

Using KODAK EKTACOLOR PRIME Chemicals with the System 88 Minilab



In Europe, Africa, and the Middle East, refer to KODAK Publication No. CIS-247E, *Using KODAK EKTACOLOR PRIME Chemicals in the System 88 Minilab with European, African, and Middle Eastern Products*, for product recommendations.

The processing chemicals that you use in a particular minilab system depend on the type of processor the system incorporates and its process cycle. This publication describes the use of KODAK EKTACOLOR PRIME Chemicals to process KODAK EDGE and ROYAL Papers in the System 88 Minilab.

Kodak packages EKTACOLOR PRIME Chemicals in sizes specially designed for minilabs. For more information on these chemicals, see KODAK Publication No. Z-130, *Using KODAK EKTACOLOR Chemicals*, Section 3, or KODAK Publication No. Z-100, *Using KODAK Chemicals in Minilabs*. These publications are available on the Kodak website at

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."

RECOMMENDED KODAK CHEMICALS

For the System 88 Minilab, use KODAK EKTACOLOR PRIME Chemicals or KODAK EKTACOLOR PRIME LORR Chemicals. They offer convenience, cost savings, and a minimum of solution waste. EKTACOLOR PRIME SP Developer Replenisher and EKTACOLOR PRIME SP Developer Replenisher LORR offer the advantages of a single-part concentrate for convenient handling and a low replenishment rate. In addition to the developer, you will need EKTACOLOR PRIME Bleach-Fix and Replenisher or EKTACOLOR PRIME Bleach-Fix and Replenisher LORR. You will also need EKTACOLOR PRIME Stabilizer and Replenisher or EKTACOLOR PRIME Stabilizer and Replenisher LORR.

Note: KODAK MX-1888 Chemicals, which are specially made for the System 88 minilab, are available in some regions. You can use them in exactly the same way as EKTACOLOR PRIME Chemicals. You can substitute MX-1888 Developer Replenisher for EKTACOLOR PRIME SP Developer Replenisher and MX-1888 Bleach-Fix and Replenisher for EKTACOLOR PRIME Bleach-Fix and Replenisher. The products are fully interchangeable in the System 88 Minilab. Information on MX-1888 Chemicals is available in KODAK Publication No. CIS-213a, *Using KODAK MX-1888 Chemicals with the System 88 Minilab*.

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 bottles of concentrate in the 10-litre sizes.

Table 1 Processing Capacities

KODAK EKTACOLOR Chemical	Processing Capacity with KODAK EDGE and ROYAL Papers (10-Litre Size)
PRIME SP Developer Replenisher or PRIME SP Developer Replenisher LORR	One bottle of concentrate: 74.2 m ² (800 ft ²) or One bottle of concentrate: 85.0 m ² (917 ft ²)
PRIME Bleach-Fix and Replenisher or PRIME Bleach-Fix and Replenisher LORR	One bottle of Part A and one bottle of Part B: 92.6 m ² (1000 ft ²) or One bottle of Part A and one bottle of Part B: 185 m ² (2000 ft ²)
PRIME Stabilizer and Replenisher or PRIME Stabilizer and Replenisher LORR	One bottle: 25.8 m ² (278 ft ²)

The System 88 Minilab automatically delivers the developer, bleach-fix, and stabilizer replenisher solutions to the tanks in the processor. You will need to mix replenisher solutions for these chemicals. The processor automatically determines the amount of paper processed and delivers the necessary amounts of the replenishers to the processor tanks.

PROCESS SPECIFICATIONS

The specifications and replenishment rates for using EKTACOLOR PRIME Chemicals in the System 88 Minilab are given in Table 2. Note that the table includes two chemical options. The first option uses EKTACOLOR PRIME SP Developer Replenisher and EKTACOLOR PRIME Bleach-Fix and Replenisher. The

second option uses EKTACOLOR PRIME SP Developer Replenisher LORR and EKTACOLOR PRIME Bleach-Fix and Replenisher LORR. EKTACOLOR PRIME Stabilizer and Replenisher and EKTACOLOR PRIME Stabilizer and Replenisher LORR have the same replenishment rate, and you can use them with either option.

Table 2 Processing Steps and Conditions for Process RA-4 in the System 88 Minilab

Solution/ Step	Time (seconds)	Temperature °C (°F)	Starting-Point Replenishment Rates: PRIME SP Developer, PRIME Bleach-Fix, and PRIME Stabilizer (mL/m ² [mL/ft ²])	Starting-Point Replenishment Rates: PRIME SP Developer LORR, PRIME Bleach-Fix LORR, and PRIME Stabilizer LORR (mL/m ² [mL/ft ²])
Developer*	30	40.0 ± 0.3 (104.0 ± 0.5)	108 (10.0)	108 (10.0)
Bleach-Fix	30	35 to 40 (95 to 104)	108 (10.0)	54 (5.0)
Stabilizer	75 or 90†	34 to 40 (93 to 104)	388 (36.0)	388 (36.0)
Dry	As needed	Not over 96 (205)	—	—

*See Table 3 for special developer replenisher mixing instructions.

