Instructions for 0.85 ml Adapter

INS 1012.1

Seton Polyallomer Tube PN: 5006 (Box of 50)
Seton Adapter PN: 4482 (Set 6 Adapters + Removal Tool)

Use in Rotors: RP55-S, S55-S or TLS-55
Maximum Rotor Speed with Adapters: 2OKRPM

Nominal Tube Volume: 0.85 ml
Rmax = 75mm (bottom of adapter)
Speed for RCF of 12,000 is 12,000RPM

INSTRUCTIONS FOR USE

The adapter can be first placed in the rotor and the tube added or the tube added before the adapter set is placed in the rotor bucket. There is no need to orient the adapters according to the small holes at the top. The tube should be filled as much as possible in order to prevent collapse of the tube wall, and this would correspond to about 2mm from the top of the tube.

The adapters are made of Delrin™ and should not be autoclaved but can be sterilized using cold soak methods such as aqueous solutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide.

The tubes can be autoclaved or sterilized by the cold methods above.

After the run the removal tool (wire loop) can be used to hook an adapter in either hole located just below the adapter top opening, and the adapter pulled out.
The tubes can be removed from the adapter with small hemostatic forceps or the like.

Instructions for 0.8ml Adapter

INS 1011.1

Seton Polyclear Tube PN: 7009 (Box of 50)
Seton Adapter PN: 4109 (Set 6 Adapters + Removal Tool)

Use in Rotors: SW6OTi, TST6O.4 or TH-660
Maximum Rotor Speed with Adapters: 45KRPM

Nominal Tube Volume: 0.8ml
Actual Tube Maximum Volume: 0.67ml

INSTRUCTIONS FOR USE

The adapters are made of Delrin™ and are split to facilitate removal of the tube after the centrifuge run. Each adapter pair is a matched set. There is a small etched number visible on the top surface of each adapter half.

The adapter can be first placed in the rotor and the tube added or the tube added before the adapter set is placed in the rotor bucket. The tube should be filled as much as possible in order to prevent collapse of the tube wall.

The tube and adapters cannot be autoclaved but can be sterilized using cold soak methods such as aqueous sulutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide.

After the run the removal tool (wire loop) can be used to hook one adapter half in the groove just below the adapter top opening and the adapter pulled out.

Orient the adapters in the rotor bucket with the split line 90 degrees to the radial center line of the bucket hole. (That is, not with the split line oriented inboard/outboard.)

Instructions for Easy-Seal Tubes and Crowns

INS 1008.1

EASY-SEAL CROWNS IN FIXED-ANGLE ROTORS*

Rotors: **80Ti, 75Ti, 70.1Ti,65, 50Ti, 40 7OTi, 60Ti, 55.2Ti, 50.2T1, 42.1**

Crown Assemblies: **4015,4016, 4017,4018 4019,4020**

Refer to Figures 1 and 2

Note:Delrin(1) crown assemblies should be used with mineral or paraffin or overlays. Noryl(2) crown assemblies may stress crack when in contact with oils at centrifugal stresses.

1.1 Fill the tube so that the meniscus coincides with the top of the uppermost thread on the Stem of the tube.

1.2 Screw the tube into the crown, making sure the crown is seated against the tube. Do not overtighten the crown. It is not necessary and may strip the threads on the tube.

1.3 Hold the crown and screw in the plug with the hex driver (PN 4013). The rubber bushing may be used to grip the crown while screwing in the plug. After sealing, there will be a gap of 0.1 to 0.3 mrn between the underside of the plug hex and the top of the crown. The seal plug on the 5/8“ size uses an o-ring to assist in sealing because it sees a higher G-force. This o-ring may be autoclaved while on the Noryl plug.

1.4 Place the sealed tube assembly into the rotor. It may be necessary to tilt the crown with the removal tool [PN 4014, not shown) in order for the crown to fit into the counterbore of the rotor.

