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CORROSION RESISTANT MATERIALS AND SOLUTIONS

Stainless Steel for Fabricators

Stainless Steel for Fabricators

Overview

- Composition
- Corrosion resistance and corrosion
- Families of stainless steel
- Fabrication
- Care
- Cost savings

This presentation is drawn from over 70 years of NDE company experience and relationships with local and international suppliers including Outokumpu

Stainless Steel for Fabricators

Corrosion Resistance

Stainless steel, unlike mild steel, suffers from many types of corrosion:

- General corrosion
- Pitting corrosion
- Crevice corrosion
- Stress corrosion cracking
- Intergranular corrosion
- Galvanic corrosion
- Corrosion fatigue

Stainless Steel for Fabricators

Welding of Stainless Steels

- Not just joining two pieces of metal as in mild steel
- During welding the chrome combines with carbon in the steel to form a chrome carbide
- The carbide has no corrosion resistance
- In the heat-affected zone, the chrome oxide content is lower – which is why L (low-carbon) grades are used in areas of high corrosion

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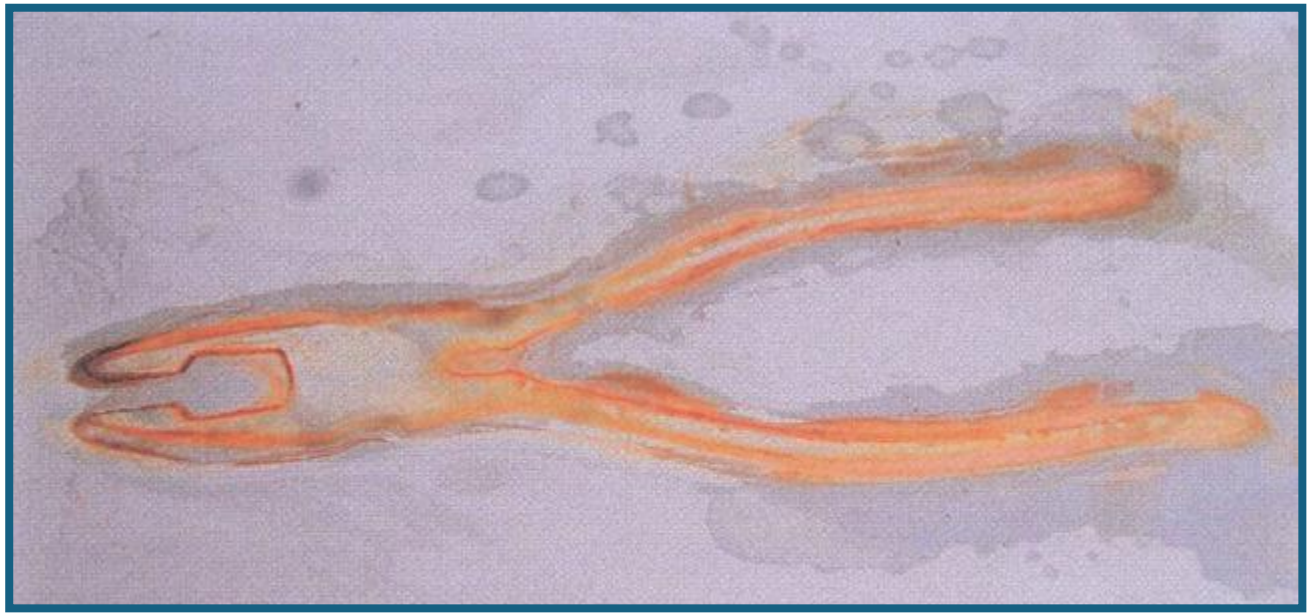
Fabrication - precautions

- Never do arc strikes on a stainless steel surface
- Never leave welds unpickled/ground and passivated
- Severe scratches should be blended out and then passivated
- Any dogs which have been removed need to have the tacks ground out and the discoloured metal pickled and passivated