†Stabilizer time is 75 seconds if Rack Speed-Up Kit, Part No. 0-60 982 822A, is installed.

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.

Mixing Replenisher Solutions

Table 3 gives the mixing ratios of the bottled concentrates and water. The shorter solution times provided by this processor require that you mix the developer replenisher to higher-than-normal concentrations (using less water). This means that the standard bottle of developer concentrate will make less than 10 litres of replenisher solution. Also, the replenisher tanks on the System 88 Minilab have a capacity of about 5 litres.

Table 3 gives two alternative mixing methods. One uses the entire contents of the bottle of concentrate and requires an additional storage bottle for the excess mixed replenisher. The other method requires measuring the contents of the concentrate bottle and using one-half the volume. If you use this method, store the remaining one-half bottle of concentrate in the tightly capped bottle until you mix more replenisher.

Note: We do not recommend mixing less than the full 10-litre volume of EKTACOLOR PRIME Stabilizers.

Table 3 Preparation of Replenisher Solutions for PRIME Chemicals or PRIME LORR Chemicals

EKTACOLOR PRIME Chemical	Use Full Bottle	Use One-Half Bottle	EKTACOLOR PRIME LORR Chemical	Use Full Bottle	Use One-Half Bottle
SP Developer	Concentrate: 1.3 L Water: 6.7 L Total: 8.0 L*	Concentrate: 0.65 L Water: 3.35 L Total: 4.00 L	SP Developer LORR	Concentrate: 1.3 L Water: 7.9 L Total: 9.2 L*	Concentrate: 0.65 L Water: 3.95 L Total: 4.60 L
Bleach-Fix	Part A Concentrate: 2.0 L Part B Concentrate: 3.0 L Water: 5.0 L Total: 10 L	Part A Concentrate: 1.0 L Part B Concentrate: 1.5 L Water: 2.5 L Total: 5.0 L	Bleach-Fix LORR	Part A Concentrate: 2.0 L Part B Concentrate: 4.0 L Water: 4.0 L Total: 10.0 L	Part A Concentrate: 1.0 L Part B Concentrate: 2.0 L Water: 2.0 L Total: 5.0 L
Stabilizer	Contents of bottle Water to make 10 L	NR	Stabilizer LORR	Contents of bottle Water to make 10 L	NR

*The System 88 Minilab requires a more concentrated developer replenisher; the total volume will be less than the 10 litres indicated on the bottle.

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 Kodak website at www.Kodak.com/go/photochemicals.

PREPARING FRESH TANK SOLUTIONS

Follow these instructions to prepare working tank solutions for the System 88 Minilab from EKTACOLOR PRIME Chemical concentrates or mixed replenisher solution. Observe all safe-handling precautions on the chemical labels and in the MSDS for each product.

Preliminary Steps

You will use the following mixed replenisher and concentrates to prepare developer, bleach-fix, and stabilizer tank solutions:

KODAK EKTACOLOR Chemical	
Mixed PRIME SP Developer Replenisher or Mixed PRIME SP Developer Replenisher LORR	Mix with water and developer starter in amounts shown in Table 7
PRIME Bleach-Fix and Replenisher concentrates, Parts A and B or PRIME Bleach-Fix and Replenisher LORR concentrates, Parts A and B	Mix with water in amounts shown in Table 6
PRIME Stabilizer and Replenisher concentrate or PRIME Stabilizer and Replenisher LORR concentrate	For each tank, mix one bottle of concentrate with water as described in Table 5

For the developer, you will need KODAK EKTACOLOR RA Developer Starter. CAT numbers for different regions are as follows:

Region	CAT No. for Developer Starter
U.S., Canada, Latin America-Northern	102 6681
Europe, Africa, Middle East	527 8957
Latin America-Southern	632 0238
Greater Asia Region	444 5839 403 6596
China	660 0315
Japan	660 0647

You will need a measuring device for solution volumes up to 800 mL, such as a graduated cylinder. You will also need to measure up to 10 litres of water.

You should mix the developer replenisher in a separate mixing vessel, such as the KODAK Chemical Mixing Bottle Kit (CAT No. 163 9780). The kit consists of two 10-litre mixing bottles.

