

4 USING CHEMICALS

Mixing the Chemicals

Overview



Warning

Read precautionary information on product labels and Material Safety Data Sheets when using any chemicals. Also, for further information on safe handling of photographic chemicals, see Publication J-98A in the Appendix.



Important

Remove the floating covers from inside the holding tanks before adding solution. Mixing bottles should be dedicated to specific solutions (e.g. rem-jet, first developer, part C, etc.).

Most K-LAB Chemicals are fed directly into the processor through calibrated metering pumps. Use the following mixing instructions to obtain the proper solutions:

Tank Solutions

Before adding new tank solutions to the processor, be sure that all of the drain valves are closed. If the fresh tank solution is being added to address a process control problem, you should replace the recirculation filter prior to adding the fresh chemistry, if applicable.

Rem-Jet Remover—To make rem-jet remover:

1. Obtain a clean 250 mL or 1-litre graduate.
2. Carefully, measure 225 mL of K-LAB Rem-Jet Remover and Replenisher concentrate.
3. Pour the graduate contents directly into the rem-jet processing tank.
4. Fill the rem-jet tank with 70° - 100°F (21° - 38°C) tap water.



Caution

Label the bottle of remaining concentrate, so it is not mistakenly used to prepare a replenisher solution.

First Developer—Use the filling station to pump equal parts of K-LAB Tank First Developer, Parts A and B directly from their BIBs into the first developer tank in the processor. For instructions on using the filling station, see page 4-5. There is no First Developer, Part C Tank chemistry. One each Part A and Part B BIBs are required to fill the first developer tank.

Cyan Developer—Use the filling station to pump the K-LAB Tank Cyan Developer directly from its BIB into the cyan developer tank in the processor. For instructions on using the filling station, see page 4-5. Two 10-litre BIBs are required to fill the cyan developer tank.

Yellow Developer—Use the filling station to mix K-LAB Tank Yellow Developer, Parts A and B. For instructions on using the filling station, see page 4-5. The mixed solution is then pumped into the yellow developer tank in the processor.

Two 10-litre BIBs of K-LAB Tank Yellow Developer, Part A and one K-LAB Tank Yellow Developer, Part B kit are required to fill the yellow developer tank.



Caution

The K-LAB Tank Yellow Developer, Part B, is prepared differently from the K-LAB Tank Yellow Developer Replenisher, Part B. Be sure to follow the label directions.

Magenta Developer—Use the filling station to pump K-LAB Tank Magenta Developer directly from its BIB into the magenta developer tank in the processor. For instructions on using the filling station, see page 4-5. Two 10-litre BIBs are required to fill the magenta developer tank.

Conditioner—To make conditioner tank solution:

1. Obtain a clean 1-litre graduate.
2. Carefully, measure 800 mL of K-LAB Conditioner Bath and Replenisher.
3. Using a funnel, pour the graduate contents directly into the conditioner processing tank.
4. Using a funnel, fill the conditioner processing tank with 70° - 100°F (21° - 38°C) tap water.

Bleach—To make bleach tank solution:

1. Using a funnel, carefully pour the contents of a 10L BIB of K-LAB Bleach and Replenisher directly into the bleach processing tank.
2. Using a funnel, top off the bleach processing tank with 70° - 100°F (21° - 38°C) tap water.

Fixer—To make fixer tank solution:

1. Obtain a clean 1-litre graduate.
2. Carefully, measure 1200 mL of K-LAB Fixer and Replenisher.
3. Using a funnel, pour the graduate contents directly into the fixer processing tank.
4. Using a funnel, fill the fixer processing tank with 70° - 100°F (21° - 38°C) tap water.

Final Rinse—To make final rinse solution.

1. Obtain a clean 250 mL graduate.
2. Carefully, measure 75 mL of K-LAB Final Rinse and Replenisher concentrate.
3. Using a funnel, pour the graduate contents directly into the final rinse processing tank.
4. Using a funnel, fill the final rinse processing tank with 70° - 100°F (21° - 38°C) tap water.



