

# PAPER vs. PLASTIC

Plastics are generally considered a non-environmentally friendly product, with production and use contributing to environmental impacts ranging from congested landfills to a country's dependence on oil.

In an effort to reduce plastic pollution, shopping bag manufacturers are proposing to replace classic plastic bags with seemingly more environmentally friendly paper ones.

## But are paper bags really so ecological?

To be honest, we must admit that both types of materials represent a certain type of burden on the environment.

However, studies show that calculating the cost of all the necessary resources to produce bags **puts plastic polyethylene bags in a more environmentally friendly position.**

**10** **ADVANTAGES OF PLASTIC**



# 1. PRODUCTION

Paper bags are made of trees that are renewable, to some extent.

However, trees can only be restored at a certain rate and usage of the world's great forest ecosystems is currently not sufficiently compensated.



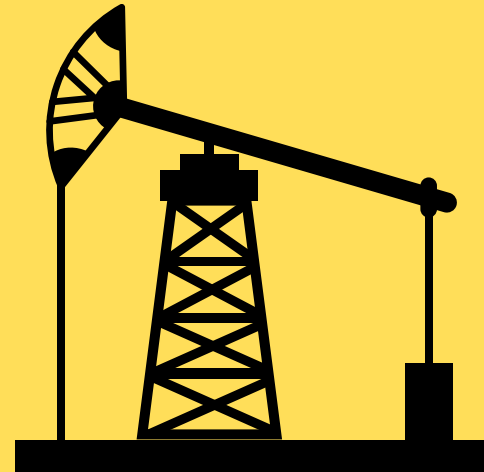
manufacture of a paper bags requires

**4x less energy**

than of plastic bags

*Paper*

Although plastic bags are made from fossil fuels, total non-renewable energy consumed during the lifecycle of plastic bags is 36 % lower than that of paper bags.

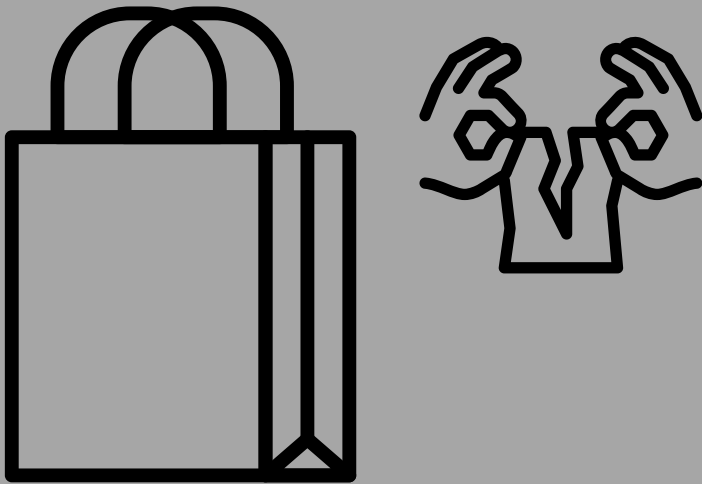


**36% lower non-renewable energy consumption**

*Plastic*

*The key to reducing the environmental impact of a bag is to reuse it as many times as possible.*

Paper bags tend to tear, they are less durable than plastic when soaked, and become unusable when dirty.



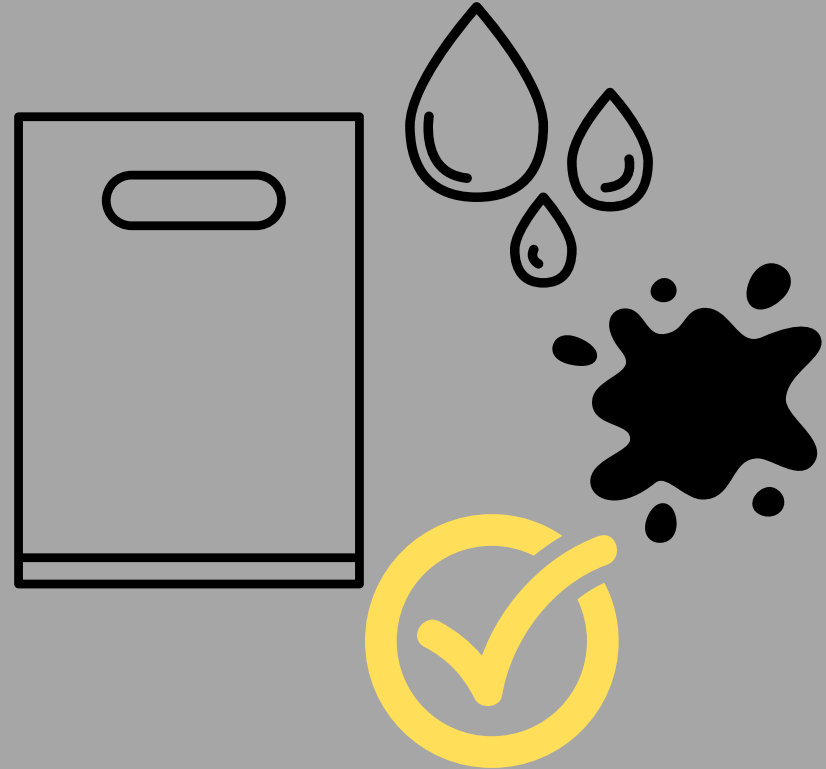
**must be used 43 times**

to achieve a smaller overall carbon footprint than a plastic bag

*Paper*

## 2. REUSING

Plastic bags are more robust, water resistant, can be washed when dirty.