Remove the racks from the processor tanks and rinse the racks and tanks with water. Be sure to drain all rinse water from the tanks and to close the drain valve before adding the solutions.

Stabilizer Fresh Tank Solution

Use one bottle of EKTACOLOR PRIME Stabilizer and Replenisher or EKTACOLOR PRIME Stabilizer and Replenisher LORR concentrate to mix the working tank solution in *each* of the three stabilizer tanks.

Table 5 Preparing Stabilizer Tank Solution from EKTACOLOR PRIME or PRIME LORR Stabilizer and Replenisher Concentrate

For EACH Stabilizer Tank	Volume with PRIME Stabilizer	Volume with PRIME Stabilizer LORR
Add water to each tank	9.90 litres	9.90 litres
Add one bottle of stabilizer concentrate	Entire contents of one bottle	Entire contents of one bottle
Total volume per tank	10 litres	10 litres

Bleach-Fix Fresh Tank Solution

Mix the bleach-fix tank solution directly from the two-part concentrates. **Be very careful to avoid contamination of the developer with bleach-fix.**

Table 6 Preparing Bleach-Fix Tank Solution from EKTACOLOR PRIME or PRIME LORR Bleach-Fix and Replenisher Concentrate

From PRIME Bleach-Fix and Replenisher Concentrate	Volume	Volume with Rack Speed-Up Kit
Add water to bleach-fix tank	5.0 litres	4.0 litres
Add contents of one bottle of bleach-fix concentrate, Part A	Entire contents of one bottle	Entire contents of one bottle
Add contents of one bottle of bleach-fix concentrate, Part B	Entire contents of one bottle	Entire contents of one bottle
Total tank volume*	10.0 litres	9.0 litres
From PRIME Bleach-Fix and Replenisher LORR Concentrate	Volume	Volume with Rack Speed-Up Kit
Add water to bleach-fix tank	7.0 litres	6.0 litres
Add contents of one-half bottle of bleach-fix concentrate, Part A	1.0 litre	1.0 litre
Add contents of one-half bottle of bleach-fix concentrate, Part B	2.0 litres	2.0 litres
Total tank volume*	10.0 litres	9.0 litres

*If your System 88 Minilab has been modified with the Rack Speed-Up Kit, Part No. 0-60 982 822A, the developer and bleach-fix tanks have a reduced volume of 9 litres, rather than 10 litres.

Note: When using PRIME Bleach-Fix and Replenisher LORR, you will have one-half the contents left in each of the two concentrate bottles after mixing the solution. Follow the instructions in Table 3 to mix 5 litres of bleach-fix replenisher and add it to the bleach-fix replenisher tank.

Developer Fresh Tank Solution

To ensure good performance, take special care in mixing the developer tank solution.

Table 7 Preparing Developer Tank Solution from Mixed EKTACOLOR PRIME SP Developer Replenisher or PRIME SP Developer Replenisher LORR

From Mixed PRIME SP Developer Replenisher	Volume	Volume with Rack Speed-Up Kit
Add water to developer tank	2.60 litres	2.34 litres
Add mixed PRIME SP Developer Replenisher	7.0 litres	6.30 litres
Add EKTACOLOR RA Developer Starter (see page 4 for CAT No.)	400 millilitres	360 millilitres
Total tank volume*	10.0 litres	9.0 litres
From Mixed PRIME SP Developer Replenisher LORR	Volume	Volume with Rack Speed-Up Kit
Add water to developer tank	2.90 litres	2.64 litres
Add mixed PRIME SP Developer Replenisher LORR	6.70 litres	6.0 litres
Add EKTACOLOR RA Developer Starter (see page 4 for CAT No.)	400 millilitres	360 millilitres
Total tank volume*	10.0 litres	9.0 litres

*If your System 88 Minilab has been modified with the Rack Speed-Up Kit, Part No. 0-60 982 822A, the developer and bleach-fix tanks have a reduced volume of 9 litres, rather than 10 litres.

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 the System 88 Minilab. For information on the use and diagnostic features of the control strips, see KODAK Publication No. Z-130, *Using KODAK EKTACOLOR Chemicals*, Section 7, "Process Monitoring and Troubleshooting with KODAK Control Strips, Process RA-4." Kodak publications are described and available on the Kodak website at 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 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 8 Process Adjustment Factors

Measurement	R	G	B
Black (BP)	0	+1	-3
High (HD)	+2	+4	-3
Low (LD)	+5	+5	-2
D-min	0	0	0

SILVER RECOVERY

The overflows from the bleach-fix and stabilizer tanks are collected in separate effluent tanks in the System 88 Minilab. 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 4 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 the System 88 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.



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