

## Poly 101 – “A Sticky Situation”

Low density polyethylene (LDPE) and Linear low density polyethylene (LLDPE) can be quite “sticky” in their natural state. In many applications natural PE when formed into flexible films is too tacky for either hand bagging or machinery.

In the lab, we test coefficient of friction (COF) to quantify film surface tack. A high COF value equates to tacky film, while a low value indicates slippery film. Products made by General Films range between 0.08 (very slippery) and 0.75 (quite tacky)

Two types of additives are used to make PE films more “slippery”. The first is antiblock. These are finely ground minerals such as silica, talc, diatomaceous earth, or mica. One reason PE is tacky, is that its surface is very smooth. The addition of antiblock reduces contact by making the surface “pebbled”. Antiblock tends to make film hazy, sometimes substantially. The affect on COF is modest and very controllable.

The second additive is slip. Slip is derived from vegetable or animal sources. When added to PE, slip blooms to the film surface and forms a very thin coating. This coating is slippery and reduces film COF dramatically. The addition of a very small amount can turn a tacky film to quite slippery. In excess, slip can negatively affect heat sealing and adhesion of tapes and printing inks. Slip has minimal effect on film optics, but must be used with caution in demanding requirements where COF must be tightly maintained.