



Development of Preform Forming Process

Background: The majority of polymer manufacturing SMEs use primarily injection moulding to produce their products and secondarily thermoforming process to produce packaging of the products. The average waste generated during thermoforming at local SMEs is between 25 and 75% of the thermoforming films. Since their main business is in injection moulding, most of the SMEs are not capable or do not give enough effort to recycle/reuse such material waste, although the materials are recyclable and this waste generation causes them financial burdens.

Proposal: This project proposes to develop a new thermoforming process using injection moulded preforms instead of extruded flat film. Ideally, the preforms should have the same size as the packaging or any products to be thermoformed so that no waste will be generated. The clamping area of preform, which is not formed and cut out during thermoforming, will remain with the final products and features such as company logo, thread, snap-fitting can be added on the clamping area. Compared to conventional thermoforming, the thickness distribution of the final products should be much more controllable by using partially different thickness and thus pattern heating of the preform.

Potential partner(s): one SME and/or one large enterprise

Looking for:

- University in the field of material science, heat transfer and thermoforming simulation
- Industry in partial/pattern heating, thermoforming, plastic manufacturer with thermoforming department

Fabrication of Micro Components with Undercuts

Potential applications: microfluidic devices, micro pumps

Looking for:

- University in the field of material science, micro system technology (MST) / micro electro mechanical systems (MEMS)
- Industry in micro manufacturing, micro system technology (MST) / micro electro mechanical systems (MEMS)

University of Malta

Msida, MALTA

Research Areas:

Polymer & Composite Manufacturing

Micro (Injection) Moulding

Additive Manufacturing

Rapid Tooling



UNIVERSITY OF MALTA
L-Università ta' Malta

Contact Details

Dr Arif Rochman

Dipl. Ing. (FH) (HM Munich), M.Sc. (HTW Aalen), Ph.D. (QUB Belfast)

Department of Industrial & Manufacturing Eng.

University of Malta, Msida, MSD2080, MALTA

Phone: (+356)2340 2394

Fax: (+356)2134 3577

E-Mail: arif.rochman@um.edu.mt

Web: <http://staff.um.edu.mt/arif.rochman>