

GRADIPLATE®

TEMPERATURE - GRADIENT INCUBATOR



GRADIPLATE IS A TEMPERATURE GRADIENT INCUBATOR

GRADIPLATE is a plate type temperature-gradient incubator. It was originally developed for determination of the limiting growth temperatures of microbial cultures, but it can also be used for studying other temperature-dependent biological, chemical or physical phenomena. In all applications high capacity is provided by two identical incubation chambers on both sides of the gradient plate. In the standard microbiological applications microbes are cultivated in or on culture media in specially designed Gradicuvettes, resembling rectangular Petri dishes, which are placed on the gradient plate.

PRINCIPLE OF OPERATION

The core of GRADIPLATE is a rectangular metal plate whose opposite edges are kept at different temperatures by circulation of constant temperature liquids through two channel system. The difference in temperature induces a continuous, linear temperature gradient in the metal plate. The same gradient is induced in the samples placed on the plate. The isotherms of the temperature field are straight and parallel to the longest dimension of the chamber. The slope of the temperature gradient is linear and perpendicular to the isotherms. The actual temperatures prevailing on the gradient are monitored at two points with high-class electronic temperature sensors attached to the metal plate. The temperatures at other parts of the gradient are obtained from the readings TL (low) and TH (high) through a linear equation.



STANDARD ASSEMBLY

1. GRADIPLATE, the core unit or the incubator proper.
2. GRADITEMP, the temperature control unit with a continuous digital display of the low and high temperature, equipped with a recorder receptacle.
3. GRADICUVETTE, an autoclavable incubation dish, 8 cuvettes included (size 97 mm x 70 mm x 12 mm).
4. CRYOSTATS, the liquid units with two high-duty adjustable circulating cryostats.

SPECIFICATIONS

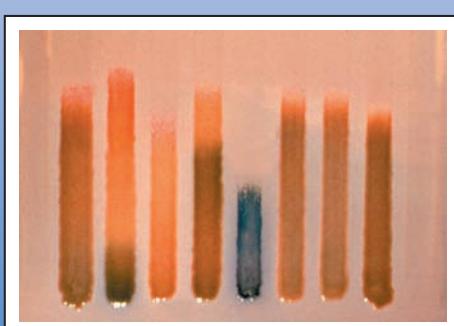
- Operating temperature range: -2°C to +95°C
- Operating gradient range: Operating temperature difference can be set from 1 to 20°C which gives a gradient range of 0.01 to 0.2°C/mm.
- Temperature stability: $\pm 0.01^\circ\text{C}$ with specified cryostats.
- Maximum capacity: 80 cultures at a time with GRADIFILT system.

APPLICATIONS

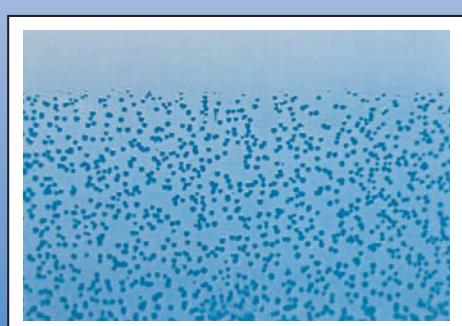
- Determining the maximum, the optimum and the minimum growth temperatures of cell cultures
- Determining the optimum temperature of a metabolite (e.g. enzyme) production.
- Development of temperature-dependent selective methods.
- Basic research on temperature-dependent biological activities.
- Research on biological, chemical or physical reactions or phenomena.
- A variety of the GRADIPLATE accessories are available for different applications.



GRADIFILT, an autoclavable filter assembly for filtering ten test suspensions in parallel lanes.



Parallel growth lines of different **Coliform** species filtered by GRADIFILT and grown on mFC agar in the gradient.



Growth limit of a **Coliform bacterium** inoculated by flooding and grown on mFC agar in the gradient.