
Disposable cups and the environment – information cards

The main raw material needed to make a paper cup is wood, which is a renewable resource. However, collecting wood impacts on the landscape - trees have to be cut down both for use as wood and to make space for roads so that the wood can be transported.

A polystyrene cup is made from oil. Collecting and transporting oil can cause environmental damage, particularly if spills occur during drilling or transportation.

More petroleum is needed to make a paper cup than a polystyrene one. This is because the wood for the paper cups has to be transported by road or rail to the manufacturing plant. The oil or natural gas needed to make polystyrene cups is taken to the plant through a pipeline. 4.1 g petroleum is needed to make a paper cup but only 3.2 g for a polystyrene one. If the paper cup has a plastic or wax coating even more

Paper cups are made from bleached wood pulp, which is made from wood chips. Only about half the chips are turned into pulp. Bark and some wood waste are burned to supply energy for the process. In total about 33 g wood and bark is used per cup.

A paper cup weighs about 10.1 g; a polystyrene one about 1.5 g.

A paper cup costs about 5p; a polystyrene one about 2p.

To make paper, chemicals such as chlorine, sodium hydroxide, bleach, sulfuric acid, sulfur and limestone are needed. These chemicals are not recycled. In total about 1.8 g of these chemicals are needed per cup.

Efficient catalysts are used to make polystyrene so most of the chemicals involved can be recycled. About 0.05 g chemical waste is produced per cup.

So much wood pulp is used to make a paper cup that the whole process requires about 12 times as much steam, 36 times as much electricity and twice as much cooling water as the process used to make a polystyrene cup.

About 580 times as much waste water is produced during the manufacture of a paper cup as when a polystyrene one is made. The waste chemicals are mainly removed from the water but there is still at least 10 times more chemical waste than for polystyrene.

Making polystyrene produces about 20 kg waste metal salts per tonne. Making paper produces 1– 20 kg, depending on which paper plant it is.

More waste gas is produced for polystyrene than for paper per tonne of material made. However, paper cups are heavier than polystyrene ones so less waste gas is produced per polystyrene cup.

Polystyrene cups can be reused because they do not soak up water. Paper cups can be reused but washing can destroy them.

Polystyrene cups can be recycled. The recycled material cannot be used for food or drink but it can be made into packing materials, insulation, patio furniture, tiles and other products. However, at present only a small proportion of polystyrene waste is recycled.

Paper cups cannot be recycled. The glue that holds the parts of the cup together cannot be removed in the recycling process. If the paper is coated with plastic it is even harder to find a way to recycle it.

Both paper and polystyrene can be burnt in an incinerator so that the energy produced can be used. Paper provides 20 MJ per kg and polystyrene gives 40 MJ per kg.