

## USING PELLETS, AN ECO ALTERNATIVE

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**Abstract:** *Pallets are obtained in specialized factories, generally through extrusion, and additives, binders or any other additional chemical substances are not necessary, due to the naturally existent resins in the basic raw material.*

**Keywords:** pallets, regenerable, sawdust.

In 1800, Romania had about 8, 5 millions hectares of wooden land, that is 35-45% of the whole, but towards the end of the year 1974, the afforested area lowered to 27% of the whole areas, as compared to nowadays, when studies prove what that it is even lower than the ecological most propitious choice.

Nowadays, the most dominant energy source for more than two billions people is represented by wood, especially in poorer underdeveloped countries dwellings. Due to the present global crisis, people are looking for more economical way of warming their houses during the colder months of the year.

The western economies throughout the last 50 years, highly depended on the fossil fuels based energy in order to supply cars, houses, dwellings with energy, or for any other activities. During all this time, the biomass was not known as a serious alternative for heating, energy supply, but as an economic worthless remainder. Nevertheless, all these things regarding biomass usage have lately started to change and the recent history of this type of material is starting to become more and more promising. Fossil fuels have been associated with global temperatures rise, due to carbon emissions, anyway this isn't the strongest argument to be found against natural gases and oil usage, during the last few years, consumers have more and more resented prices rise, those reaching a record number, supply problems and, in a period of economic instability, paying for all these expensive products has become a burden. And the future of using natural gases or oil is nowhere more optimistic, since, as the population number rises, countries like China, or India are going towards a more western like lifestyle of life as well, the natural gases and oil price rises, because their reserves and supply are more and more limited. Considering the fact that the biomass is a regenerable source of energy and that it can successfully replace a great deal of the present fossil fuels, future sounds more and more promising.

There have appeared automatic modern devices on the market, being based on pellets that do not require an effort in order to be kept up. A device of these stoves will maintain a standard quantity of fuel for burning and it will ensure its rolling for at least a day. Some pellets burners can ensure this for longer periods, for weeks, while others even have external large devices for pellets stocking. By using a wall thermostat, these warming devices can satisfy the warming necessities for any kind of consumer. Pellets are an ecological fuel that uses wood or various other regenerable material sawdust as a raw material.

This new type of fuel can satisfy the actual requirements of using a regenerable ecological energy and it can be considered one of the cleanest alternative of heating industrial buildings and dwellings in Romania. Considering the conditions of prices alignment for classical fuels to Europe's prices, in the years to come, pellets will definitely become the most economical and comfortable, at the same time, alternative. Pellets are actually smaller lighters, obtained by pressing sawdust resulted from logs debiting technology, respectively both primary and secondary processing of wood as well as wooden remainders proceeding from wooden refuse or from the culting of trees, but also from other types of regenerable materials.

The history of pellets is the following one:

- in the year 1970 the first factory of producing wooden pellets was built in the United States of America, in the city Browsville.
- in 1983, the first residential thermic head office that uses pellets as fuels, was sold.
- in 1990, there were 20 producers of thermic head of fices and more than 80 factories were producing pellets. The North America is already warmed by over a million tons of pellets.
- in 1997, there were over 500.000 thermic head offices in North America that were based on pellets. This increasing production of pellets and the quick development of the sale market for this type of fuel are mostly due to the following things:
  - pellets represent an efficient usage of the local resources of the community for producing thermic energy at a low cost.
  - pellets are easy to use within the framework of such installations that use automatic supply as compared to the classical lighters that have large sizes and which are generally used as replacers for fire wood.
  - burning them does not eliminate noxas and thus the global heating process is not affected, eliminating as much carbon dioxide as the raw vegetal material consumes, to be produced.

In the year 2004, in Europe, according to the statistics published for the countries with a higher consumption of pellets, their usage is presented as following, in millions of tons:

- France consumes 92;
- Sweden consumes 84;
- Finland consumes 72;
- Germany consumes 63;
- Spain consumes 41;

As compared to other fossil fuels used at present, the wooden pellets, which were introduced in the United States of America as an alternative fuel, in 1970, can be considered a relatively new type of fuel. The main goal of pellets was in the making. At first, wooden pellets were used especially in the industrial, commercial and institutional sectors, for warming. The wooden pellets drew people's attention at the time, since they had a high quality and could be an alternative to oil. But as soon as the oil price came to normal, the wooden pellets price relatively rose as compared to that one, so this type of fuel's number of users lowered, too. The wooden pellets have not been introduced in large quantities ever since.

But the production of wooden pellets was prospering once more starting with the 90's. Since some countries encouraged pellets using via their politics, the ecological fee, equipment help, public education, regarding the fight against global warning, regarding energetic security and the rise of oil price, these measurements eventually proved to be beneficuel to pellets. The first residential staves being based on pellets were sold to consumers in 1983, in 2006, the United States of America had more than 80 factories of wooden pellets and produced approximately 2.300.000 tons of pellets. As compared to the year 2006 Europe had over 300 producers of wooden pellets with a total production of over 4, 5 millions of tons.

For example, the systems using wooden pellets have replaced the electric heating and the Kerosen. Even in the situations in which the politics of a certain country does not support this type of heating, the market of wooden pellets is increasing due to the ecological image they have created for themselves and to the advantage of cost. At present, pellets are in a competition with natural gases in several countries. But the demand is growing due to these advantages, environment protection, high quality and easiness in usage.

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