

## **MEASUREMENT AND OPTIMIZATION OF THE PRODUCTIVITY OF TRACK-TYPE TRACTORS APPLIED IN STERILE DEPOSITS**

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### **ABSTRACT**

The deposition of sterile in open pit mines requests great demand of space and of infrastructure equipments. This way, is of great importance to know and to dominate the variables that are involved in the inherent operations to the deposition of sterile in piles.

This work had as objective measures, to compare and to optimize the productivity of large truck-type tractors in deposits of sterile in the Iron Mine of Carajás - Pará - Brazil.

The equipments submitted to the analysis are the track-type tractors Caterpillar D11R and Komatsu D475A, because these are of same size and they are submitted to the same applications in the deposits of sterile, just differing in the manufacturer.

The variables monitored to making this work were the distance that the material is discharged in relation to the crest of the deposit, the topography of the land that the material is discharged, the material mass unloaded to be dispersed, the volume and the type of the material deposited, varying among mafics rocks , decomposed mafic rocks, soft hematit and canga.

The measurement was based on the capture of the time in that the tractors took to spread a pile of material of known mass, taking into account all the variables mentioned in the previous paragraph.

In agreement with the obtained data, the large track-type tractors Komatsu D475A produced 93% than a large track-type tractor Caterpillar D11R in the same operation conditions.

It was also observed that the unload distance in relation to the crest of the deposit influences considerably on the productivity of the tractors, and the variation of mass of the pile the being spread doesn't influence lineally in the time in that the tractors takes to accomplish this work.