

PROGRAM TUESDAY 9 OCTOBER

9:00	Welcome, announcements		
9:05	Opening by Duplex World Seminar Chairman <i>David Barber, Global Improvement Leader - Materials Discipline, The Dow Chemical Company, USA</i>		
Düsseldorf Room			
9:15	Plenary 1 QA/QC practices leading to in-service failure of sub-standard items - mitigation on large and small scale projects. <i>By Bruce Cowe, Senior Specialist Metallurgy, Corrosion & Quality Management, Total Oil Danmark A/S</i>		
9:40	Plenary 2 Efforts over the last 20 years regarding the effects of crevice corrosion on CRA in seawater environments with a particular focus on the duplex family. <i>Dr Abdelkader Meroufel, Head of Corrosion Department, Desalination Technologies Research Institute, Saudi Arabia</i>		
10:05	Plenary 3 Duplex stainless steels in caustic service - experience from the process industry <i>Dr Evelyn Dayss, Material Science / TES, Dow Olefinverbund GmbH</i>		
10:30	Coffee & networking on the exhibition floor 10:40 Speakers corner: Weldability and weld properties of commercial duplex stainless steels <i>Wang Zhiyu, R & D Center, Baosteel Iron & Steel</i>		
Amsterdam Room 1			
From 11:00 Continuation of Plenary 1: QA/QC with emphasis on ISO 17781, 17782 and IOGP S563 (JIP33)			
Moderators: <i>Bruce Cowe, Total Upstream Danmark A/S & Joelle Greenwood, Mannesmann Stainless Tubes.</i>			
Assessment from a manufacturer point of view of new ISO Standards for Duplex grades. <i>Dr Karim Mahjoub, Salzgitter Mannesmann Stainless Tubes France</i>			
Creating efficient manufacturing through harmonization of requirements for duplex materials. <i>Dr Gustav Heiberg, DNV GL</i>			
Good local corrosion resistance properties in spite of the presence of intermetallic stringers in duplex Forta DX 2205. <i>Jan Y Jonsson, Outokumpu Stainless AB</i>			
Pitting corrosion behaviour in sodium chloride solution of intermetallic centreline stringers in super duplex. <i>Paulina Erasmus-Vignal, SAYENS</i>			
Amsterdam Room 2			
From 11:30 Continuation of Plenary 2: Together against crevice corrosion in saline environments: By gathering material development entities with end users around the same table, the CRA community can more efficiently find technological solutions. Instead of upgrading materials & increasing project CAPEX, some gap solutions with particular challenges can be considered, depending on the application			
Moderator: <i>Dr Abdelkader Meroufel, Desalination Technologies Research Institute, Saudi Arabia</i>			
Corrosion behaviour of duplex and austenitic stainless steels in chloride solutions. <i>Annetette Riis, Grundfos Holding A/S</i>			
Localised corrosion of DSS in seawater environments. <i>Dr So Aoki, Nuclear Science & Engineering Centre, Japan Atomic Energy Agency</i>			
Amsterdam Room 3			
From 11:45 Continuation of Plenary 3: Experiences with duplex in the process industries			
Moderator: <i>Evelyn Dayss, Material Science / TES, Dow Olefinverbund GmbH</i>			
Selective dissolution of ferrite of UR2507 (1.4410) in sour environment. <i>Dr Martin Monnot, Industeel</i>			
Influence of the chemical composition and microstructure of different duplexes in the corrosion mechanism occurring in urea environments. <i>Dr. Raquel Rodríguez Martín, Tubacex</i>			
Influences of thermal aging on the mechanical & corrosion properties of lean duplex 1.4062 (UR2202). <i>Dr Sarata Cissé, Industeel R&D</i>			
12:30	Lunch is served from 12:30 until 14:00		
Amsterdam Room 1			
From 13:30 Masterclass Duplex Stainless Steel 2018*			
The new Masterclass will cover some basics but digs deeper into the following aspects:			
1. How to select the correct duplex stainless steel from the wide family of DSS grades			
2. Cold forming of DSS and weld-seams in DSS			
3. Variety of applied tests to verify properties in DSS			
4. Heat treatment: consequences for metallurgy and residual stresses			
