**TITLE** A STUDY TO DEVELOP PLASTIC FORMER FOR MANUFACTURING OF LATEX PRODUCTS BY DIPPING PROCESS

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**ABSTRACT** The present research aimed to develop latex dipping former from plastics in order to replace ceramic former. The study was concerned with selection of the plastics which have suitable properties for the making of latex dipping former, modification of surface properties of the plastics, particularly to increase its wettability of latex and coagulant solution, and finally, study of factors which affect latex film formation on the plastic former and the quality of the film formed. Polypropylene (PP), Talcum-filled polypropylene (PPTC), Cyclic olefin copolymer (COC) and Polyethersulphone (PES) were selected to use in this study. PP was shown to have good thermal ageing and chemical ageing properties, but the heat distortion temperature (HDT) was rather low. Talcum-filled PP could increase the HDT, but lowered ageing properties. COC had high mechanical properties, but deteriorated on thermal ageing at high temperature. PES had excellent thermal and chemical resistant properties. Surface modifications of plastics were done by various methods. Electrostatic charging could increase positive surface charges, but did not improve wettability due to fast decay of the charges during latex dipping. Chemical etching and plasma treatment were found as effective methods to decrease contact angle and improve wettability, but the treated-surface was not durable after dipping and washing processes. Roughening of the plastic surface by using abrasive papers to give the arithmetic roughness of 0.82-2.40 μm and the groovy torn surface morphology could improve wettings of coagulant solution and prevulcanised latex, although the contact angles were not greatly lowered. Satisfactory rubber film could be formed on the surface-roughened plastics studied by latex dipping for both straight dipping and coagulant dipping techniques. Tensile properties of the films obtained were not affected by surface roughness. Thus, commodity plastics and the necessary surface modification were found to be potential for developing into plastic former to replace ceramic former.