PRAGMA
CHIMICA

WATER TREATMENT FOR COOLING CIRCUITS

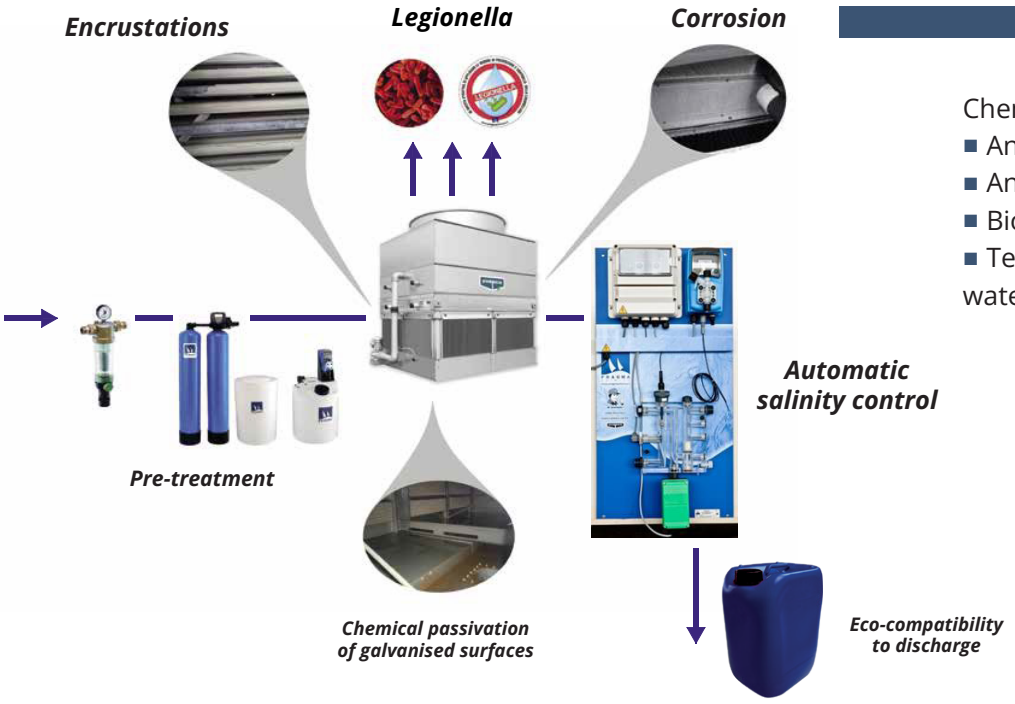
SOLUTIONS AND TECHNOLOGIES

OPEN OR RECIRCULATED COOLING CIRCUITS

After heat exchange, the water is cooled by **partial evaporation** (with the aid of evaporative towers, evaporative condensers, or coolers) and then recirculated. In these systems, there is an **increase in salt concentration** as the water is subjected to partial evaporation. Therefore, its original harmful characteristics are enhanced by this increase.

It should also be borne in mind that the water in these plants is subjected to intimate **contact with large volumes of air from the environment**, carrying associated pollutants (oxygen, carbon dioxide, sulphur dioxide and/or sulphuric industrial gases and fumes, atmospheric dust, plant spores, etc.).

Therefore, the typical drawbacks of such plants, which seriously compromise their efficiency, include: fouling, corrosion, deposits and microbiological growth. These drawbacks are often interdependent and must be considered separately according to the type of user.



Chemical conditioning
- Antiscaling treatment
- Anti-corrosion treatment
- Biocide/algaecide treatment
- Technologies contributing to water saving

LEGIONELLOSIS AND EVAPORATIVE TOWERS IN INDUSTRY

As stated in Legislative Decree 81/2008, the risk of exposure to Legionella in any work environment requires the implementation of all **appropriate safety measures** in order to carry out the most comprehensive **prevention** activities.
All morbid forms caused by Legionella are contracted by inhaling aerosols. In Italy, the most serious epidemics were mainly caused by cooling towers, which were not microbiologically treated.
Pragma Chimica's biocides have approved and certified bactericidal activity against Legionella, tested according to the UNI EN 13623:2010 technical standard.

