

Our impact

Environmental

1. More than 480 billion plastic bottles were sold worldwide in 2016. In some countries up to 30% of them were recycled, but this solves the problem only temporarily because while recycled the plastic loses some of its qualities. Biodegradation is unique because when the plastic is put through the process the outcoming materials can be used in production of something less harmful than plastic.
2. For countries where waste sorting is not a habit yet collection of plastic bottles is an easy start compared to other waste groups. This means Only Bottles can be a starting point for waste sorting in developing countries if the local government is not interested in ecology.
3. As a result of conventional plastic processing, the material loses some of its properties (some types of recycled plastics cannot be used in the food industry, for example). In the course of biodegradation, the properties of the plastic's components do not change, therefore, from the obtained chemicals, new objects of the same value can be created.
4. At the end of the recycling process we get mono (2-hydroxyethyl) terephthalic acid (MHET), a heterodimer composed of terephthalic acid (TPA) and ethylene glycol, all of which can be used to create new plastic bottles.
5. Obtained ethylene glycol can be used in brake fluids and antifreezes in cars, heating systems in houses, liquid cooling systems for computers, dyestuff solvent, and cellophane production.
6. Terephthalic acid obtained at the end of the biodegradation of a plastic bottle can be used in creating tapes for audio and video recording, data storage, photographic films, labels; terephthalic acid is also a part of pain reliever oxycodone.

Social

1. As a company, we will raise awareness about the plastic problem and ways of solving it.
2. A part of the money we will get from selling the chemicals will go to financing waste sorting in the developing countries.
3. Presently in most countries the government is spending money on the recycling of plastics. The way proposed by our company will make recycling cheaper and let the government use saved money on something useful for the citizens.

The technology we are using

In 2016 *Ideonella sakaiensis* (a bacteria) was discovered. This bacteria is capable of biodegrading (consuming as food) PET plastic. Moreover, some time after that the scientists discovered two enzymes responsible for the process. Now the scientists are working on ways of making the enzyme more effective, but even with what we have now the process takes only 6 weeks. (https://en.wikipedia.org/wiki/Ideonella_sakaiensis)