

**GreenTech
Solutions**

BDI 
BioEnergy International



**KEEPING PLASTIC
IN THE LOOP**
valorization of waste streams

TECHNOLOGY CENTER

your sparring partner for chemical scale-up

If you have a project aimed at reducing resources, energy consumption or harmful emissions, we are here to help you make it a reality. Turning green ideas into robust, viable, industrial-scale processes is what we do.

Technical and economic evaluation

Our experts have developed many projects from idea to market. We will conduct a thorough assessment of whether your proposal is technically feasible and what its economic prospects are.

Research and process development

In our technical center, we can test most of the basic green chemical processes and look at individual reactions and process steps on a pilot scale.

Scale-up and engineering

BDI offers the full engineering capability needed to design complete industrial-scale plants for green chemical processes. Entrusting us with the planning, organization and implementation of your project can save you a lot of effort.

Plant construction and commissioning

Seeking a contractor for the construction of your plant? We take on responsibility for engineering, purchase and construction (EPC-contractor). After commissioning and approval we offer customer service to ensure smooth operation of the plant.

» *Together, we want to unleash a green tomorrow.*

PROCESS DEVELOPMENT

for green ideas

If you are working on an idea that could make an industrial process more sustainable, then you have something in common with GreenTech Solutions by BDI! We provide service for innovators and entrepreneurs looking to develop their own ideas for sustainable processes.

- » **Do you want to scale-up and implement new chemical processes?**
- » **Do you need to test a project's technical feasibility?**
- » **Are you wondering how to develop a pilot plant?**
- » **Do you need experts with problem solving skills?**

GreenTech Solutions puts all of BDI's process development and engineering expertise at your disposal.

» *Circular economy for valuable chemicals.*



SYNCYCLE

success in chemical plastic recycling

SynCycle is a successful project that GreenTech Solutions has carried out in partnership with NGE – Next Generation Elements. It has resulted in a new upcycling technology for mixed plastic waste fractions.

The process begins with shredding and drying plastic waste, which is then continuously fed into a thermal reactor.

In the reactor, the plastic depolymerizes into oily substances, which evaporate through the reactor dome and pass into a condenser system. Converting plastic into a gas phase simplifies the separation of impurities. The condensation steps are designed to produce two oil fractions, one high-boiling and one low-boiling. We call these fractions "circular oil" as it can be fed back into a refinery process or used as feedstock for new plastic production.

» *Our goal is valorizing waste streams to keep plastic in the loop.*



CIRCULAR OIL

to close the cycle from plastic to oil and back to plastic

Recycling as an alternative to incineration

- » **New upcycling technology for mixed plastic waste fractions**
- » **Self-contained processing unit**
- » **Combination of extruder and reactor**
- » **Reactor with multiple adjustable temperature zones**
- » **High-boiling and low-boiling oil fraction**
- » **SynCycle unit keeps value creation local**

Overall, the project is an excellent example of our mission:

» *Taking a feasible process idea and developing it into a product that is ready for the market – especially when the market itself is just emerging.*

