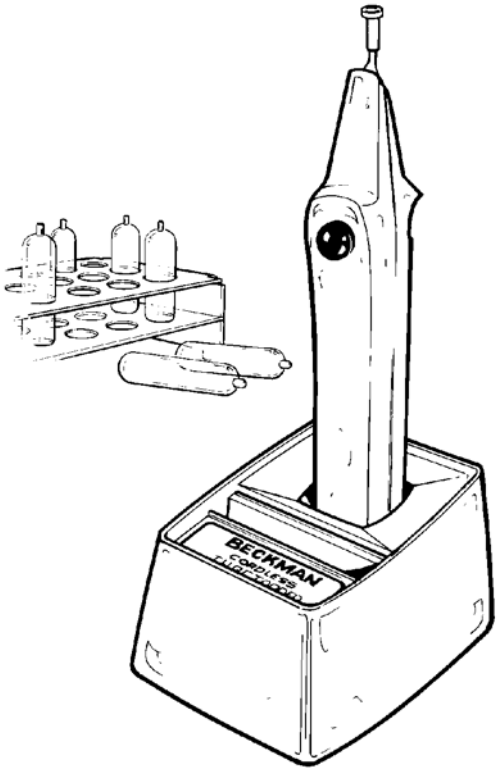
Instruction For Use

Beckman Coulter Cordless Tube Topper

for use with Quick-Seal Tubes



PN IN-181AN
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Beckman Coulter, Inc.
250 S. Kraemer Blvd.
Brea, CA 92821 U.S.A.

BECKMAN COULTER

Beckman Coulter Cordless Tube Topper
For Use With Quick-Seal Tubes Instructions For Use
PN IN-181AN (September 2020)

Contact Us
If you have any questions, contact our Customer Support Center.

- Worldwide, find us via our website at www.beckman.com/support/technical
- In the USA and Canada, call us at 1-800-369-0333.
- Outside of the USA and Canada, contact your local Beckman Coulter Representative.

Find us on the World Wide Web at:
www.beckman.com

EC REP

Beckman Coulter Eurocenter S.A.
22, rue Juste-Olivier
Case Postale 1044
CH - 1260 Nyon 1, Switzerland
Tel: +41 (0) 22 365 36 11

Glossary of Symbols is available at beckman.com/techdocs (PN C24689).

Original Instructions

Revision History

For updates, go to www.beckman.com/techdocs and download the most recent manual or system help for your instrument.

Issue AM, 08/18
Added Alerts for Warning, Caution, Important, and Note; added Table of Contents, List of Figures; added EU/UK soldering iron to How to Use the Beckman Coulter Cordless Tube Topper with Quick-Seal Tubes; removed obsolete spare parts from Supply List.

Issue AN, 09/20
Changes or additions were made to: *Layering Sample*; *Supply List*.

Note: *Changes that are part of the most recent revision are indicated in text by a bar in the left margin of the amended page.*

Safety Notice

Read all product manuals and consult with Beckman Coulter-trained personnel before attempting to operate instrument. Do not attempt to perform any procedure before carefully reading all instructions. Always follow product labeling and manufacturer's recommendations. If in doubt as to how to proceed in any situation, contact your Beckman Coulter Representative.

Alerts for Warning, Caution, Important, and Note

⚠ WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

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

IMPORTANT IMPORTANT is used for comments that add value to the step or procedure being performed. Following the advice in the Important adds benefit to the performance of a piece of equipment or to a process.

NOTE NOTE is used to call attention to notable information that should be followed during installation, use, or servicing of this equipment.

Safety Reminder

This page summarizes information basic to the safe operation of the equipment covered by this manual. The international symbol displayed above and on the equipment is a reminder to the user that all safety instructions should be read and understood before operation, maintenance, or repairs of this equipment are attempted. When you see the symbol on other pages, pay special attention to the safety information presented. Observance of safety precautions will also help to avoid actions that could damage or adversely affect the performance of the equipment.

- Before plugging in the Tube Topper charging stand, check to be sure that you are plugging it into the proper power source (110 VAC 50-60 Hz, or 230 VAC 50-60 Hz). To reduce the risk of

electrical shock, this equipment uses a three-wire electrical cord and plug to connect this equipment to earth-ground. To preserve this safety feature:

- — Make sure that the matching wall outlet receptacle is properly wired and earth-grounded. Check that the line voltage agrees with the voltage listed on the name-rating plate affixed to the instrument.
- — Never use a three-to-two wire plug adapter.
- — Never use a two-wire extension cord or a two-wire non-grounding type of multiple-outlet receptacle strip.

