

Conferences and Seminars Organized by PPCHEM AG – An Overview

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ABSTRACT

Since 2012, PPCHEM AG and its precursor organization, Waesseri GmbH, have organized more than 30 conferences and seminars around the world with the mission of expanding the knowledge of cycle chemistry and the understanding of analytical instruments. Over the past 9 years, different formats of events have been developed to fit the different needs and interests within the power plant chemistry community.

The first kind of event series developed was called Power Cycle Instrumentation Seminars (PCIS), with the mission of expanding the knowledge of cycle chemistry and the understanding of sampling techniques and analytical instruments. Based on the feedback from the PCIS participants a new series of events – PowerPlant Chemistry Forums (PPCF) – was introduced in 2016. Compared to the PCIS the PPCF does not concentrate exclusively on sampling and instrumentation, but instead includes a wide variety of nearly all aspects of power plant chemistry, such as life-cycle chemistry optimization, start-up chemistry and early operation experience, and plant failures and subsequent chemistry adjustments. The forum is basically a typical conference, where numerous international speakers from many different organizations present, hence it is a platform for all participants to exchange information and knowledge and for networking.

Beside the PCIS and the PPCF, educational seminars have also been developed and offered. These seminars are typically focused on a "hot topic" from power plant chemistry and usually they are conducted by PPCHEM's chief expert power plant chemistry Michael Rziha.

This contribution outlines the developments in the past years and gives more details on the different formats of events which are currently organized by PPCHEM AG.

INTRODUCTION

Since 2012, PPCHEM AG and its precursor organization, Waesseri GmbH, have organized more than 30 conferences and seminars around the world with the mission of expanding the knowledge of cycle chemistry and the understanding of analytical instruments (see [Figure 1](#)). Over the past 9 years, different formats of events have been developed to fit the different needs and interests within the power plant chemistry community.

The PPCHEM Seminar "The Economic Benefits of Power Plant Chemistry" in Muscat, Oman, on November 20–21, 2019, was the last physical event which was organized by PPCHEM AG before the COVID-19 pandemic suddenly shut down our activities in early 2020. Since March 2020 the world has not been the same and all event organizers have been confronted with a "new normal." Unfortunately, it looks like the pandemic will continue to be a hinderance in or-

ganizing international physical meetings in the near future.

Looking beyond all the negative effects due to COVID-19, it has been very interesting to see how many companies, institutions, and conference organizers have been able to switch to virtual meetings and events very quickly during the past year. These virtual meetings will continue to have their *raison d'être* in the future, and they will contribute to the international knowledge exchange even once physical meetings and international conferences are again possible. Currently it looks like it will once more be possible to travel internationally in 2022; therefore, PPCHEM has recommenced planning physical meetings for the next year. As it is too early to properly plan with venues and dates, these events will be announced in future issues of this journal.

With the physical meetings put on hold and the virtual events running smoothly after the initial trial period, it is time to reflect on the past years and to show our readers in more detail the developments since the first event was organized in 2012. Therefore, the aim of this contribution is to outline the developments in the past years and give more details on the different formats of events which are organized by PPCHEM.

POWER CYCLE INSTRUMENTATION SEMINARS (PCIS)

Due to a lack of travel budgets, station chemists, designers, and operators from Southeast Asia, South America, and southern Africa are not frequently seen at international conferences in the USA and Europe. For this reason, Waesseri GmbH, former publisher of the PowerPlant Chemistry journal, started to organize the Power Cycle Instrumentation Seminars (PCIS) in order to connect international experts with the above-mentioned regions of the world. The first PCIS took place on March 27–28, 2012, in Bangkok, Thailand.

The PCIS consisted of four sessions:

- Chemical Regimes and the Respective Chemistry-Related Surveillance Requirements
- Analytical Methods and Instruments
- Cooling Water Sampling and Monitoring
- Hands-On Session

The detailed proceedings of these sessions were summarized and published in this journal [1].

Specialists gave an introduction to the analytical methods, the sampling points, and the critical issues for each parameter. For many participants this was a new way of looking at their instrumentation because the emphasis was on understanding the basic principles instead of focusing on specific brands.

