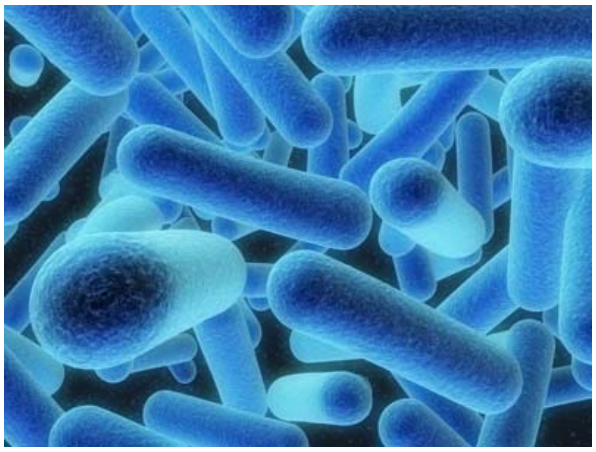
PREVENTION OF LEGIONELLOSIS SPREADING WITH COOLING TOWERS

General

Legionellosis (Legionnaires' disease) is an infectious disease caused by bacteria belonging to the genus Legionella. Legionella bacteria occur naturally in (man-made) water systems and thrive in still water with temperatures between 25 and 45 °C / 75 to 115 °F. The Legionella genus consists of many bacteria species, of which only a few could be harmful to humans.

Because Legionella occurs naturally in water, Legionella free open water systems don't exist. Key to keep systems safe is thus preventing high concentrations and accumulation, not only in cooling towers but also, in boilers, swimming pools, spas, sprinkler systems, air scrubbers and humidification equipment. Legionella enters a human body via the respiratory system, highest risk for Legionellosis occurs in low-immune people. Healthy people are normally not affected.



Legionella in cooling towers

The biggest risk of Legionella infection occurs when people breathe in minuscule droplets of infected water. Evaporative cooling towers spray minuscule droplets on their fill for maximum heat transfer and by doing so possible create a health risk. To prevent cooling towers from becoming this public health risk, good manufacturers chose a two way path preventing Legionella spreading: Preventing droplets from leaving the cooling tower and preventing Legionella accumulation in the system.

To prevent droplets from leaving the tower, cooling tower manufacturers employ drift eliminators. As long as these are well designed, intact and properly maintained, Legionella shouldn't be a big risk, even is the tower is badly infected. Naturally, Wacon International's CentraDeck drift eliminators are well designed and tested many times and fit even the highest quality standards. We will provide ample documentation on checking and maintaining the drift eliminators to be included in the normal maintenance routine of your plant. It is a common misconception that plumes could be Legionella infected. A plume condenses above the cooling tower from air and is pure H2O.

Preventing Legionella accumulation in water systems is a little trickier. Wacon International's cooling towers are, of course, designed to prevent still water and to minimize the growth of Legionella. However, it is still possible they accumulate Legionella bacteria when badly maintained, not cleaned or when they are connected to an infected water system. We will provide ample documentation on checking, maintaining and cleaning the cooling towers to be included in the normal maintenance of your plant.

Personal protection

Drinking of, or skin contact with contaminated water is in general harmless. While servicing a cooling tower it is always recommended to shut down the tower while inside and always use a facial mask with at least P3 protection or a full face protection with alternative aeration. Try to stay in the exhaust air stream as shortly as possible and use protections as mentioned.

If you were close to a cooling tower and shortly thereafter feel a fever, instantly consult a doctor.

Risk management

Keep cooling tower systems clean and use an active detergent to sterilize the water system. Chlorine based chemicals and ozone are the most commonly used. Refresh and flush the water systems regularly. Keep your cooling towers in good condition and obtain a service plan from your supplier or a professional service provider.

Work according an internal risk management plan in and make sure this contains frequent testing on Legionella according your local safety regulations. Contact a professional water treatment company to keep your water systems clean. Try to avoid locations for cooling towers where many people pass by.

Protection plan

In order to have a safe operation with cooling towers and Legionella we advice:

- Work safe and use personal protection when entering in, or work nearby a cooling tower.
- Keep control of the water in the system. Check the bacterial conditions at least 6-12 times a year with a higher frequency in the summer.
- Use an adequate water treatment plan to keep cooling water free from algae, scaling and corrosion.
- Follow our directions in maintenance, cleaning and checking for both our cooling towers and drift eliminators strictly.