plastic bags are suitable for repeated use

*Plastic*

# 3. WASTE

Paper bags have a much greater weight - five to seven times more than plastic bags. Paper adds to waste, increased volume and tonnage.



weight of approx. 55 grams

**7x more solid waste**

*Paper*

Plastic bags can be made very thin and still strong enough.



weight of approx. 6-8 grams

**can carry 2.500x**  
more weight than the weight of the bag

*Plastic*

# 4. RECYCLING

Paper recycling process often consumes more fuel than production of a new bag.

Recycled paper causes more water pollution than the production of a new paper bag.



**PAPER**

**up to 7x recycles**

however, each recycling has an impact on the shortening of cellulose fibers

*Paper*

In the case of film recycling, combinations with other materials are problematic, the biggest problem paradoxically is the combination with other plastics, which are difficult to separate from each other.



**PLASTIC**

**up to 5x recycles**

without affecting the mechanical properties of the film

*Plastic*

# 5. EMISSIONS, GLOBAL WARMING (GWP)

Harvesting trees means there are fewer trees that absorb greenhouse gases. Large-scale paper producers try to pay attention to sustainability and extract pulp from trees grown specifically for paper production. But sustainable forests will not cover the huge demand.

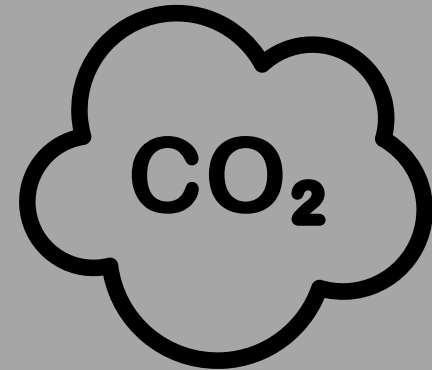


*global warming potential*

**GWP 1.38 kg CO<sub>2</sub>**  
**(4x used bag)**

*Paper*

Plastic bags create 39% less greenhouse gas emissions than unfolded paper bags.



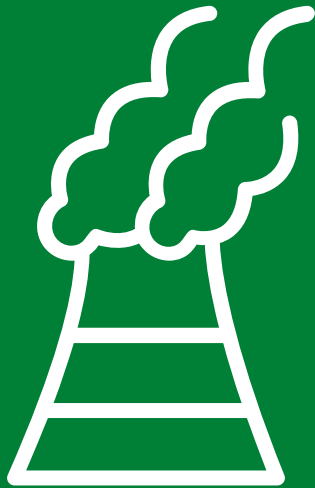
*global warming potential*

**GWP 1.40 kg CO<sub>2</sub>**  
**(1x used bag)**

*Plastic*

# 6. AIR AND WATER POLLUTION

According to scientific studies on the subject, paper production is responsible for as much as 80% of greenhouse gas emissions in the production process. In addition, trees that could be used to combat the expanding ozone hole will fall to make paper.



paper production pollutes

**air by 70 % and water 50 times more**

than production of plastics

*Paper*

# 7. LANDFILL

In a dry landfill, paper bags do not decompose faster than plastic bags. This is because while paper decomposes much faster under ideal conditions, landfills do not have ideal conditions. The lack of light, air and oxygen means that almost nothing decomposes, so paper and plastic spend the same amount of time there undecomposed.



**paper decomposes faster only in an  
artificially created environment**

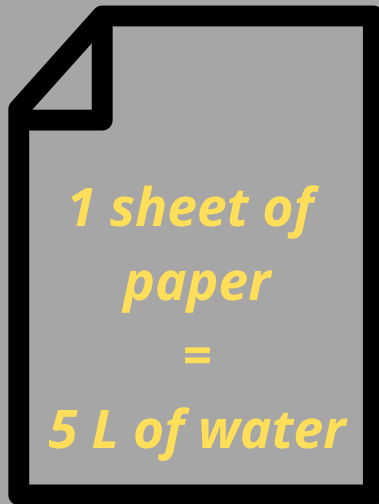
In fact, little decomposes in the landfill. And if decomposition occurs in a landfill, the result of decomposition is the same amount of carbon dioxide as in the case of incineration. In addition, a paper bag takes up more space in the landfill than a plastic one.

