

The Aldrich Pure-Pac™ System

revised 5/95

10 pages

CAUTION! Due to the hazardous nature of many of the products packaged in Aldrich Pure-Pac containers we strongly recommend that all users read this bulletin carefully and completely before starting any actual laboratory/production work. If you are unsure of any of these procedures or need assistance, please contact us prior to use.

The Aldrich Pure-Pac packaging/dispensing system provides a convenient method for storing and dispensing laboratory and development scale quantities of high purity solvents, fine organics, and other high hazard liquids. The properties of these products require the prevention of external contamination and/or personal exposure be kept to a minimum. Many of the liquids must be handled and stored without exposure to atmospheric moisture or oxygen. Fortunately, the design of the Aldrich Pure-Pac system allows ready and convenient transfer of these liquids using the equipment and techniques described in detail in this bulletin. Aldrich provides the special equipment needed for handling these deposit containers and their contents. A complete and detailed listing of equipment is described in the equipment section of this bulletin.

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SPECIFICATIONS

Aldrich Pure-Pac containers are available with a nominal capacity of 18 liters. **Figure 1** shows a drawing of the Pure-Pac container and **Table 1** provides detailed specifications for the container. Each Pure-Pac is equipped with a cover to protect the attached valves. Thus, when a specification UN1A1 container is an acceptable shipping container, no additional packaging is required when shipped by common carrier.

Since this is a highly specialized, pressure rated container, a deposit is required upon purchase. Each container is stamped with a unique serial number, and a detailed individual history is maintained. If the container is returned in good condition within six months by the purchaser, credit will then be issued for the deposit amount.

Aldrich has a complete maintenance program to insure that each customer receives a deposit container in the best possible condition. Please do not mark directly on or place additional labels on the Pure-Pac containers, use tags or

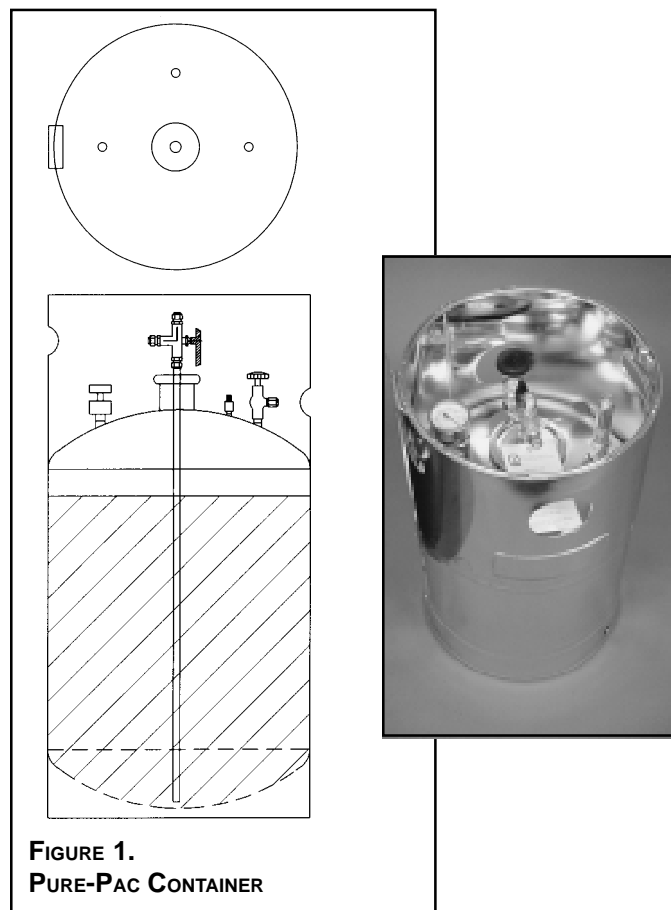


FIGURE 1.
PURE-PAC CONTAINER

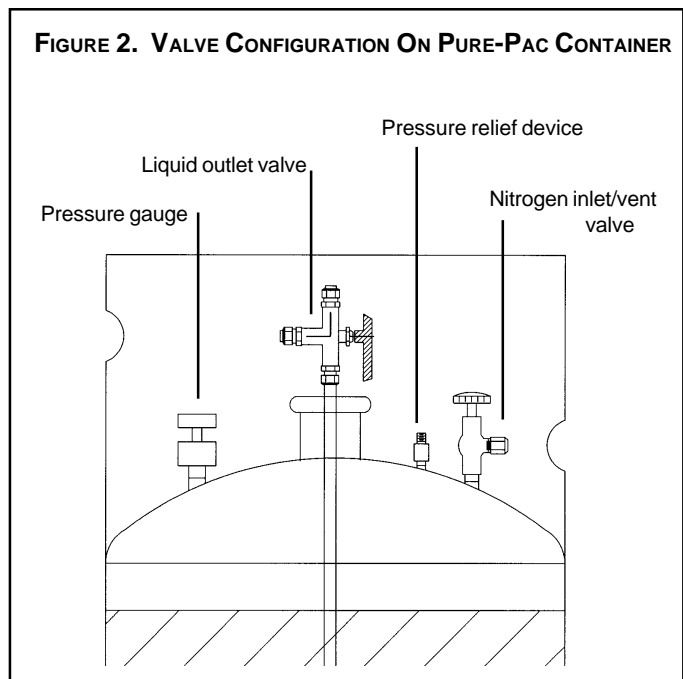
TABLE 1
SPECIFICATIONS FOR ALDRICH PURE-PAC CONTAINERS

Total capacity (L)	20.0
Working capacity, L (90% of total capacity)	18.0
Material of construction; container, fittings, and valves	stainless steel
UN Specification	UN1A1
ASME Code	Section VIII, Div.1
Shipping pressure, approximate (psig)	5 - 10
Suggested maximum use pressure (psig)	15
Pressure relief cracking pressure (psig)	50
Maximum container pressure (psig)	100
Tare weight, with valves, approximate (kg)	17.0
Shipping cube dimensions, LxWxH (inches)	13 x 13 x 22.5
Recommended operating temperature	ambient
Pressure gauge/diaphragm assembly	included
Nitrogen inlet/vent valve fitting	3/8 inch ferrule lock
OUTLET VALVE SPECIFICATIONS	
Liquid outlet fitting	3/8 inch ferrule lock
Nitrogen flushing port fitting	3/8 inch ferrule lock

place labels on the plastic sleeve to label as partial or empty. Since chemical residue on the exterior of the container may damage the container please remove any spillage if it occurs. Containers returned with damage due to chemical residue may result in loss of the deposit.

