

## cleaning cooling towers

# PPE for Legionella

### Is PPE required to protect against *Legionella*?

Although cooling towers have been implicated in numerous large outbreaks of Legionnaires' disease, individuals working near cooling towers aren't usually required to wear personal protective equipment (PPE). The risk of disease is considered low based on findings dating back to the early 1980's.

### What is the risk for *Legionella*?

Although the risk is low, maintenance personnel and others working on or in the basin or equipment could be at greater risk of illness should activities generate significant aerosols. PPE equipment could be appropriate when the potential for *Legionella* exposure is significant.

### How do *Legionella* infections occur?

*Legionella* infection occurs by the inhalation or aspiration of *Legionella* bacteria. Maintenance workers could be at increased risk of exposure to airborne bacteria, particularly during cleaning. During cleaning, especially with power washing, *Legionella* bacteria in the biofilm may become airborne. Cleaning, repair and maintenance should always be performed in a way that minimizes the generation of airborne debris.

### What are the OSHA Guidelines?

There are no enforceable OSHA exposure limits for *Legionella*, however it is good practice to encourage the voluntary use of dust masks when performing cleaning, repair, or maintenance on open cooling systems or other systems of known or suspected risk. When dust masks are used, a NIOSH certified N95 dust mask or better is recommended. N95 refers to particulate masks that are not resistant to oil and have 95% efficiency in removing 0.3-micron particles. Potential exposure to airborne chemicals should be considered when selecting appropriate respiratory protection.

OSHA does require that workers who voluntarily wear dust masks be provided with the information in the Respiratory Protection Standard. In-depth care training is not required for workers who voluntarily wear dust masks.

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### When does OSHA require PPE for *Legionella* protection?

If there has been a suspected case or identified outbreak of legionellosis, OSHA requires that investigators “wear appropriate respiratory protection in the form of a half-face piece respirator equipped with a HEPA filter or a similar type of filter media capable of effectively collecting particles in the one micron size range during the examination of water systems if a significant potential exists for exposure to high concentrations of contaminated aerosols.”

- A NIOSH certified N95 dust mask will meet this requirement, but this now is a required use of a dust mask rather than voluntary, and the employer must satisfy all of the requirements of the OSHA Technical Manual Section 8, Chapter 2 *Respiratory Protection*.
- OSHA - Respiratory Protection: Wear appropriate respiratory protection during the examination of water systems if a significant potential exists for exposure to high concentrations of contaminated aerosols.

### References

- 1) *Prevalence of antibodies to Legionella pneumophila among workers exposed to a contaminated cooling tower*. Buehler JW, Kuritsky JN, Gorman GW, Hightower AW, Broome CV, Sikes RK. Arch Environ Health. 1985 Jul-Aug;40(4):207-10.
- 2) OSHA Technical Manual Section 8 Chapter 2 “Respiratory Protection”  
[www.osha.gov/dts/osta/otm/otm\\_viii/otm\\_viii\\_2.html](http://www.osha.gov/dts/osta/otm/otm_viii/otm_viii_2.html)
- 3) Technical Manual Respirators  
[www.osha.gov/dts/osta/otm/otm\\_iii/otm\\_iii\\_7.html](http://www.osha.gov/dts/osta/otm/otm_iii/otm_iii_7.html)
- 4) Technical Manual Legionella  
[www.cdc.gov/niosh/npptl/topics/respirators/disp\\_part](http://www.cdc.gov/niosh/npptl/topics/respirators/disp_part)

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