CHEMICAL CONDITIONING

Treatments that allow protection from corrosion and prevent the formation of deposits of a calcareous nature within the heat exchange surfaces of plants.
Furthermore, if properly designed, these treatments allow the passivation of galvanised surfaces in new cooling units.

WATER AND ENERGY SAVINGS

We design water treatments that allow significant water and energy savings, with innovative and easy-to-manage solutions, including remote control of operating data and alarms (remote control).

DRAINAGE COMPATIBILITY

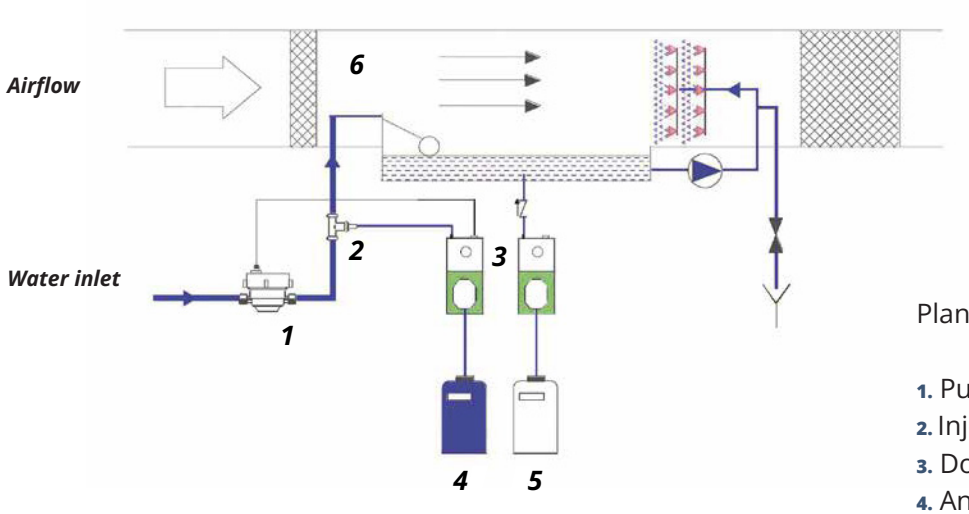
The chemical treatments, at the dosages established by us, comply with the emission limit values for discharge set by Legislative Decree 152/06 and subsequent amendments and additions (Testo Unico Ambientale).

OPEN OR RECIRCULATED HUMIDIFICATION SYSTEMS

In humidification and air-conditioning systems (adiabatic, diabatic or atomization, evaporation, wet pack) the same technical and economic problems arise as previously seen for cooling systems. However, the hygienic-sanitary aspect takes on particular relevance.

In fact, since air comes into direct contact with the environment, it is necessary that both fluids (water and air) are free of toxic substances or in any case in compliance with all existing air quality standards.

Adiabatic humidification system



Plant legend:

1. Pulse water meter
2. Injection point
3. Dosing station
4. Anti-scale
5. Biocide
6. Adiabatic room

PRAGMA CHIMICA'S SOLUTIONS

Pragma Chimica's research and development department is at your complete disposal for the development of **new technologies and procedures** for the reclamation and/or maintenance of cooling circuits, **customising intervention** according to the client's needs, with a constant eye on operators' safety.

- ☑ Preliminary analyses and periodic maintenance checks.
- ☑ Acid/alkaline washing, depending on the metallurgy used in the circuit.
- ☑ Sanitisation of Legionella, biological silt and organic residues.
- ☑ Chemical conditioning of recirculated water (anti-fouling and anti-corrosive).
- ☑ Maintenance and bacterial load control treatments (biocides/algaecides) according to the type of receiving water body (drainage eco-compatibility).
- ☑ Internal passivation of galvanised surfaces.
- ☑ Biohazard exposure protocol.
- ☑ Remote control plant management.

TÜVRheinland CERTIFIED
Management System
ISO 9001:2015
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