60	0	PCF	N/A	240/B
Marcal Small Steps	Marcal	100	60	0	PCF	N/A	240/B
365 Everyday Value, Sustainably Soft	Whole Foods Market	0	0	100	TCF ^d	Mix	100/D
Cottonelle Ultra	Kimberly-Clark	0	0	100	ECF ^e	Yes	100/D
Scott 1000	Kimberly-Clark	0	0	100	ECF	Yes	100/D
Scott ComfortPlus	Kimberly-Clark	0	0	100	ECF	Yes	100/D
Trader Joe's Super Soft Bath Tissue	Trader Joe's	0	0	100	TCF	Mix	100/D
Charmin Ultra ^f	Procter & Gamble	0	0	100	ECF	Mix	50/F
Kirkland	Costco	0	0	100	ECF	Mix	50/F
Angel Soft	Georgia-Pacific	0	0	100	ECF	No	0/F
Quilted Northern	Georgia-Pacific	0	0	100	ECF	No	0/F
Up & Up Soft & Strong	Target	0	0	100	ECF	No	0/F

a Some products receive FSC certification for their recycled content. However, to avoid double-counting recycling and FSC certification, FSC certification is not applied as a grading metric for products that do not contain virgin fiber. For more information, see the Appendix.

b Processed chlorine free

c Due to a fire at their New Jersey paper plant in January 2019, Marcal is suspending manufacture of their at-home products, including all Marcal products listed in this report. However, they could become available again in the future.

d Elemental chlorine free

e Totally chlorine free

f This entry applies to both Charmin Ultra Soft and Charmin Ultra Strong.



PAPER TOWELS

BRAND	COMPANY	TOTAL % RECYCLED	% POST-CONSUMER RECYCLED	% VIRGIN FIBER	BLEACHING PROCESS	VIRGIN FIBER IS FSC CERTIFIED?	SCORE/GRADE
Green Forest	Green Forest	100	>90	0	PCF	N/A	285/A
365 Everyday Value	Whole Foods Market	100	80	0	PCF	N/A'	270/A
Earth First	Royal Paper	100	80	0	PCF	N/A	270/A
Natural Value	Natural Value	100	80	0	PCF	N/A	270/A
Seventh Generation	Seventh Generation	100	>80	0	PCF	N/A	270/A
Trader Joe's	Trader Joe's	100	80	0	PCF	N/A	270/A
Marcal	Marcal	100	60	0	PCF	N/A	240/B
Marcal Small Steps	Marcal	100	60	0	PCF	N/A	240/B
Viva	Kimberly-Clark	0	0	100	ECF	Yes	100/D
Bounty	Procter & Gamble	0	0	100	ECF	No	0/F
Brawny	Georgia-Pacific	0	0	100	ECF	No	0/F
Sparkle	Georgia-Pacific	0	0	100	ECF	No	0/F
Up & Up	Target	0	0	100	ECF	No	0/F
Kirkland	Costco	0	0	100	ECF	No	0/F



FACIAL TISSUE

BRAND	COMPANY	TOTAL % RECYCLED	% POST-CONSUMER RECYCLED	% VIRGIN FIBER	BLEACHING PROCESS	VIRGIN FIBER IS FSC CERTIFIED?'	SCORE/GRADE
Green Forest	Green Forest	100	90	0	PCF	N/A	285/A
365 Everyday Value, 100% Recycled	Whole Foods Market	100	80	0	PCF	N/A	270/A
Natural Value	Natural Value	100	80	0	PCF	N/A	270/A
Trader Joe's	Trader Joe's	100	80	0	PCF	N/A	270/A
Fluff Out	Marcal	100	60	0	PCF	N/A	240/B
Marcal Small Steps	Marcal	100	60	0	PCF	N/A	240/B
Seventh Generation	Seventh Generation	100	50	0	PCF	N/A	225/B
365 Everyday Value, Sustainably Soft	Whole Foods Market	0	0	100	TCF	Mix	100/D
Kleenex Everyday	Kimberly-Clark	0	0	100	ECF	Yes	100/D
Kirkland	Costco	0	0	100	ECF	Yes	100/D
Puffs Ultra Soft	Procter & Gamble	0	0	100	ECF	Mix	50/F
Up & Up Soft	Target	0	0	100	ECF	Mix	50/F

ENDNOTES

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