

## SAFETY ALERT

**Incident Type:** Laceration to hands

**Date:** September 24, 2013

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**Incident Description:**

The lab manager was in the process of adjusting the position of glass tubing used for aeration of a carboy (Figure #1) when the tubing broke resulting in the laceration of both hands.

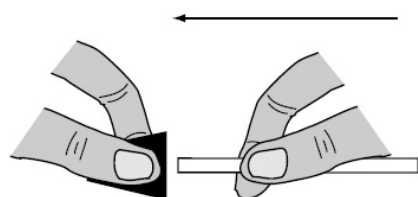
The piece of glassware was given a brief visual inspection and the opening in the rubber stopper was lubricated with glycerin. While holding the stopper in the left hand and the glass tube in the right hand, the tube was advanced through the stopper (Figure #2). During the adjustment, the piece of glass tubing broke between the rubber stopper and the manager's hand. The piece of broken glass being held with the right hand lacerated the left hand, resulting in three sutures. The piece of broken glass extending from the top of the rubber stopper lacerated the right hand, resulting in two sutures.

**Figure 1:**

An aerated carboy



**Figure 2:** Insertion of glass tubing into a rubber stopper



**Investigation Findings:**

- The tubing was made of borosilicate glass with a low coefficient of thermal expansion and resistance to thermal shock. This glass crumbles into granules when broken.
- Prior to use, each piece of glass tubing was visually inspected for striation cracks and breaks; none were found.
- The aeration apparatus was wrapped in aluminum foil and sterilized by autoclave (dry cycle 15 minutes), prior to the adjustment of the glass tube.
- Nitrile gloves were worn during the adjustment of the tubing. The position of the additional glass tubes in the 3-hole rubber stopper restricted the amount of space available, making the use of thick gloves infeasible.

**Root Causes:**

The puncture wounds were caused by a weakened piece of glass being inserted into a rubber stopper while wearing personal protective equipment (PPE) that was insufficient to protect against puncture or laceration from broken glass.

**Figure 3:** Cut Protection Gloves from VWR



**Cut Protection Gloves, Ansell**  
Supplier: Ansell

Supplier No.	VWR Catalog Number
012-97-505-S	300075-202
012-97-505-M	300075-200
012-97-505-L	300075-198

**Recommended Actions for personnel using this technique:**

1. Identify the proper glove type (cut resistant, Figure #3) for inserting glass tubing into rubber stoppers and communicate to lab personnel.
2. Develop a procedure outlining the methods for inspecting glass tubing and communicate to lab personnel.