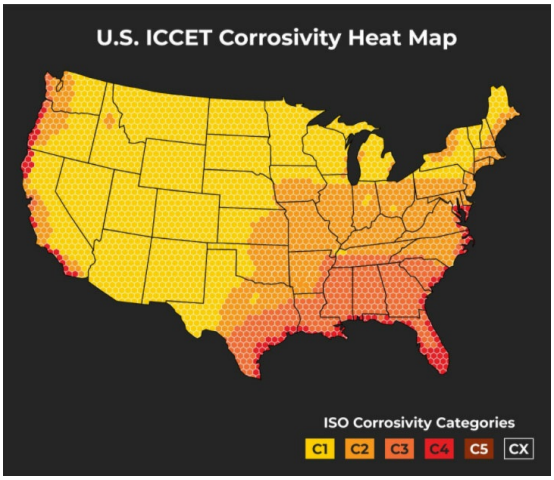
Causes of Corrosion

Corrosion, or the deterioration of a metal surface through oxidation, has always been one of the most harmful and expensive technical challenges within the aviation industry. Without taking the proper preventative measures and considering a variety of contributing factors, the corrosive process can render aircraft unusable within a few years. In order to properly select a treatment system for corrosion, the causes must first be understood.

U.S. Corrosivity Heat Map with ISO Corrosivity and ESC factors.

- C1 - very low
- C2 - low
- C3 - medium
- C4 - high
- C5 - very high
- CX - extreme

The six categories indicate which areas in the U.S. have high environment severity, or corrosivity of the local environment.



Natural and Man-Made Environmental Causes

Exposure to certain elements induces the corrosive process, so it is important to limit the time your aircraft spends in or near such hazards. A couple key man-made factors (see **full article** for entire list):

Shipment and storage are self-explanatory: allowing metal surfaces to have prolonged exposure to moisture, ozone, salt, and severe temperatures make them more susceptible to corrosion.

Manufacturing operations can carry their own inherent threats. For instance, design features such as the specific placement of battery compartments can have a large impact on the speed of corrosion.

Industrial pollutants are equally harmful and can be difficult to protect against.

Corrosive Cells

Placing dissimilar metal surfaces in contact with one another creates problems. On metal surfaces, atoms tend toward oxidation and lend

electrons to oxygen molecules in the surrounding environment. When this occurs, the oxygen has an increased number of electrons and forms an oxide with the metal. This oxidation is the cause of corrosion and results in extensive damage to the metal surface. One of the most common types, called galvanic corrosion, occurs when this oxidation-reduction reaction takes place at the interface of two dissimilar metals.

View Entire Article

Av-DEC's Complete Article Listing

Av-DEC is the leader in the science of aviation corrosion prevention. Visit our website to browse our ever-growing Article Archive.

Article Archive

For Product Support Contact a Representative:

Contact Us

Visit www.avdec.com