

Using KODAK EKTACOLOR PRIME LORR Chemicals in DKS Digital Minilabs with a 20-second cycle



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 LORR Chemicals to process KODAK EDGE and ROYAL Digital Color Papers in the DKS Digital Minilabs with a 20-second developer.

Other publications are available on the Kodak website at www.Kodak.com/go/photochemicals; select the link for "Processing Manuals." Copies of Current Information Summaries are available at the link for "Technical Information."

RECOMMENDED KODAK CHEMICALS

You may use KODAK EKTACOLOR PRIME LORR Chemicals for DKS Digital Minilabs, using these instructions. They offer convenience, low replenishment rates, and a minimum of solution waste. KODAK EKTACOLOR PRIME LORR Chemicals all offer the advantages of a single-part concentrate for convenient handling and mixing.

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 for the recommended bottles of concentrate.

Table 1 Processing Capacities

KODAK Chemical	CAT No. and Concentrate Volume	Processing Capacity with KODAK EDGE and ROYAL Papers
KODAK EKTACOLOR PRIME SP Developer Replenisher LORR (to make 10 L)	864 4809 (1.3 L)	One bottle of concentrate: 84.8 m ² (912 ft ²)
KODAK EKTACOLOR PRIME SP Bleach-Fix and Replenisher LORR (to make 5 L)	844 4754 (2.5 L)	One bottle of concentrate: 62.5 m ² (673 ft ²)
KODAK EKTACOLOR PRIME SP Stabilizer and Replenisher LORR (to make 12.5 gal)	866 9566 (426 mL)	One bottle of concentrate: 122 m ² (1312 ft ²)

PROCESS SPECIFICATIONS

The specifications and replenishment rates for using KODAK EKTACOLOR PRIME LORR Chemicals in the DKS Digital Minilab (20 sec) are given in Table 2.

Table 2 Processing Steps and Conditions

Solution/ Step	Time (sec)	Temperature °C (°F)	Starting-Point Replenishment Rates for KODAK EKTACOLOR PRIME SP LORR Chemicals mL/m ² (mL/ft ²)
Developer	20	40.0 ± 0.3 (104.0 ± 0.5)	108 (10)
Bleach-Fix	20	35 to 40 (95 to 104)	80 (7.4) *
Stabilizer	50	34 to 40 (93 to 104)	388 (36) **
Dry	As needed	Not over 96 (205)	—

* See Replenishment Rate section for discussion on Bleach-fix rates.

** This is the replenishment rate for processors with three stabilizer tanks. If the processor has four stabilizer tanks, the starting-point replenisher rate is 198mL/m².

Configuring Your DKS Digital Minilab Replenishment System

NOTE: Modifications will be necessary to your equipment if your DKS Digital Minilab is currently set up to run with a two-part bleach fix, and you are premixing the stabilizer. This section describes procedural changes in where the replenishment bottles will be placed. Also, different settings will be used in the Chemical Parameter screen and the Advanced section of the Chemical Parameter screen. The information and where it is entered is detailed in the following section "Setting your DKS Digital Minilab Replenisher Rates."

Configuring Your DKS Digital Minilab Replenishment System

WARNING: If your minilab has not already been configured for replenishing stabilizer concentrate, this chemical option requires modification to a replenisher line. The replenisher line from pump 5 must be moved from the bleach-fix tank to the stabilizer tank. If you are not sure how to do this, contact a qualified technician.

The bottle of PRIME Stabilizer and Replenisher LORR is placed in the position for Bleach-Fix Part B. The bottle of PRIME SP Bleach-Fix and Replenisher LORR is placed in the position for Bleach-Fix Part A. The developer bottle is placed in its usual position.

This configuration eliminates the need to mix stabilizer replenisher. Fill the stabilizer replenishment tank with water instead of mixed replenisher. The processor will automatically use the water to mix with the stabilizer concentrate.

Table 3 lists the location of the replenisher concentrate bottles in the new configuration.

Table 3 Placement of replenisher bottles

Chemistry	Position 1 (Pump 1)	Position 2 (Pump 5)	Position 3 (Pump 4)
Current with two-part Bleach-Fix	Developer	Bleach-Fix Part B	Bleach-Fix Part A
With EKTACOLOR PRIME SP LORR Chemistry	PRIME SP Developer LORR	PRIME SP Stabilizer LORR	PRIME SP Bleach-Fix LORR

Setting Your DKS Digital Minilab Replenishment Rates

The replenisher rates are set in the Chemical Parameter screen. This is typically accessed by running Chimie.exe under the C:\DKS Folder. If you are not familiar with the procedure, check with an authorized technician. The Chemical Parameter screen is shown in Figure 1. An enlarged version of the screen is shown in Figure 2 at the end of this document.

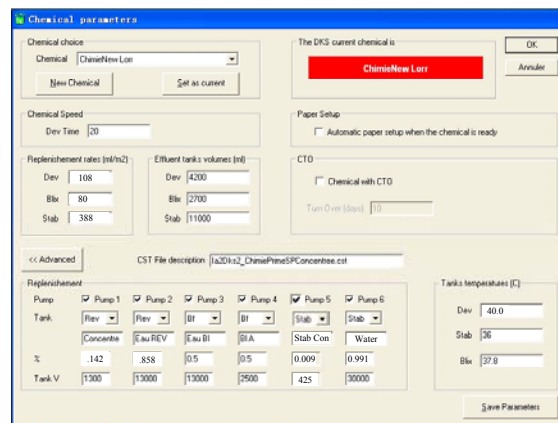


Figure 1. Screen settings of “Chemical Parameters”

The processor automatically determines the amount of paper processed and delivers the necessary amounts of the replenishers to the processor tanks. Check your equipment manual for details of its operations.

