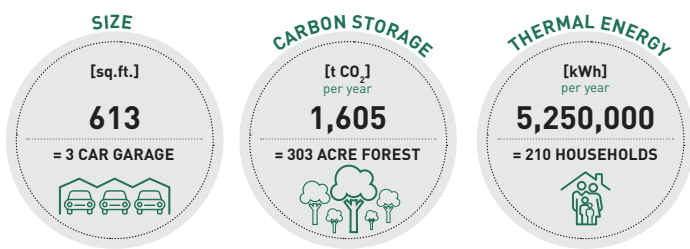


# BIOMASS RECYCLING INSPIRED BY NATURE



PX1500

Biomass is an energy source with great potential in the future. One PYREG system can supply up to 210 households with renewable heat energy from residual biomass. At the same time, it can be used to obtain valuable products like biochar, feeding char or activated biochar. These results can be achieved by an upcycling process based on eco-friendly carbonization.

PYREG CARBON TECHNOLOGY

## YOUR BIOMASS RECYCLING SOLUTION

### ADVANTAGES

**Conversion rate:** 20-30 % (based on DS content rate).

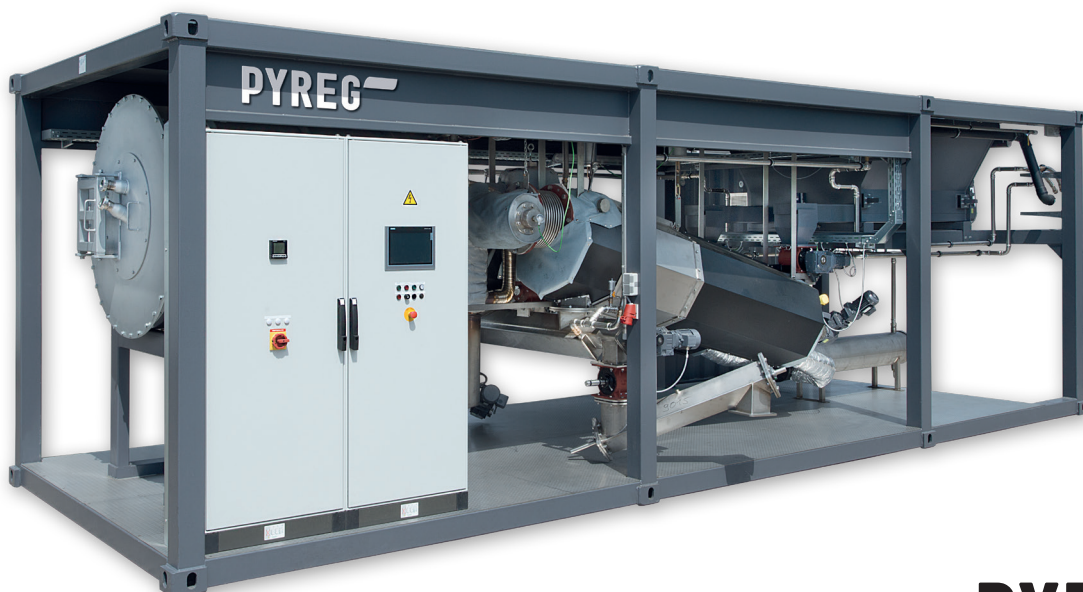
**Energy efficient:** The required energy is generated by the system itself; in addition, up to 650 kW<sub>th</sub> of maximum thermal capacity can be used for other purposes.

Biomass is **completely converted** to biochar (alternatively feeding char or activated biochar) and regenerative heat energy.

**Consequent upcycling of biomass:** Valuable biochar meeting high quality requirements can be commercialized at profitable prices.

Carbonization process is compliant with **EU environmental standards**.

**CO<sub>2</sub> sequestration:** The process of carbonization binds carbon on a long-term basis. After insertion of biochar in the soil, the carbon contained is removed from natural cycles for centuries.



RECYCLING



**PYREG**  
CARBON TECHNOLOGY  
SOLUTIONS

# SYSTEMS

	<b>P500 STANDARD UNIT</b>	<b>PX1500 INDUSTRIAL UNIT</b>
<b>Combustible rating</b>	500 kW	1,500 kW
<b>Annual throughput</b> DS, dry substance	up to 710 t	up to 2,200 t
<b>Annual production</b>	180 t ± 5 %	560 t ± 5 %
<b>Maximum thermal capacity</b>	up to 150 kW <sub>th</sub>	up to 700 kW <sub>th</sub>
<b>Annual excess thermal energy</b>	1,125,000 kWh	5,250,000 kWh
<b>Annual operation hours</b>	up to 7,500 h	up to 7,500 h
<b>Power consumption</b>	up to 12 kW <sub>el</sub>	up to 40 kW <sub>el</sub>
<b>Size</b>	l 9,000 mm w 3,000 mm h 3,000 / 9,800 mm	l 13,000 mm w 3,000 mm h 9,800 mm
<b>Additional technology module required</b>	l 3,000 mm w 3,000 mm h 2,800 mm	l 6,000 mm w 3,000 mm h 5,800 mm

Based on wood chips (80 % DS), 19 MJ/kg DS

PYREG systems are designed as compact, decentralized recycling technology that can easily be integrated into existing material cycles and infrastructures. The process is based on the principle of dry carbonization. That means, biomass is not burned, but carefully degassed and then carbonized (500 - 700 °C), by admission of a tightly targeted air stream. The excess thermal energy of up to 5.25 million kWh per year can be used onsite (e.g. for drying) or fed into a local heating grid.

# REFERENCES

## SONNENERDE GMBH, AUSTRIA

**Location site:** Riedlingsdorf (near Graz), Austria

**PYREG unit in operation since 2011:** P500

Sonnenerde is specialized in premium compost qualities and potting soils. The company has received several awards for its eco-friendly manufacturing concept.

With PYREG technology high-quality biochar is produced for soil application from cellulose fibres and husks of cereals.

Complete use of excess thermal energy in the existing heating network for heating and drying.

## BIONERO GMBH, GERMANY

**Location site:** Thurnau, Germany

**PYREG unit in operation since 2018:** P500

Bionero is an award winning producer of Terra Preta potting soils, based upon the tradition of the Amazon natives. By using the PYREG technology, Bionero produces high quality biochar from various biomass sources. Using a variety of treatments, the biochar is a key ingredient for a highly effective and ready-for-use growth substratum.

Further PYREG biomass treatment plants:  
Germany (13), Sweden (1), Belgium (1), Switzerland (1)