Shadrin A. E.
PROCESS E-6: LABORATORY PROCESSING OF COLOR REVERSIBLE EKTACHROME C PHOTOGRAPHIC FILMS
St. Petersburg, "TUSCARORA",1992

First developer

If the work is carried out at room temperature, the black-and-white developer solution is heated to 40.5°C and poured into the tank. Immediately after filling, the temperature will drop to 38°C. Make 8 turns of the spiral at a speed of 1 rpm / 2sec. Then pause for 30 seconds. Then, every half a minute, one turn is performed at the same speed.

It should be kept in mind that increasing in agitation leads to a moderate increase in the yield of yellow dye. Slowing down the rotation, respectively, shifts the balance to the blue side. This is a non-chemical way to adjust the color balance along the horizontal axis (see diagram on page 14), although its possibilities are limited.

For 6-7 minutes, the temperature of the solution is kept within the required limits without additional heating. If an increase in the development time is expected, then at the 6th minute tank should be placed in a container with hot water (50-60°C).

Color development

As already mentioned, the color development operation is the most responsible one in the E-6 process, and properly preparing the developing solution, maintaining all concentrations and adjusting the silkiness, means only half of the problem is solved. Image quality largely depends on how well the spiral rotation mode is selected and how long the material's holding time in solution is accurately observed.

Formally, the rotation mode corresponds to a black-and-white display. In practice, a standard chart can only be recommended as a starting point for further color balance correction. However, it is quite likely to get "in the top ten" the first time.

Mode adjustments are made according to the following rules:

- increased rotation leads to an increase in the rate of diffusion of the developing substance into the film layers and an increase in the yield of magenta and cyan dyes, to a lesser extent yellow. As a result, the image takes on a purple hue.
- decreasing agitation/rotation leads to a decrease in the yield of magenta and cyan dyes. The balance shifts to the yellow-green area. The offset is accompanied by a slight decrease in the overall image density, and therefore its contrast.

It should also be kept in mind that an increase in the color development time by 1-2 minutes leads to a noticeable increase in the yield of magenta and cyan dyes. Therefore, the time of color development should always remain constant, regardless of which film is processed in it.

Possible processing defects and ways to prevent (eliminate) them

1. I**ncreased image density** | Underdeveloped b&w developer | Increase the development time or replace the solution with a fresh one

2. **Reduced image density** (density of black areas is normal) | b&w dev. time too long | reduce the b&w development time

3. **Reduced density + uneven blackening of non-saturated areas** | Color developer depleted or an outflow of sodium sulfite in the color developer | Replacement of the color developer solution

4. **Color balance shift to magenta side** | Lack of citrazinic acid in the color developer / Too-much rotation/agitation of the tank | Replace the color developer solution / Reduce rotation/agitation

5. **Color balance shift to green side** | Excess citrazinic acid or not enough rotation/agitation | Increases rotation or change the color developer

6. **Pink color cast** | Conditioner (pre-bleach) depleted or too acidic bleach solution (pH 5.7~5.9) | Replace with fresh conditioner or adjust bleach solution pH

7. **Yellow-gray uneven color cast** | Under-bleaching or under-fixing | Reprocessing in fresh bleach or fixer.