1.5 After centrifugation, insert the removal tool and remove the tube assembly from the rotor.

1.6 Unscrew the plug for easy access to the tube contents.

1.7 Easy-Seal(3) tubes may be reused if they have not been punctured. To reuse a tube several times, leave the crown attached to the tube with the swage intact.

1.8 After centrifugation, Easy-Seal tubes may be removed from the crown by holding the tube and unscrewing the crown with an upward force. The flared stem of the tube tends to hold the two together. After cleaning, the tube may be screwed back into the crown by feeding the flared part of the tube into the crown threads and screwing down the crown. After removing the crown several times, the threads on the tube neck may become worn requiring disposal of the tube. The preferred method of reusing tubes is to leave the crown on the tube with the swage intact.

1.9 Polyallomer Easy-Seal tubes may be autoclaved with the crown attached it the crown is made of Noryl. If Delrin crowns are used, sterilize with aqueous solutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide. Polyclear(3) tubes should not be autoclaved.

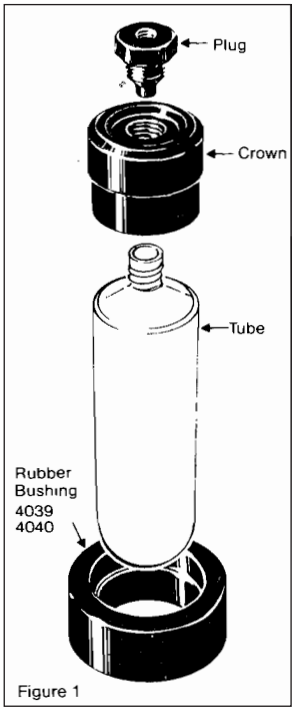


Figure 1

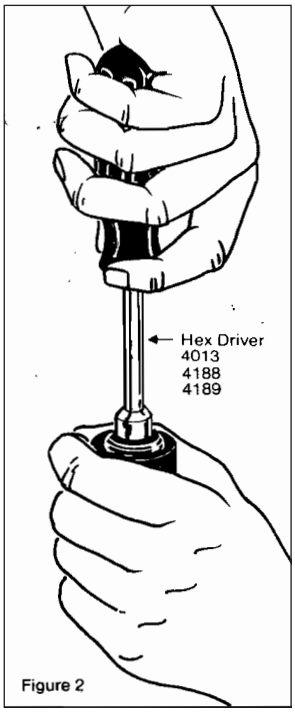


Figure 2

(1) Delrin isa registered trademark of E.I. duPontde Nemours & Co.
(2) Noryl ja a registered trademark of General Electric Co.
(3) Tradernark of Seton Scientific Co.
* U.S. Patent No.1 4,537,32Oand 11K PatentGB 2149325

Instructions for Easy-Seal Tubes and Crowns

INS 1008.1

ALUMINUM 5/8“ CROWN IN FIXED ANGLE ROTORS*

Rotors: **90Ti, 80Ti, 75Ti, 70.1Ti**

Crown Assemblies: 4063, 4064

2.1 Fill the tube so that the meniscus coincides with the top ot the uppermost thread on the stem of the tube.

2.2 Screw the tube into the crown, making sure the crown is seated against the tube. Do not overtighten the crown. It is not necessary and may strip the threads on the tube.

2.3 Hold the crown and screw in the plug with the hex driver (PN 4013).

2.4 With the crown now resting in the hole and the pins engaged in slots, firmly tighten the plug with the hex driver (PN 4013). Do not overtighten - it is not necessary and may damage the plug threads.If you do not have the Seton vise (PN 4104) but you have Beckman tube cap vise (PN 305075), use it to hold the aluminum crown.

2.5 Place the sealed tube assembly into the rotor. It may be necessary to put the crown with the removal tool (PN 4014, not shown) in order for the crown to fit into the rotor counterbore.

