4 STARTING UP YOUR PROCESS

BEFORE YOU BEGIN PROCESSING

To produce consistently high-quality transparencies with EKTACHROME Films, your processor must be in good mechanical operating condition, and the processing solutions must be within specifications. Check that the steps and conditions that you are using for your processor type match those given in sections 6 through 10. Processing conditions, chemicals, and mechanical operation may vary slightly for each processor.

Solution Mixing: Be sure that your tank and replenisher solutions have been mixed correctly. Choose the correct chemical sizes for your needs, and mix them according to the instructions supplied with the chemicals. Check for any mixing errors by measuring the specific gravity. For information on specific gravity, see page 3-4. When you prepare developer and bleach solutions, be sure to add starter.

Processor Operation: Check that your processor is operating according to the specifications given in this manual. Be sure that the agitation, recirculation, and filtration systems are working properly. Set replenishment and wash rates according to the specifications given in the section for your processor type. **Do not** adjust these rates to control process speed, contrast, or color balance.

Evaporation: Evaporation can cause an increase in specific gravity, so you may need to add water to your first- and color-developer tank solutions. Making specific-gravity measurements daily is a good way to detect and prevent processing problems.

OPTIMIZING YOUR PROCESS

Once your process is stable (i.e., the process variables are at [or close to] aim), you can optimize your process to obtain optimum film quality. We recognize that you may have to make some minor adjustments from aim for some of the process variables (due to differences in machine design) to obtain optimum speed, contrast, and color balance. It is important to understand that in most situations you will **not** have to make adjustments from aim to obtain optimum film quality.

If you determine that your process requires adjustments, follow the steps given below. **Do not** make these adjustments to your process to optimize it until it is stable and the process variables are at (or close to) aim.

1. Adjust to obtain optimum density (film speed).
2. Adjust to obtain optimum film contrast.
3. Adjust to obtain optimum color balance.

Important

Perform these steps in the order given, because the effects of some of the adjustments may be additive.

To obtain optimum density (film speed), adjust *either* the first-developer temperature or the first-developer time. Base your adjustments on the green density of the **LD** step of your control strip.

- If the green LD density is on aim, the density (film speed) is acceptable; your process does not require adjustments for density. Proceed directly to "To obtain optimum film contrast..." (page 4-2).
- If the green LD density is lower than aim and the specific gravity/replenishment rate are on aim (film speed is "fast"), decrease the first-developer temperature to slow down the reaction or decrease the time to shorten the development reaction and increase film densities.*
- If the green LD density is higher than aim (film speed is "slow"), increase the first-developer temperature to speed up the reaction or increase the time to lengthen the development reaction and decrease film densities.*

After you have adjusted the first-developer temperature or time, and the green LD density is on aim, maintain the time or temperature within the specified tolerances.

* Before making these adjustments, verify that the replenishment rate and specific gravity are on aim.

To obtain optimum film contrast, adjust the concentration of the color developer. Base your adjustments on the green density of the **HD** step of your control strip. (Make sure that the green LD density is on aim before you adjust the concentration of the color developer.)

- If the green HD density is on aim, the contrast is acceptable; your process does not require adjustments for optimum film contrast. Proceed directly to "To obtain optimum color balance..." (page 4-2).
- If the green HD density is lower than aim, the contrast is low. To raise the contrast (increase the green HD density), dilute the color developer.
- If the green HD density is higher than aim, the contrast is high. To lower the contrast (decrease the green HD density), increase the concentration of the color developer.

Note: Any adjustment to the concentration of the color developer must be within the specific-gravity range of 1.032 to 1.043 at 27°C (80°F). Keep the adjusted aim as close as possible to the recommended aim, 1.038 at 27°C (80°F).

After you have adjusted the concentration of the color developer, and the green HD density is on aim, measure the specific gravity of the tank solution. Use the specific-gravity measurement as your new aim. Make the same adjustment and aim change to your replenisher.

Important

Most labs will *not* have to adjust the concentration of the color developer to obtain optimum contrast. For labs that must make an adjustment, it is important to maintain the color-developer replenishment rate at 2,153 mL/m^2 (200 mL/ft^2). The best way to do this is to adjust the concentration (specific gravity) of the color developer replenisher and maintain the recommended replenishment rate. (If you adjust only the tank concentration, and do not adjust the replenisher concentration, your process will become unstable.) **Do not adjust the ratio of Part A to Part B from the specified ratio of 1 to 1 for Process E-6AR chemicals.**

To obtain optimum color balance, adjust the pH of the color developer to alter the magenta/green color balance. Base your adjustments on the color balance of the HD and LD steps of your control strip.

Adjust the magenta/green color balance. Adjusting the pH of the color developer will shift the color balance toward the magenta or green direction. This should be the last adjustment that you make to your process.

To increase the pH of the color developer, add sodium hydroxide (5N NaOH) to shift the color balance in the green direction.

To decrease the pH of the color developer, add either sulfuric acid (5N H_2SO_4) or 28% acetic acid to shift the color balance in the magenta direction.

If you adjust the pH of the color-developer tank solution, you must also make the same adjustments to the color developer replenisher. Add sodium hydroxide (5N NaOH), sulfuric acid (5N H_2SO_4), or 28% acetic acid to the replenisher in the same proportion that you use to modify the tank solution. For in-line dilution systems, add sodium hydroxide to **Part A** (high pH); add sulfuric acid or acetic acid to **Part B** (low pH). **Do not** adjust the ratio of Part A to Part B.

Note: If you make process adjustments to optimize your process for density, contrast, *and* color balance, you may have to make a small adjustment to the first-developer temperature or time to adjust the LD back to aim.