

The Canadian Delegate Report

International Institute of Welding Commission
VIII Health and Safety

David Hisey

This is a brief summary of the actions of IIW Commission VIII during the conference in Essen Germany. Should additional information be required the specific document which is published on the IIW web site.

**INTERNATIONAL INSTITUTE OF WELDING
COMMISSION VIII HEALTH AND SAFETY**

ANNUAL ASSEMBLY MEETING 12 – 14 September 2013

Essen, Germany

12 September 2013, 14:00 to 18:00, Room Mailand, Floor 1

Session I - General Matters

1. Welcome, introductions.

The chair Luca Costa welcomed everyone to the meeting started the introductions.

2. Adoption of agenda.

The agenda was adopted with revisions.

3. Approval of the minutes of the meeting in Hamburg (doc. VIII 2159-13).

The last meeting was held in Hamburg, Germany and the minutes were approved as distributed.

4. Matters arising from the minutes and not covered in the agenda:

a. Facts sheets on reduction of nickel exposure during thermal spray operations and GMAW (item 4.e), C. Abert. These are being worked on in Switzerland but were not able to be presented. There has been some information released in a medical journal. Chris provided this update however someone else was scheduled to present this but was unable to attend.

b. Update on research activities on PTA overlaying with nickel powders (item 4.f) L. Costa and M. Pedemonte Luca supplied an oral update. This is for plasma based spray overlays. They have had repetitive problems with cracking.

5. National reports

Canadian Report –

- An ongoing study by Dr. Cherry of the University of Alberta on the health effects of welding on the unborn child. The trades involved are welding and welding related metal trades in one cohort and electricians in the second cohort. Dr's. Cherry and Beach made a presentation to our national welding safety committee this past February.
- The University of Waterloo has been commissioned by the CANDU Owners Group to investigate hot work risk within their nuclear energy facilities. Dr. Weckman and her team have been sharing their findings with our CSA W117.2 committee. I have forwarded a presentation which she gave me to the hot work committee members. The concern here is that the controls may not adequately address the risk in some circumstances where as in others the controls are too cumbersome for the risk. Dr. Weckman and her team are trying to quantify the risk by task
- Canada's welding safety standard CSA W117.2 -12 was published in late 2012 and we are moving forward with National Standard Designation for our standard.

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Japan

There are some dust hazards that have been identified in other trades and similar concerns have been raised for workers who clean welding shops, new controls are forthcoming.

Sweden

Sweden welder training manuals are now complete on line, they will have no more hard cover textbooks, and all training material will be updated on line. It is only available in Swedish language.

They recently completed evaluation of artificial radiance or welding flash. They had originally underestimated these values and fellow workers (not welders) were getting too much welding flash. They have issued a new report and guidelines containing a checklist based risk assessment.

UK

Acetylene regulations are old and are in the process of being revised and brought up to date.

Netherlands

Working evaluating 35 different welding situations for fumes concentrations to develop standardized workplace requirements for ventilation. Expect a report by year end.

Germany

Fume regulations are under review, it is anticipated that the allowable breathing concentrations will be reduced by a factor of 10. It is expected that welding will not be possible without breathing protection.

USA

Thoriated tungsten electrodes may be on the way out as new legislation has resulted in training, recording and handling requirements for companies selling this electrode. It is expected that companies will just stop handling it. Welding procedures requiring thoriated tungsten will have to be re-qualified to use a standard non-thoriated electrode.

ACGIH has recently announced that it intends to dramatically reduce the Threshold Limit Value (TLV) – Time Weighted Average (8-Hour TWA) for respirable Manganese particulate. The current TLV stands at 0.2 mg/m³ and would be reduced to 0.02 mg/m³, or a ten-fold reduction under current levels. This TLV applies to Manganese compounds found in fumes from welding processes. Currently the Occupational Safety and Health Administration (OSHA) have an established Permissible Exposure Limit (PEL) for Manganese of 5.0 mg/m³ Ceiling Limit. The PEL established by OSHA is the federal law for employee exposures at workplaces.

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OSHA proposes a new permissible exposure limit, calculated as an 8-hour time-weighted average, of 50 micrograms of respirable crystalline silica per cubic meter of air (50g/m³).

France

Hexavalent Chromium has been reduced to 1mg/m³ allowable. France is developing a matrix of allowable ultra fine particles (UFP) – study is ongoing.

Poland

Extensive testing is being done on welding through coatings such as galvanized steel, zinc oils and other heavy coatings; concerns are being identified with excess fume concentrations.

Portugal

They have a research project dealing with zinc free coated materials.

