

# ACTEGA Kelstar Technical Bulletin

## Slide Angle

### Maintaining Proper Slide Angle

The tendency for package cartons to slide past one another can be an important property in many critical applications. This property often is measured and reported as the slide angle. Some methods of package handling rely on certain types of friction between cartons. This is important especially in today's high speed finishing equipment.

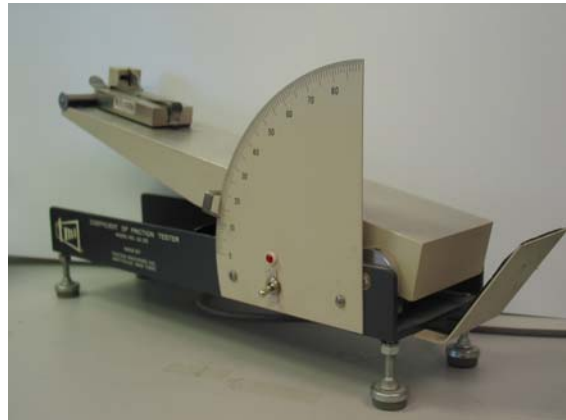
### Slide Angle Factors

- Will the package perform properly during downstream processing, handling and filling?
- Can the printer / converter measure and control slide angle to eliminate downstream problems?

Packaging printers often use aqueous coatings to control the slide angle off the finished cartons. Aqueous coatings are specially formulated to provide specific slide angles. Formulators control slide angle by using polymers, resins, waxes and additive packages. Printers sometimes think that they can maintain slide angles with +/- 2 degrees. Even under ideal conditions and using the appropriate statistical techniques, it has been determined that the capability to control slide angle is really within +/- 4 degrees.

### Two Different Ways to Test and Measure the Slide Angle

- **Incline Plane Tester** – This method is used more widely because it is an easier test to perform and the test equipment is less costly.



- **Horizontal Bed Tester** – (sometimes reported as Coefficient of Friction (COF) tester). You can convert between slide angle and COF since they are both fundamentally the same property.



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The amount of coating applied can influence the slide angle, although a large change in coating weight is needed to see a significant change in slide angle. It is best to choose the proper coating and maintain constant coating weight using a properly maintained anilox cylinder. It has been thought that ink coverage or different ink types might affect slide angles. Tests have been performed on the same substrates over the image and non-image areas and there has been no significant statistical difference found in slide angle. Exceptionally heavy ink coverage might lend itself to differing slide angles.

Humidity is extremely important to the slide angle, but temperature has no effect on slide angle. Slide angles typically do not change and will stay constant for long periods of time. The only time slide angles changes is from directly off press to several hours later due to the drying of ink and coatings. Once completely dry, the slide angle will not change if conditions such as humidity stay constant.

### To Achieve Consistent Slide Angles, Do the Following:

- Select a coating with slide angle in the proper range
- Use a properly sized anilox type coater to apply a consistent film weight of coating each job
- Make sure to keep the cells of the anilox clean
- Do not try to change the slide angle by manipulating the coating viscosity
- Let the cartons equilibrate for some time before processing them.

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