The seminar drew over 60 station chemists, instrument technicians, designers, and engineers from all over Asia. The feedback from the audience was very positive and therefore the organizers considered repeating this type of event to spread the knowledge of cycle chemistry and an understanding of analytical instruments.

Shortly after the event in Bangkok, the decision was made to organize a second event. While the first seminar concentrated on the fast-growing region of Southeast Asia, the world region chosen this time was southern Africa. Since then, the PCIS series has taken place in 16 different places in Asia, the Americas, and Africa. The main con-

cept of the PCIS has remained the same over the past years – a well-proven mixture of theoretical background information on cycle chemistry, sampling, and monitoring as well as analytical methods and instruments, with a practical hands-on session with instruments.

On October 8 and 10, 2021, PPCHEM is holding the first virtual PCIS – even though there will be no possibility to offer a hands-on session, we are convinced that it will be as informative and interesting for the participants as the physical seminars of the past. For 2022 we are currently planning to bring the series to Europe for the first time – more information on these plans will follow in this journal.

POWERPLANT CHEMISTRY FORUM (PPCF)

Based on the feedback from the first instrumentation seminars, Waesseri GmbH decided to start a new series of events – PowerPlant Chemistry Forums (PPCF) – with even more time for the participants to discuss and to share knowledge and experience with their colleagues from other power plants and with the international experts. The main focus of the forum shifted slightly from that of the PCIS as it does not concentrate exclusively on sampling and instrumentation, but instead covers a wide variety of power plant chemistry topics.

The first PowerPlant Chemistry Forum took place in Johannesburg, South Africa, on March 24–26, 2016. The forum consisted of four sessions covering different aspects of water/steam cycle chemistry: life-cycle chemistry optimization, start-up chemistry and early operation experience, combined cycle power plant and utility plant chemistry, as well as plant failures and subsequent chemistry adjustments.

The international and local experts invited to the forum presented case studies on each of the topics of the four sessions to build the foundation for the plenary discussions. After every presentation and at the end of each session sufficient time was scheduled for in-depth plenary discussions. The detailed proceedings of these sessions were summarized and published in this journal [2].

The forum in Johannesburg attracted over 70 station chemists, managers, technicians, and engineers. The plenary discussions were very fruitful, and the break times were also used intensively to share and discuss experiences from the attendees' own plants with the local and international colleagues.

The very successful start of the new event series in Johannesburg made it clear that the PPCF series would be continued, and since 2016, the series has stopped over in 9 different places around the world. The PPCF series aims to provide insights into the latest developments in cycle chemistry by sharing operational experience from fossil, combined cycle, biomass, nuclear, and other plants from around the world. The agenda consists of both invited and contributed technical papers, with a steering committee being responsible for putting the agendas together.

On September 23, 2021, PPCHEM is holding the first virtual PPCF – the PPCHEM FORUM USA is a continuation of the forum held in 2019 in Washington, D.C. ("Power Cycle Chemistry in a Changing World"), and will focus on the challenges of sampling, monitoring, and data management in cycling plants. Registration is still open and everybody who is interested is welcome to join.

PPCHEM SEMINAR

On January 1, 2019, the publishing house Waeseri GmbH was transformed into the new company PPCHEM AG, and in February 2019, Michael Rziha became the chief key expert power plant chemistry at PPCHEM AG. Before joining PPCHEM AG, Michael Rziha was regularly in-

involved as a speaker or steering committee member in many of the past PCIS and PPCF events described above. He has also been a member of the International Advisory Board of the PPCHEM journal since October 2014.

With Michael Rziha joining PPCHEM AG it became possible to add another kind of event series to the portfolio: PPCHEM Seminars. The seminars offer easy-to-understand insights into the aims and tasks of power plant chemistry, as well as into the necessary basics, such as water chemistry and corrosion science, not only to chemical specialists, but also to the "non-chemist." The different possible operating regimes, the relevant guidelines (e.g., IAPWS, EPRI, VGB), and the correct and optimum chemistry selection and application in relation to the individual plant design are demonstrated, as well as the necessary considerations for the operational monitoring concept.

In November 2019, the first two seminars were organized in Dubai, UAE, and Muscat, Oman. Both Seminars had the same focus and title: "The Economic Benefits of Power Plant Chemistry."

