

The Perils of Over-Treatment

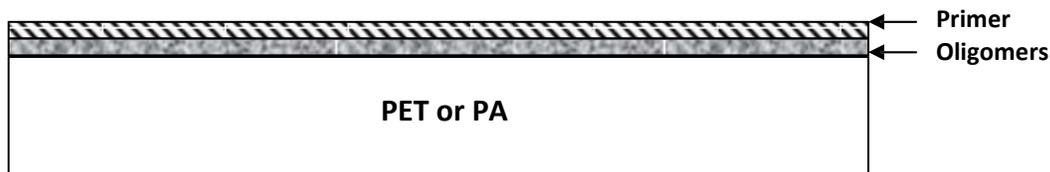
Treating a substrate by flame or corona discharge treatment is necessary for creating strong, successful film-based structures, but over-treating polyester (PET) and polyamide (PA) films can be detrimental.

Note: Polypropylene (OPP) substrates generally have antioxidants incorporated into the film and are quite tolerant to high levels of treatment.

PET and PA films are delicate substrates. Treatment is necessary to produce the oxidized sites which will chemically bond to the primer, but too much treatment will break down a microscopic layer of the film surface, which will destroy the primer's performance. *

What happens when PET and PA are Over-treated?

- The PET or PA polymer breaks down into short chains a few monomers long. These molecules are called *oligomers*.
- Oligomers are oily or waxy and can interfere with primer wet-out.
- Oligomers form a weak boundary layer which releases from the base film.
- The functional end groups on the oligomers (carboxylic acids, for example) can bind to the primer. In addition to being a poor adhesion promoter, the contaminated primer is likely to be very water-sensitive.



Signs of Over-treatment

- The liquid primer turns yellow or brown during a run. This means oligomers on the film have washed from the film back into the primer pan.
- A waxy or oily residue builds up on the gravure cylinder during a production session.

*Consult your film supplier for optimal treatment levels.