*Paper*



# 8. WATERCONSUMPTION

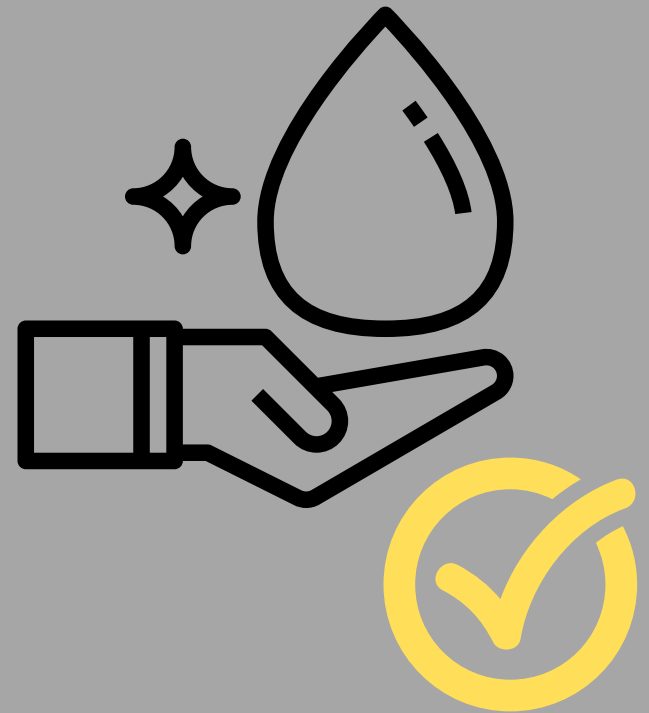
In production of paper bags, three times more water is used than in the production of plastic bags. To create a sheet of paper, 5 liters of water are needed.



**3x more water**

than for the production of plastic bags

*Paper*



*Plastic*

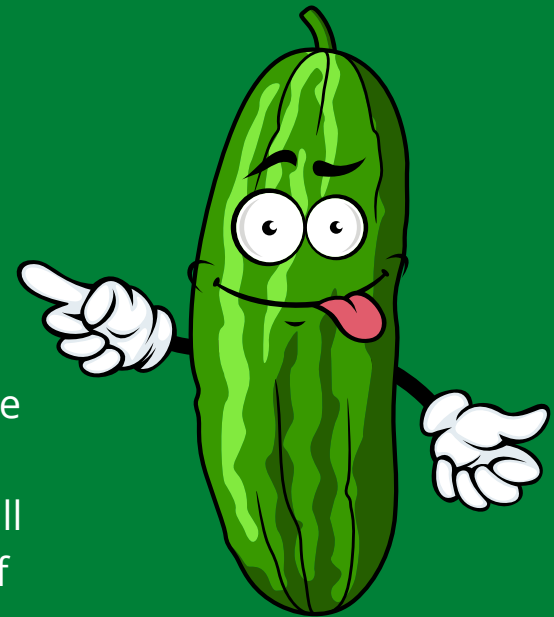
# 9. FOOD PRESERVATION

The main functions of packaging still remain product protection, storage and transportation.

Plastic has proven to be a very effective packaging material, especially when it comes to keeping food uncontaminated and fresh. Plastic is extremely durable and resistant to external influences; one can ensure that the product is always well preserved. This helps to avoid losses due to wasting inventory. Plastic packaging can survive extreme environments and does not easily decompose at high and low temperatures, thus preserving the integrity of the food or beverage inside. It also protects products from moisture, oxygen, dust, light and odors.

**2 g of plastic = 14 extra days**

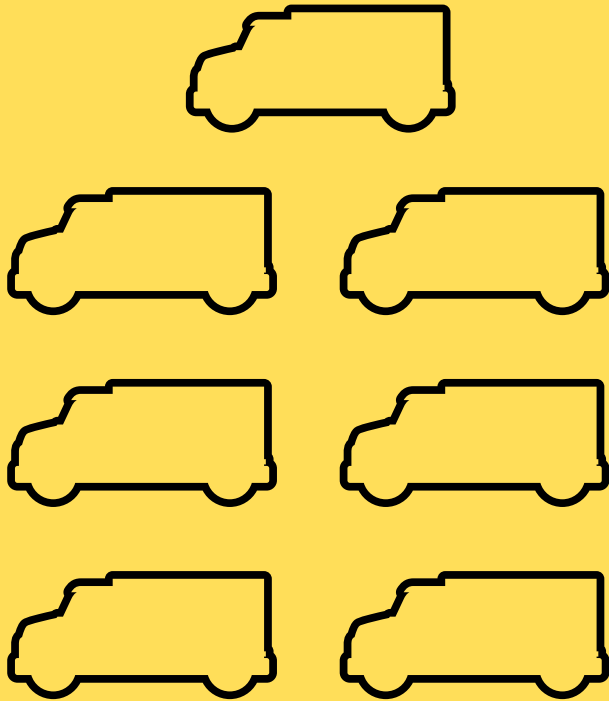
However, plastic is in many cases the best and most effective packaging material. Take cucumber salad as an example. Wrapped in plastic, it lasts 14 days longer. Unpackaged, it will soon become unsaleable waste, wasted food. Two grams of packaging will extend the life of the cucumber by two weeks.



*Plastic*

# 10. TRANSPORT

Transporting the same amount of paper bags requires 7 times more trucks than plastic bags, producing 7 times more carbon dioxide and consuming 7 times more fuel.



transporting two million paper bags  
requires

**7 trucks**

*Paper*



transporting two million plastic bags  
requires

**1 truck**

*Plastic*