Caution

Label the bottle containing the remainder of concentrate, so it is not mistakenly used to prepare a replenisher solution.

Replenisher Solutions

The following replenisher solutions are supplied as concentrates. Use the following procedures to prepare working solutions.

Rem-Jet Remover—To make K-LAB Rem-Jet Remover and Replenisher solution:

Note: *Each bottle of concentrate makes 20 litres of replenisher solution.*

1. Ensure that the rem-jet holding tank, below the replenisher rack, is empty enough to hold 20 litres.
2. Obtain a clean 10-litre mixing bottle.
3. Pour the entire contents of one bottle of K-LAB Rem-Jet Remover and Replenisher into the mixing bottle.
4. Fill the mixing bottle to the 10-litre mark with 70° - 100°F (21° - 38°C) tap water.
5. Carefully, pour the mixing bottle contents into the rem-jet holding tank below the replenisher rack.
6. Refill the mixing bottle to the 10-litre mark with 70° - 100°F (21° - 38°C) tap water.
7. Carefully, pour the contents into the rem-jet holding tank below the replenisher rack.

First Developer Replenisher, Part C—To make K-LAB First Developer Replenisher, Part C solution:

Note: *Each bottle of concentrate makes 10 litres of replenisher solution.*

1. Ensure that the first developer, part C holding tank, below the replenisher rack, is empty enough to hold 10 litres.
2. Obtain a clean 10-litre mixing bottle.
3. Pour the entire contents of one bottle of K-LAB First Developer Replenisher, Part C into the mixing bottle.
4. Fill the mixing bottle to the 10-litre mark with 70° - 100°F (21° - 38°C) tap water.
5. Carefully, pour the contents of the mixing bottle into the first developer, part C holding tank below the replenisher rack.

Yellow Developer Replenisher, Part B—To make K-LAB Yellow Developer Replenisher, Part B solution:

Note: *Each kit makes 10 litres of replenisher solution.*

1. Ensure that the yellow developer, part B holding tank, below the replenisher rack, is empty enough to hold 10 litres.
2. Open a Yellow Developer Replenisher, Part B, and place the bottle marked B-2 into a bath of 100° - 110°F (38° - 43°C) tap water for 5 - 10 minutes.
3. Pour the contents of the warmed B-2 bottle into the bottle marked B-1.
4. Replace the cap on the B-1 bottle and shake vigorously for 30 - 60 seconds. The contents of the bottle will not dissolve at this time.
5. Pour the contents of the bottle marked B-3 into the B-1 bottle.
6. Replace the cap on the B-1 bottle and shake vigorously for 1 - 3 minutes, until the contents are completely dissolved.
7. Add the contents of the B-1 bottle to a clean 10-litre mixing bottle. Rinse the B-1 bottle and add the rinse solution into the mixing bottle.
8. Fill the mixing bottle to the 10-litre mark with 70° - 100°F (21° - 38°C) tap water.
9. Carefully, pour the contents of the mixing bottle into the yellow developer, part B holding tank below the replenisher rack.

Final Rinse—To make final rinse and replenisher solution:

Note: *Each bottle of concentrate makes 20 litres of replenisher solution.*

1. Ensure that the final rinse holding tank, below the replenisher rack, is empty enough to hold 20 litres.
2. Obtain a clean 10-litre mixing bottle.
3. Pour the entire contents of one bottle of K-LAB Final Rinse and Replenisher into the mixing bottle.
4. Fill the mixing bottle to the 10-litre mark with 70° - 100°F (21° - 38°C) tap water.
5. Carefully, pour the contents of the mixing bottle into the final rinse holding tank, below the replenisher rack.
6. Refill the mixing bottle to the 10-litre mark with 70° - 100°F (21° - 38°C) tap water.
7. Carefully, pour the contents into the final rinse holding tank, below the replenisher rack.

The following replenisher solutions are packaged in BIBs. They are intended to be fed directly from their BIBs through their metering pumps to the processor.

