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Expert's opinion

"Spreading of Legionella pneumophila in ultrasonic humidifiers"

Introduction

The infection risk by legionnaires' disease causing bacterium *Legionella pneumophila* in humidifying systems is known as hygienic problem for a long time. Therefore, it is necessary to design and run such systems as safe as possible.

Statement

The hygienic risk of the ultrasonic humidifiers of STULZ GmbH Klimatechnik can be considered as low. It can be assumed that the high-frequency oscillations in the ultrasonic humidifier reduce bacteria in their number of viable cells. An increase in microbial count of 'Legionella' in the water reservoir of humidifiers is therefore unlikely.

Nevertheless, the following recommendations have to be followed for running the device:

1. Ensure by suitable measures the superior microbial quality of the demineralised water produced by reverse-osmosis method. For germ reduction, the demineralised water should flow through a suitable ultra-violet-disinfection line before reaching the humidifier. For practical reasons (e.g. service costs, energy consumption) terminal water filters should be preferred. Suitable materials for the pipes are stainless steel and special plastic material like PE (polyethylene) or ABS (acrylonitrile butadiene styrene). Stainless steel should be preferred for usage.
2. Avoid extended periods of water standstill in the pipes and humidifiers. The water reservoir in the ultrasonic humidifier will automatically be emptied at regular intervals and after a longer period of standstill. Only if there is repeated humidification necessary, it will be filled again. Therefore, the Ultrasonic-

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Befeuchter-Regler (USM) from Stulz controls an outlet electrovalve and empties the remaining water before the humidifier is started.

3. Maintenance work has to be carried out in determined intervals. This includes the proper preparation of the humidifier with a suitable disinfectant and an exchange of ultraviolet lamps or the terminal sterile filter.

I conclude that the hygienic risk of a spreading of 'Legionella' is very low if the above mentioned safety measures are followed. Under these circumstances, the possibility to get infected with 'Legionella' via the humidified air can practically be ruled out.

Hamburg, 24 June 2008



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