- Never charge the Tube Topper in a charging stand other than the one supplied with the unit. Different charge rates may cause overcharging and overheating of the rechargeable cells, shortening the battery life.
- Any servicing of this equipment that requires the removal of any covers or panels can expose parts that involve the risk of electric shock or personal injury. Refer such servicing to qualified personnel.
- Do not touch the tip of the Tube Topper. Touching the heated tip of the Tube Topper can cause burns.
- Tubes and accessories contaminated with radioactive or pathogenic solutions should be decontaminated or disposed of following appropriate safety guidelines and/or regulations.
- Handle body fluids with care because they can transmit disease. No known test offers complete assurance that they are free of micro-organisms. Some of the most virulent — Hepatitis (B and C) viruses, HIV (I–V), atypical mycobacteria, and certain systemic fungi — further emphasize the need for caution.

Glossary Symbols Table

Symbol/ Regulatory Mark	Title of Symbol/ Regulatory Mark	Standard Reference	Meaning of Symbol from Standard
	Caution	ISO 7010[a]: W001	To signify a general warning.

a. ISO 7010, Graphical symbols – Registered safety sign

Contents

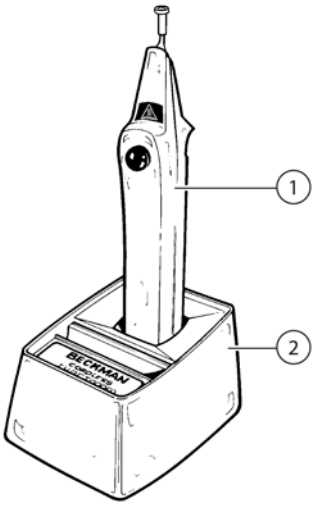
Illustrations

How to Use the Beckman Coulter Cordless Tube Topper with Quick-Seal Tubes

Cordless Tube Topper

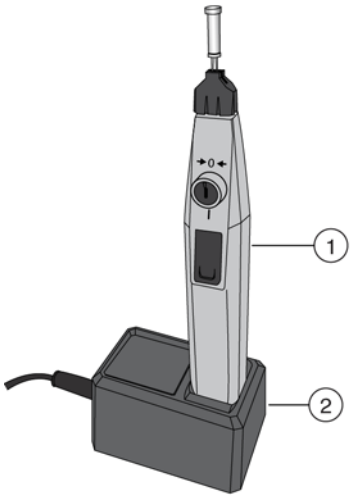
Quick-Seal tubes are heat-sealed quickly and easily using the Beckman Coulter Cordless Tube Topper. To ensure quality, this equipment has been designed and manufactured to meet the requirements of UL or C-UL (for North American markets), and CE mark (for EU/UK markets).

Figure 1 North American Market



1. Tube Topper
2. Charging Stand

Figure 2 EU/UK Market



⚠ CAUTION

Risk of equipment damage. Before plugging in the Tube Topper, be sure that you have a proper power source (110 VAC 50-60 Hz, or 230 VAC 50-60 Hz). Charge your Cordless Tube Topper only in the charging stand supplied with it.

When you first receive the unit, plug in the charging stand. Place the Tube Topper in the stand (with the push button toward the front) and charge it for use.

NORTH AMERICAN MARKET — Approximately 3½ hours are required for a full charge.

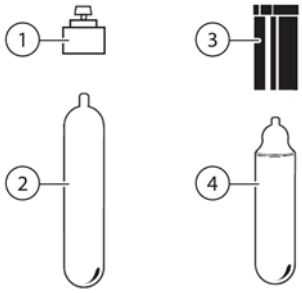
EU/UK MARKET — Approximately 8 hours are required for a full charge.

Always leave the Tube Topper in its charging stand when not in use — it will never overcharge. If the Tube Topper is not left in the stand, or the charger is unplugged for long periods, the batteries will discharge.

Quick-Seal Tubes

Quick-Seal tubes* are designed for use in all swinging bucket, vertical tube, near vertical tube, and most fixed angle rotors. The tubes are available in many sizes and in three different designs—dome-top, bell-top, and *k*onical bell-top. Quick-Seal tubes are also available in two materials: polypropylene and Ultra-Clear. Tubes made of both materials are thinwall and non-wettable.† These tubes are especially useful for providing secondary biocontainment or for runs requiring cesium chloride gradients. There is no need for caps —the tubes are heat-sealed, resulting in a very reliable seal. However, spacers and/or floating spacers are required to support the tops of the tubes during centrifugation (Figure 3).

