About

We at PP Fuel aim to create a better environment for the generations to come. We aim to reduce the pollution and harms caused by plastic to our environment. We have three main goals:

1) Reducing plastic in our environment

2) Recycling plastic into useful fuels.

3) Making our environment plastic free.

We believe in the three R's to save our environment i.e. Reduce, Reuse and Recycle.

We hope that one day our ecosystem becomes plastic free and overcome from the harmful effects that plastic has caused.

PYROLYSIS

Pyrolysis is a thermochemical treatment, which can be applied to any organic (carbon-based) product. It can be done on pure products as well as mixtures. In this treatment, material is exposed to high temperature, and in the absence of oxygen goes through chemical and physical separation into different molecules. The decomposition takes place thanks to the limited thermal stability of chemical bonds of materials, which allows them to be disintegrated by using the heat.

Thermal decomposition leads to the formation of new molecules. This allows to receive products with a different, often more superior character than original residue. Thanks to this feature, pyrolysis becomes increasingly important process for today industry – as it allows to bring far greater value to common materials and waste.

Pyrolysis is frequently associated with thermal treatment. But in contrary to combustion and gasifications processes, which involve entire or partial oxidation of material, pyrolysis bases on heating in the absence of air. This makes it mostly endothermic process that ensure high energy content in the products received.

Pyrolysis products always produce solid (charcoal, biochar), liquid and non-condensable gases (H2, CH4, CnHm, CO, CO2 and N). As the liquid phase is extracted from pyrolysis gas only during it’s cooling down, in some applications, these two streams can be used together when providing hot syngas directly to the burner or oxidation chamber, more information is found here Directions of hot syngas utilisation.

During the pyrolysis, a particle of material is heated up from the ambient to defined temperature (setup temperature of Biogreen® equipment). The material remains inside the pyrolysis unit and is transported by screw conveyor at defined speed, until the completion of the process. Chosen temperature of pyrolysis defines the composition and yields of products (pyrolysis oil, syngas and char).

IMPACT

Making the plastic waste industry more sustainable

From 1950 to 2015, the global annual production of plastic has increased almost 200 times. This means that [381 million tons of plastic](https://ourworldindata.org/plastic-pollution#global-plastic-production) were produced in 2015, representing the total body weight of two-thirds of the world’s population.

In the same year, 55% of all plastic waste was thrown away, 25% was incinerated and only 20% was recycled. Thus, a vast majority of the plastic produced ends up as waste in the environment.

On an annual basis, one pyrolysis installation can transform the [**plastic waste of 30,000 people**](https://www.plasticsoupfoundation.org/en/2018/11/over-30-kilos-of-plastic-waste-per-person-a-year-and-barely-recycled/) into clean diesel (50%), naphtha (30%) and gas (10%).

The remaining 10% consists of carbon black particles left behind as a result of the pyrolysis process.

The diesel can be used directly as **fuel**, the naphtha as **raw material** for virgin plastics and the gas as **energy supply**. Moreover, it is possible to use the carbon black particles **sustainably** in e.g. the plastics industry, for road carpeting or for the fabrication of bricks or **building blocks**.

**CO2 reductions**

[Research by chemical company BASF](https://www.basf.com/global/documents/en/sustainability/we-drive-sustainable-solutions/LCA%20ChemCycling_Slide%20deck_final.pdf)has shown that pyrolysis technology is an excellent way to recycle mixed plastic waste in a high-quality manner.

Compared to processing plastic waste in a waste incinerator (WIP), recycling via pyrolysis provides significant CO2 reductions:

* The recycling of mixed plastic waste in one of our 150 kg/h pyrolysis installations saves 970 tons of CO2 compared to processing by means of a WIP (on an annual basis).
* In addition, the production of LDPE from one 150 kg/h pyrolysis installation saves 660 tons of CO2 compared to LDPE that is produced from fossil fuels.

Therefore, on an annual basis, one 150 kg/h Pyrolyze installation saves 1,630 tons of CO2 compared to more conservative methods of plastic waste processing and LDPE production.

You can always contact us for the exact calculation. We are happy to tell you more about it over a cup of coffee.

# Facilitate a sustainable local ecosystem

Because our pyrolysis installation is easy to ship in a sea container, it offers a **local solution to the global plastic waste problem**. So, instead of taking the problem to the solution, we are bringing the solution to the problem.

It is then possible to create a thriving ecosystem around a pyrolysis installation. Pyrolyze facilitates and the **operator makes an impact locally in various ways**.

# Waste disposal

Thanks to our pyrolysis installation, plastic waste, which was previously considered worthless and ended up in landfills, becomes valuable feedstock.

This helps developing countries to tackle the global plastic waste problem locally and at the same time creates a **valuable ecosystem around the supply and processing of plastic waste** with our Pyrolyze installation.

Innovation (FUTURE ENHANCEMENT)

Within our pyrolysis technology there are many opportunities for further innovation and optimization of the process. Based on feasibility studies we will realize the following valuable additions in the coming years.

* The possibility to control the pyrolysis process in a targeted manner. At this moment the ratios in which the outputs are produced are still a given on which we have little influence. In the future we hope to be able to match the output materials of the installation exactly to the wishes of the end user. For example, do you want more diesel or more naphtha from plastics? The choice is up to our customers in the future.
* Achieving a pure product with fewer and fewer filtering and additives. Now we use filter systems so that the installation produces directly usable and odorless diesel. We will further develop this so that we will eventually get rid of mechanical filter systems and residual materials and chemically process all unnecessary particles within the pyrolysis installation.