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Laboratory heating mantles.

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A laboratory heating mantle comprises an insulating body (1,2,3) defining a hollow heating chamber (6) closed from below by a sheet (5) of ceramic glass. The top wall (3) has an aperture (4) to receive and support a vessel (10). A radiant heating element in the form of a halogen heat bulb (8) (or a printed resistance element, not shown) is mounted below the sheet, which freely transmits heat to the chamber (6) and at the same time protects the element from accidental spillage.

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Laboratory Heating Mantles

This invention relates to laboratory heating mantles of the generally known form comprising a support body of heat resistant and electrically insulating material, the body being open from above to receive and support a vessel (such as a laboratory retort or flask) and an electrical heater for heating said vessel. A heating mantle of this form is known, for example, from GB-A-2147328.

In the known mantles of this general form, the electrical heater comprised an electrical resistance heating element, usually in the form of a mineral insulated cable conventionally secured to a fabric or wire mesh carrier attached to the surface of the cavity of the mantle so as to be closely adjacent the surface of the vessel, which is heated essentially by conduction.

The present invention aims at simplifying the construction and increasing the heating efficiency of laboratory heating mantles and is mainly characterized in that the said body defines a hollow chamber closed from below by a sheet of ceramic glass and the heater is a radiant heating element located within or below the said sheet, and that the top wall of the chamber has an aperture in which it is closed in use by the partial insertion of a vessel which is supported by the top wall with its lower region positioned in the chamber above the said sheet.

With this construction the heater may take the form of a halogen heat bulb which is protected from accidental spillage by the sheet of ceramic glass or of a resistance heating element embedded in the sheet or printed onto its lower surface.

One form of laboratory heating mantle in accordance with the invention is described below, by way of example with reference to the accompanying drawing, which shows the mantle in vertical cross-section.

The mantle shown in the drawing comprises an insulating body made up of a frusto conical tubular side wall 1, a bottom wall 2 and a top wall 3 having a centrally disposed aperture 4. The body components are all of electrically insulating and heat resistant material, such as compressed mineral or ceramic fibres which are sintered or resin bonded.

The interior of the body is transversely divided by a sheet 5 of glass ceramic material, to form a hollow heating chamber 6 and a lower chamber 7 in which is housed at least one halogen heat bulb 8 and reflector 9 which directs heat upwardly.

In use a vessel 10, such as a laboratory retort, is partially inserted in the aperture 4, so as to close it and be supported by the top wall 3, with its lower region positioned in the heating chamber, but above the sheet 5. When the bulb 8 is energized,

its heat is radiated up through the sheet 5 to heat the retort.

The glass ceramic sheet is inherently heat resistant but freely transmits radiated heat. It also protects the bulb and other components in the lower chamber 7 from any accidental spillage from the retort. The side wall 1 is preferably formed with an escape hole 11 for any spilt liquid.

In a modified construction, the halogen bulb is replaced by a resistance heater, which may be incorporated in the sheet 5, or printed on its lower surface, or attached to its lower surface.

Another possible modification resides in providing the top wall with a number of smaller apertures to permit the simultaneous heating of a corresponding number of smaller vessels.

Claims

1. A laboratory heating mantle comprising a support body (1,2,3) of heat resistant and electrically insulated material, the body being open from above to receive and support a vessel (10), and an electrical heater (8) for heating the said vessel, characterized in that the said body defines a hollow chamber (6) closed from below by a sheet (5) of ceramic glass and the heater (8) is a radiant heating element located within or below the said sheet, and that the top wall (3) of the chamber (6) has an aperture (4) in it which is closed in use by the partial insertion of a vessel (10) which is supported by the top wall with its lower region positioned in the chamber (6), above the said sheet (5).

2. A mantle according to claim 1, characterized in that the said heater (8) comprises a halogen heat bulb positioned within the body (1,2,3), below the said sheet (5), preferably with a reflector (9) beneath the bulb to reflect radiant heat upwardly through the sheet (5).

3. A mantle according to claim 1, characterized in that the said element comprises a resistance heater incorporated in the sheet (5) or printed onto its lower surface,

4. A mantle according to claims 1, 2 or 3, characterized in that the side wall (1) of the body is formed with a drainage hole (11) to permit the drainage of spillage from the chamber (6).

