



SUBJECT REMOVAL OF CARBORUNDUM FROM GLASS  
 Process Specifications

SUPERSEDED DATE 1/5/45

Initially used in Laboratory to reclaim lighthouse tube parts.

It has been found that when glass is cut on a water wheel, carborundum and binder are embedded on the cut surface. Glass cut by this process will result in cloudy seals on button stems, etc. Because of this, such methods of glass cutting as the hot wheel and the diamond cutter have been preferred in cutting glass tubing for such stems.

Neither of these methods are satisfactory for accurately cutting small production lots of hard glass (704 or 705BA) to a uniform weight per part. A chemical procedure for removing the embedded carborundum was devised so that the water wheel method of cutting could be used.

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POTASSIUM HYDROXIDE SAFETY PRECAUTIONS: See 33-2-8A.

PROCEDURE

The cut glass parts are suspended in fused potassium hydroxide (KOH) until the foreign material has been dissolved. After removal from the KOH and after the glass parts have reached room temperature the glass is washed in hot water to remove the alkali.

The container for the fused KOH may be a steel or iron pot of welded or solid construction. While a nichrome basket for suspending the parts has been used because of availability, a steel or iron mesh basket (not galvanized or galvanizing removed) would be satisfactory. To reduce the hazard of the fused caustic spattering, it is advisable that the pot be sufficiently tall so that the level of the fused KOH be less than one-half the height of the container walls.

While the fused KOH readily dissolves the foreign material (carborundum, etc.) it also dissolves the glass and it must be kept in mind that the rate of solution of the glass is different for different glasses.

It will be necessary to find the optimum time and temperature for the glass and the shape part to be cleaned. Two minutes at about 400-450°C has been used successfully.

The fused KOH may be used repeatedly, but when cool it should be kept in a desiccator as KOH is a deliquescent material.

ENGINEERING SECTION  
 STANDARDIZING

35/EG