



## IIW COMMISSION II

### "ARC WELDING AND FILLER METALS"

Chair: Gerhard Posch (Austria)

## IIW 2021 virtual Annual Assembly

### AGENDA

#### Time schedule for Social Events and Commission II activities (Central European Summer Time)

Wednesday, 7 <sup>th</sup> July	13:00 – 14:45	<b>IIW General Assembly</b> <i>Venue: virtual</i>
	15:15 – 16:15	<b>Opening Ceremony</b> <i>Venue: virtual</i>
Monday, 12 <sup>th</sup> July	13:00 – 16:00	<b>Commission II regular meeting (C-II A)</b> <i>Venue: virtual; Meeting Room 2</i>
Tuesday, 13 <sup>th</sup> July	13:00 – 15:00	<b>Commission II regular meeting (C-II C)</b> <i>Venue: virtual, Meeting Room 2</i>
	15:15 – 16:00	<b>Commission II regular meeting (C-II E)</b> <i>Venue: virtual, Meeting Room 2</i>
Wednesday, 14 <sup>th</sup> July	13:00 – 16:00	<b>Joint Meeting C II and C VIII (Health&amp;Safety)</b> <i>Venue: virtual, Meeting Room 3</i>

## IIW ANTITRUST POLICY

**IIW activities are based on a close, voluntary cooperation of its worldwide members with the overall target to improve the knowledge and skills in joining. To maintain these fruitful activities, it is strictly necessary to meet the obligatory terms of antitrust laws during IIW working sessions, meetings and other events. Thus, any commercial oriented discussion (including, but not limited to market shares, prices, turnovers, production quantities, costs, suppliers and/or customers) is strictly banished.**

**By attending the meeting, you commit to follow the terms of prevailing antitrust laws (relevant antitrust laws can be found at [www.iiwelding.org](http://www.iiwelding.org) )**



## IIW Commission II

### SUBCOMMISSION II-A MEETING Metallurgy of Weld Metals

#### Agenda (II-A-390-2021)

*Chair: Thomas Kannengiesser (Germany)*

*Monday, 12<sup>th</sup> July 2021, 13:00-16:00 CEST*

*Venue: virtual; Meeting Room 2*

#### 1. Welcome and Opening Day 1

- Chair`s Welcome by G. Posch
- Highlights of the scheduled meetings by G. Posch
- IIW Antitrust policy by G. Posch

#### 2. Message of the Editorial Board of “Welding in the World”

- Facts & Figures about “Welding in the World” by J. Lippold
- Editorial Board activities and plans by J. Lippold

#### 3. Administrative matters of Sub Commission II-A

- Handing over the meeting to T. Kannengießer by G. Posch
- II-2180r4-2021 ( II-A-390-2021): Approval of the agenda
- II-2186r2-2021 (II-A-391r3-2021): List of documents of subcommission II-A by T. Kannengiesser
- II-2187-2021 (II-A-392-2021): List of members of subcommission II-A by T. Kannengiesser
- II-2175-2000: Executive Summary Commission II, Annual Assembly 2020, Sub commission Sub commission II-A by G. Posch

#### 4. Hydrogen in weld metal

*No document*

#### 5. The Constitution of Weld Metal

- II-2200-2021 (II-A-396-2021): “Microstructure investigation on the Fusion Zone of Steel/Nickel-alloy Dissimilar Weld Joint for Nozzle Buttering in Nuclear Power Industry” by Xiao Guo
- II-2201-2021 (II-A-397-2021): “Butt joining of 18 Cr-9 Ni-3 Cu-Nb-N (SUPER 304 H or equivalent grade) tubes by gas metal arc welding process with alternate shielding gas” by N. Rajasekaran, A. Santhakumari, C. Prashanth, S. Periyakaruppan
- II-2206-2021 (II-A-400-2021): “SWAT (Sigma Weld Accelerated TIG) – Keyhole GTAW Welding for joining Aerospace Materials” by N. Chinoy, H. A. Narsia



## 6. Metallurgy of Additive Manufactured Components

- II-2205-2021 (II-A-399-2021): “Effect of shielding gases by additive layer manufactured using CMT-process with filler metal Ni 6625 on properties and microstructure by S. Burger - *withdrawn*”

## 7. Weld metal cracking

- II-2197-2021 (II-A-394-2021): Adequate repair concepts for high-strength steel weld joints for offshore support structures considering design influences by A. Becker, D. Schroepfer and T. Kannengiesser

## 8. Development and behaviour of filler metals for High Strength Steels

- II-2203-2021 (II-A-398-2021): Effect of Post-Weld Heat Treatment on Impact Properties and Fracture Toughness of SA-738 Gr. B Heat Affected Zone by J.B. Zhang, X. Guo, Sh. H Liu, Y. Gu

## 9. Working program of Sub Commission II-A

- II-2188-2021 (II-A- 395-2021): “SC CII-A proposed working program 2021/2022” by T. Kannengiesser

## 10. Announcements

- 2<sup>nd</sup> International Conference on Advanced Joining Processes (AJP 2021) and 4<sup>th</sup> In-situ workshop on 21-22 October 2021 – Sintra, Portugal

