

## Purging Head Space in the Container

Polyurethane raw materials are highly moisture sensitive. Specially, isocyanate components can react with small amount of moisture in the air very quickly to be contaminated and ruined. It is necessary to purge the top space in the container with dry nitrogen or argon gas.

Dry nitrogen gas should be available though your local suppliers of industrial gas. They may lease a cylinder so you can buy refills of nitrogen gas. For a small operation, one cylinder can last for a long time, so the cost for the nitrogen gas should be very small.

Argon gas is often used in welding operations. Argon gas is also an inert gas, which can be used to purge the head space of raw material containers.

These gases can be purchased from local gas suppliers. They typically lease gas cylinders for a certain period of time. Then you buy the content. You need to a pressure regulator installed to control the flow of gas easily.

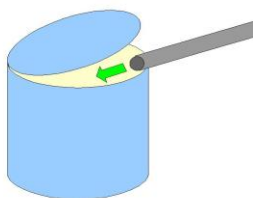
If you don't have either nitrogen gas or argon gas, and only need a small amount of purging gas, you may purchase paint preserver product such as [Bloxygen](#) for purging.

## Injecting nitrogen gas into the containers

Our part-A materials are isocyanate components, which is very much moisture sensitive. Soon after dispensing the material, you need to purge the air entered into the open space in the container. You must to purge each time after you open the container.

Part-B materials are not as moisture sensitive as part-A materials, however it often absorbs moisture if it is left in an open atmosphere. This can cause material to cure improperly, and/or creates excessive amount of bubbles after it is mixed with part-A for your production. It is recommended part-B materials are also blanketed by dry nitrogen gas while it is stored.

### For Quart and Gallon Size Cans



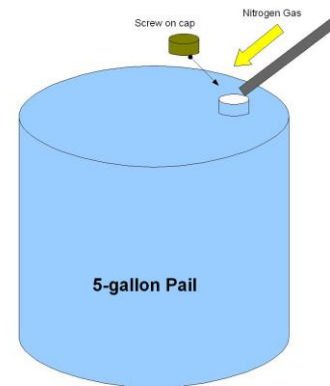
When you are purging a quart size can, you can squirt the nitrogen gas for 10 to 20 seconds. It should be 30 to 60 seconds for a gallon can. Insert the end of the flexible tube outlet for nitrogen gas while holding up the lid as shown in the picture on the left, squirt the nitrogen gas by opening the valve on the cylinder, then close the lid quickly. The can should be sealed completely airtight. The groove, where the lid fits into, needs to be cleaned very well. Other wise,

the lid will stick badly during storage. By trying to open the stuck lid forcefully, you may break the airtight seal. If you break the seal, you need to reload the material into a different air-tight container.

Note: When you use quart or gallon size paint can to store part-A (prepolymer), the groove on the can, where the lid fits in, must be cleaned very well after pouring the material out. Other wise, the lid will be glued on to the can. If you force to open the glued-on lid, you would break the seal and the container is no longer air-tight. You may use 91% isopropyl alcohol (in water) to wipe the groove. Isopropyl alcohol reaction with isocyanate prevents material from gluing down the lid. (Do not use water to wipe.) Putting a layer of plastic food wrapper (Saran Wrap) and then put the locks back on would prevent the lid from glued down to the can.

### For 5-gallon pails

When you are purging a 5-gallon size pail, you can squirt the nitrogen gas for 15 to 60 seconds depending on how much space you need to purge. Insert the end of the flexible tube outlet into the pail through the screw-capped dispensing hole. Quickly put the cap back and shut it tight. Be sure to clean the thread for the screw cap to prevent the cap from sticking permanently by dried material.



### Set-up for 55-gallon Drums

To set up 55-gallon drums, one common way to dispense the material is to lay down the drum on its side, in such way that the dispensing hole is at the bottom. This method is sometimes called "gravity feed". You can install a shut-off valve at the dispensing hole, as shown in the pictures. The shut-off valve needs to be a type that prevents air to flow back in from the valve. You can then connect the dry nitrogen gas line to the vent hole, which comes at the top end of the head of the drum. When you dispense the material, you may place a smaller container underneath the dispensing valve, open the valve, then inject the nitrogen gas. The pressure from the nitrogen gas will help pushing the material out from the drum and fills the top space inside. This set-up prevents atmospheric air to come into the drum while dispensing the material.

Or alternately, as an option, you may install desiccant filter to the vent hole as. Be sure to use a very effective desiccant filter. The desiccant filter must dry the entering air to  $-40^{\circ}$  C/F dew-point dry or dryer to effectively blanket the urethane component materials.