

CRITICAL POINTS OF RESIDUES GENERATION IN WOOD FLOOR INDUSTRIES

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INTRODUCTION AND OBJECTIVES

Residue is any discarded material in production chains and consumption that by technological limitations or market, has no economical or of use value in that moment, it may cause negative impacts to the environment when improperly handled. During all transformation wood stages to process floor it is generated residues. This is inherent in the mechanical wood processing.

Critical points of generation in a productive unit are those that occur whether generation of a large volume of residues, or hazardous or toxic residues (Class I) or even Class II-A (not inert) or II-B (inert), therefore difficult to manage due to their physical or technology available.

The critical points can be related to the quality of the raw material, the type of equipment, with the skill level of the manpower, with the cutting plan adopted, with the quality product criteria, type (drawing) of products, and others. Several factors are responsible for the residues generation in the wood floor production. There is a need to identify the most critical points of generation to prioritize actions and to develop management models appropriate to the sector.

The aim of the study was to identify the critical points of residues generation in wood floor manufacturing to subsidize the development of models for residues management to the industries of sector.

This study is part of the project "Sustainable Model for the Brazilian Wood Flooring Production Chain", funded by ITTO (The International Tropical Timber Organization), developed by ESALQ, with the participation of several collaborating institutions, among them the ANPM (National Association of Manufacturers of Wood Flooring).

METHODOLOGY

Through a case study carried out in an industry of wood flooring located in the municipality of Tietê - SP it was analyzed the wood transforming operations (observation "in loco" and interviews with officials from each sector), assessed the yield at each stage of production (through secondary data operating reports of the company) and for different species, sorted the residues (NBR 10.004, 2004) and determined the critical points of generation, which should be prioritized in the implementation of a residues management plan .

RESULTS AND DISCUSSION

The partial results are shown in Table 1. Data collection about residues generation in finishing operations will be supplemented further because the industry has no control over such materials.



Table 1. Types and classification of residues generated at the reception and preparation of wood

Operation	Types of residues	Classification (NBR 10004)	Yield
Romaneio	Parts outside of standard dimensions Excess of knots and alburn	Class II - A – not inert	Very variable depending on the specie and the supplier
Wood prepare – S4S	firewood sawdust	Class II - A – not inert	Excelent wood – 70% Medium wood – 60% Bad wood – 50%
Drying	There is no direct generation	-	-
Machining	firewood sawdust	Class II - A – not inert	Products of 1ª. – 65% Products of 2ª. – 20% Firewood – 10% Sawdust – 5%
	Varnish, solvents and stains	Class I – Dangerous	Indeterminate

In the wood preparation, the processing in the lumberjack's saw and circular saw are the largest generators of residues. In the machining, the molding is the largest generator. To minimize the generation is fundamental greater quality control in purchasing and receiving timber. Regarding the chemical residues, the reduction depends on the substitution by finishes nontoxic and recovery of materials in the system.

CONCLUSIONS

It was identified three main critical points in residues generation:

- quality of the raw material wood;
- product design;
- finishing toxic materials.

The actions that must be considered when developing models for residues management in the wood floor industries should provide a greater quality control of raw materials, with the supplier selection and replacement of species whose inherent characteristics result in a high incidence of defects and consequently greater volume of residues generated. As for the chemical residues of finishing materials, it requires a more detailed assessment to identify those that should be replaced by less toxic than the forecast of a materials recovery system.

REFERENCES

Associação Brasileira de Normas Técnicas – ABNT. NBR 10004:2004. Rio de Janeiro. 2004. 71 p.