

# The IncuSafe Advantage

## Sterilisation to meet every need



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IncuSafe CO<sub>2</sub> & Multigas Incubators

When additional sterilisation is required to complement background decontamination within the IncuSafe Incubators, PHCbi offers two sterilisation methods. For a fast turnaround, H<sub>2</sub>O<sub>2</sub> decontamination safely cleans the chamber in less than three hours. Dual Heat Sterilisation (available in the MCO-170AICD Incubator) provides an 11-hour, 180°C sterilisation process. With extremely low heat dissipation during sterilisation, cell culturing can continue uninterrupted in stacked IncuSafe Incubators as the procedure is carried out.



### H<sub>2</sub>O<sub>2</sub> Decontamination

The unique H<sub>2</sub>O<sub>2</sub> decontamination system delivers fast and validatable decontamination. The high-speed decontamination system uses vaporised hydrogen peroxide and UV light. It cleans the chamber of the incubator safely in less than three hours, achieving a minimal 6 log reduction of major contaminants.

The outer door is locked automatically upon initiation of the decontamination cycle and unlocked upon completion.



### Dual Heat Sterilisation

Dual heat sterilisation utilises the incubator's two heaters during the 180°C sterilisation process, which takes 11 hours. There is no effect on temperature inside stacked incubators due to low heat dissipation, so cell culturing can continue uninterrupted. There is no need to remove inner parts or recalibrate after sterilisation, therefore laboratory processes are more efficient with less incubator downtime.

The outer door is locked automatically upon initiation of the decontamination cycle and unlocked upon completion.

## Choose the sterilisation method that suits your need

- 3 hours
- Vaporised hydrogen peroxide
- No need to remove inner parts
- Incubator electronically locked during decontamination cycle

- 11 hours
- 180°C high heat
- No need to remove inner parts
- Incubator electronically locked during decontamination cycle

## Sterilisation to meet every need

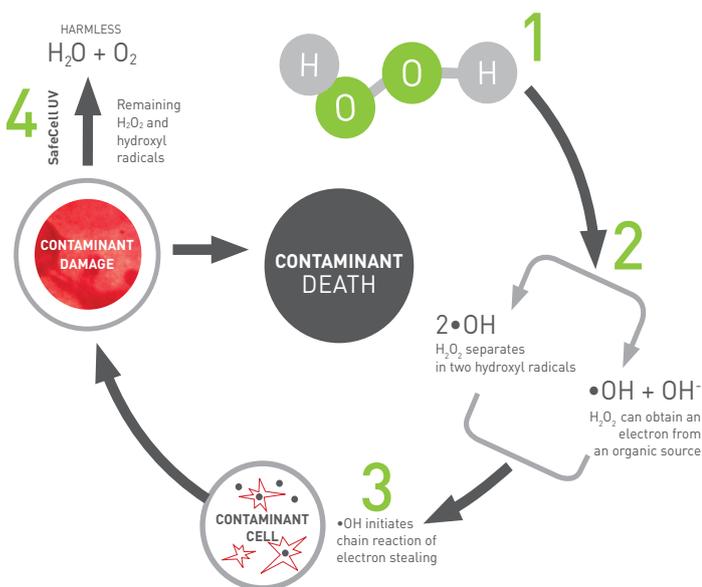
H<sub>2</sub>O<sub>2</sub> Decontamination - Models: MCO-170AICUVH | MCO-230AICUVH | MCO-170MUVH

### User Safety

During the decontamination cycle the outer door is electronically locked. After UV decomposition, H<sub>2</sub>O<sub>2</sub> vapour concentration inside the chamber is less than 0.1ppm.

### How does it work?

1. Hydrogen peroxide (aqueous) is converted to vapour using high frequency ultrasonics. During this process, the fan motor remains active, ensuring H<sub>2</sub>O<sub>2</sub> vapour accesses every point of the chamber and the tubing to and from, and the inside of the CO<sub>2</sub> sensor.
2. The H<sub>2</sub>O<sub>2</sub> vapour breaks down into hydroxyl radicals naturally.
3. The hydroxyl radicals initiate a chain reaction of electron stealing.
4. This unstable internal environment leads to death of contaminants. Remaining hydroxyl radicals and H<sub>2</sub>O<sub>2</sub> are decomposed to H<sub>2</sub>O (aqueous) & O<sub>2</sub> (gas).