Figure 3 Tubes and Spacers



1. Metal Spacer
2. Dome-Top
3. *g*-Max Floating Spacer
4. Bell-Top

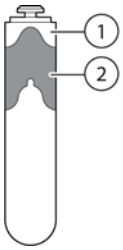
NOTE For information about tube sizes, part numbers, and accessories, refer to the latest edition of the Ultracentrifuge Rotors, Tubes, & Accessories catalog (publication BR-8101) or the High Performance, High Speed, High Capacity Rotors, Tubes, & Accessories catalog (publication BR-8102). Both publications are available at www.beckman.com/techdocs.

The *g*-Max system uses a combination of short bell-top polypropylene Quick-Seal tubes and floating spacers (also referred to as *g*-Max spacers) (Figure 4). The floating spacers sit on top of the Quick-Seal tubes; thus, there is no reduction of maximum radius, and therefore, no reduction of g force. The shorter pathlength of the tubes permits you to achieve separations with much faster run times than with full-size tubes. For more information on the *g*-Max system, see publication DS-709.

* U.S. Pat. Nos. 4,301,963, 4,304,356, and 4,290,550; British Pat. No. 2,021,982; Canadian Pat. No. 1,132,509; Japanese Pat. No. 1,469,153; Italian Pat. No. 1,121,772.

† Methods for making both polypropylene and Ultra-Clear tubes wettable have been reported to be successful. These procedures are described in Rotors and Tubes (publication JR-IM, LR-IM, or TLR-IM).

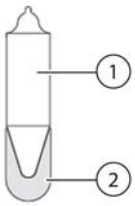
Figure 4 *g*-Max system



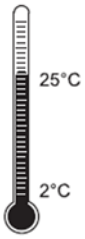
1. Spacer
2. *g*-Max Floating Spacer

Polypropylene *k*onical tubes, used with conical-cavity adapters in swinging bucket rotors to optimize pelleting separations, have a conical tip that concentrates the pellet in the narrow base of the tube (Figure 5). The narrow tip also reduces the tube's nominal volume and can minimize the amount of gradient while retaining the height of a dense cushion. Quick-Seal *k*onical tubes have bell-shaped tops to fit the floating spacers in the *g*-Max system for smaller volume runs with faster pelleting.

Figure 5 *k*onical Tube and Adapter



1. *k*onical Tube
2. Adapter



Plastic tubes have been centrifuge-tested over the temperature range of 2 to 25°C. For centrifugation at other temperatures, pretest tubes under the actual experimental conditions, using buffer or gradient of similar density rather than a valuable sample. If tubes are frozen before use, make sure that they are thawed to at least 2°C before centrifugation. Ultra-Clear tubes should not be used with solutions of pH greater than 8 and should not be autoclaved. See *Chemical Resistances* (publication IN-175) for information on the chemical compatibility of Quick-Seal tubes.

Filling the Tubes

Fill each tube to the base of the stem, using a syringe with a 14-gauge or smaller needle. Do not leave a large air space — too much air can cause excessive tube deformation, disrupting gradients or sample.

Homogeneous solutions of gradients and sample may be sealed into the tubes and centrifuged immediately. Step gradients should be loaded with a long needle inserted to the bottom of the tube. Because the tubes are not wettable, load the light end of the preformed gradient first and float up with more dense solution. If the sample is to be layered on top, be sure to allow enough room for the sample so that the tube stem is not filled.

Form a continuous gradient quickly from a step gradient as follows.

1 Load a step gradient into the tube.

2 Before layering on the sample, slowly tip the tube sideways and lay it on its side (tube contents will not spill, but be sure that the tube doesn't roll). The increased surface area between gradient steps allows a linear gradient to form by diffusion more quickly.

3 After 2 hours at room temperature, slowly set the tube upright.

a. Alternately, the tube containing the step gradient can stand upright in a refrigerator overnight and a continuous gradient will be formed.)

4 Layer the sample onto the gradient as described below.

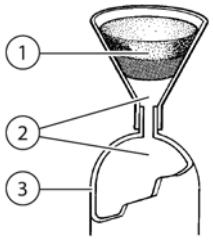
Layering Sample

Layer sample onto the tube contents as follows.*

1 Slip the 5-mL polyethylene funnel (342415) down over the tube stem.

2 Compress the tube until the gradient is forced up into the funnel (Figure 6). Force only enough gradient into the funnel to provide a surface for sample application.

