ALTERNATIVES FOR ENHANCEMENT OF WOOD FLOOR INDUSTRIES RESIDUES

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INTRODUCTION AND OBJECTIVES

The industries of wood floors are generating large amount and diversity of wood residues. The vast majority of them discard in the environment or burn, generating negative environmental impacts. These residues have great potential for use in new products or as an energy source. This work is part of a larger project, "Sustainable Model for Supply Chain Brazilian Wood Flooring," funded by ITTO (International Tropical Timber Organization) and aims to characterize the sector, identify bottlenecks in the residues generation, identify good residues management practices and point out improvements in residues management in the sector.

This study aimed to characterize, classify and indicate possibilities of enhancement for wood residues resulting from mechanical processing of wood in the production floors.

METHODOLOGY

For the characterization and classification of the residues, the following tests were performed: measurement of particle size distribution of the particulate residue and the dimensional measurement of the residue gross, formed by pieces of wood; determination of specific gravity and bulk density of the residue particles; determination of the apparent specific density (10.4% moisture) of the residue gross; classification as hazardous by the NBR 10.004; determination of calorific value.

RESULTS AND DISCUSSION

The wood residues of the production floor are Class II - A - not inert, which already shows great potential for use.

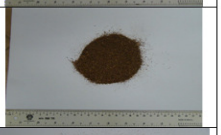
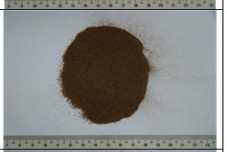
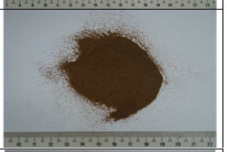
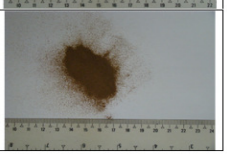
Table 1. Características dos resíduos particulados

Characteristics of the partuculate residues	
Density (g/cm³)	1,4423
Bulk density (g/cm³)	0,2489
Net calorific value (kcal/kg)	4.739

Table 2. Características do resíduo grosso

Charateristics of the gross residue	
Density (g/cm³)	0,923
Moisture content	10,38%
Net calorific value (kcal/kg)	4.739

Tableau 1. Characteristics and forms of enhancement

Type of residues	Size (cm)	Forms of enhancement	Example
Shavings 1	43 x 117 x 22	Flooring of smaller dimensions as legneto; base for flooring engineered; tablets for coating walls. material for marquetry; mosaic panels; Small wooden objects (SWO), such as: furniture and decor items; household objects; office supplies; Cables and similar tools; products for pets; objects of study in agriculture; production of energy (firewood).	
Shavings 2	Above 2,350	Material for marquetry; composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	
Shavings 3	Between 2,360 and 1,180	Composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	
Sawdust 1	Between 1,180 and 0,600	Composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	
Sawdust 2	Between 0,600 and 0,300	Composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	
Sawdust 3	Between 0,300 and 0,150	Composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	
Powder 1	Between 0,150 and 0,074	Composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	
Powder 2	Between 0,074 and 0,044	Composite cement-wood and wood-plastic; composition of bricks; composting; bedding for animals, cover crops, production of energy (firewood); briquetting.	

CONCLUSIONS

The different types of residues generated in the floor industry present physical characteristics and composition that enable numerous alternatives of enhancement.

REFERENCES

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