5. Welding and its influence of 2- and 3- dimensional cooling. Influence on thickness ranges of the WPQR and WPS			
6. Characterisation of (S)DSS (field & laboratory experience)			
7. Corrosion behaviour - what to avoid!			
Presenters: <i>Raymond Cordewener, Rob Spelt, Dr. Dirk L. Engelberg</i>			
* Open to exhibitors, visitors & delegates at no charge			
Amsterdam Room 2			
From 14:00 Surface properties: Surface properties can make or break your application: learn and understand how improved surface properties make your duplex stainless steels perform better.			
Moderator: <i>Jacko Aerts, DSM GMCC</i>			
Impact of pre-straining induced surface modification on the corrosion resistance of lean DSS. <i>Florent Krajcarz, Aperam Isbergues Research Center</i>			
Comparative galling resistance of super duplex. <i>Rodney Rice, Langley Alloys</i>			
Effect of back purging oxygen content on weld discolouration & corrosion resistance of autogenous tungsten inert gas welds in DSS pipes. <i>Dr Usani Ofem, TWI</i>			
Amsterdam Room 3			
From 14:00 Ferrite measurements: an interactive session discussing the does, don'ts & pitfalls			
Moderator: <i>Dr Glenn Byrne, Rolled Alloys</i>			
Considerations for measuring ferrite content in duplex using a ferrite scope. <i>Jan Y Jonsson, Outokumpu Stainless AB</i>			
Study on ferrite measurement methods for DSS welds. <i>Nozomi Satake, JGC Corp.</i>			
SPM characterization of duplex stainless steels; beyond imaging for corrosion applications. <i>Dr Ali Davoodi, Ferdowsi University of Mashhad (FUM), Iran</i>			
15:30	Coffee break		
Amsterdam Room 1			
Duplex stainless steel in infrastructure applications: In response to the huge programme of infrastructure development needed to meet future demand in both developed and developing economies, this session will give an update on the growing number of structural duplex stainless steel applications in the creation of resilient and cost-efficient energy and transport networks.			
Moderator: <i>Nancy Baddoo, The Steel Construction Institute</i>			
Recent advances in the development of design rules for duplex stainless steel bolted connections. <i>Prof. Dr. Natalie Stranghoener, University of Duisburg-Essen, Germany</i>			
Pragmatic Solutions: Duplex steels in the built environment for longevity and low ownership costs. <i>Andrew Backhouse, Outokumpu Stainless Ltd, UK</i>			
Duplex stainless steel in infrastructure: applications, challenges and opportunities. <i>Nancy Baddoo, SCI, UK</i>			
Amsterdam Room 2			
Nitrogen losses during welding: duplex experts discuss different aspects of this phenomenon in this technical paper session.			
Moderator: <i>Rob Spelt, Spelt Engineering & Contracting</i>			
The effects of nitrogen loss on DSS welding. <i>Balazs Varbai, Budapest University of Technology and Economics</i>			
Electron microprobe analysis of DSS welds. <i>Elin Westin, voestalpine Böhler Welding GmbH</i>			
Formation of pores during gas metal arc welding of super DSS – investigations on the role of nitrogen. <i>Juliane Stützer, Institut für Werkstoff-und Fügechnik, Otto-von-Guericke-Universität Magdeburg</i>			
Amsterdam Room 3			
Lifecycle costs & optimising DSS applications: how duplex can provide added value in a range of applications; an interactive seminar			
Moderators: <i>Barinder Ghai, Sandvik & Marc Wilms, Shell</i>			
This interactive session will cover:			
• New materials			
• Capex/opex for certain equipment			
• Ni prices, volatility			
• Value of materials, optimising design			
Discussions will also cover			
- Lifecycle costing: DSS mechanical properties			
- Corrosion advantages			
- Challenges (incl. fabrication, welding, availability, quality control, lean duplex, corrosive environments)			
17:30	<ul style="list-style-type: none"> • Networking cocktails & snacks on the exhibition floor • Thanks to sponsors & Chairman • Duplex World Lifetime Achievement Award 		