Figure 6 Layering Sample



1. Overlay
2. Gradient
3. Compressed Tube

3 Layer the sample onto the meniscus of the gradient in the funnel. If an overlay is being used, carefully layer it on top of the sample. (Do not use an oil overlay in Ultra-Clear tubes.)

4 Gently release the pressure compressing the tube and allow the sample and overlay to drain back into the tube.

* Method and apparatus for layering sample onto tube contents patented: U.S. Pat. No. 4,167,955; Swiss Pat. No. 631089; British Pat. No. 2,022,455; Italian Pat. No. 1,121,265

5 After filling the tube, remove the funnel and wipe off the exterior of the filled tube; make sure that no fluid is trapped in the stem. (The tube stem should be clean and dry before sealing.)

6 Fill the remaining tubes in the same manner and place the tubes in the appropriate tube rack. The tube racks are color-coded to indicate the tube diameter that fits in each (see the *Supply List*).

Sealing the Tubes

The following procedures provide the two methods for heat-sealing Quick-Seal tubes using the Tube Topper.

NOTE Separate instructions are provided for the North American and EU/UK markets.

⚠ WARNING

Risk of personal injury. Touching the heated tip of the Tube Topper will cause burns. When the push button is pressed the tip heats almost immediately. To avoid burns:

NORTH AMERICAN MARKET — When not in use, be sure the push button is turned to LOCK position unless you are actually sealing a tube.

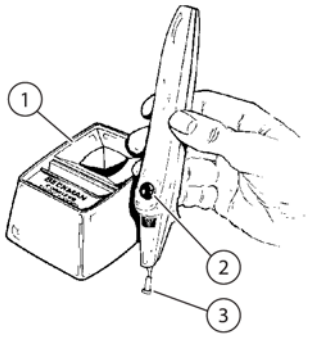
EU/UK MARKET — When not in use, be sure the circular safety switch is turned to OFF (O) unless you are actually sealing a tube.

1 Remove the Tube Topper from the charging stand.

a. **NORTH AMERICAN MARKET** — Make sure the push button is turned to the **OFF (LOCK)** position. Insert the ends of the Tube Topper tip into the two openings of the copper strips at the end of the Tube Topper device (Figure 7).

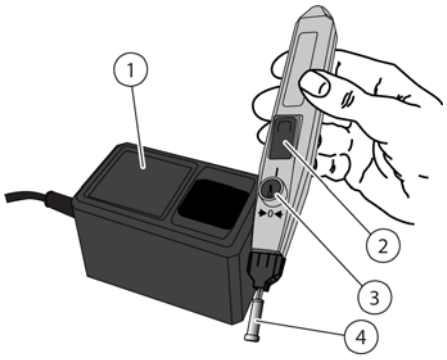
EU/UK MARKET — Make sure the circular switch is turned to the OFF (**O**) position. Insert the ends of the Tube Topper tip through the plastic sleeve and into the two openings at the end of the Tube Topper device. Slide the plastic sleeve over the end of the Tube Topper. Tighten the screws to secure the probes in place (Figure 8).

Figure 7 North American Markets



1. Charging Stand
2. Push button
3. Tip

Figure 8 EU/UK Markets



1. Charging Stand
2. Push button
3. Circular Safety Switch
4. Tip

2 Place a seal former on each tube stem (Figure 9). (The Teflon* coating on the seal formers is permanent. Do not scratch the interior of the formers, as you may damage this coating.)

Figure 9 Seal Former

3 Seal each tube using *METHOD A — WITH THE SEAL GUIDE* or *METHOD B — WITHOUT THE SEAL GUIDE*, below. Method A is preferable when sealing smaller tubes or when resealing a tube that leaks.

⚠ CAUTION

Always keep the Tube Topper in its charging stand when not in use. Do not lay the unit against any surface after use until the tip has cooled (approximately 5 minutes).

* Registered trademark of E.I. du Pont de Nemours & Company

METHOD A — WITH THE SEAL GUIDE

a. Place a seal guide (with the flat side down) over the seal former (Figure 10).

Figure 10 Seal Guide

b. **NORTH AMERICAN MARKET** — Turn the Tube Topper push button to the **ON (USE)** position. Press the push button and wait 3 to 5 seconds for the tip to heat.

