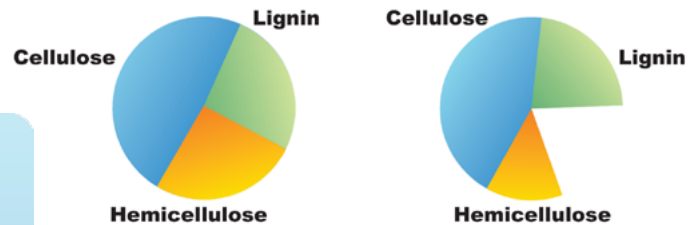


## What is Torrefaction?

Torrefaction is a thermochemical treatment process, similar to roasting or mild pyrolysis. Originally used in the roasting of coffee beans, this process has shown promise in that it boosts energy density.

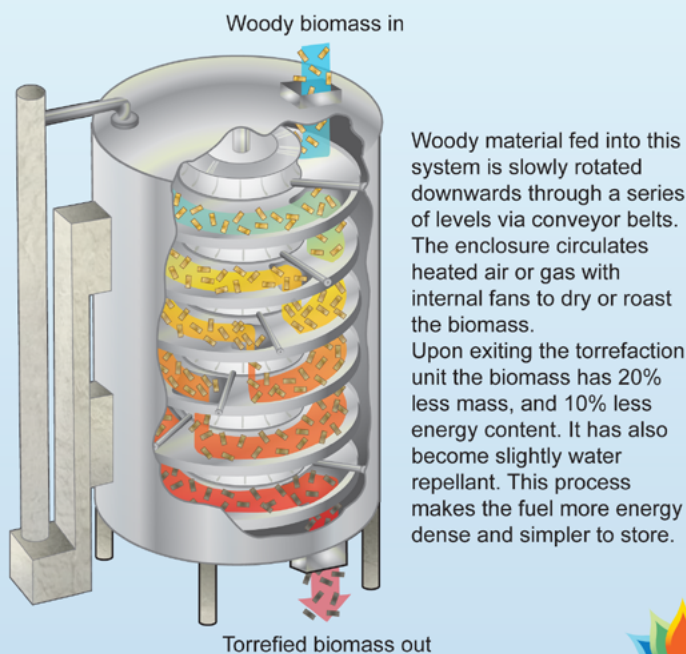
means that the torrefied pellets repel water and may be stored more easily.



**Before & After Torrefaction**



## Torrefaction



Adapted from: [integrofuels.com](http://integrofuels.com), [turbodryer.jpg](http://turbodryer.jpg)

## Benefits of Torrefaction

Torrefied pellets have many of the same advantages as traditional pellets but with some further added benefits:

- Torrefaction results in an even higher density than traditional pellets.
- Drier, more hydrophobic (water repellent) pellets reduce waste.
- Torrefied pellets are easier to grind, making co-firing with coal easier.
- Torrefaction creates homogenous particles which work more easily in automated feeds.

## How Torrefaction Works?

Torrefaction is a thermochemical treatment in which biomass is heated at 200-320°C. It is carried out in an anaerobic environment. Water and other superfluous volatiles burn off, and the bio polymers (cellulose, hemicellulose and lignin) in the biomass partly decompose. The remaining material is torrefied biomass. Torrefaction reduces the amount of biomass by 20%, while only 10% of the energy content is lost. The energy that is burned off in production can be used to fuel the torrefaction process. After the biomass is torrefied it can be pelletized to further increase the energy and bulk density of the material. Torrefaction also improves the hydrophobic properties of the fuel. This

## Information Sources:

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