

## Different Types of Corrosion

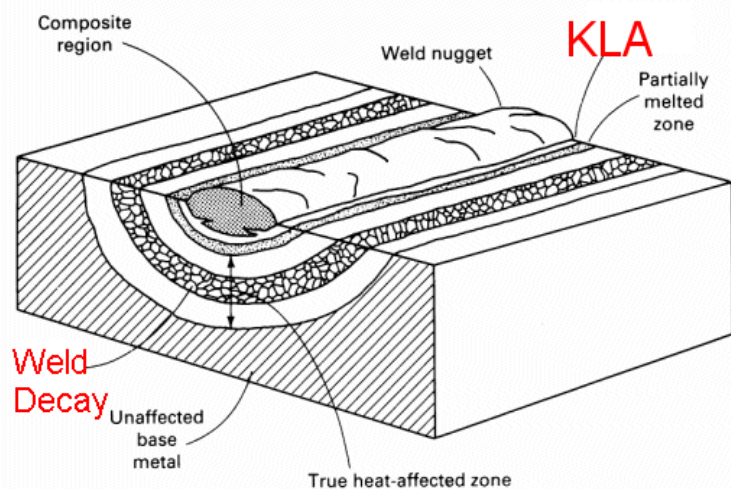
- Recognition, Mechanisms & Prevention

### Intergranular Corrosion: Knife-Line Attack (KLA)

#### Recognition

**What is knife-line attack? Knife-Line Attack (KLA)** is a form of intergranular corrosion of an alloy, usually stabilized stainless steel, along a line adjoining or in contact with a weld after heating into the sensitization temperature range.

The corrosive attack is restricted to extremely narrow line adjoining the fusion line. Attack appears razor-sharp (and hence the name of "knife-line" attack). It is possible to visually recognize knife-line attack if the lines are already formed in the along the weld.



#### Mechanisms

**What causes knife-line attack?** For stabilized stainless steels and alloys, carbon is bonded with stabilizers (Ti or Nb) and no weld decay occurs in the heat affected zone during welding. In the event of a subsequent heat treatment or welding, however, precipitation of chromium carbide is possible and this leaves the narrow band adjacent to the fusion line susceptible to intergranular corrosion.

#### Prevention

**How to prevent knife-line attack?** Knife-Line Attack can be prevented through:

- Heat treatment - heating the weld to 1065°C to re-stabilize the material.

#### For more details

More details on knife-line attack and weldment corrosion are included in the following corrosion courses which you can take as in-house training courses, online courses or distance learning courses:

[Corrosion and Its Prevention \(5-day module\)](#)

[Corrosion and Its Prevention \(2-day module\)](#)

[Corrosion, Metallurgy, Failure Analysis and Prevention \(3 days\)](#)

[Marine Corrosion, Causes and Prevention \(2 days\)](#)

[Materials Selection and Corrosion \(2 days\)](#)

[Stainless Steels and Alloys: Why They Resist Corrosion and How They Fail \(2 days\)](#)