

PROTECH

OXYPLAST



Good2know
Tuesday

GOOD2KNOW – 02/02/2016
Corrosion

Good2know that... the corrosion resistance of your coated objects can be secured by a number of methods, including the usage of specifically designed primer coatings.

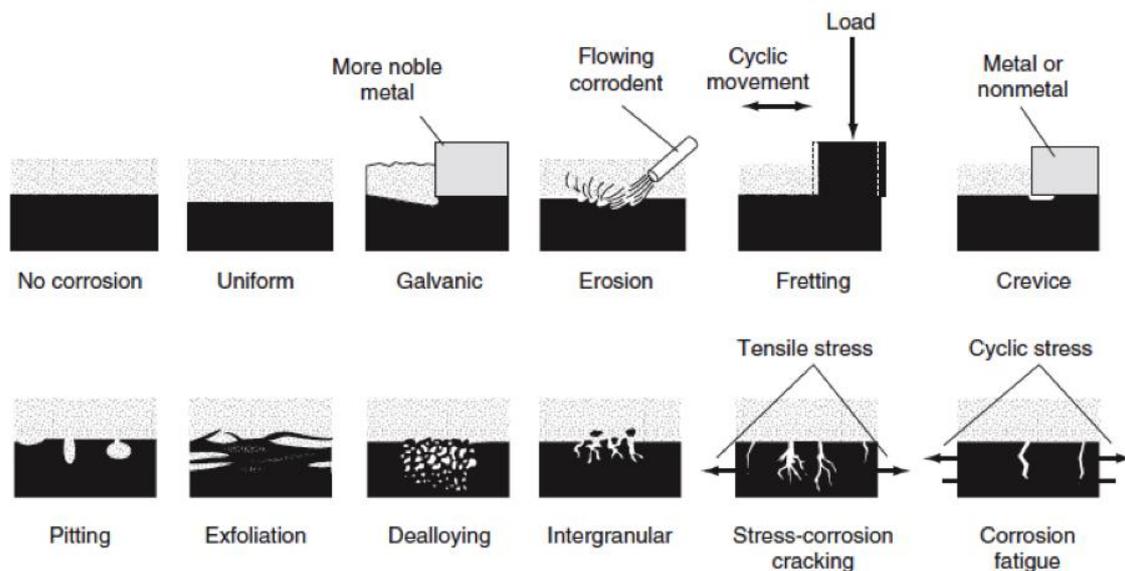
In this month of February, we will discuss the topic of corrosion as a whole, meaning that this first section will sum up the different types of corrosion, and we will further elaborate on this phenomenon in the coming weeks presenting you possible coating solutions or other.

Corrosion is the gradual natural process of converting a refined metal into a more stable form due to the chemical influences of its environment.

Corrosion leads to loss of strength because its products (oxides and salts) are weaker than metal. The affected products crumble, leading to the deterioration of the metal substances or parts. Strong corrosion might even lead to the formation of gaps in metal substrates.

Corroded products also occupy a larger volume than metal. The expansion of the material can disrupt an entire construction. An example of this can be the rusting of the reinforcing steel in concrete.

There are multiple forms of corrosion:



- **Uniform attack:**

Uniform attack, or general overall corrosion, is characterized by a chemical or electrochemical reaction which proceeds uniformly over the entire exposed surface or on a large part of the surface. The metal becomes thinner and eventually fails.

- **Galvanic, or two-metal corrosion:**

Galvanic corrosion occurs when two different types of metal are in physical or electrical contact with each other and are immersed in a common electrolyte. In a galvanic couple, the more active metal (the anode) corrodes at an accelerated pace, sparing the more noble metal (the cathode) that consequently corrodes at a slower pace.

- **Crevice corrosion:**

Intense localized corrosion frequently occurs in crevices and other shielded areas on metal surfaces exposed to corrosive substances.

- **Pitting:**

Pitting is a form of extremely localized attack resulting in holes in the metal.

- **Intergranular corrosion/ exfoliation:**

Intergranular corrosion can be caused by impurities in the grain boundaries, enrichment of one of the alloying elements, or depletion of one of these elements in the grain-boundary areas.

- **Selective leaching/ dealloying:**

Selective leaching is the removal of an element from a solid by corrosion processes. The most common example is the selective removal of zinc in brass alloy (dezincification)

- **Erosion corrosion:**

Erosion corrosion is the acceleration or the increase in the rate of deterioration or attack on a metal due to relative movement between a corrosive fluid and the metal surface (like sea waves on metal tubes, for example).

- **Stress corrosion:**

Stress-corrosion cracking refers to cracking caused by the simultaneous presence of tensile stress and a specific corrosive medium. During stress-corrosion cracking, the metal or alloy is virtually unattacked over most of its surface, while fine cracks progress through it.

Read more on how to prevent corrosion damage in the coming Good2know-articles of February 2016!

Can we be of service? We are at your disposal on:

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* Source: Fontana & Greene, 1967