On receiving an Aldrich Pure-Pac, read and closely follow the standard procedure described in this bulletin, regardless of the quantity needed or the chemical transferred. Aldrich offers a wide variety of adapters and transfer equipment. These are described in detail later in the equipment section of this bulletin. Since the products packaged in Pure-Pac containers are sensitive to external contamination, highly hazardous, or sensitive to water, oxygen or both, they must be handled while using appropriate personal protective equipment and must never be exposed to the atmosphere.

Figure 2 illustrates the valve configuration on a Pure-Pac container. The pressure relief device, nitrogen inlet/vent valve, and pressure gauge/diaphragm are connected to the vapor space inside the container. The liquid outlet valve is connected to a dip tube inside the container.



HANDLING

The user must be a fully qualified and experienced laboratory or chemical production worker to handle these reagents. All users must be aware of the hazardous nature of many of these products. The material safety data sheet (MSDS), which is provided with each order, must be read and understood by the user prior to starting any work with the product contained in a Pure-Pac container. In general, handle these products only under an inert atmosphere and exercise caution to prevent inhalation of vapors or direct contact with the skin. Operators must wear appropriate clothing with long sleeves, chemical resistant gloves, goggles, and a full faceshield. Additional personal protective equipment must be used as required.

In case of contact, immediately flush eyes or skin with water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention promptly.

In case of fire, use a dry chemical extinguisher; do not use water with moisture reactive products. Store Pure-Pac containers upright in a cool location, away from heat and direct sunlight. Refrigerate if necessary.

During all nitrogen-pressure transfers, the flowing liquid can generate a static charge. Therefore, the Pure-Pac container and receiver must be connected to a suitable ground. Aldrich offers a 6-ft length of flat braided bare cable with copper clips at each end which makes a convenient grounding strap.

Technical experts are available by telephone to answer your questions regarding the proper handling of products packaged in Pure-Pac containers. Contact Aldrich immediately if an inadvertent deviation from the recommended transfer procedure occurs during use of a Pure-Pac container.

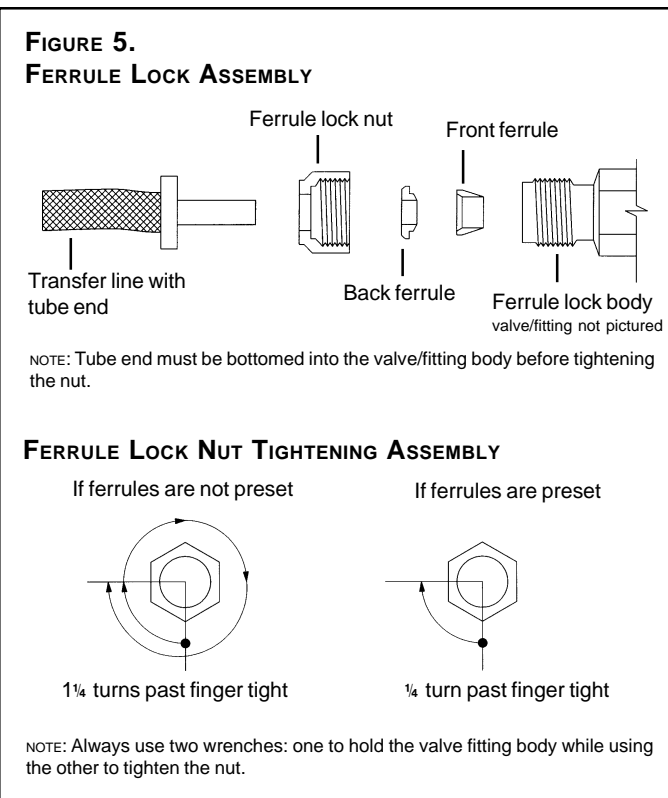
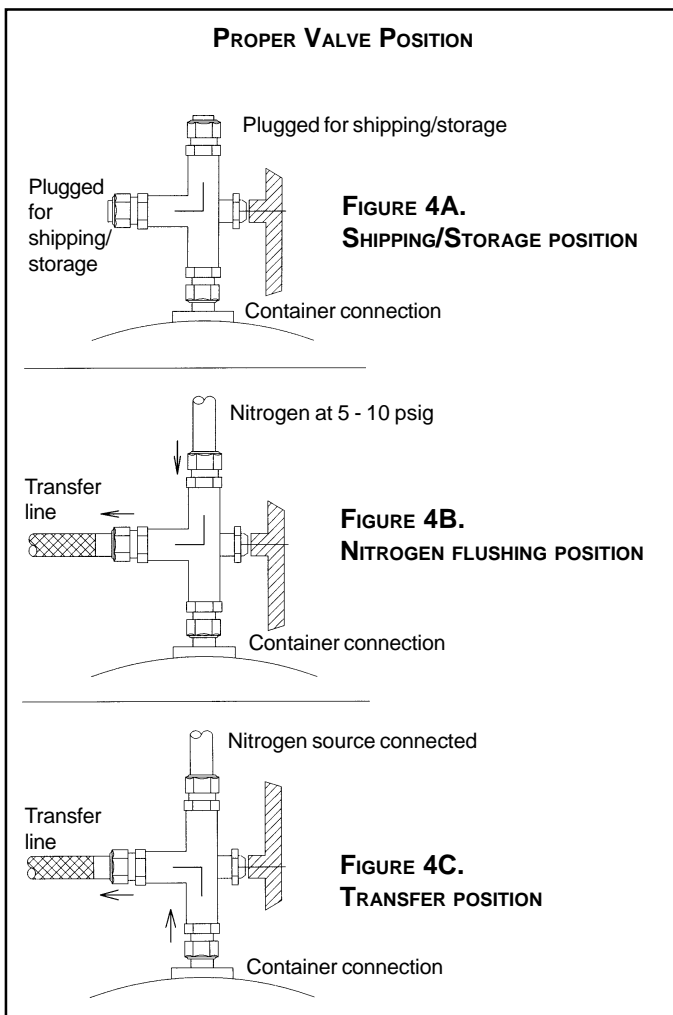
RECOMMENDED TRANSFER PROCEDURE

