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Statement for the "AFS" Air Fresh System, Thermokey adiabatic system, in correlation with legionella bacterium growth

Basis and requirement

The company Thermokey has developed a system on
"V-Dry coolers" and/or "V-Condensers" to work with an adiabatic system.

"AFS" description from Thermokey: "The method employed makes use of adiabatic cooling with low water consumption by means of special nozzles developed to work with very high water pressures. The physical phenomena of the adiabatic cooling consist in creating an even diffusion of micro drops of water (Misting effect) through which is passing a current of air that will be cooled by the evaporation of the water."

For description and use of Thermokey´s Air Fresh System, refer to "AFS Instruction Manual".

Based on this information a statement for the hazard of legionnaires disease should be provided.

Evaluation

Water side:
The quality of the water supplied to the adiabatic system is tap water (according drinking water regulation). The special nozzles in the "AFS" combined with the high pressure of the water produce micro drops that are completely evaporated by the flow of air without leaving residues of water on the heat exchanger coils; no water is present in equipment and above all on the discharge of the fans or on the ground.
Water is present in the water distribution nozzles only during the operation of the "AFS", the water distribution nozzles are emptied each time the "AFS" is not in use.
Taking this into account, there could be no legionella bacterium growth.

Air side:
The air inlet from the unit is going back to the ambient and is not used anyway for supplying air. Therefore no risk can be seen during operation.

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Conclusion

With this "AFS" there is no standing water during continuous operation. Working according to the instruction manual we can state that Thermokey "Air Fresh System" carries no danger in correlation with the risk of legionnaires` disease.

Refrigeration

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