Save Gas and Energy with Your Eppendorf CO_2 Incubators

Did you know that running costs for a CO_2 incubator easily exceed its purchase price over time? Gas consumption in particular is usually dramatically underrated, as it can become a significant cost factor in a cell culture lab. Choosing the right device while considering the total cost of ownership over its expected lifetime is only one key saving factor. Proper installation, use, maintenance, and segmented inner doors can also contribute to further cost reductions.

Installation

The way an incubator is installed can have an impact on power consumption:

> Check the instructions in the operating manual

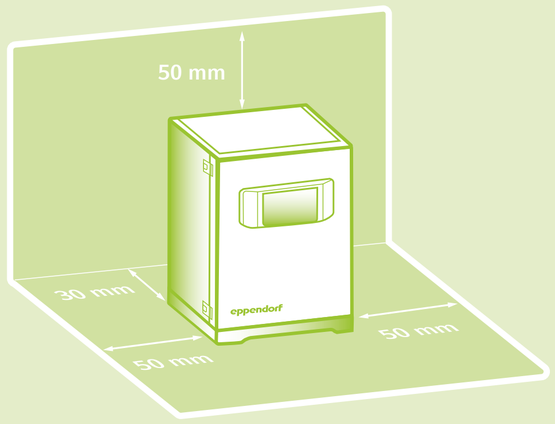
> Minimum ventilation clearance: 50 mm/2 inch to sides und upwards, 30 mm/1.2 inch to the rear. For optimal handling distances see operating manual

> Avoid direct sunlight, vibrations, and heat/cold/airflow sources

> Remove packaging material or supply boxes of consumables stored on top of your CO_2 incubator to optimize airflow

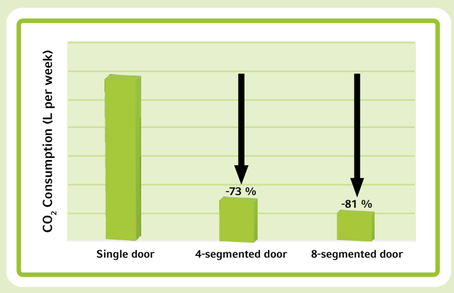
> Check the room temperature, +20 °C is recommended (18 - 28 °C)

> 1 bar/14.5 psi is recommended for optimal CO_2 and N_2 supply



Segmented Inner Doors

CO_2 incubators are often shared by several users in a cell culture lab and multiple door openings during a workday often cannot be avoided. If you are working with sensitive cells or cell-based assays, a small segmented inner door can help save resources for several reasons:

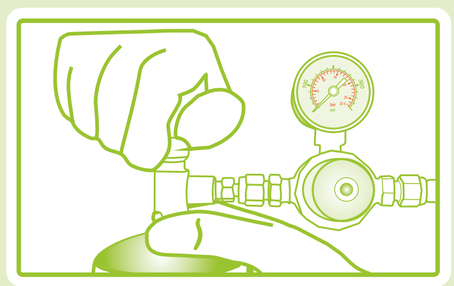


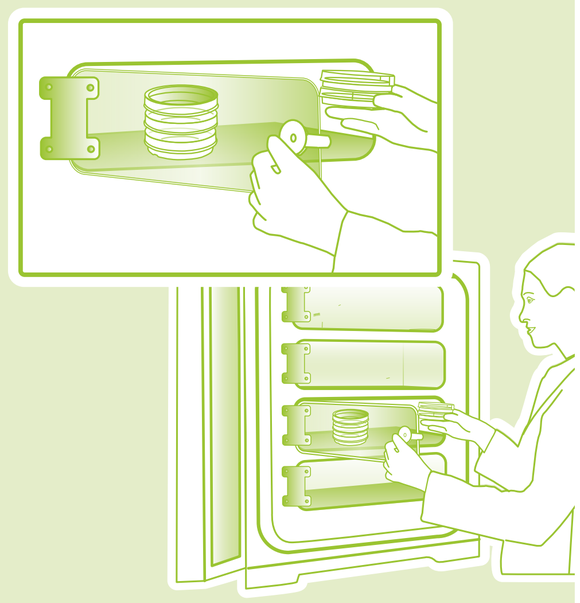
Segmented inner doors of a CO_2 incubator can lead to a significantly reduced gas consumption (Shown here: CellXpert® 5% CO_2 and 5% O_2 respectively, 37 °C, 3x 30 seconds door openings per day at 5 days a week)

> Reduced disturbance of the incubation environment during door openings leads to more reproducible results, thus lower standard deviation and necessary experiments

> Reduced entrance of air-born contaminants leads to a lower risk of contamination, thus reducing the risk of having to repeat experiments and throw away cultures, media, etc.

> Significantly decreased consumption of CO_2 (and N_2 for hypoxic experiments) – also saves time and workload because of less frequent changing of gas cylinders



