



# Using KODAK EKTACOLOR SM Chemicals at a Reduced Cycle Time in SM/Short Cycle Minilabs

The processing chemicals that you use in a digital minilab system depend on the type of processor the system incorporates and its process cycle. This publication describes the use of KODAK EKTACOLOR SM Chemicals to process KODAK EDGE and ROYAL Papers in new reduced cycle time minilabs. The combination of KODAK EKTACOLOR SM Chemicals and the reduced cycle time will offer you a productive minilab system with shorter processing times, which take advantage of the robustness of KODAK EDGE and ROYAL Papers. These shorter times offer you greater productivity and shorter workflow turnaround times, with smaller chemical tanks more forgiving to low utilization situations.

Kodak packages EKTACOLOR SM Chemicals in sizes specially designed for minilabs. Kodak technical publications are available on the website at [www.Kodak.com/go/photochemicals](http://www.Kodak.com/go/photochemicals); select the link for "Processing Manuals." Current versions of Current Information Summaries are available at the link for "Technical Information." We recommend that you check the website periodically for new publications and revisions.

## RECOMMENDED KODAK CHEMICALS

For the reduced SM cycle time minilab, use KODAK EKTACOLOR SM Chemicals. They offer convenience, cost savings, and a minimum of solution waste. EKTACOLOR SM Chemicals offer the advantages of an easy loading chemical unit requiring no mixing of replenishers. Special easy to mix SM Tank chemicals are used to charge the working tanks in a new machine, or to replace tank solutions when required.

The catalog numbers for the chemicals differ from region to region; check with your local supplier of KODAK Products.

Table 1 lists the processing capacities of the EKTACOLOR SM Processing Units.

**Table 1 Processing Capacities**

KODAK EKTACOLOR SM Chemical	Processing Capacity with KODAK EDGE and ROYAL Papers
EKTACOLOR SM Processing Unit P1	10,000 4x6 prints: 155 m <sup>2</sup> (1666.6 ft <sup>2</sup> )
EKTACOLOR SM Processing Unit P2	8650 4x6 prints: 134 m <sup>2</sup> (1442 ft <sup>2</sup> )

Minilabs using EKTACOLOR SM Chemicals automatically determine the amount of paper processed and deliver the necessary amounts of water and chemical concentrates to the processor tanks. When the SM Chemical Unit is empty, the machine will alert you to mount a new unit. No handling or operator mixing of chemicals is required in normal day-to-day operations.

## PROCESS SPECIFICATIONS

The specifications and replenishment rates for using EKTACOLOR SM Chemicals in a short cycle SM minilab are given in Table 2.

**Table 2 Processing Steps and Conditions for Process RA-2SM Minilab Short Cycle**

Solution/ Step	Time (sec)	Temp. °C (°F)	Starting-Point Replenishment Rates: EKTACOLOR SM Chemicals (mL/m <sup>2</sup> [mL/ft <sup>2</sup> ])
Developer*	20	42.0 ± 0.3 (107.6.0 ± 0.5)	64.6 (6.0) Part A 3.01 (0.28) Part B 5.49 (0.51) Part C 5.81 (0.54) Water 50.25 (4.67)
Bleach-Fix	20	40.0 ± 3.0 (104.0 ± 5.0)	26.4 (2.45) Part A 10.8 (1.00) Part B 15.6 (1.45)
Stabilizer	30 to 90	40.0 -3/+4.5 (104.0 -5/+7)	193.7 (18.0) ** Concentrate 1.49 (0.138) Water 192.2 (17.86)
Dry	As needed	Not over 96 (205)	—

\* See Table 3 for special developer replenisher mixing instructions.

\*\* A four-tank counter current stabilizer is required for this rate.

### Replenishment Rates

The replenishment rates in Table 2 are starting-point recommendations. The actual rates will depend on specific processing conditions such as the amount of paper processed and the proportion of high- or low-density prints.

