

REPORT ON THE MEETINGS OF IIW COMMISSION II

Held on July 7-9, 2008
Congress Graz, Austria

IIW Commission II – "Arc welding and Filler Metals" Sub commission II-A, Metallurgy Monday, July 7th

1. Opening remarks

The chair gave an overview of the Strategic Plan of this commission.

There was discussion of the next intermediate meetings (Japan and USA)

2. Administrative matters of Sub commission II

- II-1659-07 Annual report from Dubrovnik, Sub commission II-A (Mr. van der Mee)

The chair gave a brief overview of the annual report of Commission II.

- II-1661-08 Annual report of Sub commission II-A (Dr. Kannengiesser)

The chair of this sub-commission gave a brief overview of the annual report.

- II-1662-08 List of members of Sub commission II-A (Dr. Kannengiesser)

Nothing of significance to report.

- II-1663-08 List of documents of Sub commission II-A (Dr. Kannengiesser)

Nothing of significance to report.

3. Hydrogen in weld metal

- II-1690-08 (II-A-192-08) Comparative study between the hot extraction methods and the mercury method – a national round robin test (Dr. Kannengiesser)

This report outlines the round robin tests using ISO5725 as the base for testing. In summary, hydrogen contents measured by hot extraction are slightly lower than the mercury method. However, overall it was felt that the measuring methods in ISO 3690 produce almost equal results and thus the code is fine as is.

- II-1691-08 First Information about a current international round robin test "Hydrogen test methods at elevated temperatures. (Dr. Kannengiesser)

This report, which is not yet complete, provided a status report to date. Ten partners participated in this test. Specimen preparation was done according to ISO DIS 3690 NS

AWS A4.3. A concluding summary will be provided at the next intermediate meeting, however, at the end of the presentation there was considerable discussion about what might come out of this work as there is much data to analyze.

4. Chemical reactions

- II-1693-08 (II-A-193-08) Shielding gas Oxygen Additions as a Means of Curbing Nitrogen Degassing During the Autogenous Arc Welding of Nitrogen-Alloyed Stainless Steel by M. Du Toit and P.C. Pistorius

This report looked largely at:

- shielding gas nitrogen content
- base metal nitrogen content, and
- weld metal surface-active element concentration

One of the conclusions was that oxygen has a beneficial and stabilizing effect on the arc and reduces nitrogen-induced porosity.

IIW Commission II – "Arc welding and Filler Metals" Sub commission II-C, Testing and Measurement of Welds Tuesday, July 8th

1. Opening remarks

The chair discussed the next meeting scheduled for March 16-20, 2009 in the USA at AWS. One member was concerned about a meeting in the USA and the attendance of Europeans to such an event. The chair will look into alternative arrangements.

2. Administrative matters of Sub commission II

- II-1659-07 Annual report from Dubrovnik, Sub commission II-C (Mr. van der Mee)

The chair also gave his annual report but nothing of significance to report.

- II-1664-08 Annual report of Sub commission II-C (Dr. Posch.) The chair stated there are 73 members representing 22 countries. This sub-committee was well attended (approx. 50 people).

- II-1665-08 List of members of Sub commission II-C (Dr. Posch)
- II-1666-08 List of documents of Sub commission II-C (Dr. Posch)

Nothing of significance to report.

3. Ferrite in high alloyed weld metal

- II-1674-08 (II-C-365-08) Effect of nitrogen addition on weld metal properties of austenitic stainless steels. (Mr. Sadek)

The author explained the increased use of nitrogen as an alloying element in the gas used for austenitic stainless steel. The report compares pure Argon with that of Argon with Nitrogen additions. It is important to note that increasing Nitrogen at 5% and above porosity, started to become present. With 3.5%, this seemed to be the optimal amount

- II-1673-08 (II-C-369-08) Properties of high-alloyed stabilized and unstabilized filler metals for the nuclear industry. (Dr. Posch)

This paper talks about precipitations and how difficult it was to detect and determine precipitates in austenitic stainless steels. It was mentioned that you cannot get rid of them.

4. Testing of weld metal for hot cracking and micro fissuring

- II-1675-08 (II-C-364-08) Study of Hot Cracking Behavior of 14Cr-15Ni-2.5Mo Ti-modified Austenitic Stainless Steels using Varcstraint and Hot Ductility Tests. (Dr. Bhaduri)

The recommendation on this paper was that if you have to use high "P" austenitic alloys (Note: the amount of "P" used was not that high and someone could argue that the amount was standard in most materials of its type), then you will have to dilute the weld zone. However, it was stated by one of the members that trying to push "P" to ultra low amounts would not be economical. There was much debate on the merits of this work.

