

Plasticpreneur

From old to new

Properly disposed of, discarded products made of plastic are not waste but a valuable raw material from which new things can be made. Worldwide only a fraction of the plastic waste produced is recycled (about 9%). The majority ends up in landfills, in nature, on the streets, in waterways or is incinerated. During incineration, CO₂ is released into the atmosphere, polluting the environment. At the same time a valuable secondary raw material is lost. To prevent this from happening, appropriate disposal and recycling systems are needed.

Industrial recycling

Plastics recycling is mostly done in big industrial facilities. This requires many machines, which are very expensive to purchase and maintain. Thus, recycling is only profitable when big quantities are processed.

Small scale recycling

However, it doesn't always have to be large and expensive machines. Around the globe, creative people and NGOs have constructed machines with which plastic waste can also be processed into new products independently of large companies and in small quantities - but mostly in a DIY approach and without safety standards. The young Austrian company plasticpreneur produces such small-scale plastic recycling machines professionally. They are inexpensive, mobile, easy to operate and safe. This is to give people worldwide access to plastic recycling.

Secondary raw materials are...

not naturally occurring raw materials that are obtained by reprocessing (recycling) disposed material. The use of secondary raw materials conserves natural resources.

NGOs are...

non-governmental organizations – independent organizations that represent important social interests. NGOs are active, for example, in the areas of environmental protection, human rights, social services and advocacy for people in need.

Bildbeschreibung:

In a waste collection area in the Kakuma refugee camp in Kenya, volunteers were trained to use plasticpreneur's small-scale recycling machines to produce their own products from plastic waste for the community. Here you can have a quick look:

Small Machines – big impact

With the small-scale recycling machines, people in low-income regions can manufacture everyday-items from plastic waste. This benefits the people and the environment:

Social impact:

The local population is involved in all steps of the recycling process, which goes far beyond collecting garbage and selling it to the industry. New employment and training opportunities are created, allowing people to earn money. This allows them to improve their own quality of life and that of their families.

Ecological impact:

The population learns that plastic waste is a valuable secondary raw material that can be recycled very effectively. The fact that the waste has a value means that it is collected and not simply thrown away, incinerated or landfilled. This has a positive effect on the environment.

Economical impact:

Small-scale plastic recycling machines can create local, sustainable businesses, projects and initiatives. These produce durable products from plastic waste that are lacking or unaffordable in everyday life for people in developing countries. In addition, a new "craft" is made accessible - small-scale plastics recycling.

Sprechblase S2:

Recycling is not the only solution. Reducing plastic waste is just as important!

Linear economy and circular economy

The majority of the world's economic systems are linear in structure. This means that new raw materials are used to produce things that end up in the trash after use. The consequences include the rapid consumption of finite raw materials (such as oil and natural gas), growing mountains of waste and environmental problems. An economic system that counteracts this is the so-called circular economy. The idea is to use, repair, share and lend products for as long as possible. When products reach the end of their useful life, the raw materials they contain are reprocessed and recycled. In this way, hardly any more waste is generated.

Task:

- 1) Put the missing words in the graphs corresponding to the two economical systems
- 2) Find matching verbs: The goal of circular economy is to ____ waste, ____ resources as well as ____ humans and the environment.

Shredder, injection molding machines and extruders

Small-scale plastics recycling uses simple machines that can be operated without extensive training. People all over the world have access to plastics recycling and can set up their own social entrepreneurships.

Granulator

This machine shreds collected plastic waste, which has previously been sorted, washed and dried, into fine granules

Injection molding machine

In the injection molding machine, the granulate is heated. Once it has melted, it can be injected into a special mold. This is how, for example, flower pots, clothespins, combs and slide rules are created.

Extruders

If you want to manufacture larger products, such as beams, pipes or water gutters, you need the extruder. The granulate is melted in it and pressed evenly by a screw conveyor through a tool or nozzle that gives the plastic the desired shape.

Social entrepreneurship means...

This refers to companies that not only implement a business idea to make money, but also have a charitable goal. For example, they work for education, poverty reduction, climate, environmental or animal protection.

Experiment

Do you want to try recycling something yourself? Then try this experiment, in which you can make something completely new from an old plastic bottle:

Task:

Look at the spinning top from the box very loosely:

- Describe the spinning top: the weight, the shape, the material...
- Was it made with by injection molding or by extrusion?
- Think about which other useful products can be made with a small-scale recycling machine

Plastics-educational resources

Kreisel

PRODUCER:	DOING CIRCULAR
PRODUCT	Kreisel
MATERIAL	Polypropylen Recyclate
PROCESS	Injection molding
WEBLINK	https://plasticpreneur.com

Plasticpreneur

To date, we have developed four CE-certified, easy-to-operate small-scale plastics recycling machines, which we also manufacture ourselves in Austria. Further machines are under development. In addition, we have designed over a wide range of products, as well as developed and produced the appropriate injection molds and extrusion tools for them. We are represented in over 60 countries on six continents. Our customers are very diverse. They include educational institutions, design studios, science centers, museums, ocean clean-up organizations, cities, municipalities, associations, makerspaces, start-ups and NGOs - we provide access to the recycling process as well as to the products. In all our activities, a sustainable responsible economy in the sense of the Circular Economy is very important to us. The purpose of our actions was clear from the beginning: to develop smart tools for a positive social, environmental and economic impact worldwide.