Refer to **Figure 3** (page 9) while following this procedure.

CAUTION! Due to the hazardous nature of the products packaged in Pure-Pac containers appropriate personal protective equipment must be worn throughout the entire transfer procedure. Read all steps before starting and do not work alone. This procedure must only be performed by technically qualified individuals.

- STEP 1.** Place the Pure-Pac container in a secure and upright position in a safe and well ventilated area. If the product is to be delivered by weight secure the container on a floor scale. Ground the container using an appropriate grounding strap.
- STEP 2.** Open the protective cover.
- STEP 3.** Make sure the liquid outlet valve **A** is closed to the dip tube. Valve **A** is closed when the handle **B** is pointing up. See **Figure 4A** for proper valve position.
- STEP 4.** Make sure the nitrogen inlet/vent valve **E** is closed by turning the handle **F** clockwise.
- STEP 5.** Remove the plastic dust cap from the top of the pressure relief valve **H** and attach an emergency vent line **I** to the relief valve **H**. See **Figure 5** for instructions on tightening ferrule lock fittings and then tighten the fitting. Use two wrenches when tightening.
NOTE: Emergency vent lines are equipped with 1/2-inch tube ends with nuts in place and preset ferrules, see Table 3. The emergency vent line should lead to the back of a ventilation hood or to an in-house emergency blow-down line. Save the plastic dust cap for later replacement.
- STEP 6.** Carefully remove plug **G** from the nitrogen inlet/vent valve **E**. Save this plug for later replacement.
- STEP 7.** Connect a nitrogen-inlet adapter **J** to a suitable nitrogen source using flexible plastic tubing. Secure the tubing in place. The nitrogen should be pressure-regulated at 5-10 psig.

REFER TO FIGURE 3 WHILE FOLLOWING THIS PROCEDURE:



STEP 8. Adjust the nitrogen source to give a slow stream exiting from nitrogen inlet adapter **J** and connect to the nitrogen inlet/vent valve **E**. See **Figure 5** for instructions on tightening ferrule lock fittings and then tighten the fitting. Use two wrenches when tightening. Finally, check the connections for absence of leaks using a water/soap solution.

NOTE: Nitrogen-inlet adapters are equipped with nuts in place and preset ferrules, see Table 2. See Figure 5 for instructions on tightening ferrule lock fittings and the proper ferrule placement during assembly if fittings without preset ferrules are used.

STEP 9. Slowly and carefully remove plugs **C** and **D** from the liquid outlet port and nitrogen flushing port of liquid outlet valve **A**. Save these plugs for later replacement.

CAUTION: Occasionally there may be liquid or solid under the plugs and some fuming may occur with the more reactive reagents. Without operating the valve, remove any solid from the valve opening by washing with a stream of odorless mineral spirits from a wash bottle and use a wire brush to clean the threads if necessary. Wear appropriate protective equipment.

STEP 10. Prepare a liquid-transfer line **K** which is clean and dry.

NOTE: Liquid-transfer lines are available with 3/8-inch tube ends with nuts in place and preset ferrules, see Table 3.

STEP 11. Connect the liquid-transfer line **K** to the liquid outlet port of liquid outlet valve **A**. See **Figure 5** for instructions on tightening ferrule lock fittings and then tighten the fitting. Use two wrenches when tightening.

NOTE: Liquid-transfer lines are equipped with 3/8-inch tube ends with nuts in place and preset ferrules, see Table 3. See Figure 5 for instructions on tightening ferrule lock fittings and the proper ferrule placement during assembly if fittings without preset ferrules are used.

STEP 12. Connect a suitable nitrogen source using flexible plastic tubing to a nitrogen inlet adapter **L**. Secure the tubing to the adapter **L** and then connect the adapter **L** to the nitrogen flushing port on the liquid outlet valve **A**. See **Figure 5** for instructions on tightening ferrule lock fittings and then tighten the fitting. Use two wrenches when tightening.

NOTE: The nitrogen should be pressure-regulated at 5-10 psig. Nitrogen-inlet adapters are equipped with nuts in place and preset ferrules, see Table 2. See Figure 5 for instructions on tightening ferrule lock fittings and the proper ferrule placement during assembly if fittings without preset ferrules are used.

STEP 13. With the liquid outlet valve **A** in the nitrogen flushing position (see **Figure 4B**) adjust the nitrogen source to give a steady stream of nitrogen exiting from the open end of the attached transfer line. The nitrogen should be pressure-regulated at 5 - 10 psig.

STEP 14. Allow the nitrogen flushing port on liquid outlet valve **A** and transfer line **K** to flush with nitrogen for 5 - 10 minutes.

