UNIVERSITAT ROVIRA i VIRGILI

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Escola Tècnica Superior d'Enginyeria Química
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Master's Thesis

Study of problems encountered in crude distillation units produced by crude oils currently processed in Europe.

Chemical Engineering master's degree

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SUMMARY

In Europe, the type of crude oil consumed by refineries has varied in recent years. There are two main reasons for this, a change in the geopolitical situation and stricter environmental regulations.

The processing of these crude oils has presented new challenges that refineries were not prepared to address, and these problems are becoming increasingly evident.

Furthermore, market trends are driving refineries to increase the extraction of products such as kerosene. This modification changes the operating temperatures in the column.

An increase in crude contaminants and incompatible crude mixtures, as well as a decrease in the tower head operating temperature, increases the risk of corrosion in the overhead system.

Corrosion leads to high maintenance costs, refineries must adapt to the new crude oil blends they are processing to prevent equipment failure.

This study evaluated five crude oil units in Europe by simulating their overhead systems to observe the risk of salt formation in each unit.

Despite processing very similar crudes, it has been observed that the risk of salt formation and corrosion in the overhead system differs between the units studied.

Corrosion risk analyses based on simulation results made it possible to determine the risk level of each unit. The treatments that each unit applies to minimize the negative effects of processing these crudes were also described, as well as the available alternatives to further reduce this risk.

CONTACT INFORMATION

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