



19 September 2011
Ref No:SWS170/0911/143

Dear SWS Member

You are cordially invited for a Technical Talk on:

Corrosion and Post Weld Treatment of Stainless Steel Welds

Date : 25th October 2011, Tuesday
Presenter : Dr. Elin Marianne Westin
Venue : Kent Ridge Room, Level 1
Address : 87 Science Park Drive, Science Hub , Singapore 118260

*Free Registration for all SWS Members
Corporate entitlement : 3 entry passes / Individual & Associate entitlement : 1 entry pass
Non SWS Member/extra pass : \$20.00 per head*

PROGRAMME

0600 pm : Registration
0630 pm : Welcome
0640 pm : Presentation
0750 pm : Q & A
0800 pm : Close

Register online @ <http://www.sws.org.sg/LOCALEVENTS/tabid/335/Default.aspx>
Closing Date on **18 October 2011**. Register early to avoid disappointment.

Biography of Speaker:

Dr. Elin Marianne Westin holds a M.Sc. degree in mechanical engineering from Luleå University of Technology, Sweden, an international welding engineer certificate and PhD degree in materials science from the Royal Institute of Technology (KTH) in Stockholm. In 2002-2010 she was responsible for the welding research at Outokumpu Stainless – Avesta Research Centre, in Sweden. Since 2011 Dr. Westin is working for Böhler Welding Group based in Austria as product manager for high-alloyed flux cored arc wires.

Synopsis - Corrosion and Post Weld Treatment of Stainless Steel Welds

This presentation gives an introduction on how stainless steel becomes more corrosion resistant with certain alloying elements. Different grades are introduced with emphasises on high-performance austenitic and duplex grades. The different corrosion types attacking stainless steel are described and how various factors can affect the corrosion properties.

Welding has a large effect on the corrosion performance with the main aspects being base metal composition and thickness, choice of filler metal and shielding gas, heat input, resulting microstructure, use of backing gas, presence of residual weld oxide on the surface and finally choice of post-weld cleaning method. Recommendations on how to improve corrosion resistance are given by right handling of stainless steel and correct welding procedures including suitable choice of filler metal. Examples of failure cases are given to illustrate the metallurgical effect on corrosion resistance and need of post-weld cleaning. The effect of nitrogen, to improve austenite formation when welding duplex stainless steel, is exemplified with corrosion test results.

For high-alloyed grades, there is risk of formation of inter-metallic phases (often sigma phase), which can decrease the corrosion performance considerably. This limits the service temperature and maximum allowed heat input when welding. Finally, welding procedure specifications and approval records are recommended to avoid unexpected phenomena.