- STEP 15.** With nitrogen still flushing through the nitrogen flushing port on the liquid outlet valve **A** and the transfer line **K**, adapt the open end of the transfer line such that it can be connected to your process line/vessel. Avoid kinking the transfer line. Kinking the transfer line may damage it and result in potential leaks. Refer to **Figure 5** and then tighten the connection and check all connections in the transfer line **K** and nitrogen flushing port for the absence of leaks using a water/soap solution.
- NOTE:** Use Teflon[®] tape on tapered pipe threads if used. The process line/vessel to which the transfer line is attached should have a valve in-line in the closed position. The process system must be previously flushed with nitrogen and vented appropriately.
- If the liquid from the Pure-Pac container is introduced to the process system below the liquid level in the process vessel, a back flow device is recommended. Suck-back into the Pure-Pac container may result in a serious incident and must be reported to Aldrich immediately.
- Aldrich offers a variety of connectors to suit your individual needs for end fittings on the transfer line. Refer to the equipment section for a complete listing.
- STEP 16.** Verify that the process system has been prepared for the transfer and then open the valve in line on the process system at the end of the transfer line **K**.
- STEP 17.** Cautiously open the liquid outlet valve **A** to the transfer position by turning the handle **B** 180° (**Figure 4C**). Liquid should begin to flow from the Pure-Pac container through the transfer line and into the process system. Flow can be detected by visual inspection through a sight glass on the process system or by weight loss from the Pure-Pac container if on a floor scale. If flow is not detected, or if the flow is slow continue to step 18. If flow is detected go to step 19.
- CAUTION:** Wear appropriate personal protective equipment throughout the entire transfer procedure.
- STEP 18.** With the nitrogen source set at 5 - 10 psig and connected to the nitrogen inlet/vent valve **E** open the nitrogen inlet/vent valve **E** by turning the handle **F** counter-clockwise. This will pressurize the vapor space in the Pure-Pac container to 5 - 10 psig of nitrogen. If necessary, the nitrogen pressure can be increased up to 15 psig to increase the rate of flow.
- CAUTION:** Do not pressurize the Pure-Pac container to more than 15 psig.
- STEP 19.** When the desired amount of liquid has been transferred, close the liquid outlet valve **A** by turning the handle **B** 90° and then close the nitrogen inlet/vent valve **E** by turning the handle **F** clockwise.
- STEP 20.** With the nitrogen source set at 5 - 10 psig and connected to the nitrogen flushing port on the liquid outlet valve **A** turn the handle **B** 90° so that the handle points up (**Figure 4B**). This will flush residual liquid from the transfer line **K** into the process system. Flush the line for 5 - 10 minutes while lifting the transfer line **K** to prevent any liquid from remaining in low areas of the line.
- STEP 21.** Shut off the nitrogen source to the nitrogen flushing port on the liquid outlet valve **A** and then close the valve on the process system at the end of the transfer line **K**.
- STEP 22.** Verify that the liquid outlet valve **A** is in the nitrogen flushing position (**Figure 4B**) and then cautiously, using two wrenches, remove the attached nitrogen line and adapter **L** from the nitrogen flushing port. Immediately plug the open nitrogen flushing port with the plug **D** which was removed in step 9 and tighten 1/4 turn past finger tight using two wrenches.
- STEP 23.** Verify that the nitrogen inlet/vent valve **E** is closed and then remove the nitrogen inlet adapter **J** from the nitrogen inlet/vent valve **E**. Replace the plug **G** on the nitrogen inlet/vent valve **E** removed in step 6 and tighten 1/4 turn past finger tight using two wrenches.
- STEP 24.** Again verify that liquid outlet valve **A** is in the nitrogen flushing position (**Figure 4B**) and then cautiously disconnect the end of the transfer line **K** from the **process system**. Immediately cap both the open end of the transfer line and the open connection of the process system.
- CAUTION:** If the reagent is highly reactive with air some fuming may result. It is necessary to cap the open ends as mentioned immediately to prevent excessive reactivity.
- NOTE:** Be sure to take the appropriate precautionary measures when cleaning the process line/system.
- STEP 25.** If the reagent in the Pure-Pac container is water-reactive, carefully move the container with attached transfer line and emergency vent line to a safe location, preferably outside, away from all flammable or combustible materials.
- STEP 26.** Carefully, using two wrenches, remove the emergency vent line **I** from the pressure relief valve **H** and replace the plastic dust cap removed in step 5. Place the emergency vent line **I** in an empty, dry, metal bucket. See steps 33-38 for clean-up of the emergency vent line.
- NOTE:** Cleaning the emergency vent line is precautionary unless the container was over-pressurized causing the pressure relief valve to activate allowing liquid and vapors to escape through the emergency vent line.
- STEP 27.** With the liquid outlet valve **A** in the nitrogen flushing position (**Figure 4B**) cautiously, using two wrenches, remove the transfer line from the liquid outlet port. Immediately plug the liquid outlet port on the liquid outlet valve **A** with the plug **C** that was removed in step 9 and tighten 1/4 turn past finger tight using two wrenches. See steps 33-38 for clean-up of the transfer line.
- CAUTION:** A small amount of liquid may remain behind in the valve opening. If the reagent is highly reactive with air a small amount of fuming may result.
- STEP 28.** Verify that the liquid outlet valve **A** is in the shipping/storage position (**Figure 4A**) and both plugs **C** and **D** are in place and tightened 1/4 turn past finger tight (**Figure 5**).

STEP 29. Verify that the nitrogen inlet/vent valve **E** is closed and the plug **G** is in place and tightened 1/4 turn past finger tight, see **Figure 5**.

STEP 30. Verify that the pressure relief valve **H** is **not** capped/plugged but has the plastic dust cap placed loosely over the relief valve outlet.

STEP 31. Remove any chemical residue from the exterior of the container and then close the protective cover and secure it in place.

NOTE: Do not mark directly on or place additional labels on the Pure-Pac containers. Use tags or place labels on the plastic sleeve to label as partial or empty. Failure to remove chemical residue from the exterior can result in damage to the container and may lead to loss of the deposit.

STEP 32. The Pure-Pac container can now be returned to storage or shipped back to Aldrich if empty. See the storage and/or container return section(s) in this bulletin for details. The transfer apparatus should be cleaned as described in steps 33-38.