EU/UK MARKET — Turn the Tube Topper circular safety switch to the **ON** (**I**) position. Press the **ON** button and wait approximately 9 seconds for the tip to heat.

c. Apply the tip of the Tube Topper vertically to the seal former (Figure 11 and Figure 12). Press down gently for about 10 seconds. The seal guide should move down the tube stem until it rests on the tube shoulder. Using the seal guide prevents the seal former from being pressed into the tube shoulder. (*For tube 344625 only*, the seal former should move only to about 2 mm above the tube shoulder.)

Figure 11 North American Market

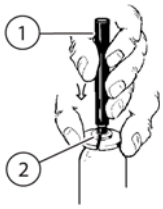
Figure 12 EU/UK Market

NOTE Always apply the tip of the Tube Topper vertically to the seal former. Apply gentle pressure when sealing the tube.

d. When the seal guide has moved to the correct position, remove the Tube Topper and pinch the circular seal guide to hold the seal former in place.

e. Place the heat sink (small end) over the cap for 2 to 3 seconds while the plastic cools — do NOT let the seal former pop up (Figure 13). (If the seal former does pop up, the tube may not have an adequate seal and may need to be resealed.)

Figure 13 Heat Sink



1. Heat Sink
2. Small End

f. Remove the heat sink and seal guide. When the seal former cools, remove it by hand or with the removal tool (361668) (Figure 14). Save the seal guide and former for future use.

Figure 14 Remove Tool

METHOD B — WITHOUT THE SEAL GUIDE

a. **NORTH AMERICAN MARKET** — Turn the Tube Topper push button to the **ON (USE)** position. Press the push button and wait 3 to 5 seconds for the tip to heat.

EU/UK MARKET — Turn the Tube Topper circular safety switch to the **ON (I)** position. Press the **ON** button and wait 9 seconds for the tip to heat.

NOTE Always apply the tip of the Tube Topper vertically to the seal former. Apply gentle pressure when sealing the tube.

b. Apply the tip of the Tube Topper vertically to the seal former for about 10 seconds (Figure 15 and Figure 16). The seal former should move down the tube stem until it just rests on the tube shoulder. Be careful NOT to press the seal former into the tube shoulder — it may cause the tube to leak. (*For tube 344625 only*, the seal former should move only to about 2 mm above the tube shoulder.)

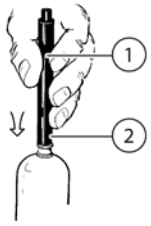
Figure 15 North American Market

Figure 16 EU/UK Market

NOTE It is very important to apply the heat sink immediately. To do so, we recommend that you have it in one hand, ready to apply as soon as needed.

c. Remove the Tube Topper. IMMEDIATELY place the large end of the heat sink over the seal former (Figure 17). Hold it there for a few seconds while the plastic cools — do NOT let the seal former pop up. (If the seal former does pop up, the tube may not have an adequate seal and may need to be resealed.)

Figure 17 Heat Sink

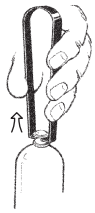


Immediately

1. Heat Sink
2. Large End

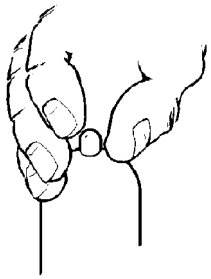
d. Remove the heat sink. When the seal former cools, remove it by hand or with the removal tool (361668)(Figure 18).

Figure 18 Removal Tool



4 After completing either heat-sealing method, squeeze the tube gently (if the tube contents may be disturbed) to test the seal for leaks (Figure 19). If the tube leaks, try resealing it using *METHOD A — WITH THE SEAL GUIDE*.

Figure 19 Test for Seal Leaks



5 The tube is now ready for centrifugation. Seal the remaining tubes.

6 Return the Tube Topper to its charging stand when finished.

Handy Tips

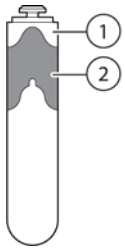
- Always keep the Tube Topper in its charging stand when not in use. Do not lay the unit against any surface after use until the tip has cooled (approximately 5 minutes).
- **NORTH AMERICAN MARKET** — Always return the push button to **OFF (LOCK)** position when not in use.

