

Guide to Opening PerkinElmer Glass Sealed Containers



Introduction

Glass sealed containers are utilized in the packaging of volatile liquids, gases, material sensitive to environmental conditions and small volumes of liquids. PerkinElmer manufactures three basic packages: (1) break-seal tubes which are specifically designed to fit onto vacuum lines prior to opening (Figures A & B), (2) flame sealed glass ampoules with constricted necks for convenient opening (Figures C & D) and (3) flame sealed glass ampoules with septum for convenient access (Figure E). These containers are supplied sealed under vacuum or at atmospheric pressure and procedures for opening must take this into consideration. To minimize problems opening the various types of containers, careful attention to the procedures outlined below is suggested.



Opening instructions for break-seal tubes (A, B) with vacuum line

1. Gently insert a small cylindrical piece of iron (hammer), preferably sealed in glass to minimize interaction, into the open end of the tube, allowing it to rest on the break-seal.
2. Connect the tube into the vacuum system with a flame seal or connector.
3. Cool the base of the tube by inserting it into liquid nitrogen or dry ice-acetone and evacuate the system. A graded application of vacuum is preferable to prevent unwanted movement of the hammer.
4. Break the seal by raising the hammer with a magnet and allowing it to fall onto the fragile glass tip.
5. Transfer may now be accomplished by standard procedures by opening to the vacuum line.



Opening instructions for break-seal tubes (A, B) without vacuum line (at atmospheric pressure)

1. Cool sample with liquid nitrogen or dry-ice acetone in order to remove material from inside walls and concentrate at the base.
2. If dilution is desired, the solution can be added to the upper part of the break-seal (not all solution added will rinse down into the bottom portion of the break-seal).
3. Carefully break the seal by inserting a glass stirring rod through the open top of the tube, allowing most of the diluents to drain into the bottom portion.
4. Allow sample to return to room temperature. Access to the contents at atmospheric pressure may be made with a pipette or long syringe needle after scoring and snapping the tube below the break-seal.



Opening instructions for glass ampoules (C, D)

1. Concentrate the contents of the ampoule into the base by either cooling or tapping gently for solids.
2. Type C ampoules are pre-scored at their colored band. They can be opened by holding the ampoule away from your body between the thumb and the forefinger of each hand and snapping briskly (we recommend wearing gloves).
3. Type D ampoules must be scored with a file before snapping. They can be opened by holding the ampoule away from your body between the thumb and forefinger of each hand and snapping briskly (we recommend wearing gloves).



Opening instructions for glass ampoules (E)

1. Concentrate the contents of the ampoule into the base by either cooling or tapping gently for solids.
2. Support the glass ampoule securely in the palm of one hand.
3. With your other hand, take an 18 g needle and pierce the septum on the top of the black cap.
4. Let the needle rest against the glass diaphragm and carefully withdraw the needle 0.25" (making sure to keep the head of the needle between the septum and glass diaphragm).
5. While continuing to support the glass ampoule in the palm of one hand, pierce the glass diaphragm with the needle.