STEP 33. If the reagent is water reactive, place the transfer line and emergency vent line in a dry, empty, metal tub and carry to a safe distance from the Pure-Pac container, preferably outside, away from other flammables/combustibles. If the reagent is not water reactive, move the transfer line and emergency vent line to a well ventilated area.

NOTE: In the case of water reactive products the transfer line should be cleaned as soon as possible after it is removed from the Pure-Pac container. If this is not done, partially hydrolyzed material will often plug the ends of the line while the inner material remains active. This can cause problems when the transfer line is eventually cleaned. See steps 34-38.

STEP 34. If the reagent is water reactive keep the transfer line and emergency vent line outside and remove the cap from the end of the transfer line, then continue to step 35. If the reagent is not water reactive, clean the transfer line and emergency vent line following normal procedures for process equipment. Work in a well ventilated area using appropriate personal protective equipment.

STEP 35. While still outdoors, rinse the transfer line and emergency vent line with a stream of odorless mineral spirits into an empty metal bucket.

NOTE: In the case of water reactive products the transfer line should be cleaned as soon as possible after it is removed from the Pure-Pac container. If this is not done, partially hydrolyzed material will often plug the ends of the line while the inner material remains active. This can cause problems when the transfer line is eventually cleaned.

STEP 36. After the rinse with odorless mineral spirits, flush the transfer line and emergency vent line with water, dilute acid (if needed to dissolve solids formed on hydrolysis), water and finally methanol or acetone.

NOTE: Be sure water contacts all surfaces of both lines to ensure complete hydrolysis of reactive material. After cautiously rinsing both lines with water it is recommended that the equipment be completely submerged in water.

STEP 37. The transfer line and emergency vent line can be brought inside for a final clean-up following normal procedures for process equipment.

STEP 38. Verify that all rinses in the bucket(s) have been completely hydrolyzed before following the appropriate disposal procedures.

STORAGE

Pure-Pac containers which contain product should be stored upright under 5 psig nitrogen pressure in a well ventilated area out of direct sunlight. Refrigerate when necessary. The liquid outlet valve must be in the shipping/storage position (**Figure 4A**) with plugs in place and tightened. The nitrogen inlet valve must be closed and the plug must be in place and tightened. The pressure relief valve must **not** be capped/plugged but should have the dust cap placed loosely over the outlet. Any chemical residue on the outside or on top of the container (under the cover) must be removed. Failure to remove chemical residue from the exterior of the container can result in damage to the container. Pure-Pac containers must be clearly labeled with the product name and hazard labels. Please do not mark directly on the Pure-Pac containers. Use tags or place labels on the plastic sleeve to label as partial or empty.

CONTAINER RETURN

To return a Pure-Pac container to Aldrich the container must be empty (except for residual product) with all valves in the positions as described in the storage section above. Any chemical residue on the outside or on top of the container (under the cover) must be removed. Failure to remove chemical residue from the exterior of the container can result in damage to the container and may lead to loss of the deposit. The container's protective cover must also be secured in place. Empty Pure-Pacs contain product residue which is fully regulated as hazardous material and must be shipped in accordance with all applicable shipping regulations. Please do not mark directly on the containers. Use tags or place labels on the plastic sleeve to label as empty and as needed for shipping purposes.

**Return empty Pure-Pac containers to:
Aldrich Chemical Company, Inc.
5485 County Road V
Sheboygan Falls, WI 53085-2814**

Pure-Pac containers must be returned in good condition within six months of the date of purchase to receive a full credit of the deposit amount. Please contact our Customer Service Department with any further questions regarding the return of Aldrich's Pure-Pac containers.

EQUIPMENT

Pure-Pac containers are constructed of 304 stainless steel. All valves and fittings are 316 stainless steel with the exception of the pressure relief valve which is 303 stainless steel. We offer a wide variety of adapters and liquid-transfer apparatus needed for safe and convenient transfer of all products contained in these containers. We recommend the use of stainless steel adapters and valves and Teflon transfer lines with stainless steel overbraid for all transfers.

Our design is such that only a few adapters, a transfer line, and an emergency vent line are needed to carry out a safe and efficient transfer from a Pure-Pac container. As a service to our customers we offer our adapters and transfer lines individually to provide for custom-designed transfer systems.

The requirements for a custom-designed transfer system are:

1. **Valves** - cavity-filled ball valves are recommended and should be equipped with Teflon seats and seals.
2. **Pipe/Tube** - stainless steel is recommended.
3. **Flexible tubing** - Teflon tubing with stainless steel overbraid is recommended.
4. **Thread sealant** - exclusive use of Teflon tape is recommended if adapters are used with national pipe thread (NPT).

The nitrogen inlet/vent valve on Pure-Pac containers is equipped with a 3/8-inch ferrule lock fitting. Flexible tubing is easily connected to this fitting by use of a tube/hose barb adapter with nut and preset ferrules (**Table 2** and **Figure 6**).

All Pure-Pac containers are equipped with a liquid outlet valve with a built-in nitrogen flushing port. This port allows the transfer line to be purged with nitrogen before and after the transfer of product. This port is equipped with a 3/8-inch ferrule lock fitting. Flexible tubing is easily connected to this fitting by use of a tube/hose barb adapter with nut and preset ferrules (**Table 2** and **Figure 6**).

The outlet valve is equipped with a 3/8-inch ferrule lock fitting. We offer Teflon transfer lines with stainless steel overbraid in two lengths (**Table 3** and **Figure 7**) for use with Pure-Pac containers. These transfer lines, equipped with 3/8-inch tube ends with nuts in place and preset ferrules, are easily connected to the liquid outlet fittings. Care must be taken when using these transfer lines to prevent kinking which may cause damage and possible failure.

