



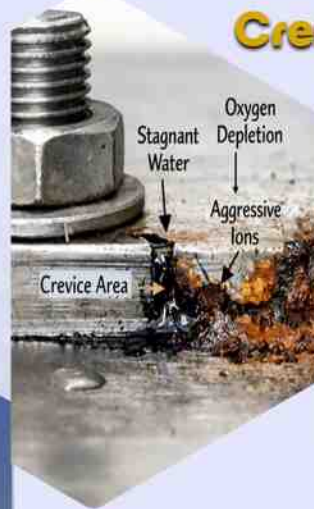
Corrosion

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DESIGNED BY

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358-2021

Crevice Corrosion



Crevice corrosion is a localized form of corrosion that occurs in narrow gaps or crevices where a small volume of stagnant water is trapped. In these confined spaces, oxygen depletion and build-up of aggressive ions create a highly corrosive environment, leading to rapid localized attack on the metal. This type of corrosion is often found under gaskets, overlapping joints, and between bolts and metal surfaces

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Galvanic corrosion



Galvanic corrosion occurs when two different metals are connected in the presence of an electrolyte like water. One metal corrodes faster (anode) while the other is protected (cathode) due to a difference in electrochemical potential

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Stress Corrosion Cracking



Stress Corrosion Cracking (SCC) is a dangerous material failure caused by the combined effects of tensile stress and a corrosive environment. It produces fine, root-like cracks that can lead to sudden failure without warning. This issue is common in the oil, gas, and energy industries. Prevention methods include reducing stress through heat treatment, using resistant materials, or modifying the environment

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Hydrogen Embrittlement



Hydrogen Embrittlement is a type of material damage where hydrogen atoms enter a metal and reduce its strength and ductility, causing brittle failure under stress. It mainly affects high-strength steels and can occur during processes such as welding, electroplating, or exposure to hydrogen environments. Proper material selection and heat treatment are important methods to prevent this problem

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Erosion Corrosion



Erosion corrosion is the damage of a metal surface caused by the combined effect of corrosion and fast-moving fluids. The high fluid velocity removes the protective layer on the metal, exposing fresh metal to further attack. It commonly occurs in pipes, pumps, and heat exchangers, especially in areas with high turbulence

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Microbial Corrosion



Microbial corrosion is the damage of metals caused by microorganisms such as bacteria. These microorganisms form a biofilm on metal surfaces and produce chemicals that accelerate corrosion. It can affect pipelines and storage tanks and is controlled using biocides and protective coatings

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Uniform Corrosion

Crevice corrosion is a localized form of corrosion that occurs in narrow gaps or crevices where a small volume of stagnant water is trapped. In these confined spaces, oxygen depletion and build-up of aggressive ions create a highly corrosive environment, leading to rapid localized attack on the metal. This type of corrosion is often found under gaskets, overlapping joints, and between bolts and metal surfaces

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Intergranular Corrosion

Intergranular Corrosion (IGC) is a localized attack that occurs specifically at the grain boundaries of a metal. It is primarily caused by sensitization, where chromium precipitates as carbides at the boundaries when exposed to high temperatures (like welding). This leads to "chromium depletion," making these boundaries weak and prone to rapid decay in corrosive environments. Although the surface may look normal, the metal loses its mechanical strength and can disintegrate into powder

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Pitting corrosion

Pitting Corrosion is a localized form of corrosion that causes small holes or pits on the surface of a metal. It usually occurs when protective layers on metals such as Iron or Stainless Steel are damaged. This allows corrosive substances, especially Chloride Ions, to attack the metal surface. As a result, tiny pits start to form and gradually grow deeper over time

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