

HOT T-MAX

Save Time and Chemicals at 100° F, with
No Loss of Image Quality



ALL PHOTOS BY AUTHORS

by Jack and Sue Drafahl

One major advantage of black-and-white negative film processing is its ability to be manipulated to suit the photographer's taste. Color film can be changed a little in contrast and speed by adding some time to development, but the results are somewhat limited. Black-and-white processing, on the other hand, can be modified to achieve a desired contrast range, film speed, and even to match a specific metered zone. As photographers develop their own techniques, they begin to experiment more and more with time/temperature and developer dilution.

When Kodak released the T-Max film family, photographers discovered it was more than a new and improved version of the older black-and-white films. The construction of T-Max reduced grain and allowed photographers to extend the time and temperature charts.

As professional photographers, we are constantly battling deadlines. While experimenting with trying to shorten T-Max's processing time, we found ourselves increasing the required 68° F to 80° with no loss of image quality. Since we use the Wing-Lynch processors in our lab,

KODAK T-MAX 100 DIRECT POSITIVE FILM DEVELOPING OUTFIT

Now that the T-Max family of black-and-white films has been established, it's time Kodak found more uses for these films. One new variation is the direct-positive film-processing kit for making black-and-white slides from T-Max and Kodak Technical Pan Film. Previously, the burden of making black-and-white slides lay with the direct-positive kit for Panatomic-X and Direct Positive Panchromatic film. Both of these films have been discontinued, so now we have a new champion on the scene. Actually, we were a little surprised that it took so long for Kodak to come out with this new process, since there are so many unique applications for it.

Both T-Max 100 and Technical Pan films can be processed in this kit, with the film selection depending on the needed application. T-Max 100 film would be used for copies of continuous-tone originals, while Technical Pan film would be used for higher-contrast copies. T-Max 100 should be rated at ISO 50, while Tech Pan will have a rating of ISO 64.

Photojournalists can use this process to make slides for portfolios, competitions, and audiovisual work, while the scientific or medical community might produce lecture slides from X-rays, textbooks, or art work. This new process offers finer grain, higher D-max, and improved control over contrast compared to the previous kit.

One unusual benefit from the process is its ability to make duplicate black-and-white negatives from both color negatives and other black-and-white negatives. This is especially useful if you have to make several black-and-white prints from a color

T-MAX 100 & 400 FILM IN T-MAX DEVELOPER

	68°	75°	100°
DEVELOPER	8 min.	6.5 min.	*4 min.
WASH	0.5 min.	0.5 min.	0.25 min.
FIX	8 min.	6 min.	4 min.
WASH	20 min.	15 min.	6 min.

* T-Max Developer mixed at 1:6 instead of 1:4 at 68°

Warning! Do not process Tri-X, Plus-X, or Panatomic-X at 100° unless you want a reticulated, grainy image. Reticulated negatives look like a fractured window.



Copy of color slide

negative. Instead of making the prints on Panalure paper, you can make a black-and-white negative and print with contrast control.

The kit includes six liquid concentrates that make one quart of working solution. These include two parts of first developer, bleach, clearing bath, and two parts of redeveloper. The fixer is not included in the kit, as it is the same as that used in other black-and-white processes. Working-strength solutions can be stored for

selves making several changes in our lab procedures. Up until now, we were satisfied with making black-and-white slides using properly filtered color film, rapid-process copy film for X-rays, and LPD film for line copy. Using the color film required extensive testing to maintain a clean-looking black-and-white copy. The rapid-process copy film (ISO .03) and the LPD film (ISO 1) had such low ISOs that it took supernovas to make decent exposures. With the introduction of this kit, color balance was no longer a consideration, and decent ISOs allowed for much shorter exposure times. And on top of all that, we found the quality to be much superior to those processes we had been using.

