

# **EVALUATION OF THE EFFECTIVENESS OF DIFFERENT ANTIBLOCKS FROM THE DIFFERENT SUPPLIERS ON LOW DENSITY POLYETHYLENE**

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## **ABSTRACT**

Antiblock additives are used in a wide variety of polymer films such as polyethylene, polypropylene, flexible polyvinyl chloride, polyethylene terephthalate, acrylonitrile butylene styrene and nylon. Blocking is defined as a force needed to separate two film layers. Antiblocks are added to the film resin formulation to create a micro-rough surface that reduces the adhesion between the film layers.

Various grades of antiblocks from different suppliers were evaluated against each other. The evaluation process was conducted with respect to cost and efficiency. The antiblocks were each compounded with a Low Density Polyethylene (LDPE) grade which did not contain any antiblock additive. Using a ZSK18 twin screw extruder the polymer additive mixture was compounded into a masterbatch. Each masterbatch was mixed with selected a LDPE grade and the mixture was extruded into 40 micron film using a single screw Crespi extruder. The extruded films were tested for blocking; induced blocking; coefficient of friction (COF); Haze; Gloss and Clarity. It was anticipated that good performing antiblocks should yield good properties at a relatively lower cost. The results showed that there was no significant difference observed from different antiblock grades evaluated with respect to performance. Three different antiblocks indicated relatively lower cost when compared to other antiblock additives.

## References:

1. H. Zweil. Plastics Additives Handbook: 5<sup>th</sup> Edition 2000; Hanser Publishers, Munich: Pg 589