  EU/UK MARKET — Always return the circular safety switch to the **OFF (O)** position when not in use.
- Always apply the tip of the Tube Topper vertically to the seal former. Apply gentle pressure when sealing the tube.
- Never allow the seal former to pop up during the sealing process. If the seal former does pop up, the tube may not have an adequate seal and may need to be resealed.
- New users may find the sealed stem slightly slanted or elongated after removing the seal former. Reseal the tube only if the tube spacer won't fit on top of the tube.
- You may get an overflow of melted plastic around the seal former during the sealing procedure. Check that the tube spacer fits onto the sealed tube.
- The Teflon coating on the seal formers is permanent. Do not scratch the interior of the formers, as you may damage this coating.

Loading the Rotor

To support the top of the tube during centrifugation, each Quick-Seal tube is used with a spacer, a floating spacer, or a combination of both (refer to the applicable rotor manual for the correct combination). Insert the sealed tubes into the rotor and install the correct spacers and/or floating spacers as described in the rotor manual. The particular combination depends on the type of rotor you are using. In fixed angle and swinging bucket rotors it is particularly important that the top of each tube be supported. In a near vertical tube or vertical tube rotor, it is especially important that the entire tube cavity be filled. Therefore, in near vertical tube or vertical tube rotors, metal plugs are inserted over the spacers and then screwed in to seal the tube cavities (Figure 20).

Figure 20 Spacers



1. Spacer
2. *g*-Max Floating Spacer

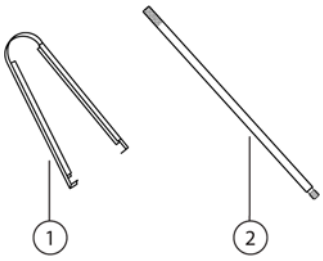
Recovery of Sample

⚠ CAUTION

Risk of contamination. If disassembly reveals evidence of leakage, you should assume that some fluid escaped the rotor. Apply appropriate decontamination procedures to the centrifuge and accessories.

After centrifugation, carefully remove the metal spacers with a removal tool or a hemostat (Figure 21). Remove floating spacers with the 338765 removal tool, taking care not to scratch the rotor cavities. Use the 361668 removal tool to remove the tubes, grasping the sealed stem only.

Figure 21 Removal Tools

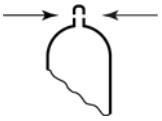


1. Tube Removal Tool (361668)
2. Floating Spacers Removal Tool (338765)

There are several methods of recovering fractions from Quick-Seal tubes. (We recommend the Beckman Coulter Universal Fraction Recovery System [343890] for recovering fractions from density gradient separations. For detailed instructions, see publication L5-TB-081.) One of the following procedures may be used.

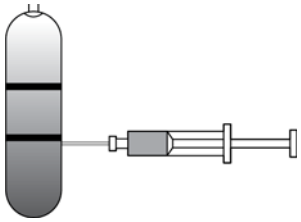
NOTE If you plan to collect particles from the tube side or bottom, first create an air passage by snipping the stem or inserting a hollow hypodermic needle in the top of the tube (Figure 22).

Figure 22 Cut Quick-Seal stem here to provide an air inlet



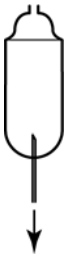
- Puncture the side of the tube just below the sample band with a needle and syringe and draw the sample off (Figure 23). Take care when piercing the tube to avoid pushing the needle out the opposite side.

Figure 23 Puncture Side



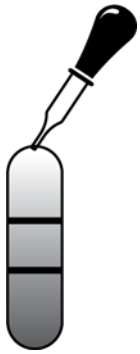
- Puncture the bottom of the tube and collect the drops (Figure 24).

Figure 24 Sample out



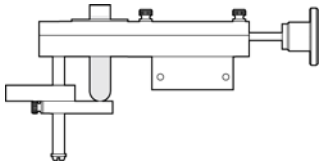
- Aspirate the sample from the tube top by snipping off the tube stem and aspirating the sample with a Pasteur pipette or needle and syringe (Figure 25).

Figure 25 Aspirating with Pasteur pipette



- Slice the tube, using the Beckman Coulter Tube Slicer (303811) (Figure 26). The Beckman Coulter CentriTube Slicer (347960) is available for slicing smaller TL or ML tubes. (See publication TL-TB-008 for instructions on using this accessory.)

Figure 26 CentriTube Slicer (347960)



Care and Maintenance

- The Tube Topper should be used frequently to ensure longer life of it its batteries. It is good practice to completely discharge the batteries by normal use at least once a month. During long periods of non-use, the batteries will gradually lose their maximum capacity.
- Proper care of tubes involves observing temperature and run speed limitations as well as careful cleaning and sterilization procedures.

