

## Water Treatment.

The control of substances hazardous to health regulations 1999 (COSHH) relate to the risk from hazardous micro-organisms, including legionella and chemicals such as biocides and chlorine. Under these regulations risk assessments and the adoption of appropriate precautions are required to be made.

The approved code of practice ACOP L8, the control of legionella bacteria in water systems sets out further requirements for dealing with the risk. It applies whenever water is stored and used in a way which may create a reasonable risk of exposure to legionella bacteria and in particular to the following plant and systems whenever the health and safety at work act 1974 applies:-

- \* Water systems incorporating a cooling tower.
- \* Water systems incorporating an evaporative condenser.
- \* Hot and cold systems.
- \* Other plant and systems containing water which is likely to exceed 20°C and which may release a spray or aerosol during operation or when being maintained.

Such systems may include - humidifiers, showerheads and little used outlets, air washers, display fountains and indoor water features, spa baths and whirl pools, dental equipment and other systems. While this is not an exclusive list, it identifies those systems most likely to cause infection. Other plant and systems containing water which is likely to exceed 20°C and which can release a spray/aerosol ( a cloud of water droplets and/or particles) during operation or when being maintained may also present a risk.

The approved code of practice (ACOP) places responsibility on employers and others to:-

- \* Identify and assess sources of risk.
- \* Prepare a scheme for preventing or controlling the risk.
- \* Implement and manage precautions.
- \* Keep records of the precautions implemented.
- \* Appoint a person to be managerially responsible.

The ACOP also sets out the responsibilities of manufacturers, importers, suppliers and installers of products and services. It is enforced by the health & safety executive inspectors in factories, hospitals, laboratories, education establishments, docks and construction sites. In shop, offices, warehouses, hotels and catering establishments it is enforced by local authorities who have also responsibilities for public health.

Duties under the ACOP are qualified by the condition that they must be “reasonably practical”. This means that both the degree of risk and the cost and difficulty of applying control measures should be accounted for in the determining what measures should be taken.

Systems susceptible to colonisation by legionella and which incorporate a potential means for creating and disseminating water droplets should be identified and the risk they present should be assessed. Risk should be assessed not just for the routine operation or use of the system but also in relation to breakdown, abnormal operation, commissioning or unusual circumstances.

The assessment should take account of:-

- \* The potential for droplet formation
- \* Water temperature
- \* The likely risk of those who will inhale droplets.
- \* Means of preventing or controlling the risk

Droplets may be created in various ways such as spraying, bubbling and impact with hard surfaces. Large drops may be reduced to respirable size by further impact or evaporation, and these smaller particles may persist for long periods or be carried off on air currents.

In assessing risk and drawing up precautions particular attention should be paid to circumstances where:-

- \* The population contains a high proportion of susceptible people as, for example, in many ways hospitals and nursing homes, or
- \* The number of people at potential risk is high as, for example, in densely populated areas.

A risk assessment carried out in accordance with ACOP L8 (2001) guidelines governing the control of legionella must be carried out in such a way as to provide the following:-

“A comprehensive evaluation of the risk to health arising from the storage and use of water, specifically the risk of creating circumstances under which legionella bacteria may survive, multiply or become airborne in water systems such as cooling towers, evaporative condensers, domestic hot and cold water services, humidifiers, spa pools and baths”.

Any such assessment must be “suitable and sufficient” to achieve the above objectives.

What is a “suitable and sufficient” risk assessment?

- \* A detailed plan of the system in place.
- \* Details of how the system operates.
- \* The nature and degree of risk posed by the system.
- \* Details of remedial actions required to minimise the risk.
- \* The setting up of a management system to manage and control any risk, including a full Chain of responsibility of competent personnel, methods for monitoring any future risk and a means of recording such actions.

N.B. any risk assessment must be reviewed whenever there is a reason to believe that the original assessment may no longer be valid. This may be necessary due to any of the following:-

- \* Changes to the plant or water systems or its use.
- \* Changes to the use of the building itself.
- \* The availability of new information relating to the control of any risk.
- \* As a result of checks indicating that control measures are no longer effective.
- \* A case of legionella is associated with the system.
- \* Regularly (at least every 2 years)

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