

**Minutes of EFC WP 15
Corrosion in the Refinery Industry**

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Prepared by

Francois Ropital

Johan van Roij

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1 WELCOME

Francois Ropital opened the meeting.

32 persons attended the meeting and briefly introduced themselves. The list of participants is enclosed in Appendix 1.

2 EFC WP 15 ACTIVITIES

2.1 EFC WP 15 activities And Minutes of Meetings

Information on the activities of EFC WP 15, Corrosion in the Refinery Industry, was presented by Francois Ropital. This information can also be found on the EFC web site where the minutes of previous WP15 meetings can be consulted and downloaded. More information is enclosed in Appendix 2.

<http://www.efcweb.org/Working+Parties-p-104085/WP+15-p-104111.html>

2.2 Publications from WP15

Discussion on proposals for revision of these publications:

- Revision of the EFC Guideline 46 "Amine units corrosion in refineries". This revision takes place in the frame of a joint WP13-15 task force and its advancement is presented in more details in paragraph of these minutes.

Discussion on proposals for future publications:

- A best practice guideline on corrosion in sea water cooling systems is proposed. It could be managed in relation with another EFC WP (marine corrosion ?).

2.3 Downloading Previous Eurocorr Conference Papers

Papers from the previous Eurocorr conferences (from Eurocorr 2004 to 2015) can be downloaded via the member's pages of each of the national member societies of EFC. The list of EFC member societies is available on the web page:

<http://www.efcweb.org/Who+we+are/Member+Societies.html>

Please contact your member society for more information on access to these papers.

2.4 EUROCORR 2016

This annual working party meeting was held in Montpellier during the Eurocorr 2016 conference "Advances in linking science and engineering"

The session dealing with refinery corrosion has been held on 13th September. Attendance of this sessions was between 25 and 40 persons, figures that reflects the attendance of the 2016 conference with about 1100 participants.

2.5 EUROCORR 2017

Eurocorr 2017 "Corrosion control for safer living" will take place in Prague, Czech Republic from 3-7 September 2017. This conference will be associated with the 20th International Corrosion Congress (ICC) and the Process Safety Congress. <http://prague-corrosion-2017.com/>

A session dealing with corrosion in refineries will take place. The deadline to submit abstract is 17th January 2017

2.6 EUROCORR 2018

Eurocorr 2018 will take place in Krakow, Poland from 9-13 September 2018.

2.7 Next 2017 WP15 spring meeting

The participants agreed to continue to have 2 working party meetings per year: one in spring and one during the annual Eurocorr conference.

Concerning the 2017 WP15 spring meeting, the possibility that BP could host the meeting in London or Rotterdam is under investigation.

3 CORROSION FAILURES

3.1 Corrosion in the Residue Fluid Catalytic Cracking Unit (Reactor & Regenerator)

Ntsikelelo Ngonyoza (ORPIC) presented the corrosion of a heavy gasoline section of a FCC main column and of the corrosion loop. To prevent these damages, the main column was protected by a high nickel alloy cladding and some sectional replacements of heavy gasoline piping circuit in higher nickel alloy metallurgy were performed. More information can be found in Appendix 3.

3.2 Sensitisation and cracking of reactor vessel made of 1.4910

Martin Hofmeister (Bayernoil) reported further investigation on a failure case of a pressure vessel head made with 1.4919 (316LN) steel that operated between 500-530°C. Two mechanisms of cracking are proposed : stress relaxation cracking (SRC) or sensitization. The metallographic examinations do not reveal the standard damages due to SRC. More information can be found in Appendix 4.

4 SOUR WATER CORROSION

Slawomir Kus (Honeywell) presented the available sour water prediction models to provide accurate quantification of corrosion. The latest sour water prediction model:

- supports better inspection and maintenance planning, and optimal allocation of monitoring/equipment resources
- assists in identification of key monitoring locations for risk reduction
- facilitates selection of the right alloy or treatment choice
- helps mitigate and minimize risk of failure (as a component in any RBI program)
- provides tools for real-time corrosion prediction with on-line data-feedback from plant's DCS.

More information can be found in Appendix 5 .

5 MONITORING

David Lorkin presented Permasense wireless technology based on ultra sound signal to measure wall thickness. Signal processing has been developed in order to have more accurate measurements and indication when the surface is changing. More information can be found in Appendix 6.

6 REPORT ON THE ADVANCEMENT OF TASK FORCE WORK ON THE REVISION OF THE EFC 46 GUIDELINE

After the meeting of April 25 the amine corrosion Task force mainly worked on the development of a questionnaire that later this year will be send to the members of the EFC WP13 & WP15 to obtain corrosion experience in amine units operating in refineries and gas plants. The questionnaire is developed as an Excel spreadsheet. More information can be found in Appendix 7.

7 NEXT MEETINGS

2017 Spring WP15 Meeting

The possibility that BP could host the meeting in London or Rotterdam is under investigation

2017 Autumn Full WP 15 Meeting:

This meeting will take place in Prague, Czech Republic from 3-7 September 2017