

ABSTRACT**Design and Fabrication of a Machine for the Injection
Molding of Expandable Polystyrene.**

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The injection molding of expandable polystyrene (EPS) foam products is a process used for production of patterns for evaporative casting, packaging products, disposable food containers etc. The process involves injection of pre-expanded polystyrene beads in a closed preheated mould, heating the mould to a required material processing temperature, cooling and finally ejecting the molded part from the mould.

An automated machine fitted with process and sequential controls was designed and built to achieve this result.

A complete set of detailed design calculations together with design and fabrication drawings are presented. Details of the control system including the PLC used are also presented.

A cost analysis was carried out and results indicate a considerable reduction in the cost of the machine when PLC is used in place of hydraulic control.

Limited verification tests were carried out on the machine and the observations were presented and discussed.