



H&M Disinfection Systems Ltd

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FOGGING TO APPLY DISINFECTANTS

Fogging systems create and disperse an aerosol of disinfectant solution. The purpose of fogging is to reduce airborne microbiological contamination and apply disinfectants to surfaces.

Various types of fogging systems are in use within the food industry. However, their effectiveness in the disinfection of both air and surfaces has been questioned.

A project funded under the LINK Advanced and Hygiene Manufacturing Programme aimed to establish scientifically whether fogging is effective, for the disinfection of food processing factories and equipment, also to develop practical guidance on the requirements for effective fogging.

The research included complex computerised fluid dynamic investigations of fogs, together with practical measurements and microbiological challenge testing. The investigation demonstrated that fogging could be a successful method for the disinfection of both air and horizontal surfaces in food manufacturing environments. The work also identified that fogging is ineffective for the disinfection of vertical surfaces, the undersides of equipment or dismantled equipment. It should not therefore be adopted for these applications which are more suited to electrostatic fogging.

The key findings from the research were:

Fogging was found to have a good disinfecting effect on horizontal surfaces (up to 6 log reductions after 60 minutes).

Fogging is not an effective method for the disinfection of vertical surfaces, the undersides of equipment or dismantled components because of the lack of chemical coverage on such surfaces.

Airborne microbiological contamination can be reduced by fogging (2 log reductions after 30 minutes, 3 log reductions after 60 minutes).

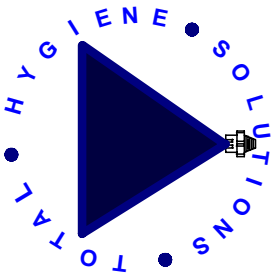
Fogging was demonstrated to be most effective with particle sizes in the range 10-20 micron with an air velocity at the nozzle of 100 m s⁻¹. Larger particle sizes can be used if the air velocity is increased or fans are used to assist with the distribution of the droplets. Under typical factory conditions, fogging needs to be carried out for a minimum of 15-30 minutes to enable the fog to disperse and the chemical action to occur. After fogging, an additional period of 45-60 minutes is required to allow the droplets to settle and reduce the risk of operators inhaling the chemical droplets.

Compressed air driven fogging nozzles are recommended, either plumbed-in systems or portable units.

Portable electric fogging machines do not operate at sufficient volume flow rate for most applications and are therefore not recommended.

The minimum number of fogging nozzles required for effective treatment has been established.

When possible, nozzles should not be placed near to the floor or be pointed at surfaces within the range of the plume generated by the nozzle.



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Fog Disinfection Systems

Fog disinfection systems provide an effective way to disinfect the air and production surfaces after initial cleaning.

We can offer two methods: Manual and Automatic.

Manual system benefits:

- Low cost
- Air operated
- Particularly suitable for small rooms, chillers and tunnels

Automatic system benefits:

- More effective than manual systems
- Overall cost reductions achieved
- Higher hygiene levels achieved
- Air operated
- Bespoke design systems
- PLC controlled
- Roof or wall mounted nozzles

Typical applications are:

- Cheese production rooms
- High care food areas
- Spiral freezers and chillers
- Ice cream hardening tunnels

Typical clients are:

- Unilever
- Nestle
- Northern Foods
- Glanbia Cheese
- Greencore Foods

We strongly recommend that all fogging systems are operated under strict COSHH codes of practice and that the user follows the chemical manufactures Health and Safety guidelines. Fogging can take up to 30-60 minutes to be effective and a further 60 minutes to thoroughly vent the room. The use of warning signs and beacons is also recommended.