

Lower Polymer Block Cleaning Kit

**For Applied Biosystems 3730/3730x/
DNA Analyzers and Applied Biosystems
3130/3130x/ Genetic Analyzers**

Protocol

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REFER TO THE *APPLIED BIOSYSTEMS 3730/3730XL DNA ANALYZER USER GUIDE*, THE *APPLIED BIOSYSTEMS 3130/3130XL GENETIC ANALYZERS GETTING STARTED GUIDE*, AND THE REAGENT PACKAGE INSERTS FOR LIMITED LABEL LICENSE OR DISCLAIMER INFORMATION.

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Preface

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Safety

Safety Alert Words

Four safety alert words appear in Applied Biosystems user documentation at points in the document where you need to be aware of relevant hazards. Each alert word—**IMPORTANT**, **CAUTION**, **WARNING**, **DANGER**—implies a particular level of observation or action, as defined below:

IMPORTANT! – Indicates information that is necessary for proper instrument operation, accurate chemistry kit use, or safe use of a chemical.

 **CAUTION** – Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

 **WARNING** – Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

 **DANGER** – Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

Chemical Hazard Warning

 **WARNING CHEMICAL HAZARD.** Some of the chemicals used with Applied Biosystems instruments and protocols are potentially hazardous and can cause injury, illness, or death.

Chemical Safety Guidelines

To minimize the hazards of chemicals:

- Read and understand the Material Safety Data Sheets (MSDS) provided by the chemical manufacturer before you store, handle, or work with any chemicals or hazardous materials. (See “About MSDSs” on page vi.)

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- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
 - Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the MSDS.
 - Check regularly for chemical leaks or spills. If a leak or spill occurs, follow the manufacturer's cleanup procedures as recommended on the MSDS.
 - Comply with all local, state/provincial, or national laws and regulations related to chemical storage, handling, and disposal.

About MSDSs

Chemical manufacturers supply current Material Safety Data Sheets (MSDSs) with shipments of hazardous chemicals to *new* customers. They also provide MSDSs with the first shipment of a hazardous chemical to a customer after an MSDS has been updated. MSDSs provide the safety information you need to store, handle, transport, and dispose of the chemicals safely.

Each time you receive a new MSDS packaged with a hazardous chemical, be sure to replace the appropriate MSDS in your files.

Obtaining MSDSs

You can obtain from Applied Biosystems the MSDS for any chemical supplied by Applied Biosystems. This service is free and available 24 hours a day.

To obtain MSDSs:

1. Go to <https://docs.appliedbiosystems.com/msdssearch.html>
2. In the Search field, type in the chemical name, part number, or other information that appears in the MSDS of interest. Select the language of your choice, then click **Search**.
3. Find the document of interest, right-click the document title, then select any of the following:
 - **Open** – To view the document
 - **Print Target** – To print the document
 - **Save Target As** – To download a PDF version of the document to a destination that you choose
4. To have a copy of a document sent by fax or e-mail, select **Fax** or **Email** to the left of the document title in the Search Results page, then click **RETRIEVE DOCUMENTS** at the end of the document list.
5. After you enter the required information, click **View/Deliver Selected Documents Now**.

Chemical Waste Hazard

 **WARNING CHEMICAL WASTE HAZARD.** Some wastes produced by the operation of the instrument or system are potentially hazardous and can cause injury, illness, or death.

Chemical Waste Safety Guidelines

To minimize the hazards of chemical waste:

- Read and understand the Material Safety Data Sheets (MSDSs) provided by the manufacturers of the chemicals in the waste container before you store, handle, or dispose of chemical waste.
- Provide primary and secondary waste containers. (A primary waste container holds the immediate waste. A secondary container contains spills or leaks from the primary container. Both containers must be compatible with the waste material and meet federal, state, and local requirements for container storage.)
- Minimize contact with chemicals. Wear appropriate personal protective equipment when handling chemicals (for example, safety glasses, gloves, or protective clothing). For additional safety guidelines, consult the MSDS.
- Minimize the inhalation of chemicals. Do not leave chemical containers open. Use only with adequate ventilation (for example, fume hood). For additional safety guidelines, consult the MSDS.
- Handle chemical wastes in a fume hood.
- After emptying the waste container, seal it with the cap provided.
- Dispose of the contents of the waste tray and waste bottle in accordance with good laboratory practices and local, state/provincial, or national environmental and health regulations.

Waste Disposal

If potentially hazardous waste is generated when you operate the instrument, you must:

- Characterize (by analysis if necessary) the waste generated by the particular applications, reagents, and substrates used in your laboratory.
- Ensure the health and safety of all personnel in your laboratory.
- Ensure that the instrument waste is stored, transferred, transported, and disposed of according to all local, state/provincial, and/or national regulations.

IMPORTANT! Radioactive or biohazardous materials may require special handling, and disposal limitations may apply.

