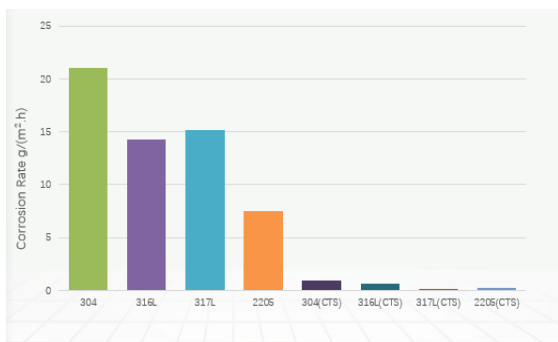


A Corrosion-resistant Treatment Surface for Refinery Equipment

High sulfur and high acid oils account for 75% of the crude oil supplies for refineries in China. Consequently, it has caused severe equipment corrosions, especially in the distillations units.

This presentation will show a stainless steel corrosion-resistant treatment surface (CTS) by modifications of a s.s. surface using chemical and electrochemical methods *in situ*. Compared with a traditional natural passive film, this method reduces the corrosion rate of the material from 23 g/(m²·h) to below 1 g/(m²·h) in 6 wt% FeCl₃. A study by XPS shows that CTS film thickness is 100 times thicker than that of a natural passive film. More importantly, the stainless steel surface film treated by CTS technology has also successfully applied to various equipment in refineries for a variety of crude oils, such as packings and internals in the vacuum tower and atmospheric tower. This technology shows excellent corrosion resistance, effectively reducing the corrosion rate and therefore, greatly improves the service life of the materials.



Corrosion Rate in FeCl₃ 317L packing that has been used for 4 years
317L+CTS packing that has been used for 4 years

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