Cleaning

⚠ WARNING

Risk of personal injury. The heated tip of the Tube Topper will cause burns. When the push button is pressed the tip heats almost immediately. While cleaning the Tube Topper:

NORTH AMERICAN MARKET — be sure the push button is turned to OFF (LOCK) position.

EU/UK MARKET — be sure the circular safety switch is turned to OFF (O) position.

- The Tube Topper may be wiped clean with Solution 555 (339555), diluted 10 to 1 with water. Do not autoclave the Tube Topper.

- Quick-Seal tubes are disposable and should be discarded after a single use.

- Spacers made of aluminum are subject to corrosion and must be washed regularly. Corroded spacers may fail during centrifugation.
  1. Hand wash spacers and floating spacers, using a mild detergent solution such as Solution 555, diluted 10 to 1 with water (do not, however, soak them in detergent).
  2. Rinse with distilled water.
  3. Air-dry completely before putting them away — do not autoclave plastic spacers.
- Tube racks are made of aluminum and may be cleaned with Solution 555.

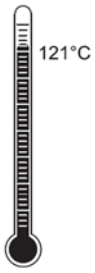
Decontamination

Tubes and accessories contaminated with radioactive or pathogenic solutions should be decontaminated or disposed of following appropriate safety guidelines and/or regulations. Consult Chemical Resistances (publication IN-175) to select a solvent that will not damage the tube or accessory material.

Sterilization and Disinfection

⚠ WARNING

Risk of personal injury or equipment damage. Ethanol is a flammability hazard. Do not use in or near operating centrifuges.



Polypropylene tubes, metal spacers, and tube racks can be autoclaved at 121°C for about 30 minutes (do not autoclave seal formers or plastic adapters or spacers). Note, however, that the tubes may be permanently deformed if they are autoclaved or if they are handled or compressed before they cool. A cold sterilization method such as ethanol (70%) can be used on polypropylene tubes, spacers, and seal formers.

Ultra-Clear tubes MUST NOT be autoclaved. A cold sterilization method such as immersion in hydrogen peroxide (10%) for 30 minutes may be used on Ultra-Clear tubes and plastic spacers.

While Beckman Coulter has tested these methods and found that they do not damage the tubes or accessories, no guarantee of sterility or disinfection is expressed or implied. When sterilization or disinfection is a concern, consult your laboratory safety officer regarding proper methods to use.

Inspection

Inspect tubes for cracks or any major deformities before using them. Do not use a tube that has become yellowed or brittle with age or excess exposure to sunlight. Squeeze Ultra-Clear and polypropylene tubes (to a maximum of one-half their diameter) before use; if the tube cracks, discard it. If an adapter becomes deformed or cracked, discard it.

Storage

- **Tube Topper** — Always leave the Tube Topper in its charging stand when not in use — it will never overcharge. If the Tube Topper is not left in the stand, or the charger is unplugged for long periods, the batteries will discharge.

  If the batteries discharge:

  — **NORTH AMERICAN MARKET** — Approximately 3½ to 4 hours will be required for a full charge.

  — **EU/UK MARKET** — Approximately 8 hours will be required for a full charge.

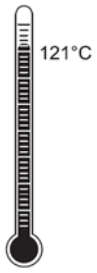
- **Tubes** — Tubes have an indefinite shelf life if properly stored. Make sure all tubes and accessories are completely dry before storing them. Store tubes in their containers in a dark, cool, dry place away from ozone and chemical fumes.

Removing Jammed or Collapsed Tubes

⚠ CAUTION

Risk of equipment damage. Do not use a hemostat or any metal tool to pry a jammed or collapsed tube out of the rotor. The rotor can be scratched and damaged.

Centrifugal force may collapse improperly sealed thinwall tubes. Observe careful filling and sealing procedures to prevent tube collapse. If a tube becomes jammed or collapsed in the rotor, DO NOT force the tube.



1. Remove the tube contents and place the rotor upside-down in an autoclave. *Do not autoclave sealed tubes.*

2. Autoclave at 121°C for about 60 minutes.

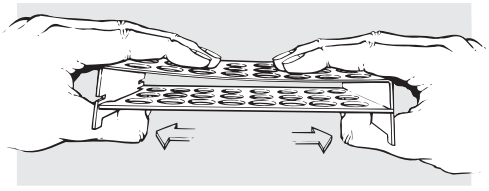
3. At the end of the autoclave cycle the tube material should be softened and you can remove the tube.