Biological Hazard Safety



WARNING BIOHAZARD. Biological samples such as tissues, body fluids, and blood of humans and other animals have the potential to transmit infectious diseases. Follow all applicable local, state/provincial, and/or national regulations. Wear appropriate protective eyewear, clothing, and gloves. Read and follow the guidelines in these publications:

- U.S. Department of Health and Human Services guidelines published in *Biosafety in Microbiological and Biomedical Laboratories* (stock no. 017-040-00547-4; <http://bmbi.od.nih.gov>)

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- Occupational Safety and Health Standards, Bloodborne Pathogens (29 CFR§1910.1030; http://www.access.gpo.gov/nara/cfr/waisidx_01/29cfr1910a_01.html).

Additional information about biohazard guidelines is available at:
<http://www.cdc.gov>

How to Obtain Support

For the latest services and support information for all locations, go to <http://www.appliedbiosystems.com>, then click the link for **Support**.

At the Support page, you can:

- Search through frequently asked questions (FAQs)
- Submit a question directly to Technical Support
- Order Applied Biosystems user documents, MSDSs, certificates of analysis, and other related documents
- Download PDF documents
- Obtain information about customer training
- Download software updates and patches

In addition, the Support page provides access to worldwide telephone and fax numbers to contact Applied Biosystems Technical Support and Sales facilities.

About This Kit

Purpose The Lower Polymer Block Cleaning Kit (P/N 4359572) allows you to clean the lower polymer block assembly of Applied Biosystems 3730/3730*xl* DNA Analyzers and 3130/3130*xl* Genetic Analyzers.

When to Use In nearly all circumstances the Water Wash Wizard is very effective in cleaning the polymer delivery pump (PDP), including the lower polymer block. Occasionally, a situation in which the Water Wash Wizard is not sufficiently effective may arise. In these cases, use this kit to thoroughly clean the lower polymer block:

- Polymer has dried in the channels of the lower block due to maintenance oversight.
Problems such as electrical arcing or mechanical malfunctions may cause dried polymer to appear in the lower polymer block. Washing with either the Water Wash Wizard or this kit may not correct these problems- replacing the lower polymer block may be necessary.
- Some contaminant in the lower polymer block is suspected of causing problems.
- A replacement lower polymer block is to be installed. In this case, follow the protocol for removing the installed lower polymer block, then clean and install the replacement lower polymer block.

Kit Contents The Polymer Block Cleaning Kit contains the following items:

Item	Part Number
Syringe, 20-mL, silicone-free	4324463
Syringe adaptor, 6-mm, 2 each, black	4322928

Polymer Block Care

Avoiding Damage to the Blocks

The pump and lower polymer blocks can be irreversibly damaged if:

- Polymer dries in the polymer channels of the pump or lower polymer block
- The inside surface of the channel is scratched
- The block is exposed to organic solvent
- The block is exposed to temperatures greater than 40 °C

IMPORTANT! Use clean, powder-free, silicone-free latex gloves whenever you handle the polymer blocks or any item in the polymer path to minimize background fluorescence.

Removing the Lower Block



WARNING **CHEMICAL HAZARD.** POP-4™, POP-6™, and POP-7™ polymer cause eye, skin, and respiratory tract irritation. Read the MSDS, and follow the handling instructions. Wear appropriate protective eyewear, clothing, and gloves.

To remove the lower polymer block if the channel is not completely blocked with dry polymer:

1. Run the Water Wash procedure:
 - a. Select **Water Wash Wizard**:
 - b. Follow the instructions in panels 1 and 2.
 - c. Exit the wizard after executing the water wash procedure at step 2.
 - d. Click **Cancel** and then **Yes** in the dialog box to leave the wizard.
2. (3130/3130xl genetic analyzers only) Open the buffer valve from the Manual Control panel of Data Collection by selecting:

Send Defined Command for:	Buffer Valve
Command Name:	Close/Open buffer valve
Value:	Open
Click:	Send Command

3. Verify that the buffer valve is open (valve lever in the up position).
4. Open the oven and detection block doors.
5. If you have not already removed the buffer jar during the wizard, do so now and set it aside to avoid spilling the contents.
6. (3130/3130xl genetic analyzers only) Remove the array comb nearest to the detection cell.
7. (3730/3730xl DNA analyzers only) Turn the cam knob on the detection cell 1/4 turn counterclockwise (pointer left) to release the detection cell.

8. Loosen the array knob about halfway by turning it counterclockwise.
9. Pull the pump and lower polymer blocks forward to the stop position on the alignment pins. The detection cell comes out of the holder.
10. Attach the detection cell cover to the detection cell to protect the window.
11. Completely loosen the connecting nut for the interconnect tube at the lower polymer block.
12. Pull the lower polymer block off its mounting pins and away from the interconnect tube. This operation may be slightly awkward because of resistance from the stiff interconnect tube.