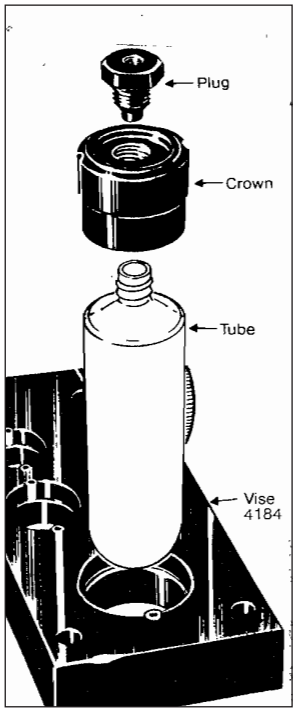
2.6 After centrifugation, insert the removal tool (PN 4014) into the top of the plug and remove the tube assembly from the rotor.

2.7 Unscrew the plug for access to the tube contents. If this cannot be done by hand, place the tube assembly into the appropriate hole of the tube vise and unscrew the plug with a hex driver. Polyclear tubes in the 8OTi rotor crowns tend to be tightly swaged and attempts to remove a filled tube from the crown may cause agitation of the sample. It is recommended to first remove the tube liquid contents before removing the tube from the crown.

2.8 Easy-Seal tubes may be reused if they have not been punctured. If they are to be reused, leave the crown attached to the tube with the swage intact. If the crown is removed the unswaging and swaging operation may weaken the seal area of the tube.

2.9 Aluminum crowns, polyallomer tubes, and Noryl plugs with polyurethane o-rings can be autoclaved. The crown when attached and swaged to the tube can be auto-claved without disassembly.

2.10 For Aluminum crowns with DeIrin plugs and polyurethane o-rings sterilization can be achieved by cold soaking in aqueous solutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide.



Instructions for Easy-Seal Tubes and Crowns

INS 1008.1

ALUMINUM 1/2“ CROWN IN FIXED ANGLE ROTORS*

Rotors: 50.3Ti, 40.3, 40.2

Crown Assembly: 4171

Refor to Figures 3 and 4

3.1 Fill the tube so that the meniscus coincides with the top of the uppermost thread on the stem of the tube.

3.2 Screw the tube into the crown, making sure the crown is seated against the tube. Do not overtighten the crown. It is not necessary and may strip the threads on the tube.

3.3 Hold the crown and screw in the plug with the hex driver (PN 4189).

3.4 With the crown now resting in the hole and the pins engaged in slots, firmly tighten the plug with the hex driver (PN 4189). Do not overtighten. It is not necessary and may damage the plug threads. If you do not have the Seton vise (PN 4184) but you have a Beckman tube cap vise (PN 305075), use It to hold the aluminum crown.

3.5 Place the sealed tube assembly into the rotor. It may be necessary to put the crown with the removal tool (PN 4014, not shown) in order for the crown to fit into the rotor counterbore.

3.6 After centrifugation, insert the removal tool (PN 4014) into the top of the plug and remove the tube assembly from the rotor.

3.7 Unscrew the plug for access to the tube contents. If this cannot be done by hand, place the tube assembly into the appropriate hole of the tube vise and unscrew the plug with a hex driver. Polyclear tubes tend to be tightly swaged and attempts to remove a filled tube from the crown may cause agitation of the sample. It is recommended to first remove the tube liquid contents before removing the tube from the crown.

3.8 Easy-Seal tubes may be reused If they have not been punctured. If they are to be reused, leave the crown attached to the tube with the swage intact. If the crown is removed the unswaging and swaging operation may weaken the seat area of the tube.

3.9 Aluminum crowns, polyallomer tubes, and Noryl plugs with polyurethane o-rings can be autoclaved. The crown when attached and swaged to the tube can be autoclaved without disassembly.

3.10 For Aluminum crowns with Delrin plugs and polyurethane o-rings sterilization can be achieved by cold soaking in aqueous solutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide.