## 11. Date and venue of next CII-A meetings

- 20.-21.09.2021 – CII Intermediate “Face-to-Face” Meetings (*postponed spring meetings*); Vienna (Austria); detailed information by G. Posch  
Location: Wirtschaftskammer Österreich, Wiedner Hauptstraße 63, 1045 Wien, Österreich  
Contact for registration: Gerhard Posch, [Gerhard.POSCH@iiwelding.net](mailto:Gerhard.POSCH@iiwelding.net)

Please **inform/register as soon as possible** if you are planning to attend the meetings to enable a smooth organization as pandemic event guidelines have to be fulfilled)

- Spring Meeting 2022 – *tbd.*



## IIW Commission II

### SUBCOMMISSION II-C MEETING Testing and Measurement of Weld Metal

#### Agenda (II-C-592-2021)

Chair: Zhuyao Zhang (United Kingdom)

Tuesday, 13<sup>th</sup> July 2021, 13:00-15:00 CEST

Venue: virtual; Meeting Room 2

#### 1. Opening Day 2

- Brief welcome by G. Posch
- IIW Antitrust policy by G. Posch

#### 2. Administrative matters of Commission II

- Annual survey of IIW secretary activities by L. Costa, E. Sciaccaluga
- Election of new chair of Commission II by IIW secretary

#### 3. Administrative matters of Sub Commission II-C

- Handing over the meeting to Z. Zhang by G. Posch
- II-2180r4-2021 (II-C-592-2021): Approval of the agenda by Z. Zhang
- II-2189-2021 (II-C-593-2021): List of members of Sub commission II-C by Z. Zhang
- II-2190-2021 (II-C-594-2021): List of documents of Sub commission II-C by Z. Zhang
- II-2175-2000: Executive Summary Commission II, Annual Assembly 2020, Sub commission II-C by G. Posch

#### 4. Ferrite in high alloyed weld metal

- II-2192-2021 (II-C-597-2021): "Heat affected zone ferrite content control of a new duplex stainless steel grade with enhanced weldability" by Anne Higelin, Sandra Le Manchet, Gilles Passot and Sarata Cissé

#### 5. Testing of weld metal for hot cracking and micro fissuring

- II-2198-2021 (II-C-600-2021): "Ductility Dip Cracking Susceptibility of Nickel Alloy Deposited Metal by Strip Cladding" by X. Guo, K. Xu, J.B. Zhang, Y. Gu, X. Ch. Lv, Y. K Cao
- II-2204-2021 (II-C-601-2021): "Ductility-Dip Cracking Susceptibility of a High-Chromium, Ni-based Filler Metal" by Y. Gu, X. Guo, J.B. Zhang and K. Xu

#### 6. Corrosion testing of weld metal

*No document*



**7. Procedures for weld metal chemical analysis and weld metal sample preparation – Comparison of analysis methods**

*No document*

**8. Testing of high-strength weld metals**

*No document*

**9. Testing of Creep- and heat resistant weld metal**

- II-2193-2021 (II-C-598-2021): “Assessment of deposit microstructure and all-weld and joint creep performance of the matching filler metal for the MARBN alloys” by Zhuyao Zhang, Vincent van der Mee and David Allen

**10. Testing of non-ferrous weld metal**

*No document*

**11. Measuring of  $\delta$ -ferrite in austenite and duplex stainless steel weld metals**

- II-2177-2021 (II-C-596-2021): “ISO Technical Report (DTR stage): Welding – Guidance on specification and measurement of ferrite in stainless steel weld metal” by Dr D. Kotecki

**12. Working program of Sub Commission II-C**

- II-2173-2021 (II-C-599-2021): “SC CII-C proposed working program 2021/2022” by Z. Zhang

**13. Date and venue of next CII-C meetings**

- 21.09.2021 – Intermediate Meeting (*postponed spring meeting*); Vienna (Austria)
- Spring Meeting 2022 – *tbd.*



## IIW Commission II

### SUBCOMMISSION II-E MEETING Standardization

#### Agenda (II-E-823-2021)

*Chair: David Fink (USA)*

*Tuesday, 13<sup>th</sup> July 2021, 15:15-16:00 CEST*

*Venue: virtual; Meeting Room 2*

#### 1. Opening remarks

- Brief welcome by G. Posch
- IIW Antitrust policy by G. Posch
- Handing over the meeting to D. Fink

#### 2. Administrative matters of Sub Commission II-E

- II-2180r4-2021 (II-E-823-2021): Approval of the agenda by D. Fink
- II-2181-2021 (II-E-824-2021): List of documents of Subcommission II-E by D. Fink
- II-2175-2000: Executive Summary Commission II, Annual Assembly 2020, Sub commission II-E by G. Posch

#### 3. Document for resolution/vote as an ISO/DTR

- II-2177-2021 (II-E-828-2021) DTR 22824-21 Welding — Guidance on specification and measurement of ferrite in stainless steel weld metal by D. Kotecki

