Highlighting innovative design features and useful applications information for **Thermo Scientific CO_2 Incubators.**

Thermo SCIENTIFIC

smart notes

design and innovation

CO_2 INCUBATION

SMARTNOTE 1

Q

Why is a circulating fan essential to superior growth conditions in a CO_2 cell culture incubator?

A

Only a circulating fan can provide truly uniform conditions from top to bottom and side to side in your incubator. A circulating fan offers fast recovery of temperature, gas exchange and humidity, following routine door openings, to ensure cells grow in a well controlled, healthy environment.

When any incubator door is opened, physics dictate that the conditions inside rush to equilibrate with the external atmosphere. Once the door is closed, the use of an integrated fan provides the fastest recovery to your desired conditions, thus minimizing stress to cells from loss of temperature, CO_2 and humidity.

Why Thermo Scientific CO_2 Incubators?

Active airflow circulation provides the most uniform growth conditions

Without a uniform environment throughout your CO_2 incubator, cells in different areas can experience varying conditions, leading to confusing results. Thermo Scientific fan-assisted incubator designs ensure homogeneous conditions throughout the entire chamber, so that all cells experience the same temperature, gas exchange and humidity, regardless of their location in the growth chamber. These standardized conditions form the basis of good, controlled science and meaningful, reproducible results.

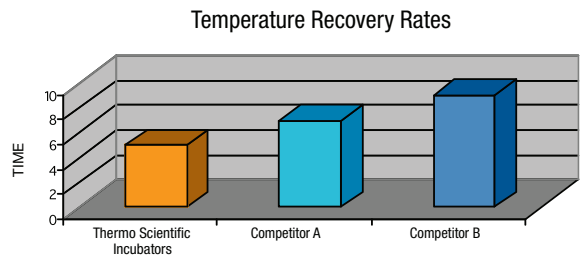
Without a fan, stratification of critical incubator conditions can compromise research results

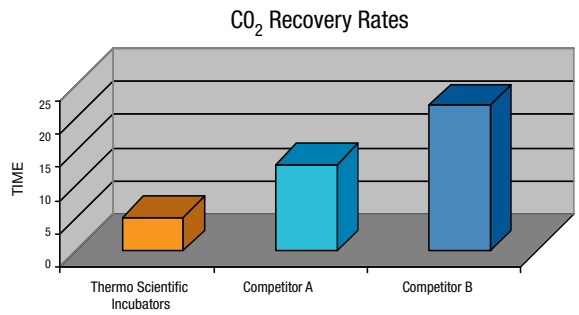
An incubator with no fan relies upon gravity convection, or slow moving thermal currents, for humidity transport and gas exchange. This design results in slow recovery rates such that frequent door openings can prevent your cultures from experiencing adequate exposure to your selected culturing conditions. Lack of uniformity within the chamber can create variation among your cell cultures with a negative impact upon your project goals.

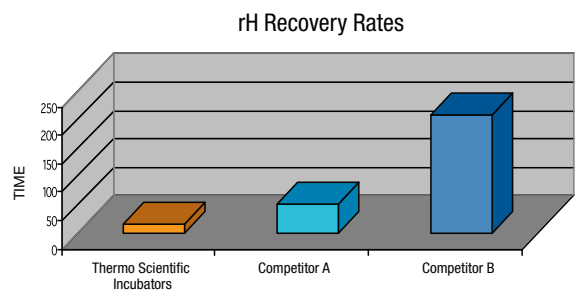
Incubators without fans do not benefit from the positive pressure that helps to prevent the entry of unwanted environmental microorganisms during door openings. Some incubators have fans that are designed to shut off when the door is opened. In this case, not only are contaminants likely to enter just as in a fanless system, but they are also likely to settle immediately onto your culture vessels due to the lack of air movement. The airflow systems in Thermo Scientific incubators are specifically engineered to provide a continuous, gentle flow pattern directed around the sides of the chamber to prevent disruption, evaporation and desiccation of culture medium.

Thermo Scientific CO_2 incubators with precisely designed fan assisted airflow systems provide more efficient circulation of critical temperature, gas and humidity conditions to provide healthy, uniform cells.

Comparative Recovery Rates of Thermo Scientific Fan-assisted CO_2 Incubators vs. Fanless Designs







- Thermo Scientific CO_2 incubator with fan
- Competitor A Fanless Design
- Competitor B Fanless Design

Note: *Data was collected following a 30 second door opening, 5% CO_2, 22°C ambient. Results may vary with operating conditions.*

See how Thermo Scientific CO_2 incubators provide optimal cell growth.
Learn more at www.thermoscientific.com/co2

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