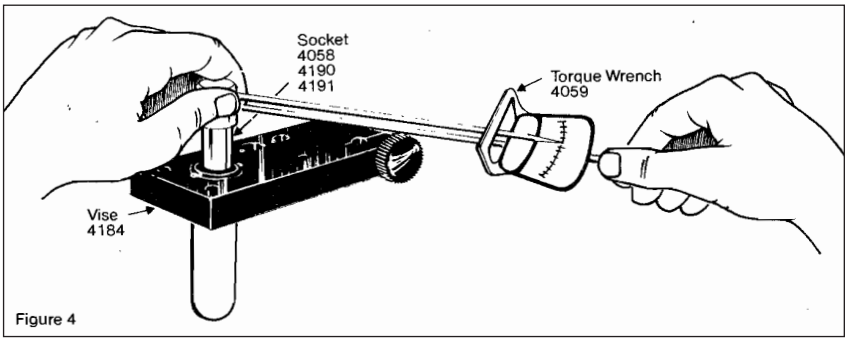


Figure 4

Instructions for Easy-SealTM

INS 1008.2

ALUMINUM 11mm & 13mm CROWN IN FIXED ANGLE ROTORS*

Rotors: Beckman TLA-100.2, TLA-120.2, TLA-l00.3, TLA-100.4 ~
Hitachi: RP8O-AT, RP100-AT, RP12O-AT, RP 100-AT4
Crown Assy: 4264 & 4267
Tubes: 6011, 6020, 6021, 6022 Polyallomer
8011, 8020, 8021, 8022 Polyclear™

1.1 Fill the tube so that the meniscus coincides with the top of the uppermost thread on the stem of the tube.

1.2 Screw the crown onto the top of the tube, making sure the crown is seated against the tube. Do not overtighten the crown. It is not necessary and may strip the threads on the tube.

1.3 Hold the crown and screw in the plug with your fingers.

1.4 The crown and tube are of small diameter and mey not be easily held in the fingers while tightening the plug and forming a swaged compression seal. To hold the crown/tube essembly, place it into the bench-mounted vise (PN 4172). Insert the assembly into the appropriate 11 or 1 3mm diameter hole from the underside of the vise, Position the crown so that the bottom of the aluminum crown is approximately flush with the bottom of the vise. To secure the crown (with attached tube) in the vise, tighten the handle on the side of the vise while holding the crown/tube in the hole. Tighten the plug with the 3/8“ hex driver (PN 4189). Do not overtighten. It is not necessary and may damage the plug threads.

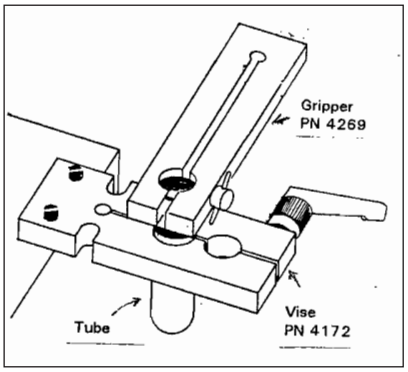
1.5 It is important that the tube remains seated against the bottom of the crown while the plug is tightened. It is helpful to gently hold the tube with the fingers of one hand while tightening the plug with the hex driver in the other. If the tube turns when the plug is screwed down, remove the plug, turn the tube against the underside of the crown and again screw in the plug.

1 .6 Place the sealed tube assembly into the rotor.

1.7 After centrifttgetion, insert the rernoval tool (PN 4014) into the lop of the plug and remove the tube assembly from the rotor.

1 .8 Place the crown/tube assembly into the vise from the underside, tighten the vise handle to secure the assembly and unscrew the plug with the hex driver. Polyclear tubes tend to be more tightly swaged and attempts to remove a filled tube from the crown may cause agitation of the sample. In this case, it is recommended to first remove the tube liquid contents before removing the tube from the crown. If this is not possible, an alternative method is to raise the tube with crown attached until the bottom of the crown is above the top of the vise, and gently tighten the vise, gripping the tube. Tighten the vise to secure the tube but be careful to not push liquid out of the tube.

1.9 Place the black gripper tool (PN 4269) on the top of the crown, setecting the appropriate hole size. The 11 mm diameter hole is on one side of the clamp and the 13mm on the other. Tighten the „T“ knob until the gripper is firmly clamped 10 the crown. By unscrewing (counterclockwise) the gripper/crown 1-1/2 turns the tube swage is straightened, and the crown can be removed easily with the fingers. If the visa handle interferes with turning the gripper, disengage the handle by pulling outward. Reposition the handle.



