



# WATER TREATMENT FOR STEAM GENERATORS

SOLUTIONS AND TECHNOLOGIES



# WATER TREATMENT MANAGEMENT IN STEAM GENERATORS

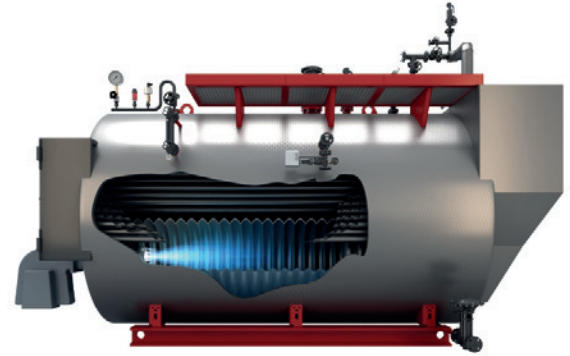
Good water treatment not only leads to better efficiency in the systems for which water is intended, but also allows for considerable energy savings, less wear and a greater management security.

The opportunity of a water treatment must not therefore be considered as a separate fact, but must be seen in the context of the general economic balance of management of the thermal power plant, as well as ensuring the production of steam in the quantity and quality required, without planned interruptions, at the lowest possible total cost.

## *For this purpose it is essential:*

- Prevent encrustations: these reduce heat exchange, causing greater fuel consumption, and can cause breakage due to overheating.
- Prevent corrosion: these cause breaking about pipes, heat exchangers etc... resulting in production stops and repair costs.

The aforementioned objectives can be achieved by constantly respecting the prescribed or recommended limits for water treatment in **steam generators**.



- Furthermore, corrosion products can cause dangerous induced deposits and corrosion.
- Prevent carryovers: these reduce the efficiency of steam machines and appliances, causing deposits and corrosion.

## STEAM PRODUCTION SYSTEMS - GUIDE TO CORRECT TREATMENT

### Protection from corrosion

Treatments that allow the **passivation of metal surfaces** and the complete chemical deoxygenation of feed water.

### Water and energy savings

We design water treatments that allow significant water and energy savings with innovative solutions.

### Compliance with current regulations

- UNI-CTI 7550
- UNI EN 12952-9
- UNI EN 12953-10.

### Protection against scaling

Conditioning treatments that **prevent the formation of deposits**, due to the presence of encrusting salts present in the boiler water.

### Compatibility with the drain systems

The chemical treatments, at the dosages established by us, respect the **emission limit values** for the discharge established by the European law.

# APPLICABLE PRODUCTS AND TECHNOLOGIES

The water supply for steam generators must be treated **in accordance with the law**, to avoid phenomena such as corrosion and scale, phenomena that are extremely damaging to the generator itself, but also for the equipment and lines that use the steam produced.

To fulfil these goals, **Pragma Chimica** offers its customers the following chemical products and plant solution

## Chemical inhibitors

Treatment of boiler sludge - steam line protection - clean steam production (FDA certified).

## Anti-corrosive

Non-volatile deoxygenating - volatile oxygen deoxygenating - alkalizing for steam lines.

## Antiscaling

Products with dispersing and/or antiscaling action.

## Clean steam

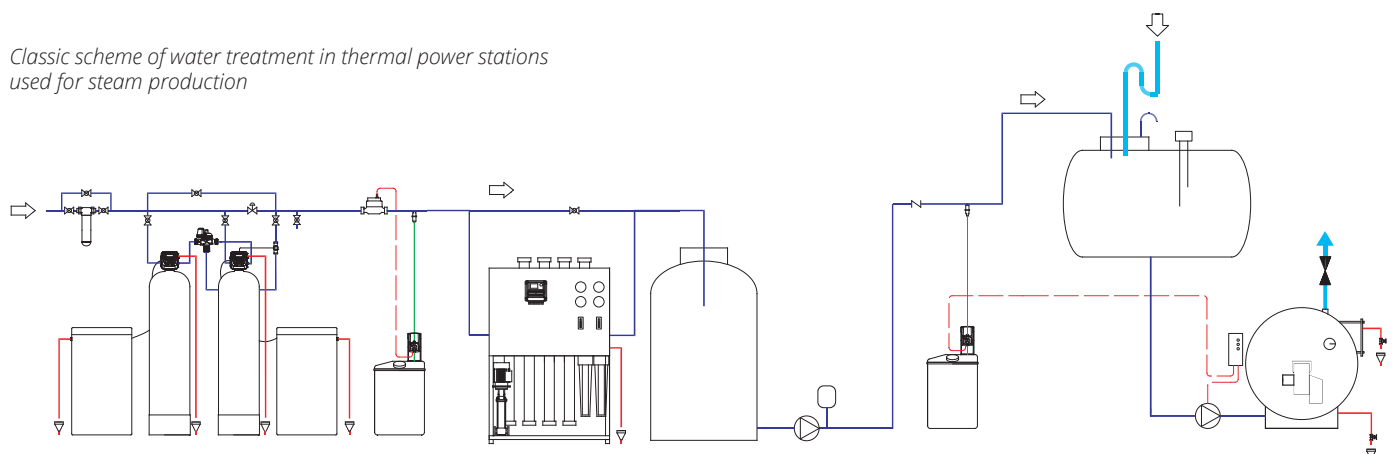
Non-volatile deoxygenating agents for steam directly in contact with food.

## Design of water treatments

Filtration - softening - reverse osmosis - demineralization - chemical dosing stations - control instrumentation for conductivity, pH, hardness - remote control systems and remote management of the detected data.



*Classic scheme of water treatment in thermal power stations used for steam production*



# SOLUTIONS FROM PRAGMA CHIMICA

**Pragma Chimica** R&D department is at your complete disposal to the development of new technologies and procedures for safeguarding and correctly managing the circuits and machinery used for steam production, customizing the intervention according to the customer's needs, with a constant eye on operator safety.

Chemical products for:

- complete chemical deoxygenation for water inside the boiler.
- Protection against corrosion of the metal surfaces of the steam/condensate lines, the food line and the steam generator.
- Conditioning of any encrusting salts present in the boiler.

And also:

- management projections on the costs of purging steam generators.
- Chemical washing (descaling, alkaline boiling and temporary rest for steam producers)
- Chemical analysis.
- Design of chemical-physical treatments.



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