

WINK'S WORDS

NEWS & VIEWS ABOUT NUTS & BOLTS



Send us a note via the NET and feel free to expound on our favorite subject, fasteners... we're listening! We also accept inquiries and even purchase orders via E-Mail.

Voice, fax, E-Mail... you'll get the same great WINK service any way.

When Is A Corrosion Resistant Fastener, NOT Corrosion Resistant?

In our last issue we offered the following advice: *Always use fasteners of the same metal as the base metal, or fasteners of higher corrosion resistance than the base metal.* The reason lies in the effect of galvanic corrosion. In the contact of any two metals, the one with the lower corrosion resistance and the smaller surface area will corrode first. The fastener has the smaller surface area, I can't think of a situation when it doesn't. So if that fastener has lower corrosion resistance, guess what happens!!! In this issue we present more specific guidelines to help in your decision on which fastener alloy to select.

| FASTENER⇒ BASE ↓ | Plated Steel | Aluminum Alloys | Copper Alloys | Stainless Steel | Nickel Alloys |
|---------------------|--------------|-----------------|----------------|-----------------|---------------|
| Plated Steel | OK | OK | NO | NO | NO |
| Aluminum Alloys | OK | OK | OK | NOT USUALLY | NO |
| Copper Alloys | NO | NO | OK | NOT USUALLY | NO |
| Stainless Steel | NO | NO | NOT USUALLY | OK | OK |
| Nickel Alloys | NO | NO | NO | NO | OK |

Use this chart only as a guideline for fastener selection based on general corrosion principles. Your actual situation and specific alloys must also be considered. One other thing, fastener selection for strength considerations is not covered by this chart.

Case Studies

If you want to read some interesting case studies on galvanic corrosion get a copy of Art Tuthill's paper 'Managing Galvanic Corrosion'. This paper was originally presented at the 1995 12th International Corrosion Congress. A series of short case studies includes the situation of boats with copper nickel hulls nearly sinking due to the selection of plain steel fasteners. So this must bring us to ...

The Exciting Part of Life!

If you, the reader, jumped right to this paragraph 'I like your style !!' In my mind, what makes life exciting are those designers who select different materials and expect me to find a fastener to hold it together. I'm going to reference a neat chart presented in ...Oh Heck, I'll give the kudos later. Anyway, look down below at the chart. If you've got a brass, stainless steel, or nickel alloy base metal, you can bet that a plain steel fastener will be a goner, ... even a *plated fastener's* days are numbered. Play with the chart and imagine the possibilities, and the pitfalls.

Would your trusty 18-8 stainless fastener ever let you down? Sadly, yes. Just use it to fasten plates of INCONEL™ together and see what happens over time. Trust us on this one, don't do it! Upgrade to an INCONEL™ fastener in this case and prevent galvanic corrosion.

No Time For The Library?

We deal with articles and references on the selection of materials and alloys all day long. For instance besides Tuthill's paper, we referred to a rather useful publication entitled 'Stainless Steel Fasteners: A Systematic Approach To Their Selection'. If you need help in finding copies of these or other references, give us a call!