The pressure relief valve is set to activate at 50 psig. It has an outlet port equipped with a 1/2-inch ferrule lock fitting. We offer Teflon lines with stainless steel overbraid (**Table 3** and **Figure 7**) for use as emergency vent lines. These lines equipped with 1/2-inch tube ends with nuts in place and preset ferrules are easily connected to the pressure relief valve. Care must be taken when using these lines to prevent kinking which may cause damage to the lines.

If a longer transfer line is needed, two lines can be connected together to give the desired length. We offer a variety of couplings (**Table 2**) to be used to connect transfer lines together, if necessary, as well as to your process system.

FIGURE 7.

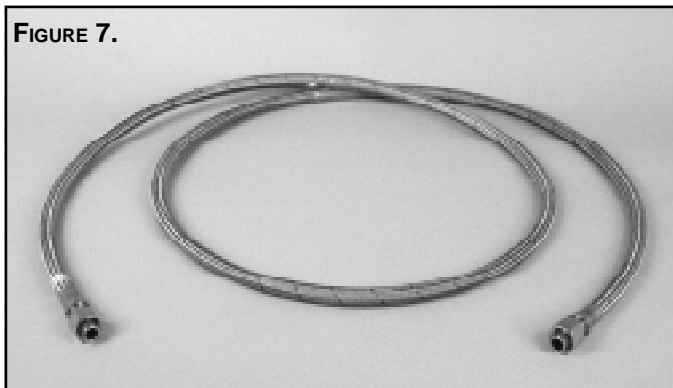


FIGURE 6.

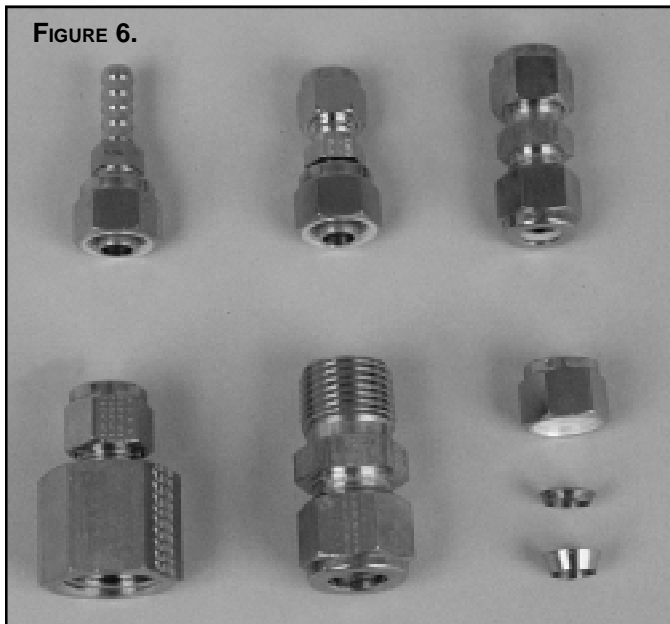


TABLE 2 CONNECTORS AND ADAPTERS*

END CONNECTION	END CONNECTION	CATALOG NUMBER
3/8-inch tube with nut and preset ferrules	1/4-inch hose barb	Z26,349-4
3/8-inch tube with nut and preset ferrules	1/4-inch ferrule lock	Z26,350-8
3/8-inch ferrule lock	3/8-inch ferrule lock	Z26,351-6
3/8-inch ferrule lock	1/2-inch female-NPT	Z26,352-4
3/8-inch ferrule lock	1/2-inch male-NPT	Z26,353-2
1/2-inch ferrule lock	1/2-inch ferrule lock	Z26,354-0
1/2-inch ferrule lock	1/2-inch female-NPT	Z26,355-9
1/2-inch ferrule lock	1/2-inch male-NPT	Z26,356-7
1/4-inch ferrule lock nut, with front and back ferrules		Z25,153-4
3/8-inch ferrule lock nut, with front and back ferrules		Z26,357-5
1/2-inch ferrule lock nut, with front and back ferrules		Z26,358-3

*All connectors and adapters are stainless steel.

TABLE 3 TRANSFER LINES AND EMERGENCY VENT LINES*

INNER DIAMETER	LENGTH	END CONNECTION**	END CONNECTION**	CATALOG NUMBER
3/8 inch	4 feet	3/8-inch tube	3/8-inch tube	Z26,359-1
3/8 inch	8 feet	3/8-inch tube	3/8-inch tube	Z26,360-5
1/2 inch	4 feet	1/2-inch tube	1/2-inch tube	Z26,361-3
1/2 inch	8 feet	1/2-inch tube	1/2-inch tube	Z26,362-1

*All lines are Teflon with stainless steel overbraid and end fittings. **All lines have tube ends with nuts in place and preset ferrules.

We also offer a cap (Catalog No. Z26,364-8) used to seal a 3/8-inch tube end on a typical transfer line and a plug (Catalog No. Z26,365-6) used to seal a 3/8-inch ferrule lock end on the valves on the Pure-Pac containers (**Figure 8**).



We offer Pure-Pac containers without valves (Catalog No. Z26,366-4) **Figure 9**. The Pure-Pac container's outlets have two 3/8-inch and one 1/2-inch Parker-Hannifin UltraSeal glands (with nuts in place) and a 3-inch sanitary fitting welded to the container. The 3-inch sanitary fitting comes with a standard cap with a 3/8-inch Parker-Hannifin gland and nut and attached dip tube. The 3-inch sanitary clamp and Teflon gasket needed are included with the container and are also available separately (Catalog Nos. Z26,367-2 and Z26,368-0, respectively).

The valves which we offer (**Table 4** and **Figure 10**) have the corresponding Parker-Hannifin UltraSeal body designed to connect to the appropriate gland on the container. The Parker-Hannifin UltraSeal design requires the use of an O-ring for the sealing surface. We offer UltraSeal plugs, nuts, O-rings, and O-ring removal tools of various sizes to aid in the proper assembly of and replacement of O-rings for the UltraSeal connection (**Table 5** and **Figure 11**).

