

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

In this work, it can be indicated that residual print screen ink on HDPE bottle surfaces do not produce the obvious effect on both mechanical properties and thermal properties. Moreover, both printed and virgin HDPE bottles can be reprocessed with good mechanical performance and thermal performance for 5 passes. But the residual ink on plastic surfaces could exhibit a small change on %crystallinity performance of re-extruded HDPE.

However, the optical performance from residual ink is the important problem in 0 and 50% ink removed from surfaces printed HDPE. This problem also occurred in 5 passes re-extruded virgin and printed HDPE cases.

On the other hand, it can be concluded that deinking of print screen ink from HDPE bottle surfaces by the cationic surfactant, CTAB (n-hexadecyltrimethylammonium bromide), maintains the same mechanical and thermal performance.

For the future work, molecular weight distribution of plastic and compositions of ink should be investigated to describe the results. Moreover, effect of ink at varied % weight of ink is very interesting point that could support the results of this work.