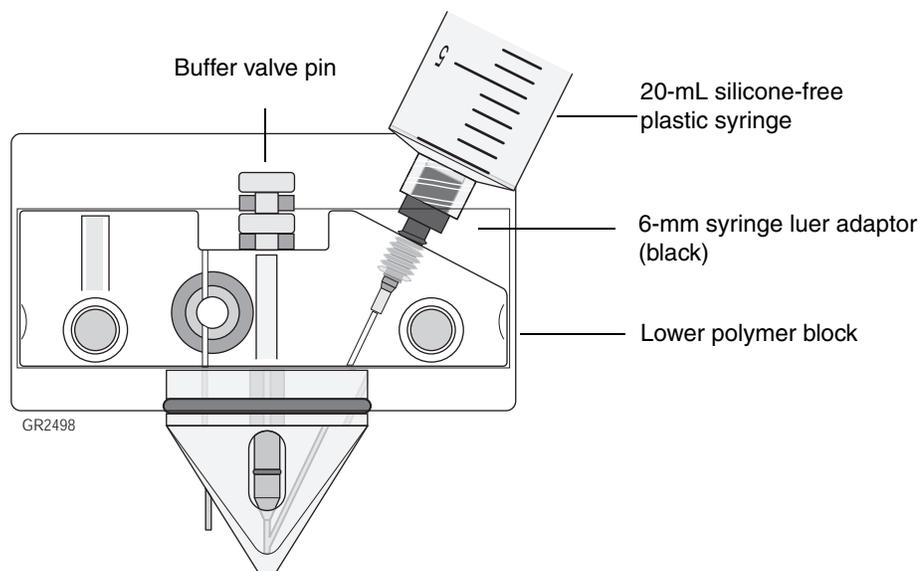
Dried Polymer Blocking Channel

To soak the lower polymer block if the channel is completely blocked with dry polymer:

1. Disregard the Water Wash Wizard step (see “Removing the Lower Block”) and follow the removal procedure starting with step 2.
2. Immerse the removed block in warm (40 ° C or below) water.
3. Inspect the block and replace the warm water as necessary until the block can be cleaned using the procedure that follows (see “Cleaning the Lower Polymer Block.”). If the block cannot be cleared sufficiently for cleaning, you may have to install a new lower polymer block.

Lower Polymer Block

The lower polymer block with the syringe and syringe adaptor attached is shown in below.



Lower polymer block cleaning setup

Cleaning the Lower Polymer Block

To clean the lower polymer block:

1. Rinse all the fittings with warm (40 °C or below) purified (distilled or deionized) water to remove dried polymer.

IMPORTANT! Do not use water above 40 °C to rinse the fittings or the polymer block.

2. With the lower polymer block in warm water (40 °C or below), move the buffer valve in and out to ensure any encrusted polymer is removed from the guide channel.

IMPORTANT! Do not remove any of the components from the lower polymer block.

IMPORTANT! Do not twist the buffer valve against the seat.

3. Fill the 20-mL silicone-free plastic syringe (P/N 4324463) with warm water (40 °C or below).
4. Fit the 6-mm plastic syringe adaptor (P/N 4322928) onto the 20-mL silicone-free plastic syringe (P/N 4324463).
5. Thread the 6-mm plastic syringe adaptor into the polymer block where the interconnect tube was originally attached.
6. Force several plastic syringe volumes of warm water (40 °C or below) through the channel.
7. Inspect the channels for dried polymer, which appears as white residue. Wash partially obstructed channels with warm water (40 °C or below) until the dried polymer is removed. Verify that all polymer is removed before proceeding.
8. Remove the syringe and syringe adapter.
9. Rinse the lower polymer block and all the fittings a final time with water.
10. Dry the fittings and exterior surfaces of the lower polymer block with lab wipes.

IMPORTANT! Do not use compressed gas to blow water from the channels, valve, or any part of the lower polymer block.

Reinstalling the Lower Polymer Block

To reinstall the lower polymer block:

1. With the pump block in the forward stop position, slip the interconnect tube from the pump block loosely into the socket of the lower polymer block while sliding the block into the mounting pins. This operation may be slightly awkward because of resistance from the stiff interconnect tube.
2. Verify that the end of the interconnect tube is flush with the bottom of the connector port. Tighten the interconnect tube connection to the lower polymer block. Check again to make sure that the end of the interconnect tube and the bottom of the lower polymer block connector port are in contact.
3. Remove the detection cell cover from the detection cell window.
4. Push the pump and lower polymers blocks back against the rear the pump panel. Verify that the buffer valve pin engages the valve lever.
5. (3130/3130xl genetic analyzers only) Insert the array comb nearest the detection cell into its holder in the oven.
6. Carefully insert the array detection cell into the detection cell holder, making certain that it is mounted flat and secure in the mounting.
7. (3730/3730xl DNA analyzers only) Rotate the cam knob 1/4 turn (pointer down) to hold the detection cell in place.
8. Close and secure the detection block door.
9. Tighten the array knob into the pump block.
10. Close and secure oven and instrument door.
11. Run the Water Wash Wizard to flush the system with water and then to replace the water in the PDP with polymer. Since the water bottle is already at the polymer supply position, verify that you have enough water volume when starting the wizard.





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