



Impact of Print Density on Replenishment Rates with KODAK PROFESSIONAL Display Materials

Processing a variety of papers and materials in a typical finishing lab usually results in an “average” print density of approximately 25 percent, i.e., an “average” print consists of about 25 percent D-max. Therefore, the starting-point replenishment rates that Kodak recommends for KODAK PROFESSIONAL Papers and Display Materials are based on this “average” density. However, many professional labs may handle significant numbers of high-key prints (with lower-than-average densities) as well as prints with higher-than-average densities and large areas of D-max.

Just as high-density images on inkjet materials require more ink during printing, photographic prints with higher densities consume more developer during processing. In labs that process large numbers of prints with higher densities (e.g., scenes with dark backgrounds), the average print density will be greater than 25 percent. These labs need to use a higher replenishment rate to compensate for the increased chemical consumption.

In most labs, average print density remains constant over time. Once they have determined their optimum replenishment rates, they will need to adjust the rates only if a significant change in average print density occurs.

In the last few years, most professional labs have seen an increase in the amount of KODAK PROFESSIONAL Display Materials they process. The large images that make up displays may include very large areas of D-max or D-min, especially those that include a considerable amount of text. Production orders for a single image or similar images may also be very large. A large order of display prints with a very high-key image one week may precede a large order that consists mostly of D-max the next week.

All these factors affect average density in a lab. To maintain quality, labs need to consider the potential impact of print density on their critical work. If the replenishment rate during processing of a long run is not set correctly, the developer activity will change during the run and lead to variable results from the beginning to the end of the job.

To optimize developer activity and final print density, evaluate image densities before processing, particularly when you process large orders of the same image or similar images.

Table 1 gives starting-point replenishment rates for a number of print densities. The replenishment rate of 46 mL/ft² with KODAK EKTACOLOR RT Developer Replenisher is based on the traditional average print density of 25 percent.

Table 1 Developer Replenishment Rate at Various Print Densities

Print Density (Percent D-max)	Replenishment Rate with KODAK EKTACOLOR RT Developer Replenisher mL/ft ² (mL/m ²)
12.5 high-key	23 (247)
25 “average”	46 (494)
50	90 (966)
75	138 (1,480)
90 nearly all D-max	166 (1780)

Like all replenishment rates, these recommendations are starting points. You’ll also need to consider the expertise and experience of your lab’s quality control and production managers. If the processor operator has a good understanding of the effects of image density on process activity and replenishment rates, you will be less likely to experience quality problems.

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