The bleach-fix replenishment rates assume minimum developer carryover. If carryover is greater than normal, increase the bleach-fix replenishment rate to maintain the bleach-fix chemical balance and pH level. Otherwise, problems such as retained silver may occur. Retained silver will cause print colors to look desaturated. See the equipment manual for specifications and adjustments for squeegees or squeegee rollers.

### Agitation

Good agitation is important during the first few seconds of the developer and bleach-fix steps. If initial agitation is poor in the developer, development may be uneven. Poor initial agitation in the bleach-fix may not stop development uniformly, which can cause magenta streaks and non-uniformity.

### Filtration

Processing solutions and wash water may contain insoluble materials. If you don't filter out these materials, they may stick to the paper, tank walls, rollers, and lines, and can damage the paper. It is also important to replace solution filters periodically so that a blocked filter does not reduce solution flow. Use the filters designed for the processor and recommended in the equipment manual.

### Drying

The maximum drying temperature for KODAK EDGE and ROYAL Papers is 96°C (205°F).

### Low Utilization

The number of prints that you produce each week determines the processor utilization. If your processor utilization is low, oxidation and evaporation will affect the activity of your processing solutions and may increase the D-min of the paper. During periods of low utilization, be sure to turn off the processor when it's not in use to avoid oxidation and evaporation. In extreme cases of low utilization, you may need to discard the chemicals in the processor and replace them with fresh tank solutions. You can often reduce high D-min in prints by replacing the stabilizer with fresh solution.

## SAFE HANDLING OF PHOTOGRAPHIC CHEMICALS

Handle all chemicals carefully. When you mix solutions, wear goggles or a face shield, a protective apron, and protective gloves made from neoprene or nitrile rubber. Clean protective clothing after use to remove any chemical residue that can cause contamination. For more information about potential health hazards and safe handling of specific Kodak chemicals, see the chemical labels and the Material Safety Data Sheets (MSDSs) for the chemicals. MSDSs also provide regional contact information. MSDSs are available on the website at [www.Kodak.com/go/photochemicals](http://www.Kodak.com/go/photochemicals).

## PREPARING FRESH TANK SOLUTIONS

Follow these instructions to prepare working tank solutions from EKTACOLOR SM Tank chemical concentrates. Observe all safe-handling precautions on the chemical labels and in the MSDS for each product.

### Stabilizer Fresh Tank Solution

Each package of EKTACOLOR SM Tank Stabilizer contains twelve units to produce 18 litres of tank solution. Each bottle of concentrate will make 3 litres of stabilizer tank solution. Follow the instruction in Table 3 to mix the working tank solution in *each* of the four stabilizer tanks.

**Table 3 Preparing Stabilizer Tank Solution from EKTACOLOR SM Stabilizer Tank Concentrate**

For EACH Stabilizer Tank	Volume with SM Stabilizer
Add water to each tank	3.0 litres
Add one bottle of stabilizer concentrate	Entire contents of one bottle for each 3 litres of tank volume
Total volume per tank	3 litres

### Bleach-Fix Fresh Tank Solution

Each package of EKTACOLOR SM Tank Bleach-Fix contains two units to produce 12.6 litres of tank solution. Each unit consists of a bottle of Part A and a bottle of Part B, which make 6.3 litres of bleach-fix tank solution. No water is required to make SM Bleach-Fix Tank solution. Follow the instruction in Table 4 to mix the tank solution in your bleach-fix tank.

**Be very careful to avoid contamination of the developer with bleach-fix.**

**Table 4 Preparing Bleach-Fix Tank Solution from EKTACOLOR SM Bleach-Fix Tank Concentrate**

For Bleach-Fix Tank	Volume with SM Bleach-Fix
Add contents of one- bottle of bleach-fix concentrate Part A	Entire contents of bottle
Add contents of one- bottle of bleach-fix concentrate Part B	Entire contents of bottle
To make:	6.3 litres

To make smaller quantities of bleach-fix tank solution, use equal volumes of Part A and Part B.

