ENVIRONMENTAL IMPACT OF WASTE WOOD

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Abstract

This paper presents two aspects of the environmental impact of waste generated from wood. The first part shows the effects caused by improper waste disposal. The second part shows the effects generated by turning waste into furniture industry to make products from particleboard and MDF.

Key words: chip, environmental impacts, leachate, formaldehyde

INTRODUCTION

E.U. policy is to protect the environment: waste management and sustainable use of natural resources. Processing and recycling are becoming increasingly important due to the provisions of increasingly drastic on scrapping them and increasing costs involved in storing them.

The objective of waste policy (E.U.98/2008) consists in minimizing the negative effects of the generation and waste management on human health and the environment, aiming at the same time reducing consumption of natural resources and encouraging the implementation of the classification of different waste management options from the better at least good for the environment, such as: prevention, reuse, recycling, energy recovery and disposal through incineration or disposal. It gives priority to waste prevention, minimizing the amount and degree of risk, followed by reuse, recycling, energy recovery and, finally, disposal by incineration or disposal.

The environmental impact of waste-reduction initiatives and private business government and institutional initiatives aimed at the same beneficial to human health objective and the environment.

Reducing the impact of waste on the environment, involving multiple levels of action (11) of which we mention:

- Reducing quantities of waste generated;
- Increasing the percentage of recovery of recyclable waste
- Promote waste management control
- Creating an integrated system of waste disposal, taking into account best available techniques not entailing excessive costs.

MATERIAL AND METHODS

Most wood waste, approximately 60% is generated from wood. Most primary wood processing activities take place near the source of raw material (raw wood), the courses of water. In this way waste from the processing are stored along the riverbeds, which leads to pollution their waters.

Wood waste can contaminate improperly stored and phreatic layer. Polluted water is brown, has a disagreeable odor and taste before they reach harmful concentrations.

Surface waters are most affected and aquatic fauna may be affected very quickly. Biochemical oxygen consumption of leachate required for bio-degradation can be lethal to fish such as trout and invertebrates.

Waste wood can also generate hydrogen sulfide and ammonia under anaerobic conditions. In water, ammonia, fish may reduce the blood's ability to carry oxygen so that induces a lethal effect on aquatic life by suffocation.

MDF panels are made from trees that can not be valued as much wood as the wood waste and wood chips as well. Wastes are chopped in the first phase. They remove particles smaller than 5 mm and 40 mm. After defibrating steam spray glue and melamine-formaldehyde, a catalyst and paste so obtained is hot pressed and then dried.

Unfortunately, this material contains a substance called "Formaldehyde" dangerous generating neck cancer and respiratory tract. Its implication in leukemia is demonstrated. Formaldehyde dosage varies enormously, depending on quality furniture. Harmfulness of formaldehyde, the concentration at which it can cause unwanted effects on human health in Romania is estimated differently from civilized countries.

In our 6438 1986 standard, there are three classes of emission of formaldehyde from E1 (the least harmful), E3 (over 10 mg formaldehyde per 100 g dry completely blank).

In developed countries, emission values of these classes are much smaller. For example, in Germany, the maximum concentration of free formaldehyde in living quarters allowance (due to emission from the furniture) is 1 ml/cubic meter outdoor furniture should bear a label which is specified class formaldehyde emissions, just as the class is registered refrigerators consume.

MDF processing generates a significant amount of dust entering the airways and cause asthma attacks. It is recommended that workers use appropriate equipment: mask, etc. (5)

Widely used in furniture industry, chipboard attractive and modern style due to the price of virtually replaced solid wood on the largest segment of the market. The difference to the MDF is to use pieces of wood, agglomerated with natural or artificial resin and covered in a sheet Melanin is made from formaldehyde-generating products based on health issues as was observed for MDF. EU is developing rules that would restrict the use of binders and melamine formaldehyde based.

RESULTS AND DISCUSSIONS

Wood waste from wood processing can be realized. Thus, can be burned or composted bark, sawdust can be realized in the form of FAP, fuel, or in agriculture as animal litter and wood chips that can be used for wood boilers, panel of chipboard or paper pulp.

