

Corrosion Behaviour of Mild Steel and Stainless Steel 306 in Different Environmental Conditions.

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Abstract— Corrosion of metals makes major impact on component safety, reliability or appearance of component. Atmospheric corrosion can be considered as main types of corrosion among other types of corrosion and it accounts for many failures of machinery and components. Since our country is an island, the chloride percentage is usually high in areas close to the sea. Rathmalana was selected as highly industrial zone in southern province. The present investigation was undertaken to study the corrosion behavior of mild steel and SS 306 in normal weather conditions. The corrosion rate of mild steel and SS 306 in presence of different environmental conditions was determined by weight loss measurements.

In order to study the corrosion behaviour and the corrosion pattern, different gauges of commonly used mild steel and stainless steel 306 samples were used. The samples were allowed to expose in two different atmospheric conditions. Since the atmospheric weather has major impact on rate of corrosion, two test panels were placed in laboratory condition and open environment. The atmospheric variables such as relative humidity, temperature and rain fall were recorded two months time.

Uniform corrosion and pitting corrosion were identified as main types of corrosion in mild steel and stainless steel samples. Further the corrosion rates were calculated for different samples with the weight loss measurements. Microscopical examinations were performed on the surface and the cross section area in order to investigate the corrosion patterns and behaviour of the samples.

Key words: corrosion, mild steel, stainless steel