

CLARUS

Background
information:
Applications



Health & Safety:
Formaldehyde vs.
Hydrogen Peroxide



Clean rooms

Isolators

Filling lines

Lock chambers

Pass through
hatches

Freeze dryers

CO₂ incubators

Safety cabinets

Lab equipment

Health risk issues

The use of formaldehyde gas to bio-decontaminate rooms or equipment creates substantially greater health and safety problems than using hydrogen peroxide vapour. By way of example, health risk classifications* are set out below

Formaldehyde

R23	-	toxic by inhalation
R24	-	toxic in contact with skin
R25	-	toxic if swallowed
R34	-	causes burns
R40	-	possible risk of irreversible effects
R43	-	may cause sensitisation by skin contact

Hydrogen peroxide

R34	-	causes burns
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* Risk phrases relating to health effects used in the Chemicals (Hazard Information and Packaging for supply) Regulations 1994

Low temperature

Residue-free

Gas phase

Fast kills

Fully validated

Pharmaceutical

Biopharma

Biotech

Biomedical

Laboratory

R&D

Pilot plant

Clinical trials

Production

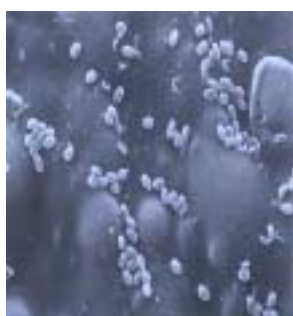


Cost advantages of hydrogen peroxide over formaldehyde

A recent customer study showed that in a cleanroom decontamination, formaldehyde fogging required an additional 10 overtime shifts and 6 extra days of downtime. The extra work / increased downtime relates to (i) cleanroom preparation (ii) aeration / removal (iii) residue wipedown and (iv) re-entry delay.

Formaldehyde and the need for humidity

Formaldehyde bio-decontamination requires precise temperature and relative humidity control between 75% and 100% with limited steam condensation. In practice, this is difficult to achieve - and even harder to validate.



Irritation and health effects of formaldehyde

Formaldehyde has a pungent odour which is very irritating to the eyes and respiratory tract, with a threshold of detection by smell at around 0.8ppm - although the threshold for irritation may be as low as 0.01ppm. Formaldehyde is considered to be a probable carcinogen.

Advantages of hydrogen peroxide vapour bio-decontamination

Hydrogen peroxide vapour bio-decontamination is fast, decomposes to oxygen and water, doesn't affect electronic equipment, leaves no-residues, can easily be validated - particularly by comparison to formaldehyde - and represents very substantially reduced health and safety risks.

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