Session II Technical Reports:

Presentation on the new EMF Directive (2013/35/EU), G. Melton (doc. VIII 2066-13)

Employers in the European Union will be required to ensure that worker's exposure to EMF is Assessed, minimized and below the levels set out in the new EMF Directive (2013/35/EU) Published on 26 June 2013. To assist with the implementation of this new Directive the European Union funded a research project, named EMFWELD. This project sets out to measure, calculate and assess workers exposure to Electromagnetic fields (EMF), particularly related to welding and non-destructive testing. This article aims at giving a brief overview of the project objectives, how they are in accordance with the new Directive requirements and how this new Directive might have an influence in the welding sector.

Presentation of the project EMFWELD runs by the European Welding Federation, L. Coutinho and E. Assuncao (Doc VIII 2163-13).

EMFWELD is a European Union funded project to develop a database of emf exposures to workers. They will attempt to understand what effect EMF has on the human body. Determine the exposure levels and assess risk to employees. The intent is to also develop methodology to provide employers with methods of reducing exposure to emf. One part of the project is to develop software to be available for employers to be able to evaluate their industrial applications.

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Presentation of the paper "Biological Effects of welding fume from zinc coated materials", Dr. Thomas Kraus (doc. VIII 2067-11) Concern was for lung fibrosis after extreme and long term exposure to welding fume and gases. Very few cases reported and very few cases under long term care. Biological monitoring interval currently at 36 months. Trying to develop methods of early detection. A field study was done with 45 males. Exposure to Zinc Coatings. All testing by this group standardizes their concentrations at 2.5 mg/m³. Testing was for onset of metal fume fever. Testing was performed on university students not animals.

Session III – Standardization

Update of List of welding related standards, Doc. VIII–2079r3-11 (delegates and experts are kindly requested to submit possible comments to M. Lundin, mathias.lundin@svets.se).

This was discussed however no action was taken

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Session IV – National seminar

Review of German studies on fume emission and effects on the body (including particle size distribution, long term reactions of the lung, early indicators of inflammation), Dr. Brandt

Report on the "weldox" study", Wolfgang Zschiesche presented this study data which was performed 2007-2009

Inhalable and respirable collection was performed directly in the breathing zone

Ultra fine particles (UPF) collection at selected work places

Metals were checked in various body fluids

The sampling took place in shipyards and other workplaces

Stick, tig and mag/mig welding was included results were combined

Powered air respirator helmets, personal mask, confined space, efficient fume extraction – 3.5 hrs was used as a collection time

Personal air sampling behind the shield and other locations

Median for inhalable size particles was 2.1 mg/m³; median for respirable particle size was 1.0 mg/m³

Confined space showed an increase of almost double the respirable measurements of areas which were not confined spaces

Blood testing was used to show concentrations/absorption of manganese in welder's bodies

There is a non-linear relationship between Mn in air vs. Mn in blood

This is the first study with Mn measurements also in respirable fume collection in the breathing zone

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Best exposure reduction: Powered air respirator helmets (PAR) the biggest issue here was the presenter was not aware of what element was used in the PAR. The helmets come equipped with HEPA elements, and this was confirmed by 3M.

Report on the project Synergy (meta - analysis on case control studies on cancer), Wolfgang Zschiesche presented this study data

16 case controlled studies in 16 countries, Canada participated in this study

20,000 lung cancer cases

24,000 control persons majority population based

Recruitment was between 1985 and 2000

140,666 personal measurements to create ExpoSYN

Comprised of 5 cardigans, chrome, nickel, asbestos, poly aromatic hydrocarbons, respirable crystalline silica

Adjustments were made for the year of measurement; random effect of job title; random effect for region.

The report is currently under development

Presentation of the paper “Comparative investigations in order to characterize ultrafine particles in fumes in the case of welding and allied processes”, V.E. Spiegel Ciobanu (doc. VIII 2161-13).

See paper

Session V – Best practice documents

Presentation of the document “Hot work” (VIII-2145r1-13), S. Hedrick

This document is intended to become a best practices document. Comments had been received from Canada and from Switzerland. The group will have 2 months to go through this document and make comments and recommendations.

Hot Work Safety Zones – D. Hisey made a presentation from the University of Waterloo which had been given to him by Dr. Beth Weckman. Dr. Weckman and her team are working on this issue for the CANDU Energy Group. An attempt is being made to provide adequate protection for hot work in all areas without erring on the side of too much or too little prevention and protection.

Presentation of the document “Main Compounds found in welding fumes and information regarding their toxicity” (doc. VIII-2156-13, N. Floros).

Iron is always the major component in any steel welding. The presenter went on to describe what was in welding fume and what was not in welding fume from any type of steel welding. There was a lot of very passionate discussion on this presentation.