9:00	Wake up coffee & early networking on the expo floor		
9:30	Amsterdam Room 1	Amsterdam Room 2	Amsterdam Room 3
	<p>Lean duplex stainless steels</p> <p>Technical paper session : Lean duplex stainless steels (LDSS) are a group of the duplex family of stainless steels that has seen significant growth and development over the last years. They are used in many applications where high mechanical properties are required in moderate corrosion environments, such as architecture, building and construction (in-land applications), pulp and paper industry, storage tanks. They can be an excellent substitute for austenitic stainless steels or coated carbon steels.</p> <p>This session consists of three very interesting papers about some applications of lean duplex stainless steels where their outstanding combination of good corrosion and high mechanical properties can be used. Additionally, these applications show more cost effective solutions for a specific problem.</p> <p>Moderator: Clara Herrera, Deutsche Edelstahlwerke Specialty Steel</p> <p>Lack of guidelines for material selection in marine environments & manufacturing according to EN 1090. Rob Spelt, Spelt Engineering & Contracting</p> <p>Forta EDX 2304; enhanced DSS as high strength construction material. Thomas Kirchhartz, Outokumpu</p> <p>Evaluation of lean duplex as a cost efficient solution when upgrading carbon steel. Jonas Höwing, Sandvik Materials Technology</p>	<p>Casting duplex stainless steels</p> <p>This technical paper session features the specifics of cast duplex alloys and the interrelation between production processes and achievable properties.</p> <p>Moderator: Prof. Thomas Ladwein, Hochschule Aalen</p> <p>Inclusion of achievable properties from the new super duplex grade 6A-G into the ASTM A995 standard as Supplementary Requirement S52. Ryan Leese, Goodwin Steel Castings</p> <p>A review on cast duplex stainless steels. Dr Shankar Venkataraman, Schmidt + Clemens GmbH</p>	<p>Duplex in the oil & gas industry</p> <p>Duplex stainless steels have proven their suitability in many applications and in the marine atmosphere of oil and gas exploration and development facilities. This technical paper session explores specific topics based directly on the experts' experience.</p> <p>Moderator: Iris Rommerskirchen, Eisenbau Krämer</p> <p>Investigation of HISC resistance of DSS & potential link with residual stresses induced by welding. Lisa Blanchard, TWI</p> <p>Atmospheric corrosion resistance of DSS in North Sea marine environments – results from a field exposure. Babak Bahar, Kvaerner AS</p> <p>Duplex fasteners; results of testing to prove mechanical properties of these products. Anders Söderman, Bumax</p> <p>Hydrogen induced stress cracking of super duplex – effect of operation temperature. Hans Jahren, Equinor</p>
10:45	Coffee & networking on the exhibition floor		
	Amsterdam Room 1	Amsterdam Room 2	Amsterdam Room 3
	<p>From 11:30 Welding process variants & the influence of the properties of DSS welds</p> <p>This technical paper session focuses on the weldability of duplex stainless steels and the effects of residual elements and process variants.</p> <p>Moderator: Dr Usani Ofem, TWI</p> <p>Effect of welding operation & residual aluminium content on duplex UR2205 (1.4462) properties. Sandra Le Manchet, ArcelorMittal</p> <p>Temporal modulation of energy input during laser welding of DSS. Stefan Ulrich, Guenter Koehler Institute of Joining & Material Testing</p> <p>Weldability and weld properties of super duplex DX2507. Jerome Bridel, Aperam</p>	<p>From 11:45 Additive manufacturing corrosion resistant alloys</p> <p>In recent years the technology to produce high quality CRA parts & equipment through additive manufacturing has grown enormously. However challenges remain such as such setting standards & certification, industry acceptance and the best technology for utilizing powder metallurgy. How is the acceptance of AM technology progressing, e.g. for critical parts in the oil & gas industry? How does heat treatment affect AM items? How can powder metallurgy offer possibilities to minimize welding of complex parts? This technical paper session addresses these key issues and more.