

# Incubator

The microbiological incubator is deployed in research and industry in a wide variety of applications with living organisms.

Cell cultures and micro-organisms must be incubated in a controlled atmosphere. In the **standard incubator** and the **cooled incubator**, the temperature is controlled, and in addition in the **CO2 incubator** the carbon dioxide content, humidity, and in some cases the oxygen and nitrogen content are also controlled.

## Examples of applications in the incubator

- Growing cell cultures
- Reproduction of germ colonies with subsequent germ count in the food industry
- Reproduction of germ colonies and subsequent determination of biochemical oxygen demand (wastewater monitoring)
- Reproduction of micro organisms such as bacteria, fungi, yeast or viruses
- Breeding of insects and hatching of eggs in zoology
- Controlled sample storage
- Growing of crystals/protein crystals

## Requirements made of the incubator

### Temperature stability and temperature homogeneity:

Living organisms react extremely sensitively to fluctuations in temperature. In order to guarantee reproducible test results, temperature stability and temperature homogeneity are important quality criteria for an **incubator**, even without the operation of a fan.

The nutritional media on which the cultures are grown must not under any circumstances dry out. Otherwise, there is a risk that the test results will be corrupted or the cultures will completely die out. Appliances with natural **convection** are therefore optimal, since the drying out process is not accelerated, in contrast to appliances with forced air circulation.



Memmert incubator

### Memmert Incubators

Incubator

Cooled Incubator

Peltier-cooled incubator

CO2 Incubator

## Avoiding contamination

Hygiene is of the highest priority when working with an incubator. Germs may end up in the samples through air movement in the chamber or impurities on the chamber surfaces. The chamber should therefore be designed as smoothly as possible and without any sharp corners or fittings. The interiors in the incubator are normally made of corrosion-free **stainless steel** 1.4301 (acc. to standard ASTM 304) to make cleaning easier, and they are smoothed by some manufacturers to prevent germs from settling. In order to observe the chamber load without having to open the door, **incubators** are usually equipped with an inner glass door.

Read more:

[Microbiological incubator](#)

[CO2 incubator](#)

[Overview Glossary Temperature control chamber](#)

Picture credit: Memmert GmbH + Co. KG

Autor:

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