

# Boiler water treatment water treatment

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**What is the principle of boiler water treatment?** Internal boiler water treatment: This is where chemicals, usually soda ash (sodium carbonate) or caustic soda (sodium hydroxide) and tannin (tannic acid -  $C_7H_5O_4$ ) are added directly to the boiler or boiler feed water either as powders or solutions. Tannins are organic anti-oxidant chemical compound like polyphenol.

**What are the three phases of water treatment in a boiler system?**

**Which water treatment process is best for boiler water?** One of the most common and efficient combination treatments is the hot lime-zeolite process. This involves pretreatment of the water with lime to reduce hardness, alkalinity and in some cases silica, and subsequent treatment with a cation exchange softener.

**What are the two types of water treatment in a boiler water and feedwater?** 131) The internal treatment is for boiler feed water and external treatment is for make-up feed water and the condensate part of the system. Internal treatment protects against feed water hardness by preventing precipitating of scale on the boiler tubes.

**Does boiler water need to be treated?** It can be used for HVAC heating or used to produce work such as running machinery. Because a boiler is connected to a water line, it is important to maintain proper water treatment so that the boiler system remains in good working order.

**What chemicals are used in boiler water treatment?** The most common alkaline solutions for boiler water include sodium hydroxide and potassium hydroxide. You

can typically purchase these products with a 25 percent concentration or a 50 percent concentration.

### **What are the 7 steps for water treatment?**

**What are 3 different methods of water treatment?** Filtration: A basic but effective way of removing particulates by straining them out. Chemical Treatment: Adding disinfection substances like Genclean to neutralize or eliminate microorganisms. Purification Methods: High-tech solutions including Ultrafiltration and Reverse Osmosis to ensure your water is clean.

**How is boiler water treated in wastewater treatment?** Reverse osmosis (RO) and nanofiltration (NF) are often used down the line in the boiler feed water treatment system process so most of the harmful impurities that can foul and clog the RO/NF membranes have been removed.

**Do all boiler systems require water treatment?** Correct water treatment is one of the most important fundamental prerequisites for safe and long-term operation of a boiler system. Strict requirements therefore exist in relation to the water quality of boiler systems.

**How much does a boiler water treatment system cost?** In general, the cost for a lower pressure boiler feed water treatment system (using properly pretreated water) can run you about \$50,000–\$100,000 at 100 GPM for equipment, \$100,000–\$250,000 if you need a softener and dealkalizer.

**What are the normal boiler water parameters?** The pH should be maintained between a minimum of 10.5 and a maximum of 11.0 to prevent acidic corrosion of boiler tubes and plates, and to provide for the precipitation of scale forming salts before scale is deposited. Below a pH of 5.0 the water is acidic enough to dissolve the steel boiler plates.

**What is the difference between boiler feed water and boiler water?** The key difference between boiler make-up water and boiler feed water is the purpose for which they are used. Boiler make-up water is added to the boiler system to replenish the water lost during the operation, while boiler feed water is specifically treated and supplied to the boiler to generate steam.

**What temperature should boiler feed water be?** To avoid the “Improperly Heated Feed Water” condition described above, the boiler feedwater should be heated to at least 180 °F when using a feedwater tank and 227 °F when using a deaerator.

**How to reduce alkalinity in boiler water?** When boiler water alkalinities rise above the recommended maximum, reduce the feed of alkali bearing materials or reduce the total alkalinity of the treated water if a softener is used. In an emergency, increase the blow down rate if necessary to bring boiler water alkalinity under control.

**Can you drink boiler water?** If your water boiler is instant, direct from the main (called a combi boiler) then you are reasonably safe but the water won't really be hot enough to give a good brew. If the hot water comes from a storage cylinder heated by electrode or indirectly from a boiler then the water has become stagnant and could be harmful.

**Why hard water is not safe to use in boilers?** Hard water is made up of calcium and magnesium salts. It is not used in industrial boilers, as it forms insoluble salts of calcium and magnesium. As a result, they produce scales on the inner walls of the boilers which reduces the heating efficiency. They also cause corrosion in the boilers.

**What is the water treatment for hot water boilers?** By far the most popular hot water boiler chemical is a sodium nitrite blend. This chemical blend often contains a low percentage of borate, silicate, tolytriazole, and sodium hydroxide.

**Why ammonia is used in boiler water treatment?** When added to condensate and feedwater, ammonia elevates the pH and reduces waterside and steamside corrosion of ferrous metals. Because the condenser and feedwater heaters often contain copper alloys, ammonia levels must be carefully controlled, lest excessive amounts increase copper corrosion.

**What is the pH value of boiler water?** Boiler pH. Natural water is usually between 6.5 and 7.5 pH. A common recommendation is to maintain boiler water at 8.5 pH.

**Why is phosphate added to boiler water?** Boiler feedwater can be protected from corrosive — conditions — through — coordinated — phosphate/pH — control — treatment.

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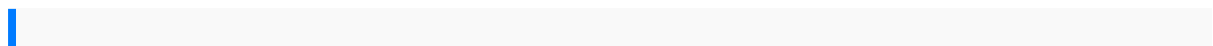
Phosphate buffers the boiler water, reducing the chance of large pH swings due to the development of caustic concentrations.

**What is the basic principle of boiler?** Working Principle of Boiler Hot gases are produced by burning fuel in the furnace. These hot gases are made to come in contact with the water vessel where the heat transfer takes place between the water and the steam. Therefore, the basic principle of the boiler is to convert water into steam by using heat energy.

**What are the principles of the water treatment process?** Public drinking water systems use different water treatment methods to provide safe drinking water for their communities. Public water systems often use a series of water treatment steps that include coagulation, flocculation, sedimentation, filtration, and disinfection.

**What is the principle of hot water treatment?** Hot water treatment or hot air treatment are also used in quarantine for eradication of insects, mites, nematodes, fungi, bacteria, and viruses. The basic principle involved is that treatment temperature should be sufficiently high to kill the associated pest/pathogen but not the host.

**What is the purpose of boiler feed water treatment?** Objectives of Boiler Feedwater Treatment: Reduce suspended solids and other particulate matter: The feedwater must be filtered to remove suspended solids. Dirt and particles can foul downstream processes such as reverse osmosis equipment and can accumulate as added sludge in the system.



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