First Developer Replenisher, Part A

First Developer Replenisher, Part B

Cyan Developer Replenisher

Yellow Developer Replenisher, Part A

Magenta Developer Replenisher

Conditioner Bath and Replenisher

Bleach and Replenisher

Fixer and replenisher

Disposal of the Chemical Package

The chemical packaging has been designed to maximize recycling potential and minimize solid waste disposal. Because recycling programs are locally administered, the following may not apply to all K-LAB Processing sites.

Cardboard boxes, cardboard BIB boxes, and plastic bottles are generally recyclable. The BIB bags are a trilaminate and are not recyclable. The solid waste from the bags is less than from similar-sized Cubitainers. All chemical containers (bags and bottles) should be triple rinsed before disposal or recycling.

Component	Material	recycle/dispose
boxes	cardboard	recycle
bags	LLDPE/EVOH/ Nylon trilaminate	dispose
bottles	HDPE (25% post consumer resin)	recycle
caps	n/a	dispose

Disposal of the Chemicals

Refer to the Material Safety Data Sheets.

Storing the Chemicals

Process K-14M solutions are not formulated to protect against freezing. If the chemicals froze before reaching your laboratory, contact Kodak. Do not use the chemicals before these discussions.

In the laboratory, store the chemicals in an area that is maintained between 55° and 80°F (13° and 27°C). The chemicals are more stable at cooler temperatures. Do not expose the chemicals to high temperatures. Failure to store the chemicals properly may make them unfit for use. **The expense of replacing improperly stored chemicals is the responsibility of the laboratory.**

Identifying the Chemicals

Each chemical container (BIB or box) is imprinted with an identifier referred to as the Kodak Photo Chemicals batch code.

Batch Code

19710AB2849576D

Mix Code

The batch code provides the manufacturing facility with information needed to understand and resolve packaging issues.

The first five characters of the code, which identify the chemical and mix number, is called the mix code. The first character identifies the solution. Lower mix numbers indicate older mixes. The mix code is used for K-LAB Processors in several ways:

1. *When changing BIBs on the Replenisher Rack* - Select the chemistry to be changed or refilled. Enter the mix code for the chemistry you plan to use. If the computer accepts the mix code, the replenisher pump stops and you may proceed. After changing the BIB or refilling the tank, verify that the identification code on the front label is correct. Then return to the computer and select the "New Chemistry Installed" button. The computer will restart the replenisher pump.
2. *To identify which containers to use first* - Always use the lowest number first.
3. *Each time a BIB is replaced* - The date/time of the change and the mix code information is captured. This information is sent to Kodak as part of the daily data transfer. Kodak uses this information to track the usage of chemicals, to check that the oldest chemicals are used first, and to track the location of each mix in case a problem is identified after the chemical is shipped.

Packaged Chemicals

Use these packaged chemicals with the KODAK K-LAB Processor for KODACHROME Film, Process K-14M:

Chemicals	CAT No.
KODAK K-LAB Rem-Jet Remover and Replenisher, Process K-14M*	883 9938
KODAK K-LAB Tank First Developer, Part A, Process K-14M	868 7675
KODAK K-LAB Tank First Developer, Part B, Process K-14M	884 3088
KODAK K-LAB First Developer Replenisher, Part A, Process K-14M	856 7323
KODAK K-LAB First Developer Replenisher, Part B, Process K-14M	867 0770
KODAK K-LAB First Developer Replenisher, Part C, Process K-14M*	831 1490
KODAK K-LAB Tank Cyan Developer, Process K-14M	862 3456
KODAK K-LAB Cyan Developer Replenisher, Process K-14M	888 7176
KODAK K-LAB Tank Yellow Developer, Part A, Process K-14M	876 9986
KODAK K-LAB Tank Yellow Developer, Part B, Process K-14M*	837 2237
KODAK K-LAB Yellow Developer Replenisher, Part A, Process K-14M	864 1128
KODAK K-LAB Yellow Developer Replenisher, Part B, Process K-14M*	179 2431
KODAK K-LAB Tank Magenta Developer, Process K-14M	885 6445
KODAK K-LAB Magenta Developer Replenisher, Process K-14M	125 2774
KODAK K-LAB Conditioner Bath and Replenisher, Process K-14M	893 3160
KODAK K-LAB Bleach and Replenisher, Process K-14M	850 1066
KODAK K-LAB Fixer and Replenisher, Process K-14M	871 5435
KODAK K-LAB Final Rinse and Replenisher, Process K14M*	185 2144

* Chemicals, with the exception of those marked with an asterisk(*), are supplied in 10-litre bag-in-box (BIB) packaging.