The values for the total replenishment rate are entered in the “replenishment rate” boxes on the screen. The values for the Replenishment Rates are given in Table 2.

In addition to the total replenishment rates, the information for individual pumps is entered into the “replenishment” section of the Chemical Parameter screen under the “Advanced” section (shown in the bottom half of Figure 1). The values to be entered are given in Table 4.

Note that in this chart, as on the Chemical Parameter screen, Developer is indicated by “Rev”, and “EAU” before a word indicates it is the water component.

Table 4 Values To Input On Replenisher Section Of Chemical Parameter Screen

Pump	Tank	Description	%
1	Rev	Concentrate	0.142
2	Rev	Eau Rev	0.858
3	Bf	Eau BI	0.5
4	Bf	BI A	0.5
5	Stab	Stab Con	.009
6	Stab	Water	0.991

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 typical developer carryover and processor utilization. It also allows a safety factor for periods of low utilization, tank top off, etc. 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. A lower rate may be acceptable if carryover is minimal. A bleach-fix replenisher rate of 54 mL/m² has been found acceptable in a typical well-maintained machine. 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 Digital Color 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 our website at www.Kodak.com/go/photochemicals

PREPARING FRESH TANK SOLUTIONS

Follow these instructions to prepare working tank solutions for the DKS Digital Minilab. Observe all safe-handling precautions on the chemical labels and in the MSDS for each product.

Preliminary Steps

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

Table 5a

KODAK EKTACOLOR PRIME SP LORR Chemicals	
KODAK EKTACOLOR PRIME SP Developer Replenisher LORR	Mix with water and developer starter in amounts shown in Table 8
KODAK EKTACOLOR PRIME SP Bleach-Fix Replenisher LORR	Mix with water and bleach-fix starter in amounts shown in Table 7
KODAK EKTACOLOR PRIME Stabilizer and Replenisher LORR	For each tank, mix concentrate with water as shown in Table 6

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

Table 5b

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

For the bleach-fix, you will need KODAK EKTACOLOR PRIME SP Bleach-Fix Starter, CAT No. 834 1133 (to make 20 litres)

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 5-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

The stabilizer tank solution is mixed directly from concentrate. Mix the working tank solution in *each* of the stabilizer tanks.

Table 6 Preparing Stabilizer Tank Solution from KODAK EKTACOLOR PRIME Stabilizer and Replenisher LORR Concentrate

For EACH Stabilizer Tank	Volume with KODAK EKTACOLOR PRIME Stabilizer and Replenisher LORR
Add water to each tank	9.91 L
Add PRIME SP Stabilizer and Replenisher LORR concentrate	90 mL
Total volume per tank	10 L

Bleach-Fix Fresh Tank Solution

Mix the bleach-fix tank solution directly from concentrate.

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

Table 7 Preparing Bleach-Fix Tank Solution from KODAK EKTACOLOR PRIME SP Bleach-Fix Replenisher LORR Concentrate

From KODAK EKTACOLOR PRIME Bleach-Fix SP LORR concentrate	Volume
Add water to Bleach-Fix tank	4.275 L
Add PRIME SP Bleach-Fix LORR concentrate	4.275 L
Add PRIME SP Bleach-Fix Starter to Bleach-Fix tank	450 mL
Total tank volume	9.0 L

Developer Fresh Tank Solution

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

Table 8 Preparing Developer Tank Solution from KODAK EKTACOLOR PRIME SP Developer Replenisher LORR Concentrate

From KODAK EKTACOLOR PRIME SP Developer LORR Concentrate	Volume
Add water to developer tank	7.98 L
Add PRIME SP Developer LORR concentrate,	800mL
Add EKTACOLOR RA Developer Starter (see page 4b for CAT No.)	220 mL
Total volume of Developer tank	9.0 L

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, or box of 25, CAT 898 2746), to monitor process performance. For instructions on processing control strips, see the operator's manual for the DKS 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 available on our 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)	-0.03	-0.01	-0.07
High (HD)	-0.06	+0.03	-0.13
Low (LD)	-0.05	+0.05	-0.08
D-min	+0.01	+0.01	+0.01

SILVER RECOVERY

The combined overflows from the bleach-fix and stabilizer tanks are collected in separate effluent tanks in the DKS Digital (20 sec) Series 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 DKS Digital Minilabs 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.

Example of Chemical Parameter Screen

Chemical parameters
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Chemical choice

Chemical ChimieNew Lorr

The DKS current chemical is

ChimieNew Lorr

Chemical Speed

Dev Time 20

Paper Setup

Automatic paper setup when the chemical is ready

Replenishment rates (ml/m2)

Dev 108

Blix 80

Stab 388

Effluent tanks volumes (ml)

Dev 4200

Blix 2700

Stab 11000

CTO

Chemical with CTO

Turn Over (days) 10

CST File description Ia2Dks2_ChimiePrimeSPConcentree.cst

Replenishment

Pump	<input checked="" type="checkbox"/> Pump 1	<input checked="" type="checkbox"/> Pump 2	<input checked="" type="checkbox"/> Pump 3	<input checked="" type="checkbox"/> Pump 4	<input checked="" type="checkbox"/> Pump 5	<input checked="" type="checkbox"/> Pump 6
Tank	Rev	Rev	Bf	Bf	Stab	Stab
	Concentre	Eau REV	Eau Bl	BlA	Stab Con	Water
%	.142	.858	0.5	0.5	0.009	0.991
Tank V	1300	13000	13000	2500	425	30000

Tanks temperatures (C)

Dev 40.0

Stab 36

Blix 37.8

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