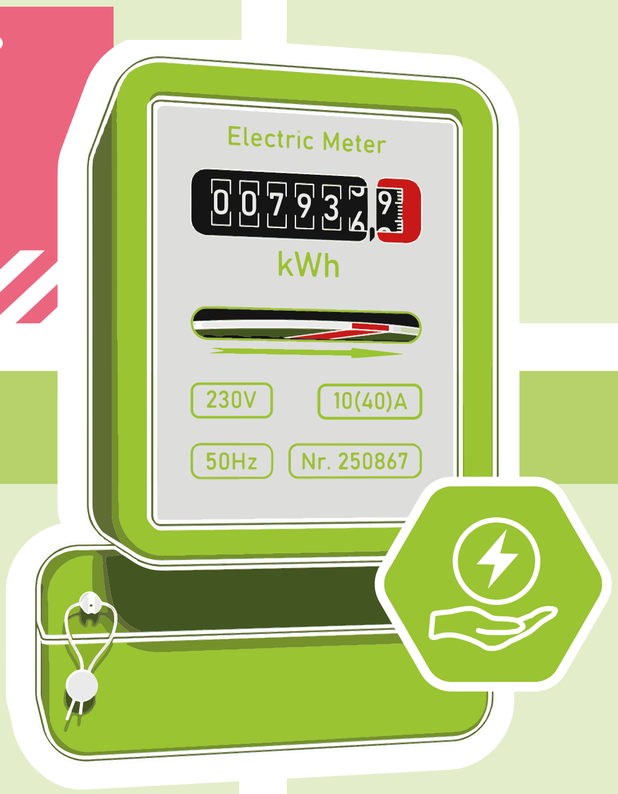


Training

At first glance, a CO_2 incubator may seem like a simple device, but care should still be taken to ensure its proper usage.

Do You Know All About Your CO_2 Incubator?

All users should be trained:
> How to minimize door opening times
> How to store cell culture vessels systematically (see below)
> How to perform regular maintenance tasks



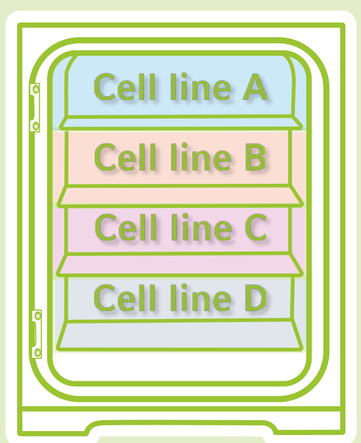
Access to Your Cell Culture Vessels

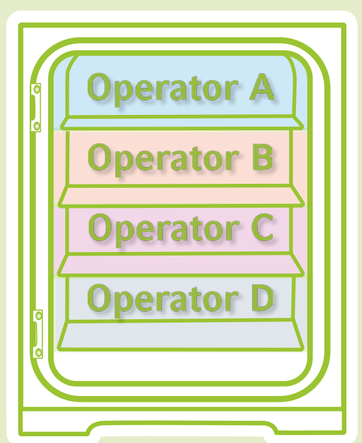
It sounds obvious, but another key factor to significant gas and energy savings, as well as contamination control and reproducibility of experiments is to keep the door of your CO_2 incubator shut as much as possible.

> Proper organization of your vessel location helps to find your cells faster – shorter door openings require less energy for temperature recovery and less gas for CO_2 (and O_2) recovery

> Depending on the routine in your lab there are different ways to organize the contents of your CO_2 incubator – see two examples below

> Efficient processes for tracking and locating samples are best accomplished with a dedicated sample management software like eLabNext (see link below)





Access your eLabNext 30-day-free-trial:
www.elabnext.com/eppendorf

Maintenance and Service

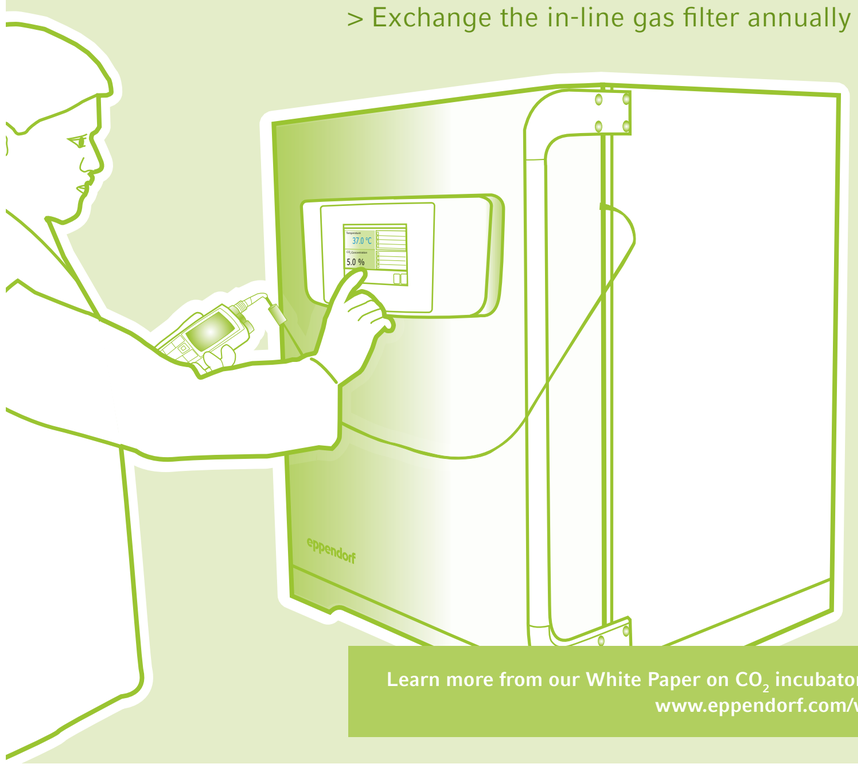
CO_2 incubators run 24/7 for many years. A few regular maintenance tasks will extend the lifetime of the CO_2 incubators and ensure optimal energy as well as gas consumption:

> Check the gas lines and connections for leaks regularly

> Evaluate a meaningful interval for a 180 °C disinfection interval according to your contamination risk as it consumes a lot of electrical energy

> Let the sensors be maintained by a qualified service technician annually

> Exchange the in-line gas filter annually



Learn more from our White Paper on CO_2 incubator maintenance:
www.eppendorf.com/white-paper-51

www.eppendorf.com/sustainability