1.10 Easy-Seal tubes may be reused if they have not been punctured. If they are to be reused, it may be convenient to leave the crown attached to the tube with the swage intact.

1.11 Aluminum crowns and polyallomer tubes can be autoclaved. It is not recommended to autoclave the polyacetal (white) plugs. Sterilization of the plugs with o-ring attached can be achieved by cold soaking in aqueous solutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide.

* U.S. Patent 4531320 ei-id UK Patent GB 2149325 epplyTM of Seton Scientific

Instructions for Re-Seal™ Tubes and Crowns

INS 1O1OA

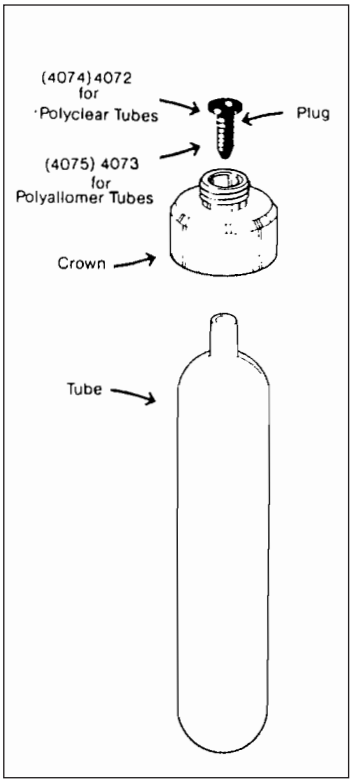
ALUMINUM CROWNS IN FIXED ANGLE ROTORS

Rotors: Beckman 9OTi, 80Ti. 15Ti, 65, 50Ti, 40

Crown 4068. 4069 [MAXIMUM SPEED 18 75 KRPM]

Plug: 4073, 4075, 4072, 4074

Tubes: Polyallomer 9041
Polyclear™ 3041



1.1 All the tube so that the meniscus coincides with the junction of the tube dome and Stem. Since heat is not used to make the seal, a head space in the dome is not required.

1.2 Place the crown ovet the stem, making sure the crown is seated against the top of the tube.

1.3 Hold the tube and crown together with one hand and screw the stainless steel plug into the tube stem with the hex key wrench (PN 4088 not shown). Because Polyclear tubes may require more torque to insert the plug, an alternate technique is to pre-thread the stem of the tube prior to filling with a sample and before attaching a crown. If this is the case, take an empty tube and screw a plug halfway in and then out of the stem. With a filled tube apply a downward force to the screw with the wrench as it self-taps a thread into the stem. Screw the plug tightly into the Stem It is not easy to strip the threads. The head of the plug should ba almost completely into the counterbore socket in the top of the crown. It is acceptable if the head of the plug protrudes slightly above the crown (about .25 mm).

1.4 The plug for Polyclear tubes is black stainless steel and for polyealomer tubes is clear stainless steel.

1.5 Place the sealed tube assembly into the rotor. It may be necessary to put the crown with the removal tool (PN 4077 not shown) in order for the crown to slide into the rotor counterbore.

1.6 After centrifugation, attach the removal tool (PN 4U77) and put the tube assembly from the rotor.

1.7 Unscrew the plug with the hex key wrench [PN 4088] for access to the tube contents.

1.8 Re-Seal tubes may be reused if they have not been punctured.

1.9 Polyallomer Re-Seal tubes may be autoclaved. Polyclear Re-Seal tubes can be sterilized with ethanol and hydrogen peroxide solutions and ethylene oxide gas.

