



## Aldrich® Safe-Purge™ Valve

A rapid, efficient purge valve for 100% replacement of air in reaction vessels with any desired gas. Expensive gases are conserved because once purging is complete, the gas flow can be cut to almost zero. The valves are so inexpensive and easy to operate that it is possible to run all reactions under desired conditions.

### Valve Features:

- Foolproof operation
- Absolutely no air or oil suck back
- Manually adjustable Teflon® valve (Z22,532-0) designed for purging at < 5 psi
- Spring-loaded Teflon valve (Z22,533-9) designed for purging from 5-50 psi
- No mercury used
- Sturdy, high-performance construction
- Rear hose connector can be vented to hood for toxic gases and O<sub>2</sub> depletion
- No fear of pressure buildup
- No watching is necessary after purging
- No high vacuum needed

### Description (Fig. A)

Two styles of Aldrich Safe-Purge Valves are available. The first has a manually adjustable Teflon valve which should be used with purge gas pressures under 5 psi. The second type features a spring-loaded Teflon valve with a dual safety feature. Should any oil pass the check valve, the spring loaded plug will prevent any oil or air from entering

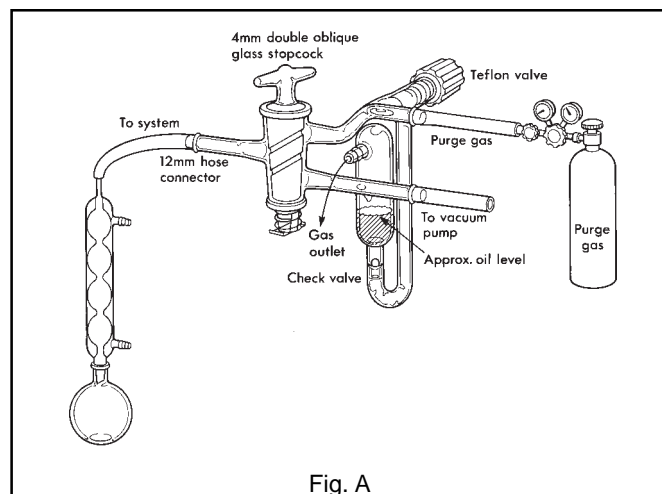


Fig. A

the system. Under high purge gas pressure and low vacuum it is therefore impossible to get oil suck back.

On a vacuum cycle (Fig. B), air is removed. On a purge cycle (Fig. C), the check valve ball is initially closed until the evacuated system is filled with purge gas. The check valve will then open allowing purge gas to escape through the rear hose connector. This cycle can be continued as many times as needed to remove air from the system. In smaller systems a complete cycle takes as little as 1-2 seconds. The spring-loaded valve in model Z22,533-9 permits high pressure purging with up to 50 psi, thus decreasing the time to complete a cycle in larger systems. After purging, the purge valve is kept in the purging cycle (Fig. C) under slight positive pressure of purge gas to prevent diffusion of air past joints and hose connections. In the event a reaction evolves a gas, the gas will pass

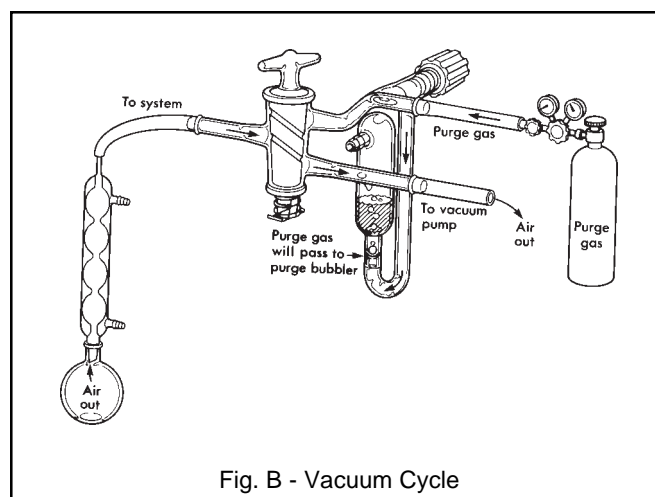


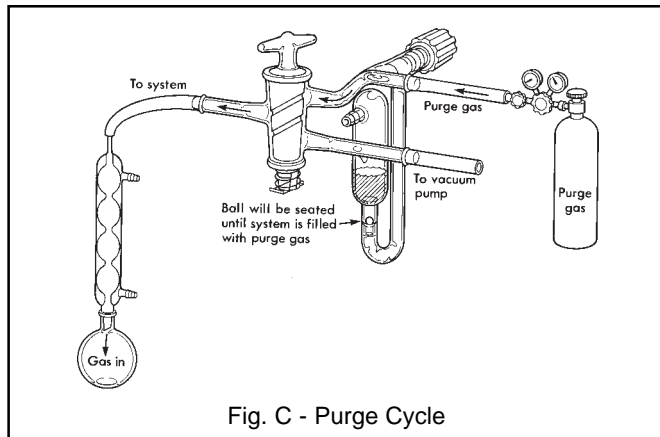
Fig. B - Vacuum Cycle

through the check valve, leaving no pressure buildup. The evolved gas may be collected and measured while maintaining a controlled atmosphere. Proper selection of the bubbler liquid allows purging with any gas that does not react with glass. Hydrogen fluoride or alkalis should not be used.

### Operating Instructions

- 1) Securely clamp valve using a standard tri-grip clamp. If toxic gases are used or the valve is to be used continuously, vent the rear hose connector to a hood.

- 2) With a dropper add mineral, fluorocarbon, silicone, or desired oil through rear hose connector. Oil should just cover the check valve ball, and be no higher than the base of the rear hose connector (0.1 ml). The larger the volume of oil, the easier the viewing of the purging cycle.



- 3) Connect tubing from reaction vessel, house vacuum, and purge gas to the Safe-Purge valve using 10mm o.d. hose connections. High pressure systems should have tubing clamped onto hose barbs.
- 4) With the glass stopcock in the closed position and the Teflon valve in the open position, start the purge gas. Bubbling will occur above the check valve. The initial pressure of the purge gas should be set at this time. Start the vacuum pump.
- 5) OPERATION: Open the glass stopcock to evacuate reaction vessel (Fig. B). After a few seconds, turn glass stopcock 180° to let purge gas enter system (Fig. C). The check valve will seat preventing air or oil from entering the system while the purge gas fills the reaction vessel. Repeat evacuation-purge cycle until desired atmosphere is obtained. After purging is complete, open glass stopcock between purge gas and system (Fig. C), and adjust Teflon valve to a very low flow of purge gas to protect the contents of the reaction vessel from the atmosphere.
- 6) To clean the valve, close glass stopcock and open Teflon valve. Invert unit to drain oil. Flush solvent through purge gas hose connector until clean. Add fresh oil.

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