TABLE 4 VALVES*

VALVE TYPE	CONTAINER CONNECTION	OUTLET CONNECTION	CATALOG NUMBER
packed, needle, 90 degree angle	3/8-inch UltraSeal body	3/8-inch ferrule lock	Z26,369-9
packed, 3/8-inch ball, with 3/8-inch ferrule lock flushing port	3/8-inch UltraSeal body	3/8-inch ferrule lock	Z26,370-2
pressure relief	1/2-inch UltraSeal body	1/2-inch ferrule lock	Z26,371-0
diaphragm with pressure gauge	3/8-inch UltraSeal body	N/A	Z26,372-9

*All valves are stainless steel with Teflon seats and seals.

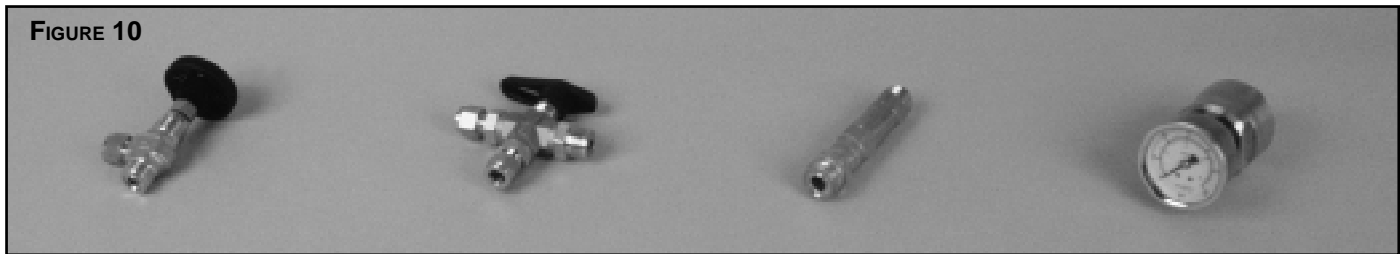


TABLE 5 ULTRASEAL COMPONENTS*

ITEM	SIZE	CATALOG NUMBER
plug	3/8-inch	Z26,373-7
nut	3/8-inch	Z26,374-5
O-ring	3/8-inch	Z26,375-3
O-ring removal tool	3/8-inch	Z26,376-1
plug	1/2-inch	Z26,378-8
nut	1/2-inch	Z26,379-6
O-ring	1/2-inch	Z26,381-8
O-ring removal tool	1/2-inch	Z26,382-6

*All UltraSeal components are stainless steel.

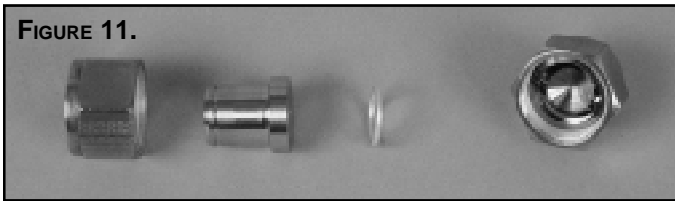
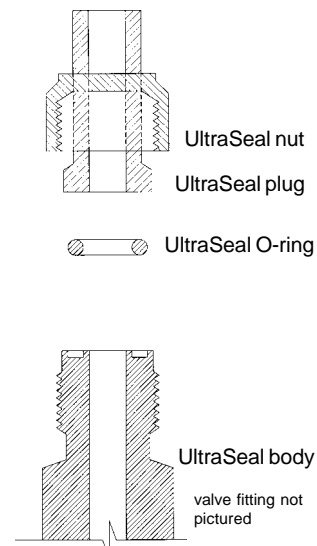