Instructions for Re-Seal™, Cone-Top Tubes and Crowns

INS 1018.0

NORYL-CROWNS IN FIXED-ANGLE & SWINGING BUCKET ROTORS*

Rotors: BECKMAN, SORVALL & KONTRON ROTORS

Crowns: 4216, 4219,4246, 4247,4249, 4249 (white Deirin)

Plug: 4073, 4075 = 10/pkg

Tubes: 9011, 9012, 9024, 9025, 9029, 9032, 9040, 9050, 9051 Polyallomer

FOR OPERATING SPEEDS CONSULT THE APPROPRIATE ROTOR MANUAL

1.1 Fill the tube so that the meniscus coincides with the junction of the tube conical dome and stem. Since heat is not used to make the seal, a head space in the dome is not required. Remember, the tubes must be filled or the tube will distort during centrifugation causing leakage.

1.2 Place the crown over the stem, making sure the crown is seated against the top of the tube.

1.3 Hold the tube and crown together with one hand and screw the stainless steel plug part way into the tube stem with the hex key wrench (PN 4088). For larger sized crowns, 25, 16 or 14mm dia, the crown and tube can be held in the hand and the screw tightened without the use of a bench vise.

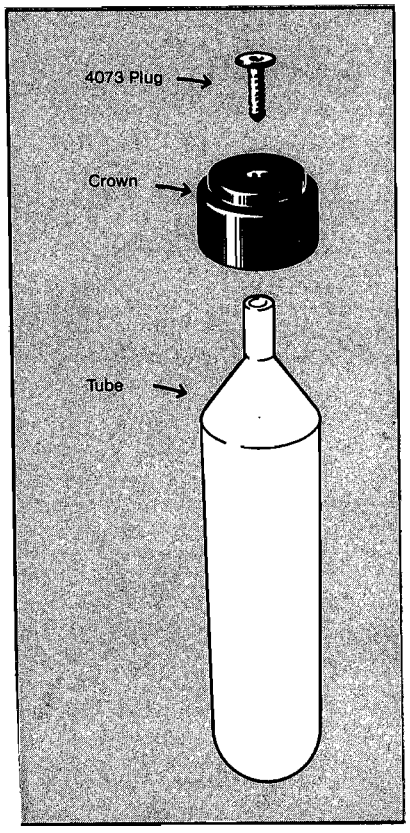
1.4 When the crown and tube are of small diameter, 11 or 13mm dia, they may not be easily held in the fingers while tightening the plug and forming a compression seal. In this case, to hold the crown/tube assembly, place it into the bench-mounted vise (PN 4172). Insert the assembly into the 11 or 1 3mrn diameter hole from the underside of the vise. Position the crown so that the bottom of the crown is approximately flush with the bottom of the vise. To secure the crown (with attached tube) in the vise, tighten the handle on the side of the vise while holding the crown/tube in the hole. Screw the plug tightly into the stem with the hex key wrench (PN 4088). Apply a downward force to the screw with the wrench as it self-taps a thread into the stem. (It is not easy to strip the threads.) Stop when It feels tight.

1.5 Place the sealed tube assembly into the rotor.

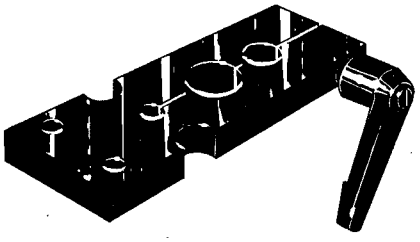
1.6 After centrifugation,use the removal tool (PN 4250) to remove the tube assembly from the rotor. Insert the tip of the tool into the hex hole of the screw plug, tilt slightly and pull the tube assembly from the rotor hole.

1.7 If required place the crown/tube assembly into the vise. tighten the vise handle to secure the assembly and unscrew the plug with the hex key wrench. The tube may be tightly held in the crown and atternpts to remove a filled tube from the crown may cause agitation of the sample. In this case.it is recommended to first remove the tube liquid contents before removing the tube from the crown.

1.8 Noryl crowns, stainless steel plugs and polyallomer tubes can be sterilized by autoclaving or by soaking in aqueous solutions of 70% ethanol, 70% isopropanol or 10% hydrogen peroxide solutions.



