



**SAVE WATER
AND ENERGY**

Why Saving?

The need for water and energy in the world is increasing incrementally in direct proportion to the growing population and the number of businesses. However, energy resources are decreasing, and costs are increasing accordingly. Today, while many businesses focus on renewable energy sources, they make improvements in processes to save energy and reduce their carbon footprint.

As Turkey is a rapidly developing country with a growing population, energy consumption of our country is increasing rapidly. In Turkey, 40% of energy is consumed in industrial plants and industrial enterprises. As Turkey's energy need is expected to increase further in the coming years, limited energy and water resources must be used efficiently both today and in the future; and energy and water must be saved.

Enemy Of Saving

One of the most important methods of increasing energy efficiency in current conditions of businesses is the correct conditioning of water used in processes. One of the biggest enemies of energy saving is the high level of lime in water. The use of chemicals and energy consumption increases in processes where water with high lime content is used; because the lime layer deposited on the heat transfer surfaces, such as resistances, heat exchangers, boilers, and cooling towers, acts as insulation and prevents heat transfer. Thus more energy is used for adjusting the desired temperature for heating or cooling the desired fluid (liquid or air) or surface.

For example, in professional kitchens where water with high hardness and lime rate is used, the resistance of dishwashers is covered with lime in a short time, and therefore machines use more energy to heat water. A similar situation is observed in professional laundries. As a matter of fact, the use of hard water in steam boiler systems or washing machine resistances used for heating water in these businesses causes heat loss. It also increases detergent consumption if hard water is used in the washing process.

The use of limewater in open or closed cooling systems found in the industry and in many professional enterprises creates an undesired insulating effect and causes energy loss. Besides, the biofilm layer, which may occur due to microorganism activities in open cooling systems, also prevents heat transfer with an effect similar to the deposition of lime.



Deposit thickness (mm)	Energy Lost (%)
1,23	8,50
1,57	9,30
1,97	11,10
2,46	12,40
4,92	25,00
9,84	40,00
14,76	55,00
19,69	70,00



The approximate effect of the thickness of the lime layer (mm) on energy consumption is quite high as can be seen from the data in the table below.

In other words, approximately 1 cm thick deposit layer causes 40% more energy consumption in businesses and therefore increases operating costs.

The lime deposit formed on the heat transfer surfaces not only prevents heat transfer. These deposits can also lead to “under deposit corrosion”, which leads to the erosion and perforation of metal lines in which the process water circulates. As a result of this, the heat, energy, and water losses of businesses increase; systems stop for modifications, and the labor force losses can occur accordingly.



For A Sustainable Future And Less Carbon Footprint

A healthy pre-treatment and correct conditioning of the water used in businesses may prevent the formations that block heat transfer such as lime and biofilm layer. In addition to that, the lime formed on the lines and machines should be cleaned in order to prevent further energy loss. Sustainable resources and methods should be used to ensure efficient use of resources and energy, and to operate facilities at lower costs.

Eczacıbaşı Profesyonel knows that energy losses should be minimized for a healthier, sustainable, and green future and carries out studies in this field. In this context, energy losses are brought under control with special solutions that Eczacıbaşı Profesyonel offers for businesses. Eczacıbaşı Profesyonel helps its customers reduce energy losses and carbon footprints by using lime and scale cleaning products and conditioning products used in boiler-tower systems in the Maratem Water Conditioning Product range. Offering customized solutions to its customers, Eczacıbaşı Profesyonel provides training, supervision, and consultancy services to businesses with the EP Akademi department, which provides training to more than 6,000 employees within a year.

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