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Discussion on recommendation for publication for the following documents:

a. C VIII best practice on Nitrogen Oxides, V. Spiegel-Ciobanu (Doc. VIII 2013R4 – 13)

Recommended for publication under Dr.-Ing. Spiegel-Ciobanu name. A short acknowledgement that the committee has reviewed this document.

b. “Health and safety risks in welding activities”, W. Zschiesche, (doc VIII 2123R3-13)

Recommended for publication under W. Zschiesche and L. Costa name. A short acknowledgement that the committee has reviewed this document.

c. Lung function, asthma, chronic obstructive pulmonary disease and arc welding”, M. Cosgrove (doc. VIII-2136-12)

Recommended for publication under Martin’s name. A short acknowledgement that the committee has reviewed this document.

VIII-2141r1-12 “Multilingual presentation for health and safety addressed at welders”:

a. Collection of images from delegates and experts (delegates and experts are kindly requested to submit possible comments to the chairman, luca.costa@iisprogress.it) and discussion on possible relevant use;

b. Discussion on the content (text, images) and continuation of the revision;

Session IV – Administrative matters

Annual assembly in Seoul, July 2014

Intermediate meeting 2014, 29 - 30 January, Obuda University (in cooperation with Federation of the European Ergonomics Societies), Budapest (HU)

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**Session V - Joint Meeting with commission II (Arc welding and Filler Metals)
Welding consumables product compliance in Safety data Sheets with Globally Harmonized
System (GHS) of Classification and Labeling of Chemical, John Petkovsek (doc. VIII 2165-
13).**

This is an excellent presentation; it is available for anyone who requests it. There is a large change coming for Canada and the USA to meet the GHS requirements. GHS has been adopted into Canada. Canada has agreed to follow the guidelines being supplied by the USA OSHA so that it minimizes the effect of the border on trade. June 1, 2015 is the implementation date for USA OSHA.

Chromium VI in welding fumes when welding with low alloyed filler metals (ISO TR 13992, VIII-2155-13), L. Costa

The German community had a problem with ISO Document: ISO/TR 13392. These are the comments and suggestions that they submitted.

Comments:

Table 1, which also represents the focus of this technical report, is, in this version, in our view, not correct because it does not consider in all cases the national findings and research results regarding control and major components during welding. Table 1, footnote 3 is not sufficient to emphasize that the components Cr, Cr (VI) and Ni have no meaning in welding of unalloyed and low-alloyed welding consumables, neither occupational hygienically and toxicological still metrological. The listing of these substances in these process/material-combinations as master and main components would unnecessarily burden the measuring effort without being able to detect the substances themselves.

Proposed change:

the components Cr, Cr (VI) and Ni are to be deleted in the following five welding processes: "MMA, MIG / MAG / TIG welding and gas shielded tubular cored arc welding" with "unalloyed and low alloy steel" in the column "Typical principal components". □ the components Cr and Cr (VI) are to be deleted also in the following five welding processes : "MMA, MIG / MAG / TIG welding and gas shielded tubular cored arc welding" with "unalloyed and low alloy steel" in the column "Typical key components" □ Delete "Be" for MMA, row: Aluminum in column "other possible principal components" Delete "Cr and Ni in row "Self-shielded tubular cored arc welding" with "unalloyed and low alloyed steel" in column Typical principal components.

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New ACGIH TLV for Mn and the impact on welding operations John Petkovsek

General Warnings for Consumables – John reviewed the new label that Lincoln is proposing

**14 September 2013, 16:00 to 18:00, Hall Brüssel, Floor 2.
Session VI - Joint Meeting with SC-QUAL (Quality management in welding fabrication),
see doc. VIII 2066-13.**

Opening of the meeting and welcome address by Luca Costa

Adoption of the agenda (SC-Qual-195-13, VIII 2066-13)

Adoption of the minutes of the Joint Meeting of SC Qual held on 2012-07-11 in
Denver (SC-Qual-188-12, VIII 2066-13) and minutes of SC Qual held on 2013-01-16
(SC-Qual-191-13, VIII 2066-13)

Health and Safety at Workplace: Does it pay off economically?
- Soft Benchmark Figures: Approaching the Return on Investment of H&S activities
at workplace

**Calculating the International Return on Investment for Companies: Costs and Benefits of
Investments in Occupational Safety and Health**

This is a study which was completed by the German Insurance Agency and it is very detailed. In summary they measured the results in 19 countries of which one was Canada. On average 52% of companies felt that long term cost declined over time. The overall return on prevention costs (ROP) was 2.2 so for every dollar spent \$2.20 was returned. This is a bit of oversimplification. The report is on file.

Date and place of the next meeting: Seoul, Korea – July 13, 2014 through July 18, 2014

Note: Should any reader of this report desire a copy of any document, please contact Dave Hisey at drhisey@shaw.ca