

DIFFUSION CELL APPARATUS

INTRODUCTION

DIFFUSION CELL APPARATUS is made of mild steel duly epoxy coated with stainless steel top. Perspex bath with heater is provided above the stirrer. There is provision to hold 6 Nos. Diffusion Cell vessels of 20ml capacity inside the bath. Temp. range is above amb. up to 40.0°C controlled by digital PID temp. controller. PT-100 sensor is used for better accuracy. A circulator is provided for uniformity of temp. in the bath. Magnetic stirrer is provided to all Diffusion Cell vessels with individual electronic speed controller & individual On / Off switch. Supplied with Teflon coated Magnetic bit of 5mm Dia. X 10 mm L with ring.

SPECIFICATIONS

Capacity	: up to 20ml X 6 in line.
Display	: Digital Red LED display.
Temp.	: above amb. to 40.0°C.
Temp. Control	: Digital PID Temp. Controller.
Bath Material	: Bath made up of Perspex sheet
Stirrer Speed	: Variable 300 to 1000 RPM Digital with selector switch.
Heater Rating	: 250 Watt approx. Stainless Steel.
Size	: 540mm x 270mm x 200mm Ht
Power Supply	: 230V \pm 10% AC. 50 Hz.

INITIAL INSPECTION

The instrument should be visually inspected for physical damage in transit and electrical performance should be checked as described.

ENVIRONMENTAL CONDITIONS

The instrument should not be operated at a temp. exceeding 50°C. (Should be operated at the normal room temp. away from direct sunlight and/or direct air draught.)

FRONT PANEL

1. Mains Switches
2. Digital PID Temp. Controller
3. Heat switch with indication
4. Magnetic Stirrer Switches with Indication.
5. Individual Speed Setting knob for Magnetic Stirrers

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6. Circulator speed setting knob
7. Stirrer Speed : RPM Indicator
8. Selector switch

OPERATION

Connect DIFFUSION CELL APPARATUS to 230V AC. Mains supply.(Check for proper earthing.) Fill the bath with water to appropriate level & fix the acrylic lid to the bath with the knobs. Connect the heater connector to the socket provided at the rear side. Connect the sensor to its socket provided at the rear side & dip the Temp. Sensor inside the bath at the hole provided on the lid of the bath. Put Teflon Magnetic Bit 9mm Dia. X 30 mm inside the bath from the 'Circulator' hole on Stainless Steel disk.

Keep all the speed setting knobs at minimum position. Switch ON the MAINS. Digital Temp. indicator, Speed indicator & circulator will turn ON. Bit will start rotating. Adjust the speed of the circulator with Circulator knob so that water will get agitated.

Assemble the Glass Diffusion Cell with 5mm Dia. X 10 mm L Teflon bit inside the Receptor Chamber & fix the special acrylic clamp to the membrane allocation rim. Put all the diffusion cells inside the bath. (Take care that water inside the bath should not spill out.)

Switch on the respective stirrer switch. Red LED will glow.

Adjust the speed of the stirrer by SPEED knob.

To check the speed of the stirrer, select the appropriate number by the selector switch. LED indicator of that selected stirrer will flash. Digital display of Stirrer Speed will indicate the speed of that stirrer in RPM.

Set the Temp. of the bath as follows. Then switch On the Heat switch to start heating. Heat LED will glow along with Heat indication on Temp. controller.

Additional beaker of 150ml capacity with buffer solution can be kept inside the bath. This pre- heated buffer solution can be used to replenish the sample removed from the Receptor Chamber time to time.

FUNCTION

1. There are two displays. Upper display (Big) shows Chamber temp. in °C & lower display shows 'Set Point' at that instance OR 'Overshoot Alarm'
To check whether the lower display is showing 'Set Point'; 'Overshoot Alarm', press 'UP key'. If lower display shows SET is 'Set Point' & if it shows AlrM then it is showing 'Overshoot Alarm'
To change from 'Set Point' to another parameter, press 'DOWN key'. To change the parameter, go to Set Mode. Heater on is indicated by 'HEAT' LED indication on front panel.
2. Overshoot Alarm set facility is available. If you set it at 2°C then the overshoot alarm will switch ON at SET +2°C (If Set Point is 50°C, alarm will come on at 52°C) also indicated by 'ALARM' LED indication on front panel. Alarm can be switched off by pressing UP key. ALARM LED will start flashing to indicate the condition of overshoot. Flashing ALARM LED will switch off only when temp. will drop down by 2 to 3°C.

OPERATION	DISPLAY	DESCRIPTION
Switch ON Mains	UD – (upper display) (Big) LD –(Lower display)6 5 (e.g.)	Upper display shows amb. temp. Lower display shows set point
Press SET	UD – Set Temp LD – SEt	SEt is set point
Press Up / Down	UD – increase / decrease LD - SEt	Set the required in upper display. Then press SET to memorize new setting & switch to next parameter.
Press SET & Release	UD – 5 LD – ALrM	Flash means you change the overshoot alarm setting.
Press Up / Down	UD – increase / decrease LD - ALrM	Set the required in upper display. Then press SET to memorize new setting & switch to next parameter.
Press Enter	UD – 6 5 LD – Set Value	To exit from the setting.

PRECAUTION

1. Always ensure that proper water level is maintained in the bath to protect heaters from burning out.
2. Avoid heavy water as it contains salts and minerals, which results in scaling of heater and burning out.
3. Take care while putting Teflon magnetic bit into the bath & into Diffusion Cell.
4. Keep Diffusion Cell in stirrer bath carefully.
5. Don't spill off liquid on the instrument.
6. After use wash and dry Teflon magnetic bit.

