



HYDRO-BIOS

Smart Sampling

Datasheet ICES Incubator (450 000)



ICES Incubator

ICES standard for phytoplankton primary production measurements

One of the most important marine processes is the formation of organic material resulting from the interaction of carbon dioxide, water and sunlight, a process known as photosynthesis. The ability to measure this process is of great importance when assessing marine pelagic systems. In practice the best way to measure photosynthesis is to look at the absorption of carbon dioxide. The high sensitivity of carbon dioxide absorption measurements allows to use this method under all circumstances. Neither low or very high algal concentrations nor low light conditions and low temperatures are restrictions for this method. Based on the ¹⁴C method, using the absorption of the radio-active ¹⁴C isotope of carbon (Steemann-Nielsen, 1952), the ICES Incubator is the ICES standard for phytoplankton primary production measurements.

The incubator shown here has been mainly developed for monitoring purposes. It should be used preferably for water samples taken from a mixed water layer with a fixed temperature. Measurements of the amount of phytoplankton (based on chlorophyll-a concentration measurements) should be carried out for interpretation purposes.

The ICES Incubator consists of an illuminated transparent plexiglass tank incorporating a turning wheel on which 12 experimental bottles can be clamped. The tank is filled with water which is set in motion by an adjustable circulating pump. Thus the turning wheel is set in rotation at speeds up to 10 rpm with the experimental bottles acting as paddles. Tank connections for a second water circulation allow for temperature adjustments of the water by using external tempering equipment.

The 12 experimental bottles of 50 ml capacity each have different optical coatings, so that each bottle has individual transmission rates and thus generating a number of 12 different irradiance (or light intensity) levels.

The illumination unit is equipped with 10 fluorescent tubes with a wave spectrum according to ICES specifications, each can be switched individually. For higher irradiance levels a second illumination unit can be mounted onto the ground plate of the ICES Incubator.



DESCRIPTION

Ground plate

with fixing screws for
plexiglass tank and illumination unit,
Dimensions: 510 x 325 x 20 mm

Centrifugal pump

Hauling capacity: 10 l/min. (power supply 220 - 240 V AC, 50 / 60 Hz required), 2 PVC tubings, 415 mm long

Illumination unit

10 individually switchable fluorescent tubes (power supply 220 - 240 V AC,
50 / 60 Hz required), dimensions: 350 x 335 x 150 mm

Plexiglass tank

with diaphragm valve
and hose nozzles,
Dimensions: 350 x 400 x 100 mm

Turning wheel

for 12 experimental bottles, dimensions: 180 mm dia.

TECHNICAL DETAILS

power supply	220 - 240 VAC
product ID	450 000