

A Basic Overview of The Pad Printing Process

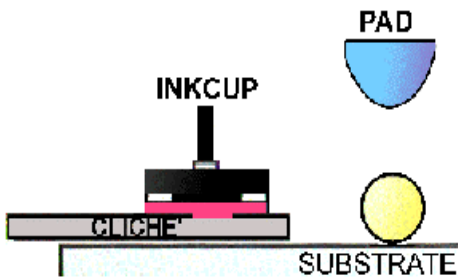
Peter Kiddell

The basic padprinting process is simple enough in nature. This article will show how the padprinting process works and why it is especially suited for printing on irregular shaped objects (a.k.a. substrate) as well as flat surfaces.

The key elements to the padprinting process are the pad, the cliché, and the ink. Each of these elements are explained in greater detail in subsequent articles also found on this site. Together, these three elements allow more flexibility in the types of products which can be printed using this process, than any other printing process.

The basic steps as illustrated below are as follows:

1. The cliché step - the image on the cliché is inked via doktor blade system or inkcup while the pad travels to the image.
2. The transfer step - the pad picks up the inked image from the cliché and travels to the substrate.
3. The print step - the pad makes contact with the substrate using just the right amount of pressure to deliver the image.



The Cliche'

The desired image to print is etched into a plate called a cliché'. The cliché' is usually made of a polymer coating on a metal backing or of hardened steel. Once placed on the printer, the cliché' is inked by either an open inkwell doctoring system or by a closed inkcup sliding across the image. The differences between cliché' types and how to choose the right type is explained in greater detail in the article titled [Selecting the Correct Cliche' for your Pad Printing Job](#) by Julian Joffe. In this article you'll also learn how the cliché' controls the how much ink is applied to the product.

The Ink

Padprinting inks are just as versatile as the other elements in the process. Not only are they available in every color imaginable, they also come in a variety of series which are specific to the type of substrate to be printed on. Different materials react differently to the various elements in inks. For example, the ink used for printing on certain plastics may not adhere to glass or aluminum. There are medical grade inks for use in the medical industry, as well as edible inks which can be pad printed onto candies or other food products. As you'll read in the article [Understanding and Using Pad Printing Inks](#) by Peter Kiddell, final appearance and adhesion quality is dependant on other factors such as the viscosity and evaporation characteristics of the ink.

The Pad

After the cliché' is inked, the silicon pad then picks up the image and transfers it to the product. The pads are made of a silicon material which can vary in durometer (hardness). The properties of the silicon allow the inks to temporarily stick to the pad, yet fully release from the pad when it comes into contact with the product to be printed. The durometer of the pad dictates how the image molds to the product. For example, to print an image on a basketball, a harder pad will get more of the image into the textured surface. Likewise, a

larger image to be placed on a flat (or nearly flat) surface would normally require a substantial amount of down pressure to print the entire image with a hard pad. By using a softer durometer, the image can be placed using less pressure and thus avoiding some complications associated with too much pressure. For more information on the pad see the article titled [Understanding the Pad in Pad Printing](#)