Stainless Steel for Fabricators

Care of Stainless Steels



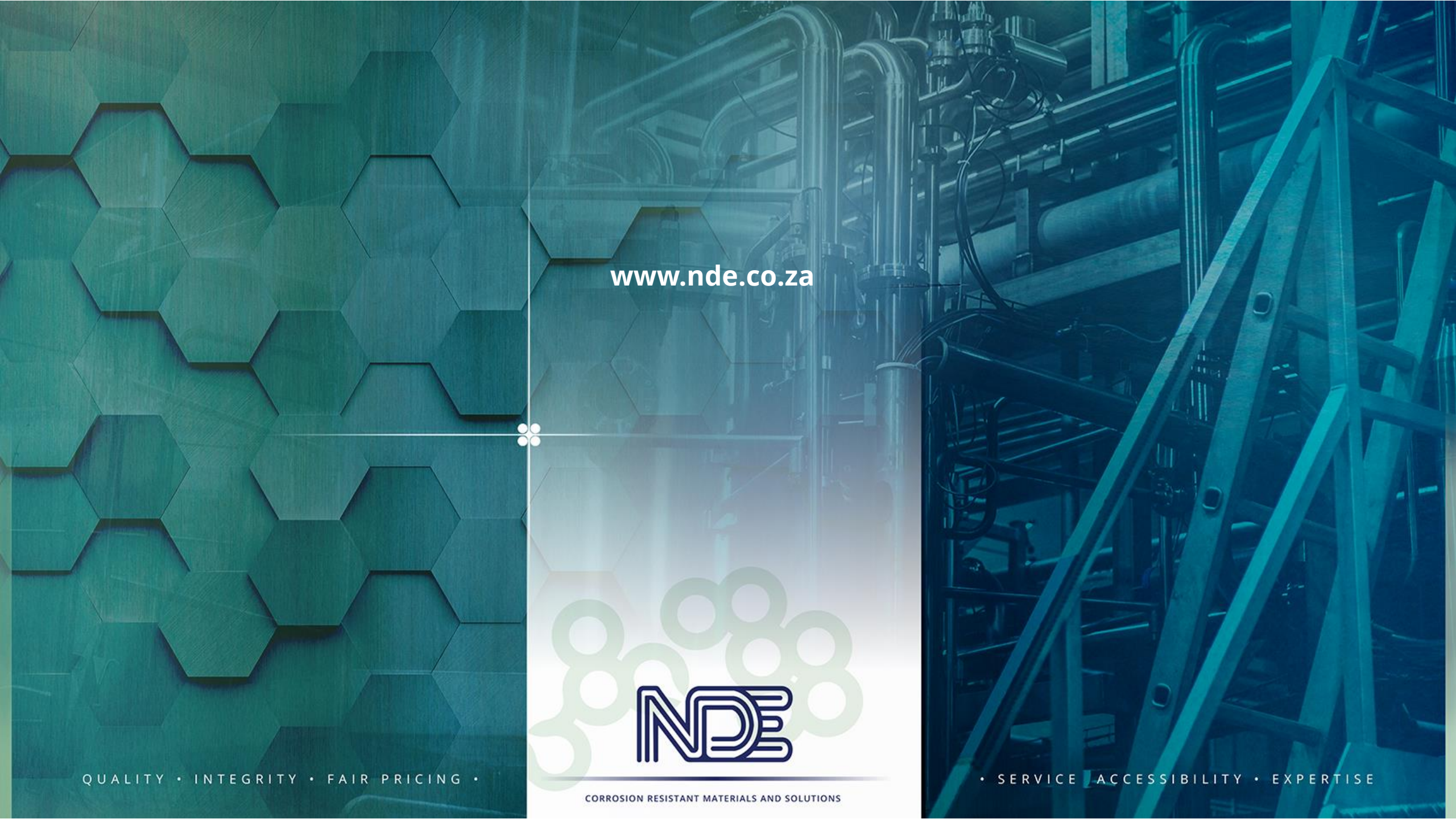
Staining caused by a pair of tongs left on a stainless steel plate

Stainless Steel for Fabricators

Summary

- Whilst the use of stainless steel in industry can reduce operational problems, it should not be thought that it eliminates them all.
- Provided that care is taken with:
  - use of the correct grade (specified by a specialist)
  - Correct design to ensure minimizing corrosion and mechanical problems

Stainless steels can offer highly successful and economically viable solutions to your plant both in first-off costs and life cycle costing.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