### Developer Fresh Tank Solution

Each package of EKTACOLOR SM Tank Developer contains four kits to produce 8 litres of tank solution. Each kit consists of a bottle of Part A, Part B, and two bottles of Part C, which make 2.0 litres of developer tank solution when added to water. Follow the instructions below to mix the tank solution in the KODAK SM Tank Developer Mixing Bottle, CAT No. 879 2731. Use the correct number of kits to make enough developer to fill your developer tank. The tank size will vary depending on the minilab. To ensure good processing performance, take special care in mixing the developer tank solution.

#### Preparing Developer Tank Solution from EKTACOLOR SM Tank Developer Concentrate

- Fill the SM Tank Developer Mixing Bottle with water to the 1-litre line.
- Add one bottle of Part A, SM Tank Developer, swirl the bottle gently to mix the concentrate.
- Add one bottle of Part B, SM Tank Developer, swirl the bottle gently to mix the concentrate.
- Add two bottles of Part C, SM Tank Developer.
- Add water to the 2-litre line on the mixing bottle.
- Cap the mixing bottle and shake gently until completely mixed.
- Double the above instructions to make 4 litres of SM Developer Tank solution.
- Pour the mixed solution into the developer tank, being careful not to splash solution into adjacent tanks. Fill to the designated fill line in the tank.

#### Reinstalling the Racks and Bringing the Tank Solutions to Temperature

The tanks will appear only partially filled after you have added the solutions. When you reinstall the racks in the tanks, the racks will displace more solution volume to fill the tanks.

Install the racks by slowly lowering them into the tanks. When you have reinstalled all the racks and have verified that all the tanks are filled with solution, turn on the recirculation and heater system and bring the solutions up to operating temperature.

## USING CONTROL STRIPS TO MONITOR THE PROCESS

Use KODAK Control Strips, Process RA-4 (box of 50, CAT No. 828 2170), to monitor process performance. For instructions on processing control strips, see the operator's manual for your minilab. For information on the use and diagnostic features of the control strips, see KODAK Publication No. Z-101, *Using KODAK SM Chemicals in SM Minilabs*, Section 3, "Process Monitoring and Troubleshooting." Publications are described and available on our website at [www.Kodak.com/go/photochemicals](http://www.Kodak.com/go/photochemicals).

To calculate control-strip aim values for process monitoring, you will need to apply process adjustment factors. Use the adjustment factors in addition to the EKTACOLOR SM correction factors that are supplied with the control strips.

After reading the densities of the supplied reference strip on your densitometer, first apply the correction factors packaged with the reference strip. Then add the values from the following table. The corrected density values are the aim values for your batch of control strips. You will need to apply the adjustment factors each time you switch to a new batch of control strips.

**Table 5 Process Adjustment Factors**

Measurement	R	G	B
Black (BP)	0.00	0.00	0.00
High (HD)	0.00	-.01	-.07
Low (LD)	-.03	+.01	-.08
D-min	0.00	0.00	0.00

## SILVER RECOVERY

The overflows from the bleach-fix and stabilizer tanks are collected in separate effluent tanks in most minilabs. When an effluent tank is full, the processor alerts you to drain the tank.

Typically, silver concentration in the bleach-fix effluent tank will be up to 8 g/L; silver concentration in the stabilizer effluent tank will be 0.2 to 0.6 g/L.

You can effectively use common silver-recovery methods with the combined effluents from both effluent tanks. If your lab has other processors, you can combine the effluent from this minilab with the other effluent solutions and use your current silver-recovery methods.

Publications on silver management that include recommendations and descriptions of silver-recovery options are available in the Silver Management section of the Kodak Environmental Services Publications Center at [www.Kodak.com/go/KES](http://www.Kodak.com/go/KES).

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