Contact your Beckman Coulter Service representative if this method is unsuccessful.

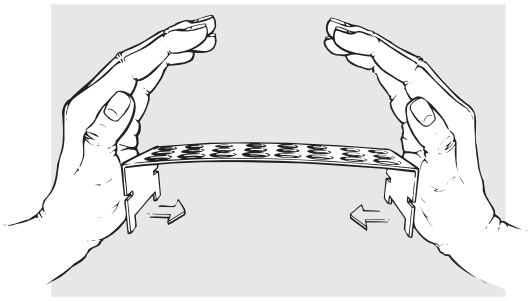
Adjusting the Tube Topper Rack

The Quick-Seal tube racks are made in two sections; if the lower part becomes loose, tighten it as follows.

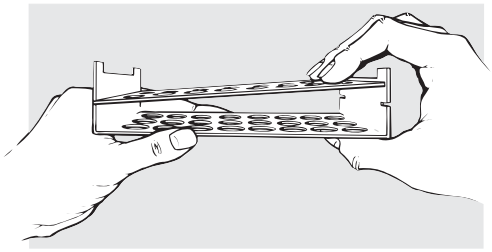
1 Pull the two sides of the rack apart slightly to release the lower section.



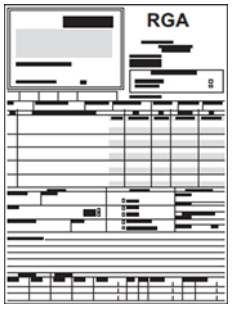
2 Bend the sides of the rack slightly inward by hand.



3 Insert the tabs of one end of the lower section into the notches. Then gently push the other end down until it snaps into place.



Returning a Component



In most cases it is not necessary to return defective tubes or accessories. In those rare cases where return of defective items is desirable, prior permission (a Returned Goods Authorization form) must be obtained from Beckman Coulter, Inc. This RGA form may be obtained from your local Beckman Coulter office.

To protect our personnel, it is the customer's responsibility to ensure that the components are free from pathogens and/or radioactivity. Sterilization and decontamination must be done before returning the parts. The parts should be enclosed in a sealed plastic bag.

All parts must be accompanied by a note, plainly visible on the outside of the box or bag, stating that they are safe to handle and that they are not contaminated with pathogens or radioactivity. ***Failure to attach this notification will result in return or disposal of the items without review of the reported problem.***

Use the address label printed on the RGA form when mailing the components.

Customers outside of the United States should contact their local Beckman Coulter office.

Supply List

NOTE Publications referenced in this manual can be obtained by calling Beckman Coulter at 1-800-742-2345 in the United States, or by contacting your local Beckman Coulter office.

For information about tubes and accessories used in ultracentrifuges and centrifuges, refer to the latest edition of the *Ultracentrifuge Rotors, Tubes, & Accessories* catalog (publication BR-8101) or the *High Performance, High Speed, High Capacity Rotors, Tubes, & Accessories* catalog (publication BR-8102, available at www.beckman.com/techdocs).

Tube Topper Kit, 60 Hz 358312
Tube Topper Kit, 50 Hz (Europe) 358313
Tube Topper Kit, 50 Hz (Great Britain) 358314
Tube Topper Kit, 50 Hz (Australia) 358315
Tube Topper Kit, 60 Hz (Canadian) 367803

Each kit includes the applicable Tube Topper, changing stand, and the following items. (The part numbers are listed here for replacement purposes.)

Heat sink 348117
Seal former (domed) 348120
Flat top seal former 357442
Seal guide 348643
Plastic box for holding accessories 889676
Removal tool for tubes and metal spacers 361668

Tube Topper Spare Parts
- Tip 358317

Tube Topper racks:
- Orange (8-mm diameter tubes), 50 places 349661
- Gold (11-mm diameter tubes), 24 places 349387
- Red (13-mm diameter tubes), 24 places 348122
- Violet (14-mm diameter tubes), 24 places 356568
- Green (16-mm diameter tubes, 24 places 348123
- Blue (25-mm diameter tubes), 18 places 348124
- Black (38-mm diameter tubes), 12 places 348125

Funnels (two) 342415
Removal tool for plastic spacers and floating spacers 338765
Tube removal tool 361668
Beckman Coulter Fraction Recovery System 343890
Replacement instruction label 348114
Beckman Coulter CentriTube Slicer Kit (for TL-series tubes) 347960
Solution 555 (1 qt) 339555

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