

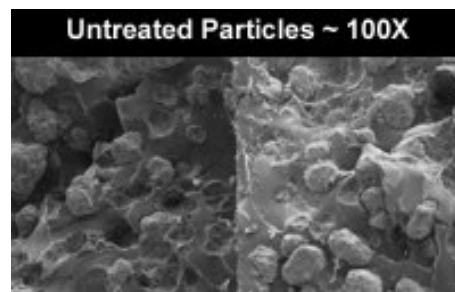
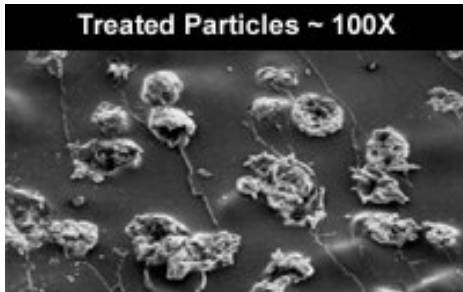
# POLYMER COMPOSITES, INC.

## Flame Treatment of Plastic for Adhesive Bonding

## Technical Bulletin

Flame treatment is currently the most versatile method for the pretreatment of polyolefin surfaces, such as HDPE, LDPE and UHMW plastic substrates. Flame treating consists of exposing the surface to be decorated to a suitable oxidizing flame for a period in the range 0.2 to 3.0 seconds. This treatment brings about a change to the polymer surface that makes it wettable and permits a strong adhesive bond between the molding surface and the coating. This change in surface properties can be demonstrated by immersing an untreated and flame treated piece in water and comparing the behavior of the water left on the surface. Upon removal, the water will run off in globules from the untreated piece and a continuous film or sheet will form on the treated surface which will last for a varying length of time depending on the actual flaming conditions used.

HDPE Sheets Flame Treated- Microscopic Surface Comparison



Commercially Available Propane Torch



Testing UHMW Plastic for Flame treating efficacy



Adjust the propane torch so that a low oxygen burning flame is achieved and pass over the area to be treated several times until a slight haze is noticed on the surface of the substrate. Note the fluid behavior on the flame treated area demonstrating improved substrate wetting thus making adhesion possible for polymers such as adhesives and inks.