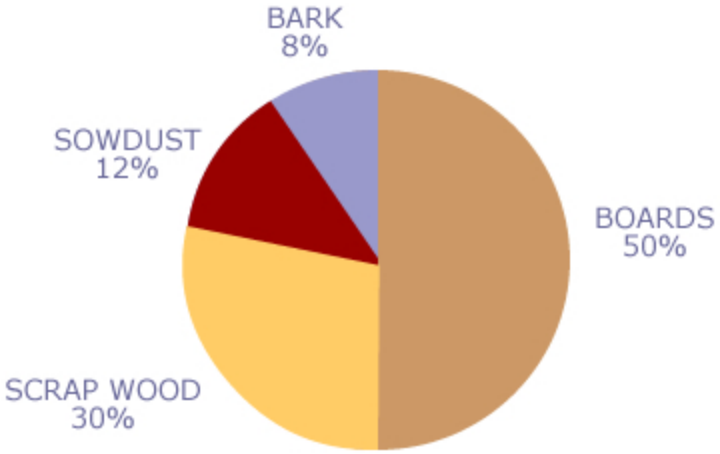

Fig 1 Products derived from wood cutting

Wood waste is also classified by type of treatment of wood, varnishes or paints that were used for impregnating or finishing. It is classified as three types of waste:

- Non-impregnated waste: such as wood waste generated: dust, sawdust, wood chips;

- Poorly impregnated waste: treated with non-hazardous health products such as wooden beams, furniture solid waste particleboard and FAP. These wastes can be used for combustion;

- Highly impregnated waste: telephone poles treated with creosote or copper, which served chips to absorb a dangerous product, etc.

These wastes are hazardous and can not be used for combustion and go to a specialized center.

Waste wood containing dangerous substances can bring meaningful environmental damage because, at present, most sewage is reached or the landfill, which can aggravate the process of decomposition, leachate treatment and can cause serious groundwater pollution.

Leachate generation, the waste water that is the result of leaching from wood can be compared with the infusion of coffee or tea. It generates a black liquid with the smell of oil that causes the appearance of foam and a surface film in the surrounding waters.

Decomposition of wood waste is a slow process that can produce leachate in years. In long been in the presence of water due to frequent rains, which are substances naturally found in wood such as acids, lignin, lignin's, fatty acids and tannins to dissolve and spread with high concentrations. Note wood waste heap leaching up to saturation. At this stage, the leachate is discharged to the environment and can have a negative effect on him.

Wood leachate contains several chemicals (ammonia, organic nitrogen, and phosphorus) with a concentration greater than that measured sometimes in municipal sewage and therefore can not be discharged without proper treatment.

Wood used as fuel can not be exploited for other purposes. Fossil energy consumption contributes to global warming by releasing greenhouse gases. Wood and wood waste as a fuel can be considered neutral because the amount of carbon dioxide that is

emitted by combustion is entirely absorbed by the trees. If the wood was left in the woods this cycle would still take place by wood decay.

Disused waste and water are inadequate to protect a major source of water contamination in groundwater infiltration due unpermeabilisation base landfill. (Pickin, J., 2008).

The additives are added to finish sometimes produces dangerous substances that may have direct effects on health. Wood preservation products perform their role well (for example protection against any weather, insects or fungus infestation) but during the years to see that many of these produced grave assault on human health. And they must give up all the wood preserving any product, at least for the inner. Plywood and pal. are made of synthetic resin containing formaldehyde, toxic products. Over time, this toxic substance occurs at the surface, severely affecting their health. Highly toxic compounds, such as dioxins and heavy metal compounds can be formed when burning treated wood.

Even if it comes from a natural source, wood waste generated is not in their natural form.

It turns out that wood waste can be dangerous for the environment. European laws do not allow to be brought to the landfill to ensure that:

- It is flammable;
- Can be sold and only waste that can not enter into a process of recycling can go to landfill;
- Can be exploited for sub-products and fuel wood which can be considered an advantage both economically and ecologically.

CONCLUSIONS

Waste wood can have many destinations and can be used more for good than for environmental degradation. The wood is polluting itself unless that is not used in its natural form. If you do not belong to the class of hazardous waste (treatment with creosote or paint containing heavy metals), can be recycled.

It can be seen easily if the wood is used or not pollutants. The risk of harmful substances to affect the atmosphere during the milling or the treatment is very high calorific value of wood. Therefore, the overall drop in recycling treated wood is burned or gasified in special facilities designed for power generation, turned into charcoal or cellulose thermal processes due to chemical processes or removed (burning or storing them in place for toxic waste).

Recovery of waste wood is not optimized.

Private sector development in the wood processing industry has increased year by year the number of wood cutting equipment. In parallel, in recent years, demand has dropped because of sawdust cessation of activities that used sawdust as raw material and reducing its use for heat production in furniture factories. Therefore, there is a surplus in the mountains of sawdust. "... Waste of human activities largely accumulates and can not be returned to the biogeochemical cycles in the rate at which they are produced." (Botnariuc and Vadineanu, 1982).

Storage of waste wood could generate inadequate environmental damage, can contaminate soil, water and aquatic habitat destruction also generate.

Why waste wood should not be incinerated only in facilities specially designed to filter pollutants contained in gaseous emanations. Treated wood waste produced by conservation, oiled or contaminated with paint or varnish, in any case not be incinerated by private individuals.

We can also say that the recovery of waste wood in the furniture industry, by making chipboard and MDF, has a weak environmental balance.

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