4172 Vise
For 7/16 and 1/2" crowns



* U.S. Patent 4,537,320 and IJK Patent GB 2149325 apply.
** TM of General Electric Co.
TM ot Seton Scientific

Instructions Solvent Resistant Bottle for Ultracentrifugation

Seton PN: **4518 (Delrin-polyacetal)**
4530 (Kynar-PVDF)
Rotor: **Beckman SW41Ti, Sorvall TH-641**
Max Speed: **30KRPM**
Volume: **7.5ml**

INSTRUCTIONS FOR USE

1.1 Fill the tube so that the meniscus is 2-3mm (1/8”) from the top of the tube. The tube must only be used full as partial fill volumes may cause collapse of the wall of the tube. If the side wall collapses it will be very difficult to remove the tube from the rotor bucket. The full volume is necessary because the liquid contents support the wall of the bottle during centrifugation.

1.2 Specific ultracentrifuge data is not available to predict the performance of these tubes with xylene/ chloroform gradients. Please proceed cautiously and minimize the time of contact with these fluids, both outside of the rotor and in the rotor at speed.

1.3 The specific gravity of the two types of adapters exceed the specific gravity allowed in these rotors at the published maximum speed. These rotors are rated for a maximum specific gravity of 1.2 for use at the maximum speed of 41KRPM. The Delrin adapter, PN 4518, has a specific gravity of 1.42 and Kynar, PN 4530, 1.77. It is possible that use of this gradient in these adapters may cause the adapters to soften and they could be difficult to remove from the rotor. For this reason, the maximum speed should not exceed 30KRPM and it is recommended that the first use be limited to one-hour and even less if possible. The temperature should be 4 deg. C.

1.4 This is a very severe environment for these tubes. As a reference, the pressure at the bottom of the rotor bucket when used at 41KRPM with a 1.2 sp gr. fluid is 30,000 psi.

1.5 Because these are prototype tubes, it is recommended that a run be made first with water.

1.6 Do not store the solvents in these tubes.
DO NOT AUTOCLAVE OR USE A DISHWASHER TO CLEAN THESE TUBES.

Instructions for NanoBott™ Solvent Resistant Bottle for Ultracentrifugation

Seton PN: 4516
Rotor: Beckman 45Ti
Max Speed: 39KRPM
Volume: 50ml

(Preliminary)

INSTRUCTIONS FOR USE

1.1 The Nanobott bottle assembly consists of one black anodized aluminum cap, one Viton o-ring and one Delrin bottle.

1.2 Fill the bottle so that the meniscus is just under the cap or about 0.25” (7mm) down from the top of the bottle. The bottle must only be used full as partial fill volumes may cause collapse of the wall of the bottle. If the side wall collapses it will be very difficult to remove the bottle from the rotor hole. The full volume is necessary because the liquid contents support the wall of the bottle during centrifugation.

1.3 Inspect the underside of the black aluminum cap to see that the Viton o-ring is seated in the groove inside the cap. The groove is located above the internal threads of the cap.

1.4 Carefully screw the cap onto the white Delrin bottle. The threads are a very fine pitch and care must be taken to not cross-thread the cap. Screw the cap down until resistance is felt which means the top of the bottle has contacted the o-ring. Continue tightening about ¼ to 2/3 an additional turn until the cap feels tight.

1.5 Place the sealed bottle into the rotor hole.

1.6 After centrifugation thread the removal tool (PN 4270) into hole on the top of the cap and remove the bottle assembly from the rotor.

1.7 Remove the cap from the bottle to access contents.

1.8 Because this is a prototype bottle it is recommended that a run be made first with water.

1.9 It is understood that initial use of these bottles will be at 4 deg C, 15 minutes, 35KRPM with methylene chloride. Do not store methylene chloride in these bottle assemblies. Continuous long-term contact of methylene chloride may cause corrosion of the aluminum caps and swelling of the Viton o-rings. Short term exposure such as 15 minutes during a run will not cause problems.
DO NOT AUTOCLAVE OR USE A DISHWASHER TO CLEAN THE DELRIN BOTTLE.