

Design And Fabrication of Needle Burner and Polymer Recycler

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Abstract

Proper management of biomedical waste including burying, burning of polymers has been a growing global environmental concern and the problem is rising with an ever-increasing number of hospitals, clinic and healthcare laboratories. In order to curb or solve the problem for a long period of time, the development of a biomedical instrument was greatly considered. This paper deals with the design and fabrication of a workable reliable and durable polymer recycler and needle burner used for recycling of polymer waste and destruction of sharp objects. The design of the proposed model concentrated on heat transfer as the principle of operation and methods for fabrication involved cutting, welding, assembling and finishing during the fabrication process. Results showed that the burner could be used to burn sharp waste such as needle into harmless steel which may be used in other industries. It would help in better sharp waste management. It was also observed that the burner is a better sharp waste management technology than the traditional incinerator and land filling.

Keywords: *Needle Burner, Polymer Recycler, Syringe, Needle, Waste Management, Safety.*