Amine Unit Corrosion in Refineries

Corrosion is a major problem in refineries, and amine units are particularly susceptible to this type of damage. Amine units are used to remove hydrogen sulfide (H2S) from sour crude oil and natural gas. The H2S is absorbed into an amine solution, which is then regenerated by heating. The regeneration process can cause the amine solution to become corrosive, and this can lead to damage to the amine unit equipment.

The European Federation of Corrosion (EFC) has published a comprehensive guide to amine unit corrosion in refineries. This book provides essential insights into the causes, mechanisms, and mitigation strategies for this critical issue. Drawing upon the expertise of leading experts in the field, this book offers a wealth of practical knowledge and best practices to help refineries optimize their operations, reduce downtime, and ensure safety.

Causes of Amine Unit Corrosion

There are a number of factors that can contribute to amine unit corrosion, including:

- High temperatures
- High pressures
- Presence of H2S
- Presence of oxygen
- Presence of chloride ions
- Presence of iron

The combination of these factors can create a highly corrosive environment that can damage amine unit equipment.

Mechanisms of Amine Unit Corrosion

There are a number of different mechanisms by which amine unit corrosion can occur, including:

- General corrosion
- Pitting corrosion
- Crevice corrosion
- Stress corrosion cracking
- Hydrogen embrittlement

The type of corrosion that occurs will depend on the specific conditions present in the amine unit.

Mitigation Strategies for Amine Unit Corrosion

There are a number of different strategies that can be used to mitigate amine unit corrosion, including:

- Using corrosion-resistant materials
- Controlling the operating conditions
- Adding corrosion inhibitors
- Regular inspection and maintenance

The most effective corrosion mitigation strategy will depend on the specific conditions present in the amine unit.

Amine unit corrosion is a major problem in refineries, but it can be mitigated by using the appropriate strategies. The European Federation of Corrosion (EFC) has published a comprehensive guide to amine unit corrosion in refineries that provides essential insights into the causes, mechanisms, and mitigation strategies for this critical issue. Drawing upon the expertise of leading experts in the field, this book offers a wealth of practical knowledge and best practices to help refineries optimize their operations, reduce downtime, and ensure safety.

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