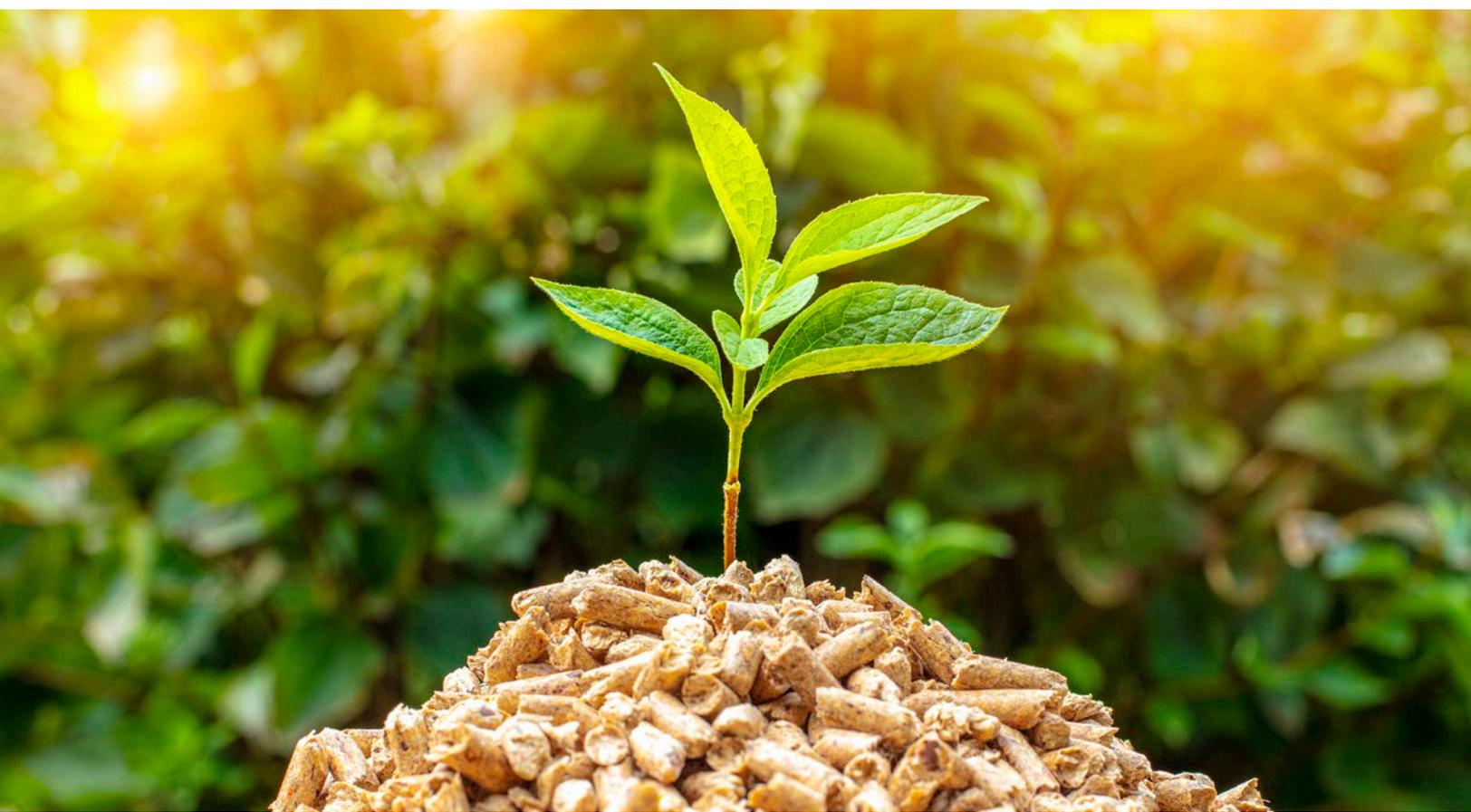


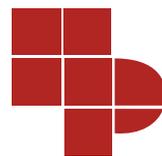
Biomass Conversion

Heyl Patterson's thermal processing equipment can activate, torrefy and carbonize any carbon based feedstock, in a completely integrated system. For a self sustaining process, biomass can be used as a fuel source. Heyl Patterson offers lab testing that is fully equipped to run a representative pilot scale test. Our team of engineers uses their decade's worth of experience and problem-solving skills to understand your process requirements and challenges.



