

## Study of the Corrosion which Occurs in the Boilers Pipes and Heat transferring Units, in AL – DEPS Company\*

Eng. alaa about harb\*\*

Dr. Hassan Hdla\*\*\*

Eng. Hussien Tima\*\*\*\*

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### Abstract

When we visited the United Arab Company for Spinning and Weaving In the capital, Damascus, we found a lot of problems in the units of feeding steam, and the most prominent of these problems occur corrosion in the pipe of steam boilers, And the collapse in the heat exchanger on the thread dyeing machine (the collapse of the body and pipes), so we took a group of samples in the places that suffer problems in order to determine the mechanical and chemical properties, we found through analysis that the boiler tubes were made of carbon steel, while the tubes and the body of heat exchanger was made of stainless steel, has been shown through research that pipe boilers of carbon steel suffers of problems as a result overheating, hydrogen damage and an attack Oxide, And the body of heat exchanger was suffering from an corrosion Cracking result of the high proportion of chromium in it (chromium ratio up to 17%), has been developing a set of solutions represented to be the metal surfaces clean and homogeneous, and must be feed water free of salts, suspended solids, and gases such as ( $\text{CO}_2$ ,  $\text{O}_2$ ), Because the presence of salts and suspended matter lead to the formation of thick deposits on metal surfaces cause overheating, and the interaction of metal tube with water or steam gives a gas such as ( $\text{H}_2$ ) cause hydrogen damage, where it should not exceed the proportion of the  $\text{O}_2$  in feed water for  $0.5 \text{ cm}^3/\text{liter}$ , and that the PH of feed water must be between (10.5 to 11.5).

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**Keywords:** steam boilers - heat exchanger - carbon steel - stainless steel - hydrogen damage.

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\* For The paper in Arabic see pages(485-500)

\*\* BSc. in Mechanical Engineering, Mechanical Design Department Damascus university.

\*\*\* BSc. in Mechanical Engineering, Mechanical Design Department Damascus university.

\*\*\*\* faculty of Mechanical and Electrical Engineering Damascus university.

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