BIOMASS RECYCLING INSPIRED BY NATURE

SIZE
[sq.ft.]
614
= 3 CAR GARAGE

CARBON STORAGE
[t CO_2] per year
1,850
= 353 ACRE FOREST

WASTE HEAT
[kWh] per year
4,500,000
= 180 HOUSEHOLDS

Biomass is an energy source with great potential in the future. One PYREG system can supply up to 190 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 carbon. 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 dry substance rate).

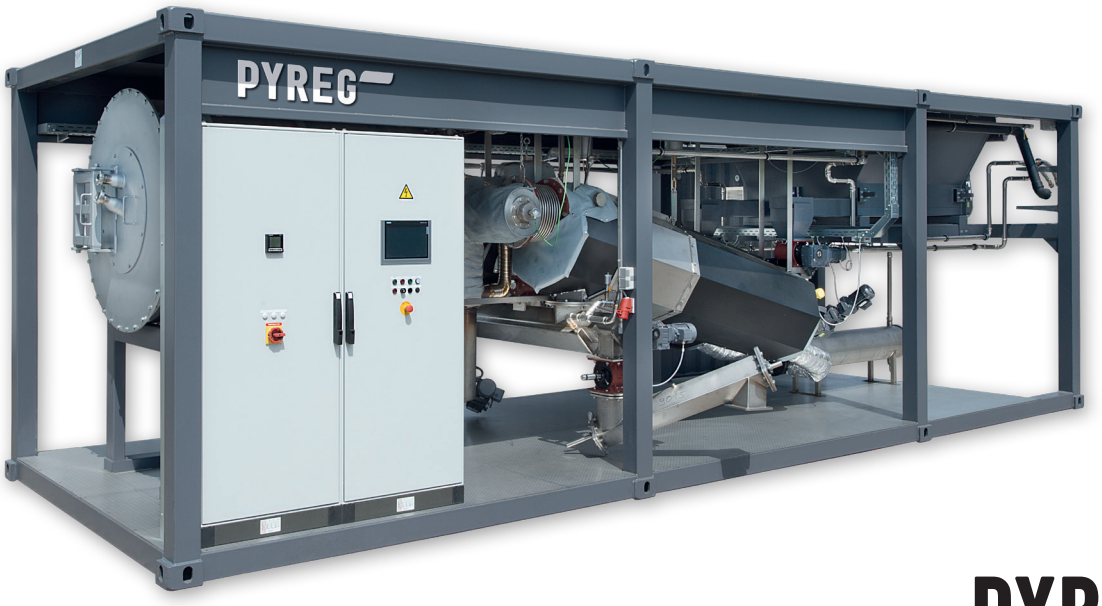
Energy efficient: The required energy is generated by the system itself; in addition, up to 600 kWth of excess thermal energy can be used for other purposes.

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_2 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

	P500 STANDARD UNIT	P750 / 1500 INDUSTRIAL UNIT
Size	l 9,000 mm w 3,000 mm h 5,800 mm	l 13,000 mm w 3,000 mm h 5,800 mm
Combustible rating	500 kW	750 / 1,500 kW
Annual throughput DS, dry substance	750 t	up to 2,300 t
Annual production	up to 220 t	up to 680 t
Excess thermal energy	up to 150 kW_{th}	up to 600 kW_{th}
Operation hours per year	up to 7,500 h	up to 7,500 h
Power consumption	10 kW_{el}	up to 30 kW_{el}
Additional technology module required	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 92 % DS agropellets

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 4.8 million kWh per year can be used onsite (e.g. for drying) or fed into a local heating grid.

REFERENCES

SKÅNEFRÖ AB, SWEDEN

Location site: Hammenhög (near Malmö), Sweden

PYREG unit in operation since 2019: P1500

Skånefrö is one of Sweden's leading seed companies with one of the most modern seed factories in Europe.

With PYREG technology high-quality biochar is produced for soil application from various biomass residues that are produced during seed production.

The complete excess thermal energy from the carbonization process is fed into a district heating network, which supplies parts of Hammenhög and Tommarp with regenerative heat energy.

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.

AH MEYER (ROESS NATURE GROUP), CHINA

Location site: Tianjin (near Peking), China

PYREG unit in operation since 2016: P500

The company group is specialized in products for erosion control, textile irrigation mats and green roofs.

With PYREG technology high-quality biochar is produced from coconut fibers and straw. The biochar is then used again for the manufacturing of eco-friendly erosion control products.

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

+ made in germany

Printed climate neutral biomass_flyer.EN.02.2020