



*The following question was submitted by Norman Worth, Ogden, Utah:*

Many black-and-white papers have a developing agent incorporated into this emulsion. I have always been somewhat disappointed in the results when using these papers. The development seems harder to control, and, generally, the picture turns out a little bit on the muddy side.

What is this incorporated development agent(s)? Would a specially formulated developer which accounts for its distribution yield superior results? Any ideas? When used with a regular developer, is the incorporated agent sufficiently bound to the emulsion not to change the developer composition? Should one-shot techniques be used to avoid complications?

Print materials with incorporated developing agents are usually termed stabilization papers. When the agents are built-in as part of the emulsion, development will occur merely by immersing the exposed print in a simple alkaline solution termed an activator. Moreover, development can be extremely rapid in such systems.

To take advantage of all aspects of rapid processing (which is, of course, the rationale for stabilization materials) a companion stabilizing solution is used. This serves the role of a temporary fixer, i.e., image permanence is quite short unless remedial steps are taken.

Thus, stabilization processing reduces to two steps that can proceed in as little as 45 seconds, as opposed to the traditional, time-consuming developer, stop, fixer, wash, etc. sequence. The main use of stabilization processing has been in photojournalism and other fields where an image is required as quickly as possible.

As mentioned, the stabilizer in stabilization processing leads to a labile image. This is satisfactory when the goal is to simply get the picture in newspaper-publishable form, but it is not good if the image needs to be saved for posterity. Fortunately, stabilization prints can be treated in a conventional fixer, followed by a rinse, wash aid, etc., to create images with the same permanence as ordinary prints.

The developing agents incorporated in stabilization papers are usually the standard ones, e.g., hydroquinone and phenidone, or hydroquinone and metol. The preference, however, is for the former pair. Some papers may only contain one agent such as hydroquinone. In this case, the activator is quite alkaline.

The poor image quality observed by Mr. Worth undoubtedly has more to do with the stabilization process itself than with the specific agents used. Why? Remember that in pristine stabilization processing, the sole source of developing agents is in the paper. Development must therefore occur brutally fast before these agents diffuse out of the emulsion. Thus, the subtleties we usually seek in fine print processing (e.g., rich blacks, pure whites, etc.) are simply not obtainable. To obtain better image quality, one should use conventional print papers and their associated processes. ■

*Contributing Editor Robert Chapman holds a Ph.D. in chemistry from Yale University. He has worked in photo research and development departments at DuPont and Unicolor, and spent many years exploring the photochemistry of holography. Currently, he is an independent photochemistry consultant and a professor at Eastern Michigan University, where he teaches SPC, Reliability, experimental design, and Taguchi methods.*