</p> <p>Moderator: Harsharn Tathgar, DNV GL</p> <p>Additive Manufacturing for the oil & gas and maritime industry – Initiatives at DNV GL. Harsharn Tathgar, DNV GL</p> <p>Recent investigation into the effect of high pressure heat treatment on additively manufactured duplex stainless steel by A.D Iams & T.A Palmer, Pennsylvania State University. James Shipley, Quintus Technologies AB</p> <p>Wire arc additive manufacturing: chances and challenges. A practical metallurgical approach from the viewpoint of a welding wire manufacturer & a vision of how to proceed with standardisation. Martin Schmitz-Niederau, voestalpine Böhler-Welding</p> <p>HIP, probably the best 3D process in the world: using the freedom in design of PM/HIP technologies to design & manufacture to minimize/remove welding of complex duplex parts. Mats Petersson, Sandvik Powder Solutions AB</p>	<p>From 12:00 Ask Doctor Duplex! *</p> <p>An informal and interactive clinic to discuss your duplex challenges and problems. All delegates, exhibitors and visitors are invited to pose their questions to the expert panel of duplex professionals. Questions may also be asked confidentially.</p> <p>Doctors on duty include:</p> <p>Prof. Dirk Engelberg, Lecturer in Materials Performance & Geological Disposal, University of Manchester</p> <p>Lena Wegrelius, Manager, Corrosion Department, Outokumpu Stainless AB</p> <p>Raymond Cordewener, Consultant</p> <p>Prof. Thomas Ladwein, Hochschule Aalen</p> <p><i>* Open to exhibitors, visitors & delegates at no charge</i></p>
12:30	Lunch is served from 12:30 until 14:00		
	Düsseldorf Room		
14:00	<p>Open Forum discussion on supply chain & availability issues: "How can end users & suppliers work together to ensure the right material grade in the right form is available at the right time?"</p> <p><i>Open to all delegates, exhibitors & visitors at no charge. Pose your questions to our expert panel</i></p> <p>Topics discussed will include:</p> <ul style="list-style-type: none"> • Availability • Different product forms • Quality • The role of the stockist • How can stockists and end users work together more closely • Is the availability of all grades the same • Qualification of manufacturers of special materials in accordance with NORSOK M-650 or ISO 17782 <p>Moderator: David Barber, Global Improvement Leader - Materials Discipline, The Dow Chemical Company</p> <p>Participants: Babak Bahar, Kvaerner; Hans Jahren, Equinor; Luca Pentericci, Raccortubi Group; Peder Claesson, Outokumpu; Dr Usani Ofem, TWI; Steve Paterson, Arbedie Consultants; Stephen Crouch, Aibel AS</p>		
15:30	Networking & refreshments on the exhibition floor		

Open to exhibitors, visitors & delegates at no charge

DON'T MISS THE OPEN FORUM!

The second day of Duplex World will conclude with an Open Forum featuring a panel of end users, manufacturers and suppliers of duplex stainless steels. With the wide-ranging theme of 'Supply Chain & Availability Issues' the panel will discuss questions sent in advance as well as take questions from the audience. This will be a lively and open discussion of all aspects of the theme.

The Open Forum is open to all delegates, day visitors and exhibitors at no extra charge so be sure to attend! Send your question in advance by email to the Seminar Coordinator Mrs Joanne McIntyre at email: j.mcintyre@rci-world.com

