

## 13 NOVEMBER

<b>10.00 Keynote: The use of duplex steel in pulp and paper and process engineering.</b> <i>Dr Yassar Ghanimi, Andritz AG</i>	
<b>10.30 Keynote: End user success stories highlighting the versatility and economic advantages of duplex stainless steel.</b> <i>Nicole Kinsman, IMO</i>	
<b>11.00 – 11.30 Coffee break</b>	
<b>11.30 – 12.30 Surface treatment</b> <i>Moderator: Jacko Aerts, dsm-firmenich</i> <ul style="list-style-type: none"> <li>Passivation treatment of duplex stainless steels. <i>Prof Dirk Engelberg, University of Manchester</i></li> <li>Surface hardening technology S<sup>3</sup>P for duplex stainless steel components used for challenging applications. <i>Michael Wendel, Bodycote</i></li> <li>Electrolytical pickling process. <i>Marco Zavattoni, Condoroil Stainless SRL</i></li> </ul>	<b>11.30 – 12.30 Sustainability</b> <i>Moderator: Dr Iris Rommerskirchen, Rommerskirchen GmbH</i> <ul style="list-style-type: none"> <li>The essentiality of duplexes in renewable and circular oil refining. <i>Mark van den Broek, Fluor</i></li> <li>Towards zero greenhouse gas emissions for duplex stainless steel. <i>Clemens Prim, Outokumpu</i></li> <li>Complexity of the carbon footprint calculation using the example of Mannesmann Stainless Tubes. <i>Tim Wallbaum, Mannesmann Stainless Tubes</i></li> </ul>
<b>12.30-14.00 Lunch</b>	
<b>14.00 – 15.30 Marine corrosion &amp; corrosion testing</b> <i>Moderator: Dr Dirk Engelberg, University of Manchester</i> <ul style="list-style-type: none"> <li>SWRO Desalination. <i>L.G. Iyer, Hassyan Water SWRO Independent Water Project (tbc)</i></li> <li>Temperature limits for 25CR duplex stainless steel in natural and chlorinated seawater. <i>Roy Johnsen, Norwegian University of Science and Technology</i></li> <li>A comparative analysis of the corrosion behaviour of the super duplex UNS S32750 and UNS S83071. <i>Angela Philipp, Alleima</i></li> <li>Avoiding crevice corrosion on 22Cr RTJ flanges. <i>Vincent Gregoire, Equinor ASA, Equinor ASA</i></li> </ul>	<b>14.00 - 15.30 Additive manufacturing and welding</b> <i>Moderator: Rob Spelt, Spelt Engineering &amp; Contracting</i> <ul style="list-style-type: none"> <li>Fabrication issues associated with butt-welded branch connections in thick-walled superduplex stainless steel piping. <i>K Sotoudeh, TWI Ltd</i></li> <li>Behaviour and qualification of DSS for wire arc additive manufacturing (WAAM) - a new duplex welding wire 2207. <i>Dr Martin Schmitz-Niederau, voestalpine Böhler Welding</i></li> <li>Development of microstructure and properties during additive manufacturing of duplex stainless steel. <i>Trond Arne Hassel, SINTEF Manufacturing AS</i></li> <li>Mechanical and corrosion properties of friction welded super duplex SAF 2507 pipe. <i>Ramadhan Gardi, University of Salahaddin, Iraq</i></li> </ul>
<b>15.30 – 16.00 Coffee break</b>	
<b>16.00 – 17.30 INTERACTIVE WORKSHOP:</b> <ul style="list-style-type: none"> <li><b>Appropriate selection and successful uses of duplex stainless steels</b>  <i>Hosted by Roger Francis, RF Materials &amp; Joelle Greenwood, Consultant</i></li> </ul> <p>This workshop will give a brief introduction to the properties of duplex stainless steels and how these can be utilised for a cost effective material selection compared with other alloys. The workshop will also discuss fabricating duplex stainless steels and how to avoid common pitfalls. Some examples will be given where duplex alloys have provided an economic long term option for specific applications, including <b>heat exchangers</b>. Some cases will also show what happens when the limits of use are exceeded.</p>	<b>16.00 – 17.30 Duplex applications</b> <i>Moderator: Rodney Rice, Langley Alloys</i> <ul style="list-style-type: none"> <li>Duplex stainless steel for sluices, gates and flood protection. <i>Daniel Svedberg, Outokumpu</i></li> <li>Selective use of lean duplex in the building and infrastructure sectors. <i>Tim Collins, worldstainless</i></li> <li>Submersible pumps. <i>Linn Cecilie Gjelseng, Framo</i></li> </ul>
<b>18.00 Networking dinner</b> The Networking Dinner at Hotel New York is a combined event for Heat Exchanger World and Duplex World. It's an opportunity to meet and discuss business and further develop your industry connections over delicious food and drinks in this iconic and historic venue dating from 1901.	

## 14 NOVEMBER

**10.00 – 11.00 Keynote: Duplex stainless steel, the cost-effective and long-lasting ‘workhorse’ for offshore and subsea applications.** *Atle Qvale, Principal Engineer, Subsea Design AS*

### 11.00 – 11.30 Coffee break

#### 11.30 – 13.00 Metallurgy and characterisation

*Moderator: Kasra Sotoudeh, TWI*

- Recovery behaviour during hot working of lean duplex. *Masatomo Kawa, Nippon Steel Stainless Steel Corporation*
- Detection of sigma phase in duplex stainless steel with the use of the DL-EPR technique. *Pietro Cetto, PhD Student, Politecnico di Milano*
- The effect of small percentages of detrimental phases on the impact and corrosion properties of a super duplex. *Raquel Rodríguez, Tubacex Innovación*
- The influence of composition and microstructure on the HAZ toughness of lean duplex stainless steels. *Kayoung Choi, POSCO Stainless Research Group*

#### 11.30 – 13.00 Manufacturing advancements of duplex stainless steel

*Moderator: John Houben, ExxonMobil Research & Engineering*

- Duplex stainless steel low finned heat exchanger tubing learnings. *John Houben, ExxonMobil*
- Stress relief annealing. *Marina Melo Gontijo & Dr Yassar Ghanimi, Andritz AG*
- An alternative to quarto plates: enhancing fabrication profitability with innovative thick duplex and super duplex coil offerings. *Lucas Kling, Aperam Stainless Europe*

### 13.00 – 14.00 Lunch

#### 14.00 HEAT EXCHANGER WORLD ROOM 1

##### Supply chain & availability issues – a panel discussion

*Moderator: Barinder Ghai*



Join the discussion as our experts representing EPCs, end-user companies, fabricators, and manufacturers discuss issues they most commonly face affecting the supply chain. Topics covered include the availability of grades and product forms, supply bottlenecks, material restrictions, etc and how these can be alleviated. The discussion will also feature an extensive Q&A with an audience.

1. Kelvion
2. Petronas
3. Janardhan Saithala, Petroleum Development Oman
4. Alfa Laval

#### 14.00 – 15.30 Material selection

*Moderator: Dr Yassar Ghanimi, Andritz AG*

- Case study on the failure of duplex stainless steel heat exchanger from thermal shock. *Immad Ovais Rohela, Olaya Descon Industrial Co Ltd*
- What is the maximum operating “time-temperature” for duplex stainless steel? *Jan Jonsson, Outokumpu*
- The safe use of duplex stainless steel weldments at elevated temperatures. *Sten Wessman, Swerim AB*
- Innovations in thin duplex 2205: precision fabrication and material excellence. *Lucas Kling, Aperam Stainless Europe*

### 15.30 – 16.30 Refreshments and closing