Applications:

- Mercury removal from stack emissions
- Water purification
- Capture of organic impurities in gas and liquid streams
- Fuel storage
- Poison adsorption
- Other Specialty Applications



HEYL PATTERSON
THERMAL PROCESSING

Rotary Calciners

Heyl Patterson rotary calciners provide efficient drying, calcining, and conversion of biomass through an indirect heat source. Indirect heating technology maintains process atmospheres including inert, oxidizing, and reducing. It also provides complete separation of the heat source from the feedstock, resulting in the highest quality product without degradation from heat sources.

Features:

- Feed systems featuring closed hoppers or pressurized tanks
- Expandable and dust-tight seals for special atmospheres
- Custom internals for maximum heat and mass transfer
- Plug flow operation for product uniformity
- Movement can be parallel flow or counter flow
- Off-gas handling and collection systems
- Electric, fossil fuel, or waste heat sources
- Heat zones to provide independent temperature control areas
- Integral coolers to cool prior to discharge



Activation

Using low cost renewable feedstock, biomass is converted into a desirable activated product. Heyl Patterson thermal processing Innovative design results in a new positive energy process. Excess energy from removed volatiles can be used to produce steam, electricity, etc. Activated carbon produced by Heyl Patterson thermal processing equipment can have very high absorption capability with iodine numbers over 900. This process offers a reduction in the sulfur content of the activated product. Activated products can be produced in either powder or granular form. The process can also be used to regenerate spent activated carbon.

Activated Pellets



Carbonization

Using low cost renewable feedstock, biomass can be converted into a desirable energy product. Carbonized products can typically be co-fired along side coal in electric power plants. Heyl Patterson thermal processing Innovative design results in a new positive energy process. Excess energy from removed volatiles can be used to produce steam, electricity, etc. Water and volatiles are removed from the biomass and the energy per unit mass is increased in the carbonized product. This process offers a reduction in the sulfur content of the carbonized product. The end product can be pelletized for easy transport.



Carbonized Lignin

Torrefaction

Using low cost, renewable feed stock biomass can be converted into a desirable energy product. Torrefied products can typically be co-fired along side coal in electric power plants. Water and volatiles are removed from the biomass and the energy per unit mass is increased in the torrefied product. This process offers a reduction in the sulfur content of the torrefied product. The end product can be pelletized for easy transport.



Torrefied Woodchips

Activated Carbon Feedstocks:

- Hard and Soft Woods
- Coal
- Tires
- MSW
- Coconut Husk



* Activated carbon can be produced using any carbon based feedstock.



Engineering & Manufacturing

- Equipment designs are verified using Finite Element Analysis (FEA) to ensure trouble-free service and long life
- 3D equipment modeling
- State-of-the-art manufacturing facilities on 3 continents with robotic cutting and welding
- Manufacturing expertise working with mild steel, various grades of stainless steel, duplex steels and other exotic alloys for specialty applications
- Welders certified to ASME & AWS standards
- ISO 9001:2015 certified

Lab Testing

Lab testing is performed at our parent company, Carrier Process Equipment Group (CEG), in a state-of-the-art 15,000 ft² testing facility. Multiple pieces of equipment can be combined for multistep and multistage testing to simulate field operation, validate new equipment designs and provide complete process solutions. Combined with our full analysis of material characteristics and measurements of material behavior in specific processing applications, you are assured an efficient, reliable and safe solution, all backed by our process warranty.

Pilot plant field testing is available when lab testing would not effectively simulate process operating environments.

HEYL PATTERSON THERMAL PROCESSING
400 Lydia St.
Carnegie, PA 15106, United States
Tel: +1-412-788-9810
hpprocess.com | HPTPinfo@hpprocess.com

Carrier Process Equipment Group, Inc.
3400 Fern Valley Rd
Louisville, KY 40213, United States
Tel: +1-502-969-3171 | Fax: +1-502-969-3172
cpeg.com | info@cpeg.com

100% EMPLOYEE
OWNED



A Division of **CPEG**