DNA is very susceptible to oxidative damage. Since most bacteria have a single chromosome controlling all their life functions, this kind of effect can be detrimental to their normal function. Prokaryotic organisms often lack repair mechanisms to limit such damage, making them more prone to change.

## H<sub>2</sub>O<sub>2</sub> DECONTAMINATION CYCLE



### STEP 1 Preparation time: 10 - 15 minutes



1. Remove all interior components
2. Wipe down the inside of the incubator
3. Reposition interior components to specified locations for in situ decontamination
4. Set up the H<sub>2</sub>O<sub>2</sub> generator (MCO-HP)\*

\*Optional Accessory. H<sub>2</sub>O<sub>2</sub> reagent is required for this process.

Decontamination time:  
Approx. 135 minutes

### STEP 2



1. Close the inner and outer door and press H<sub>2</sub>O<sub>2</sub> button. The outer door is now electronically locked and the chamber will warm up to 45°C for optimum results.
3. H<sub>2</sub>O<sub>2</sub> vapour generation starts
4. Interior fan circulates vapour
5. UV lamp decomposes H<sub>2</sub>O<sub>2</sub> to water and oxygen

### STEP 3 Finish time: Approx. 10 minutes



1. Outer door is unlocked upon completion.
2. Open chamber door
3. Wipe off remaining liquid with sterile cloth
4. Reposition interior components to normal positions

MCO-170AIC setup for H<sub>2</sub>O<sub>2</sub> Decontamination



## DUAL HEAT STERILISATION CYCLE



### STEP 1 Preparation time: 10 - 15 minutes



1. Press the Sterilisation button to see instructions on the display
2. Remove all interior components
3. Wipe down the inside of the incubator and the interior components with alcohol
4. Reposition interior components to specified locations for in situ sterilisation

### STEP 2 Sterilisation time: approx. 11 hours



1. Close the inner and outer door and press OK. The outer door is now electronically locked and the chamber will warm up.
2. Sterilisation process will start after the entire inside of the chamber exceeds 180°C and runs for 60 minutes.
3. The cooling process starts to cool down the chamber to 40°C

### STEP 3 Finish time: Approx. 10 minutes



1. Outer door is unlocked upon completion.
2. Open chamber door
3. Reposition interior components to normal positions

MCO-170AICD setup for Dual Heat Sterilisation

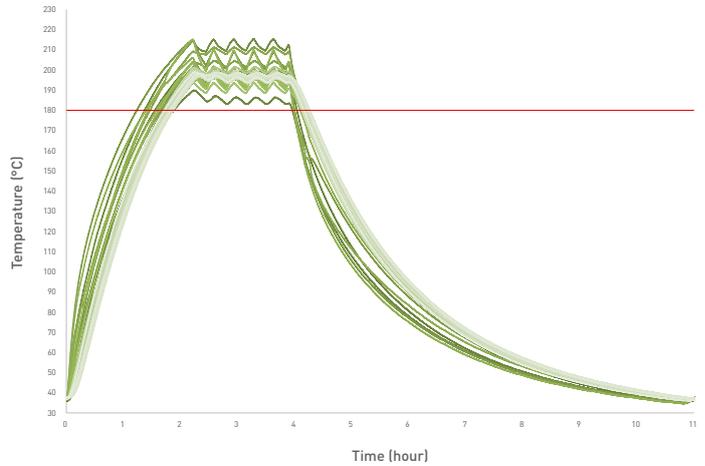


## User safety

To prevent burning during the heat sterilisation cycle the outer door is electronically locked. The top surface temperature of the MCO-170AICD during heat sterilisation is approximately 60°C.

60°C is within the tolerance described in the International Safety Standard IEC61010 10.1 Surface temperature limits for the burn prevention. Safety limit for outer metal is 65°C.

## MCO-170AICD Sterilisation Cycle



A 35-point temperature mapping shows that the MCO-170AICD achieves temperatures far beyond 180°C in all areas of the chamber.

## Dual heat sterilisation competitor comparison

	Day 1	Day 2	Day 3
Competitor A	Remove inner parts Dry heat sterilisation 12HR	Attach inner parts Recalibrate temperature and CO <sub>2</sub> density	Restart incubation
Competitor B	Remove inner parts Dry heat sterilisation 12HR	Attach inner parts Automatically calibrate temperature and CO <sub>2</sub> density	Restart incubation
MCO-170AICUVD	Dry heat sterilisation 11HR	Restart incubation	

