

## **Charcoal Production from Softwood Residues at Saohil**

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Sao Hill is the biggest in the country with an installed capacity of about 35,000 m<sup>3</sup> of logs annually operating on one shift. In 1977 the Sao Hill processed 23,000 m<sup>3</sup> of logs producing 11,000 m<sup>3</sup> of lumber, 4,300 tree tops were left behind in the forest. The amount of wood residues will increase to 12,000 m<sup>3</sup> of slabs, 5,100 m<sup>3</sup> of sawdust and 6,500 m<sup>3</sup> of tree tops when the Sao Hill runs at its full capacity. Hence it is important to explore alternative ways of utilizing these wood residues. Charcoal production is one of the alternatives for the utilization of slabs and tree tops. This study was carried out to analyse the economic feasibility of charcoal production from these residues. The residues were divided according to the size of the billets into 5 categories: small, medium, large and unsorted pin billets and cypress billets. The sixth category was made by medium sized hardwood billets to serve as a comparison. A portable steel kiln with a capacity of about 5 m<sup>3</sup> was used and 5 turns were made for each of the six categories. The main results obtained were: -the yield of marketable charcoal was highly affected by moisture content of the raw materials. Also, there was a considerable amount of fines, about 10% of the total weight in cypress charcoal and about 30% for the rest of the categories. - softwood charcoal was less dense than hardwood charcoal, and among the softwood cypress charcoal was less dense than pine charcoal. - the hardness test indicated no difference of practical importance among the six categories. - the effective calories obtained from 500 g of charcoal did not differ significantly among the six categories. However, softwood charcoal burned faster than hardwood charcoal, cypress charcoal being the fastest. - the production costs of each of the six categories were within the range of present charcoal market prices - consumer preferred wood charcoal to softwood charcoal on grounds that softwood charcoal is lighter, and burns faster necessitating continuous feeding to the stove. As briquetting is expensive, it will be worthwhile to try blending softwood charcoal with hardwood charcoal.