We thought that Kodak had come up with an impressive product when they introduced the T-Max films. With the addition of this new process for making black-and-white slides, we are *positive* that you will find T-Max films even more exciting. □



Original color negative



Copy of color negative



up to ten weeks if unused, and up to eight weeks if partially used. Up to 12 rolls of film can be processed in the one-quart kit if you use the extended time chart to compensate for the number of previously processed rolls.

Lowering the contrast is possible by adding an additional 40ml of T-Max negative developer to the first developer of the kit. Higher contrast can be attained by adding 50 grams of sodium sulfite or 40ml of clearing bath to the first developer.

After making a variety of tests using this new process, we found our-

TEMPERATURE

PROCESSING STEP	68° F	75° F	**100° F
First Developer	6 min.	5 min.	3 min.
Rinse	0.5 min.	0.5 min.	0.25 min.
Bleach	2 min.	2 min.	2 min.
Rinse	1.5 min.	1.5 min.	1 min.
Clearing Bath	2 min.	2 min.	1 min.
Redeveloper	6 min.	5 min.	3 min.
Rinse	0.5 min.	0.5 min.	0.25 min.
Fix	5 min.	5 min.	3 min.
Wash	15 min.	15 min.	7 min.
Dry			

** The 100° process was not included with the data sheet; our results with a Wing-Lynch processor form the foundation of that data. The 100° results are identical to the two lower-temperature processes.

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with all chemicals at 100°, we decided to try T-Max once at 100°, just to see what kind of image we would get. Amazingly, there was still no change in image quality, and there was a much clearer base density.

With the recommended colder

PUSH TIME FOR 100° PROCESSING

	T-MAX 100	T-MAX 400	T-MAX P3200
1 stop	4 min.	3.5 min.	6.5 min.
2 stops	6 min.	5 min.	7.5 min.
3 stops	7.5 min.	6.5 min.	8.5 min.

Keep in mind that the above times and temperatures were designed to fit our shooting style, and may need to be modified to fit your situation.



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1.&2. T-Max negatives processed at 68° F (1) and at 100° F (2) yield virtually identical print quality.

3.&4. Extreme enlargements of the win-

dow section of the image shown in photos 1 and 2 show little difference in contrast or graininess between 68° (3) and 100° images.

processing, we found that we had to almost double the recommended fix time or concentration to remove the magenta staining that plagues T-Max users; but at 100°, we cut the fix time in half and had absolutely no magenta stain. We found ourselves processing T-Max films in less than 15 minutes at 100° (including the wash), instead of the 30+ minutes required at 68°. We also found that the image quality was slightly better at 100°, but not so much better that it alone would be a reason to switch to that temperature.

Obviously, newspaper photo labs could cut their T-Max processing time in half, allowing for tighter deadlines and faster turnaround on stories. Photographers with color-processing facilities in their labs could easily fit another 100° process



2



into their system. And what about the photographer who returns from a hot summer assignment only to find that the chemistry and water are over 75°? It's much easier to raise the temperature with a hot-water bath than to lower it with a cold-water ice bath. The thrifty photographer will be happy to hear that 100° processing of T-Max films also uses 40% less chemistry.

The accompanying tables provide our recommended normal processing times for T-Max 100 and 400 films at 100°, plus push-processing times for T-Max 100, 400, and P3200.

ADVANTAGES OF HOT PROCESSING

1. Shorter processing times (especially push-processing times).
2. No magenta stain.
3. Uses less chemistry.
4. Compatible with high-temperature automatic processors.
5. Easier to use in hot climates.
6. Less wet time means tighter grain structure.

DISADVANTAGES

1. Can't process older films at same

time (Tri-X, etc.).
 2. Some small home darkrooms can't maintain 100°.

We've been processing T-Max at 100° since it was first introduced, and have never had any ill effects. The negatives have no magenta staining and have yielded extremely high-quality prints with a full tonal range and excellent contrast. We enjoy not having to spend as long waiting to see our negatives, and the cost savings when using less chemistry is an added bonus. Processing T-Max films at 100° may be a new and unorthodox idea, but we think it's a hot one! ■

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