#### 4. Update standards for welding consumables in review

- II-2182-2021 (II-E-825-2021): “2021 Update on Standards for Welding Consumables under Review” by D. Fink
- Standards for Systematic Review for 2022
  - ISO 14175:2008 Welding consumables — Gases and gas mixtures for fusion welding and allied processes
  - ISO 26304:2017 Welding consumables — Solid wire electrodes, tubular cored electrodes and electrode-flux combinations for submerged arc welding of high strength steels — Classification
  - ISO 17633:2017 Welding consumables — Tubular cored electrodes and rods for gas shielded and nongas shielded metal arc welding of stainless and heat-resisting steels — Classification
  - ISO 544:2017 Welding consumables — Technical delivery conditions for filler materials and fluxes — Type of product, dimensions, tolerances and markings



- ISO 636:2017 Welding consumables — Rods, wires and deposits for tungsten inert gas welding of nonalloy and fine-grain steels — Classification
- ISO 3580:2017 Welding consumables — Covered electrodes for manual metal arc welding of creep resisting steels — Classification
- ISO 14343:2017 Welding consumables — Wire electrodes, strip electrodes, wires and rods for arc welding of stainless and heat resisting steels — Classification
- ISO 18276:2017 Welding consumables — Tubular cored electrodes for gas-shielded and non-gas shielded metal arc welding of high strength steels — Classification
- ISO 21952:2012 Welding consumables — Wire electrodes, wires, rods and deposits for gas shielded arc welding of creep-resisting steels — Classification
- ISO 16834:2012 Welding consumables — Wire electrodes, wires, rods and deposits for gas shielded arc welding of high strength steels — Classification
- ISO 20378:2017 Welding consumables — Rods for gas welding of non-alloy and creep-resisting steels— Classification

## 5. Matrix filler metal classification standards

- II-2183-2021 (II-E-826-2021): Matrix of Filler Metal Classifications (2021) by D. Kotecki

## 6. Diffusible Hydrogen Testing

*No document*

## 7. Working program of Sub commission II-E

- II-2185-2021 (II-E-827-2021): SC II-E Proposed working program for 2021/22 by D. Fink

## 8. Any other standardization&round robin related business

## 9. Date and venue of next CII-E meetings

- 21.09.2021 – Intermediate Meeting (*postponed spring meeting*); Vienna (Austria)
- Spring Meeting 2022 – *tbd.*

## 10. Closing CII-Annual Assembly Meetings

- Résumé of the CII AA 2021 meetings by G. Posch
- Acknowledgments to the organizers by G. Posch
- Handover of Commission II chair
- Inauguration speech of the new chair





## IIW Commission II, VIII JOINT MEETING

### Agenda

*Chair C-II: Gerhard Posch (Austria)*  
*Chair C-VIII: Geoff Melton (United Kingdom)*

*Wednesday, 14<sup>th</sup> July 2021, 13:00-16:00 CEST*  
*Venue: virtual; Meeting Room 3*

#### 1. Welcome and opening remarks

- Statements of the chairs by G. Posch and G. Melton
- IIW Antitrust policy by G. Posch

#### 2. Welding fumes

- II-2195-2021 / VIII-2321-2021: "Welding exposure scenarios" by V. van der Mee
- II-2194-2021 / VIII-2322-2021: "Characterisation of arc welding fume samples by FTIR spectroscopy" by V. Vats

#### 3. Hexavalent Chromium in fumes (Cr<sup>VI</sup>)

- II-2178-2021 / VIII-2318-2021: "Genotoxicity and inflammatory potential of stainless steel welding fume particles – an in vitro study on standard vs Cr(VI)-reduced flux-cored wires and the role of released metals" by S. McCarrick, V. Romanovski, Z. Wei, E. M. Westin, K. Persson, K. Trydell, R. Wagner, I. Odnevall, Y. S. Hedberg, H. L. Karlsson
- II-2179-2021 / VIII-2319-2021: "New weldable 316L stainless flux-cored wires with reduced Cr(VI) fume emissions: Part 1 - Health aspects of particle composition and release of metals" by E.M. Westin, S. McCarrick, L. Laundry-Mottiar, Z. Wei, M.C. Biesinger, I. Barker, R. Wagner, K.-A. Persson, K. Trydell, I. Odnevall, H.L. Karlsson, Y.S. Hedberg
- II-2199-2021 / VIII-2320-2021: "New weldable 316L stainless flux-cored wires with reduced Cr(VI) fume emissions: Part 2 – Round robin creating fume emission data sheets" by E.M. Westin, S. McCarrick, L. Laundry-Mottiar, Z. Wei, R. Wagner, K.-A. Persson, K. Trydell, I. Odnevall, H.L. Karlsson, Y.S. Hedberg
- II-2202-2021 / VIII 2312-2021 "Investigation on control strategies of welding fumes and Cr6+ formation using nanoparticle addition in stainless steel SMAW electrode" by Vishnu

#### 4. IIW cancer statement

- II-2196-2021 / VIII-2290r1-2021: "IIW Statement on lung cancer and arc welding of steels" by W. Zschiesche, G. Melton

#### 5. Outlook and Closing