- II-1678-08 (II-C-356-07) Examination of joints of different weld metals. (Mr. Heinemann)

This paper presented a lot of mechanical testing data on different joints for different jobs. Nothing of significance to report.

5. Testing of high-strength weld metals

- II-1676-08 (II-C-367-08) Mechanical testing for high strength pipe welds. (Dr. Dallam)

This paper provided an overview of mechanical testing for over-matched high strength pipe welds. This was more of a summary of testing methods and nothing of significance to report.

- II-1679-08 (II-C-355-07) Metallographic investigation and mechanical testing of amorphous bonded carbon steel tubes and pipes. (Dr. Holy)

Diffusion bonding was analyzed in this paper.

Commission II –"Arc Welding and Filler Metals"
Sub commission II-E, Standardization
Wednesday, July 9th

1. Opening remarks

2. Administrative matters of Sub commission II-E

- II-1659-07 Annual report from Dubrovnik, Sub commission II (Mr. van der Mee)

The chair presented the annual report where he outlined the next immediate meeting in Belgium.

- II-1667-08 Annual report of Sub commission II-E (Mr. Fink)

The chair of the sub-commission provided a brief overview of his annual report. He talked about the difficulty of transferring four ISO documents to ISO (bureaucracy). However, now it seems to be working with the help of the IIW secretariat.

- II-1668-08 List of members of Sub commission II-E (Mr. Fink)
- II-1669-08 List of documents of Sub commission II-E (Mr. Fink)

Nothing of significance to report.

3. Results of postal vote

II-E-538r1-07 Revision of ISO 3580 as modified on 12 Oct 2007
II-E-536r1a-07 Revision of ISO 14344 as modified on 12 Oct 2007
II-E-532r1a-07 Revision of ISO 14343 as modified on 12 Oct 2007
II-1654-07 Corrigendum to ISO 3581 considered at Annual Assembly Dubrovnik

They have all been approved and transferred to ISO.

4. Standards for Welding Consumables

- ISO Standards scheduled for Systematic Review in 2008
NOTE: Documents NOT provided at this time due to copyright concerns
- II-1680-08 (II-E-547-08) ISO 544:2003, Welding consumables – Technical delivery conditions for filler metals – Type of product, dimensions, tolerances and markings
- II-1681-08 (II-E-548-08) ISO 1071:2003, Welding consumables – Welding consumables for fusion welding of cast iron - Classification
- II-1682-08 (II-E-549-08) ISO 6848:2004, Arc welding and cutting – Non consumable tungsten electrodes – Classification
- II-1683-08 (II-E-550-08) ISO 17632:2004, Welding consumables – Tubular cored electrodes for metal arc welding with and without a gas shield of non alloy and fine grain steels – Classification

- II-1684-08 (II-E-551-08) ISO 17634:2004, Welding consumables – Tubular cored electrodes for gas shielded metal arc welding of creep resisting steels - Classification
- II-1685-08 (II-E-552-08 and II-E-553-08) ISO 18275:2005, Welding consumables – Covered electrodes for manual metal arc welding of high strength steels – Classification
- II-1686-08 (II-E-554-08) ISO 18276:2005, Welding consumables – Tubular cored electrodes for metal arc welding with or without a gas shield of high strength steels – Classification
- II-1687-08 (II-E-555-08) ISO 24034:2005, Welding consumables – Wire electrodes, wires and rods for fusion welding titanium and titanium alloys – Classification

The chair asked if anyone in attendance had any comments on the above 8 standards (except for the first four that are already closed for comments). With there being none, he asked those in attendance that if they have any comments after they were reviewed to please send them to the chair.

- II-1688-08 (II-E-556) Matrix of filler Metal Classifications (Dr. Kotecki)

The author provided an overview of the updates to this document.

An important note made was that the ISO committee has now decided that shielding gas manufacturers will now be required to identify their shielding gases.

The USA has now adopted the ISO 14344 (Procurement Guidelines). This is the first standard that the USA has adopted that deals with filler metal.

There seems some interest in another row to this matrix with tubular with Electro-Gas (EG) welding.

5. Working program of Sub commission II-E

- II-1672-08 (II-1656r2-08) Proposed working program 2008/2009 (Mr. Fink)

Nothing of significance to report.

The meeting concluded at a very early 3:05 PM.

Douglas R. Luciani
Delegate