

Torrefaction of lignocellulosic biomass

TORPLANT process

The **HEIG-VD**, through its **Industrial Bioenergy Systems** research group and in collaboration with the company **Granit Technologies SA**, is developing and commercialising a complete system for the torrefaction of lignocellulosic biomass (forest residues, green wastes, residues from biogas plants, roadside greenery, agriculture or horticulture...).

Torrefaction is a thermal pre-treatment process that reduces the oxygen content, increases the calorific value and reduces the variability in the heating value of the incoming biomass, making possible its use as a solid fuel of high added value. Low quality feedstock is transformed into a fuel with good storage properties that is well suited for combustion or gasification and also for densification and transport in the form of pellets.

Woody biomass, once torrefied, offers the following main advantages:



High efficiency fuel and with a constant calorific value



Hydrophobic fuel, enabling external storage



Favourable transport costs



Favourable grinding costs



Favourable carbon footprint

The high net calorific value, ranging between 19,0 and 22,0 MJ/kg (i.e. 5.3 to 6,1 kWh/kg, NCV), improves the economics of the fuel logistics and of combustion or gasification. The torrefied biomass can be burned with a very good combustion efficiency in biomass boilers with a power rating above 350 kW, as well as in industrial furnaces in all physical forms (chips, pellets, or pulverized).

The cost of the final energy is very favourable compared to fossil fuels owing to the possible utilisation of low cost woody biomass (residues).

Complementary synergies can be achieved by integration on a site where a biogas plant or a cogeneration plant is implemented.

The Torplant system is conceived to meet a national and international market demand for the valorisation of ligno-cellulosic residues with a high level of autonomy and low operating costs.

This principle responds to the European objective to harvest local resources in order to reduce external energetic dependence and the use of fossil fuels.



TORPLANT pilot plant unit in Orbe (CH) - capacity 100 kg/h

Are you an actor in the wood sector ? An industry, a collectivity or a delegate of public service using or producing fuels from biomass ? Looking for an alternative to fossil fuels ? Or involved in the management of a site that has low value woody biomass residues?

Please contact us for further information or for the preparation of a feasibility study suited to your specific implementation conditions.

Contacts :

SIB - Systèmes Industriels de Bioénergie

Dr. -Ing. Michel Jean-Bernard

+41 (0)24 557 75 94

jean-bernard.michel@heig-vd.ch

www.sib.heig-vd.ch

Granit Technologies SA

Tansley Claire

+41 (0)76 385 26 95

claire.tansley@granitsa.net

www.granitsa.net