Using the Filling Station

Introduction

The filling station is used to transfer tank chemistry from the BIBs into the processor tanks with minimal oxidation occurring. The filling station is used only for the first, cyan, yellow, and magenta developer tank solutions.

Each developer has a dedicated pump and hoses. To avoid contaminating the chemistries, do not use the pumps or hoses for any solution other than the one for which they are intended. The first developer pump has two heads, one for part A and one for part B, operating off the same motor. They deliver equal volumes of part A and part B to the processor. The cyan and magenta developers share a two-headed pump. The yellow developer has its own pump.

Procedure

Note: *If you are filling more than one developer tank, (such as during initial start-up), you may want to use the filling station's capability of pumping 1-4 solutions at a time. Be careful that you do not lose track of the solution levels and lose chemistry out the overflow tubes. The extra chemistry is needed to continue filling the system after air is purged from the lines.*

1. Check that the processor is in Sleep Mode, the developer tank is empty, that the filter housing contains a filter, and the filter housing is installed.
2. Close the drain valve for the developer tank.
3. Disconnect the drain line from the valve.
4. Connect the appropriate hose from the filling station to the drain valve.
5. Open the valve.

Note: *For the correct procedure for opening a BIB, refer to "Opening a Bag-In-Box (BIB)" on page 6-11.*

6. If you are filling the:
 - a. First developer, connect one part A tank and one part B tank BIB to the hoses leading to the first developer pump.
 - b. Cyan or magenta developer, connect a BIB of tank chemistry to the hose running to the appropriate pump. Use two 10-litre BIBs to fill the cyan and magenta developer tanks. For the pump to operate when filling one of either the cyan or magenta developer, open the outlet valve for the other solution.

- c. Yellow developer:
 - Carefully empty one 10-litre BIB of yellow developer tank, part A into the plastic tank on the filling station. Use of a spigot and hose is recommended.
 - Prepare a yellow developer tank, part B, following the mixing instructions on the carton. Do not dilute the yellow developer tank, part B.
 - Add the part B to the plastic holding tank.
 - Carefully empty a second 10-litre BIB of yellow developer tank, part A into the plastic tank. Use of a spigot and hose is recommended.
 - To prevent damage through oxidation, *gently* mix the contents of the plastic tank.
7. Once the tank chemistry is in place, verify you have the correct solution.
8. Enter the appropriate information into KPMS. See "Adding Fresh Chemistry" on page 6-14.
9. At the filling station, open the outlet valve.
10. If you are filling either the cyan or magenta developer tanks, monitor the amount of chemistry remaining in the first BIB. Shortly before it runs dry, turn off the pump, disconnect the first BIB, connect the second BIB, and restart the pump.
11. Fill the developer tank to the overflow level and turn off the pump.
12. Remove the air trapped in the filter housing by pressing the red button.
13. Start the filling station pump again and fill the tank back to the overflow level.
14. If this is the last tank that was empty, bring the processor to Standby Mode.
15. Add additional tank solution as air clears from the tank.
16. Once the tank is topped off, turn off the filling station pump and close the outlet valve on the filling station.
17. Close the drain valve on the machine tank.
18. Disconnect the filling station hose from the drain valve.
19. Connect the drain hose to the drain valve.
20. Clean the pumps and hoses on the filling station as soon as possible after use to minimize crystallization and oxidation problems. To do this:
 - a. Fill a BIB with warm water.
 - b. Attach the BIB to the feed hose.
 - c. Pump the water into a sink or floor drain.

