

## PRIMER INTELLIGENCE

### THE PERILS OF OVER-TREATMENT

In our last issue of Primer Intelligence, we described the heroic effects of flame and corona discharge treatment. Now it is time to back-peddle a little and warn of the risks inherent in too much of a good thing.

Polypropylene (OPP) substrates generally have anti-oxidants incorporated into the film and are quite tolerant to high levels of treatment.

Polyester (PET) and polyamide (PA) films, on the other hand, are more delicate substrates. Light treatment is necessary to produce the oxidized sites which will chemically bond to the primer. Too much treatment will break down a microscopic layer of the film surface, which will destroy the primer's performance.

Here is 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 *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 to look for when over-treatment is suspected:

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

Consult your film supplier for optimal treatment levels.

