

Safety Alert: Packaging for air, oxygen, and moisture sensitive reagents

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Applies To: All University Faculty, Staff, and/or Students using air, oxygen, and moisture sensitive reagents

Air, oxygen, and moisture sensitive reagents are typically shipped in bottles provided with gas impermeable septa such that transfers can be made via needles under a chemically inert atmosphere.

Users of air and moisture sensitive reagents must understand how to safely use the packaging for their specific reagents. Inadvertent removal of a septum cap could result in exposing such substances to a reactive atmosphere. Exercise caution when working with a new or unfamiliar packaging system. Users of air, oxygen, and moisture sensitive reagents are strongly encouraged to use products that have clearly labeled safety packaging and instructions to ensure the safety of the user.

Packaging systems like the Sigma-Aldrich Sure/Seal have the septum cap sealed under a removable screw top. The Sure/Seal septum is crimped to the container and is unlikely to be removed inadvertently.

Others, like the Alfa Aesar ChemSeal system, have the septum directly integrated into the screw top. ChemSeal septum caps are covered by a sticker or other removable top cap when new. The packaging does not provide notice to the user that the septum is integrated into the screw cap or that the screw cap should not be removed. There have been reports from other institutions that misunderstanding of reagent packaging has led to inadvertent removal of the septum cap, exposing the reagent to air. NEVER remove the protective septum from such a bottle in an air atmosphere without good reason and unless you are sure that the contents are neither pyrophoric nor toxic.

Product bulletins for the Sigma-Aldrich Sure/Seal Packaging System and the Alfa Aesar ChemSeal system are included below. Be sure to review product literature for your specific packaging system.

Figure 1: Examples of Alfa-Aesar ChemSeal packaging (left) and Sigma-Aldrich Sure/Seal packaging (right). Note the septum integrated into the white ChemSeal screw cap while the Sure/Seal septum cap is crimped in place.

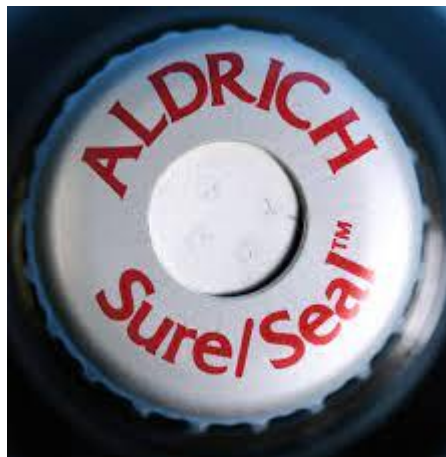
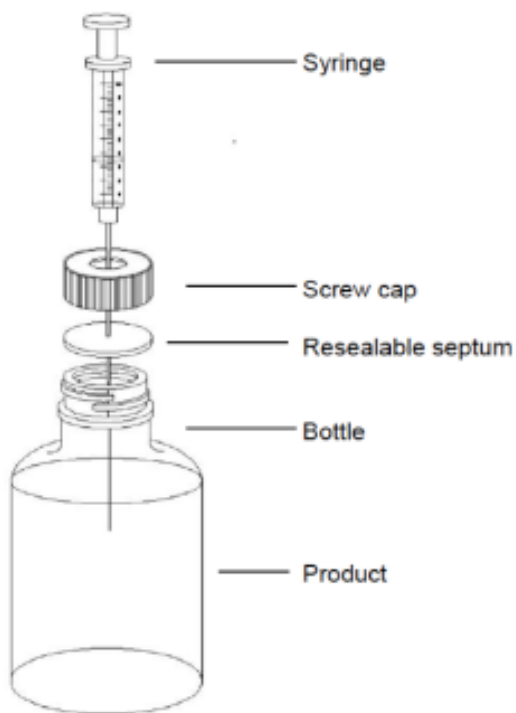


Figure 2: Diagram of Alfa Aesar ChemSeal packaging components. Note that removal of the screw cap will also remove the septum from the reagent bottle.



Additional Resources:

U-M Pyrophoric Materials SOP on the EHS webpage

<https://ehs.umich.edu/wp-content/uploads/2016/02/PyrophoricMaterials.docx>

Alfa Aesar ChemSeal Product Bulletin

<https://ehs.umich.edu/wp-content/uploads/2021/06/41838.pdf>

Sigma-Aldrich Handling Air-Sensitive Reagents Technical Bulletin

https://ehs.umich.edu/wp-content/uploads/2021/06/al_techbull_al134.pdf