IMMERSION HEATER

S400-040

INTRODUCTION:

The immersion heater is a versatile piece of apparatus that allows controlled heating in the laboratory. The unit is sealed for immersion up to the cable entry point but care should be taken to prevent liquids from covering the joint. The heater need only be immersed by approximately 70mm as the heated length extends only 50mm from the base of the cartridge.

Do not apply power to the heater when 'dry', damage may result due to overheating of the element. Ensure the heater is immersed in a liquid or is inserted into a calorimeter block before switching on.

SETTING UP:

The immersion heater can be connected to any lab power supply capable of providing 12V at approximately 4A using 4mm leads. In use it is often useful to monitor the power supplied to the heater, this may be done using a joule and watt meter or by monitoring the voltage and current through the heater. Take care to ensure the power rating of 50W is not exceeded, this corresponds to a maximum current of around 4A at 12V.

GENERAL TIPS:

When used in conjunction with calorimeter blocks to determine specific heat capacity there are a number of steps that can be taken to improve the results:

- The calorimeter block may be lagged to reduce heat loss to the surroundings.
- Cooling the block below ambient and then heating to an equal amount above can help balance heat loss with gain.
- Record the maximum temperature reached after switching off the heater, this may be several minutes after power off.

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