FIGURE 12. PROPER ASSEMBLY OF PARKER-HANNIFIN ULTRASEAL FITTINGS

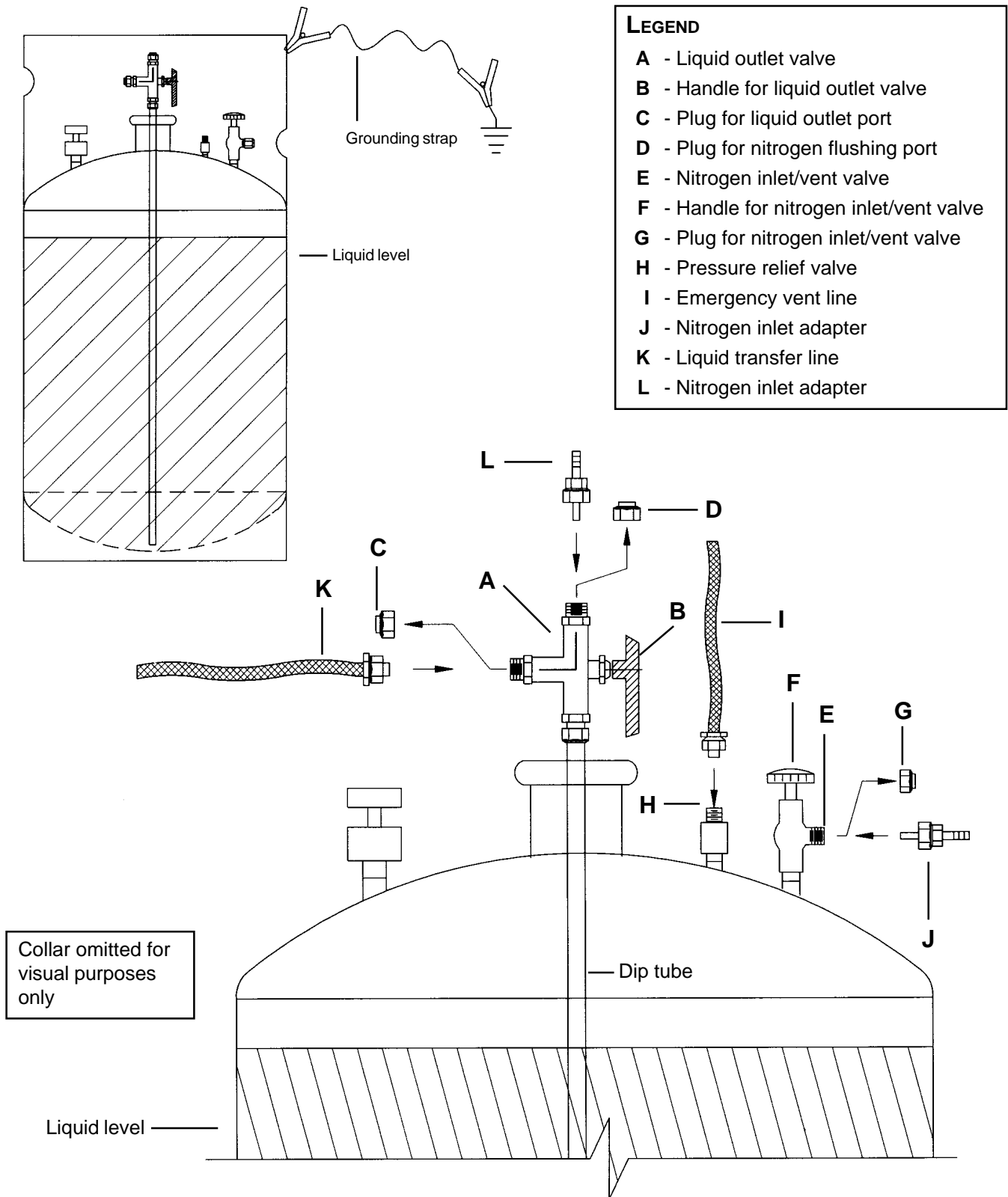
1. Hold the valve with the UltraSeal body directed up as shown.
2. Place the appropriate sized O-ring in the groove in the UltraSeal body.
3. Place the appropriate sized plug and nut on the UltraSeal body and O-ring and hand tighten the nut onto the UltraSeal body.
4. Place the UltraSeal body in a vise or hold it securely with a wrench and tighten the nut onto the body until a sharp increase in torque is felt, generally about 1/4 - 1/2 turn.
5. Remove the nut and plug. The stainless steel O-ring should now be compressed into place and remain in the groove in the UltraSeal body on the valve.
6. With the O-ring in place the valve can now be placed on the appropriate gland on the Pure-Pac container while tightening the nut on the container hand tight onto the UltraSeal body of the valve.
7. Hold the valve with a wrench and tighten the nut onto the UltraSeal body until a sharp increase in torque is felt, generally about 1/4 - 1/2 turn.
8. The UltraSeal connection is now made but should be tested for leaks with a liquid soap solution and nitrogen pressure before placing into service. Introduce the liquid soap into the holes in the nut as well as on the threads to verify a good seal.

UltraSeal connections can be made and remade without replacing the stainless steel O-ring. If an UltraSeal connection should leak or if the O-ring is damaged the O-ring can be replaced. O-rings are easily removed from UltraSeal bodies by disconnecting the fitting and threading on and tightening the appropriate sized O-ring removal tool (Table 5) to crimp the O-ring. After taking off the O-ring removal tool the O-ring can be easily removed from the UltraSeal body and replaced with a new O-ring.



RECOMMENDED TRANSFER PROCEDURE (REFER TO STEPS 1 - 38 PAGE 2)

FIGURE 3.
CONNECTIONS TO ALDRICH PURE-PAC™ DEPOSIT CONTAINERS



CAUTION! Due to the hazardous nature of the products contained in Pure-Pac containers appropriate personal protective equipment must be worn throughout the entire transfer procedure. Read all steps before starting and do not work alone. Only technically qualified individuals should perform this procedure.

We offer the following miscellaneous items which are useful when assembling and transferring products from Aldrich's Pure-Pac containers:

Grounding Strap

Prevents sparking of static electricity generated by the transfer of flammable liquids.



Description	Cat. No.
3ft L, with 2 copper alligator clips	Z19,786-6
3ft L, with 2 hand clamps	Z19,790-4
6ft L, with 2 copper alligator clips	Z15,030-4
10ft L, with ¼-in. terminal and hand clamp	Z19,791-2
Insulated ground wire	
3ft L, with pipe clamp and "C"-clamp	Z19,793-9
10ft L, with ¼-in. terminal and hand clamp	Z19,792-0
Tinned-copper cable, flat braid	
3/16 in. wide, 10m L	Z16,697-9
¼ in. wide, 10m L	Z16,702-9

Teflon sealing tape

Eliminates the need for lubricants and vacuum greases on ground-glass joints, desiccators, bell jars, etc. Provides a vacuum-tight seal, yet will release readily even after long periods of time. In 520-in. roll.



Description	Cat. No.
¼-in. wide	Z14,881-4
½-in. wide	Z10,438-8
1-in. wide	Z22,188-0

The list of equipment which we provide for transferring liquids from our Pure-Pac containers is extensive - our desire is to anticipate the user's every need. We want the use of our Pure-Pac containers and the related equipment to be as straightforward and trouble-free as possible. As an added benefit, our customers may find this equipment useful for other situations where they need to transfer air-sensitive liquids.

SNOOP

Gas-leak detector. Nontoxic, nonflammable and leaves no residue. 8-oz. squeezable bottle with tube extendable to 12in. for reaching places with limited accessibility.

30,040-3



Mineral Spirits, odorless	3.5 Liters
Catalog No. 26,256-0	4 x 3.5 Liters
	17.6 Liters

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The foregoing discussions and procedures are given to assist our customers in the transfer and use of our products supplied in Pure-Pac containers. The user must read this bulletin carefully, consult the figures, and follow each step in the transfer procedure. Only technically qualified individuals should handle products from Pure-Pac containers. If you need further assistance at any time, please contact us.

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Aldrich warrants that its products conform to the information contained in this and other Aldrich publications. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

