

Discontinuous flexographic color response

With the exception of flexography, most printing technologies can print sufficiently light tints that the device response is considered to progress smoothly and continuously from the substrate color through highlights and across the tonal scale. Some measurements from the device condition for a typical sheetfed offset press provide an example of this continuous response:

- The color change from the substrate to a 1% magenta dot is **0.7 DeltaE**—a marginally noticeable color change. The 1% tint has a tonal response, or Effective Dot Area (EDA), of **1.4%**.
- The color change from the substrate to a 2% magenta dot is **1.4 DeltaE**—twice that produced by the 1% dot, yielding an EDA of **2.8%**.

In contrast to other printing technologies, flexographic printing typically exhibits a discontinuous response due to the effects of highlight gain and minimum printable dot. That is, there is a large step in the color response between the substrate color and the color produced by the smallest printable dot of ink. This step is called a flexo discontinuity. It affects all process and spot inks to varying degrees, and is evident in the colorimetric (CIELAB) and tonal (EDA) responses of flexographic printing conditions.

The term discontinuity also refers to the step function in bump curves and cutoff curves, as well as profiles and other curves generated by ColorFlow software, when setting up flexographic printing.