

DESICCATION OF INSTRUMENTS

GENERAL

1. Desiccation of an assembled instrument is essential in order to dry its interior, thereby removing any humid air which may have entered and which, if allowed to remain, would result eventually in the fogging and filming of the internal components. Desiccation is also necessary to maintain the relative humidity of the air inside the instrument below that at which fungus growth will not readily develop. Consequently, after the cleaning, assembling, sealing, and pressure testing of an instrument have been carried out it should be thoroughly desiccated.
2. In addition, during the process of overhauling an optical instrument, the optical components should be placed in a desiccator, especially if they have been cleaned, in order to keep them free from dirt and dust and to dry them off. The components should remain in the desiccator until ready for reassembling in the instrument.
3. This instruction describes briefly the apparatus used in workshops for the above purposes. There are three types of apparatus which can be used:-

Apparatus, desiccating, CDN, No. 1, Mk 1

or

Apparatus, desiccating, No. 1, Mk 1A

Desiccating jars

Metal containers

APPARATUS

Apparatus, Desiccating, CDN, No. 1, Mk 1

4. This apparatus, shown at Fig 1, consists of a desiccating tank containing a tray to hold the instruments to be desiccated, a vacuum plate and bell jar, a dry air chamber containing silica gel, an electric motor, and a vacuum pump.
5. The instruments are placed in the desiccating tank with their desiccating screws or nipples removed. The tank is then evacuated to about 28 inches and maintained at this vacuum for approximately 15 minutes to ensure vaporization of moisture from glass and metal surfaces. Air, drawn in through the air filter, dry air chamber, and control valve, is then allowed to enter the tank gradually. When atmospheric pressure is reached, this dry air should remain in contact with the instrument for a further 10 minutes to take up moisture vapour. The above process should then be repeated. On removal from the tank the desiccating screws or nipples must be immediately replaced.

Apparatus, Desiccating, No. 1, Mk 1A

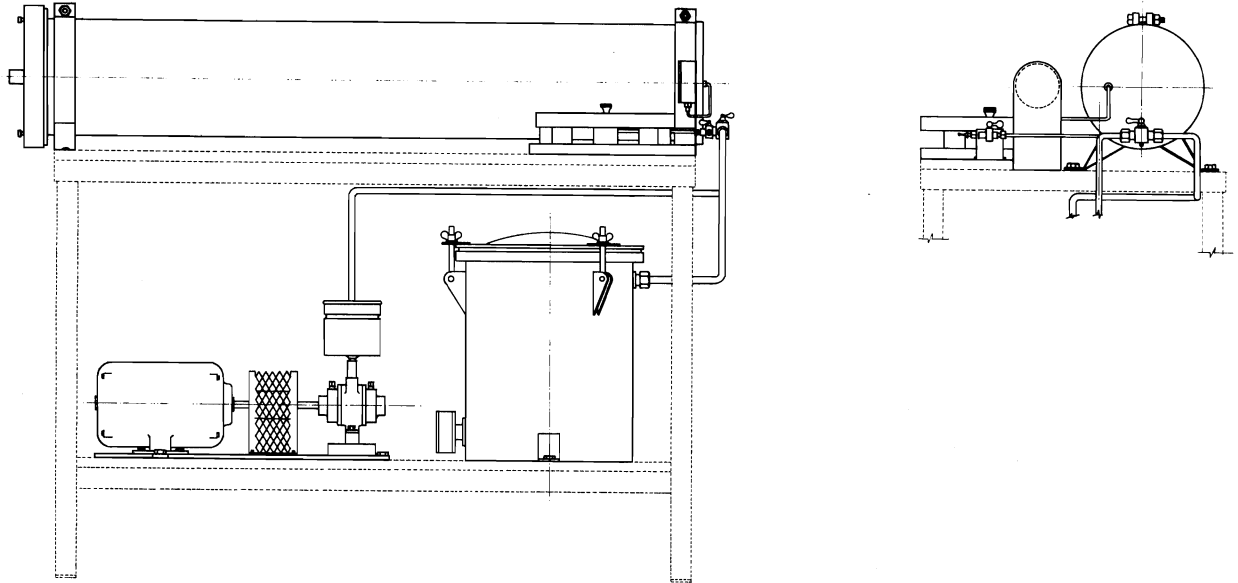
6. This apparatus is basically the same as the Apparatus, desiccating, CDN, No. 1, Mk 1 but has some constructional differences. The vacuum pump and motor assembly is a different design and the apparatus does not have a vacuum plate and bell jar.

Desiccating Jars

7. These desiccators, shown at Fig 2, are provided to protect and dry off components of instruments prior to reassembly. Each consists of a glass container with two compartments separated by a perforated zinc or porcelain plate. The lower compartment is the smaller and when in use is filled with silica gel. The upper part carries the instrument components to be desiccated and is covered by a lid with a flat ground edge to prevent the entry of moisture, dirt, and dust. This edge should be lightly oiled to make a good seal. These jars are of approximately 200 mm diameter and the lower compartment holds approximately 3 lb of silica gel.

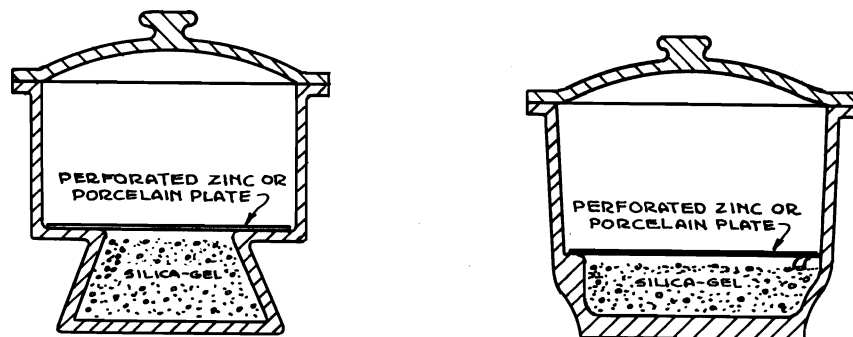
Metal Containers

8. Metal containers, such as drums or cans with tightly fitting push-on or screw-on covers, can be used. A container should be charged with a generous amount of silica gel, the instrument placed inside with the desiccating screws removed or the nipples unplugged, and the cover of the container sealed with luting. The period of desiccation should be about 12 hours. After the instrument has been removed, the desiccating screws should be replaced or the nipples plugged, and the cover of the container should be replaced and re-luted as quickly as possible in order to avoid saturation of the silica gel.



DEME 88094

Fig 1 - Apparatus, desiccating, CDN, No. 1, Mk 1 -
diagrammatic view



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Fig 2 - Glass desiccating jars

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