

## **HARMFUL EFFECTS OF PLASTIC BAGS AND THEIR ALTERNATIVES**

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Plastic bags from supermarkets, which we usually use, are made of polyethylene. Plastic bags appeared in the mid-fifties in America and immediately gained immense popularity. Plastic has revolutionized its way into our everyday life – it is convenient, practical, and cheap.

So, how it started? The conventional packaging bag was first produced in the USA in 1957 and was intended for the packaging of sandwiches, bread, vegetables and fruits. By 1966, about 30% of bakery products produced in this country were packed in such packages. By 1973, the production of bags in Western Europe was 11.6 million pieces. In 1982 plastic bags with a handle appear on sale in the largest shopping centers. Every year, up to 5 trillion plastic bags are used in the world.

The average lifespan of plastic bags from point of sale to destination is 12 minutes. By 2002, the total global production of plastic bags was estimated in the range from 4 to 5 trillion pieces per year.

However, the world started to realize what harm it does to the ecology of the planet. The plastic bags discarded in the environment last for a very long time and are not biodegradable. As a result they form permanent pollution. They kill one million birds, one hundred thousand marine mammals and innumerable schools of fish. For this reason, in a number of countries, the use of plastic bags as household packaging is restricted or prohibited.

Despite the fact that disposable plastic bags are now in the focus of attention of regulators and the general public due to the lack of a proper disposal system, in fact they are more environmentally friendly than their alternatives.

When comparing a disposable HDPE bag with the most popular alternative, a paper bag, for a paper bag to have less ozone depletion and ecosystem depletion than a plastic bag on average, it must be reused up to 43 times. It is obvious that it is practically impossible to use a paper bag a large number of times due to a number of its characteristics - low strength, etc.

A disposable plastic bag is more environmentally friendly than a paper bag because its production requires 4 times less water and energy and greenhouse gas emissions are 3 times lower. What's more, the disposable plastic bag is even more environmentally friendly than a 30% recycled paper bag.

While paper bags are less environmentally friendly, many countries are encouraging the move away from plastic bags in favor of alternatives, including paper ones. In the UK, for example, some large supermarkets are switching from disposable plastic bags to disposable paper bags for packaging baked goods and bulk products, while admitting that they are aware that they are increasing carbon emissions.

Therefore, is it a logical way out to abandon plastic bags and switch to its alternatives? In our opinion, it is much more effective to follow these actions.

Whatever type of bag is used, the key to reducing environmental impact is to reuse it as many times as possible. As soon as the bag cannot be reused for its original purpose (for example, for transporting food), it should be used for another application – for example, as a garbage bag. It is virtually impossible to use a paper bag a large number of times due to a number of its characteristics – low strength, etc.

Recycling is important because in most cases the material is not biodegradable and accumulates in landfills for a long time. At the same time, polyethylene is easily recyclable. The goal of recycling plastic bags is to reduce the rate of pollution of the environment with plastic waste. At the same time, due to processing, there is a decrease in the cost of purchasing raw materials for the manufacture of new plastic products. Recycling plastic bags can lead to new, durable products that can be cost effective and environmentally friendly. Recycling of plastic bags can contribute not only to solving the environmental problem of plastic waste pollution, but also to reduce the consumption of fossil resources for their production as well as the cost of extracting and purchasing raw materials.

The good example of helping our planet, in particular the ocean, would be a non-governmental engineering organization based in the Netherlands that develops technology to extract plastic waste from the oceans named “The Ocean Cleanup”. It is owned by young outstanding man called Slat Boyan. Although their first project was not successful, their ideas are a step in the right direction.

From all of the information above, we can say that modern policy that encourages people to reject the plastic bags and embrace paper bags is beside the purpose, moreover it is doing more harm than favour for ecology. We should learn how to reuse and recycle more of plastic bags and prevent ourselves from throwing them away when we can still use it.

## **References**

1. The Ocean Cleanup. URL: [https://uk.wikipedia.org/wiki/The\\_Ocean\\_Cleanup](https://uk.wikipedia.org/wiki/The_Ocean_Cleanup).
2. The impact of plastics on life cycle energy consumption and greenhouse gas emissions in Europe. URL: <https://www.plasticseurope.org/application/files/9015/1310/4686/september-2010-the-impact-of-plastic.pdf>.
3. Plastic promises. What the grocery sector is really doing about packaging. URL: [https://green-alliance.org.uk/resources/Plastic\\_promises.pdf](https://green-alliance.org.uk/resources/Plastic_promises.pdf).
4. Plastic promises. What the grocery sector is really doing about packaging. URL: <https://www2.mst.dk/Udgiv/publications/2018/02/978-87-93614-73-4.pdf>.
5. How many plastic bags are used each year? URL: <https://www.theworldcounts.com/challenges/planet-earth/waste/plastic-bags-used-per-year/story>.
6. Plastic bag. URL: [https://en.wikipedia.org/wiki/Plastic\\_bag](https://en.wikipedia.org/wiki/Plastic_bag).

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