National University of Science and Technology
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Faculty of Industrial Technology

Department of Industrial and Manufacturing Engineering

Product Development for Waste Minimization of Whiteboard Markers

By

Lodrina N. Masiyazi – Ngorima

Supervised by Mr. S. Mhlanga

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ABSTRACT

The majority of the NUST lecturer population use markers for visual aids during lectures. I many cases, the markers either dry up or become unusable, thus resulting in the markers bein discarded. Procurement of new markers each semester period is proving more challenging due t the country's economic activity. This project will benefit all users of white board markers, b designing a system that refills markers and minimizes the waste produced from the system an use of whiteboard markers. The project achieves the following objectives, development of marker design with aim to refill and address the marker usages bearing in mind th environmental situation, development of a questionnaire and the conduct of a survey with th aim to identify cost, and design parameters required in the market for whiteboard an development of a refill station for the refilling development of whiteboard markers. Discarde whiteboard markers were sourced from members of the NUST lecturer population for analysi and comparison.. Strategies and techniques for refilling and waste minimization of whiteboar markers were addressed and the results of this project were:

- A refillable whiteboard marker design, with a PP barrel (85mm), lid and stopper, felt tip and cartridge. To use alcohol based ink, which can be dry-wiped from whiteboards withou leaving a trace, fast-drying, low odor and a with a bullet tip of approx. 4 mm.
- A refilling station design 84mm (dia) x 95mm (height), to be made of PP/ aluminum performance data is 36ml of each type of ink, red, green, blue and black and mechanism o operation is capillary action.