Plant damage caused by corrosion, unplanned shutdowns, and/or impairment of efficiency and plant performance for chemical reasons are still among the major root causes of huge

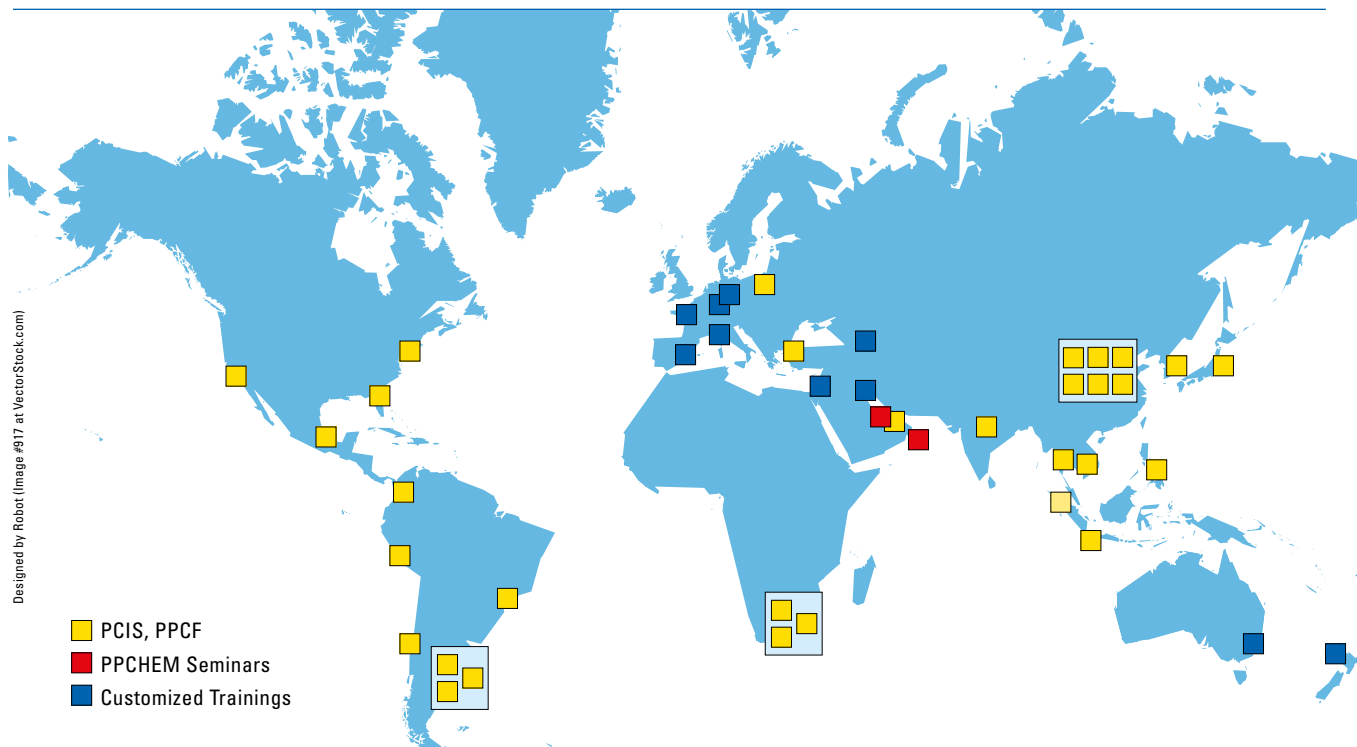


Figure 1: World map with all the locations where PPCHEM AG has organized events between 2012 and 2021.

economic losses. Often an inadequate selection of the individual chemical regime or inappropriate chemical monitoring in conjunction with countermeasures applied too late are reasons for these setbacks. The Seminars demonstrated the possible negative economic impacts as well as how an optimum plant chemistry can contribute to improving the economic situation of the individual plant based on selected case studies.

A fundamental understanding of the interaction between the water qualities occurring in the power plant, the various materials used, and the different processes and conditions of the individual systems is of essential importance to avoid these impacts and to improve the economic benefits.

This kind of Seminar will be offered again in the future, once travelling and planning are possible on a sounder basis in regard to the future developments with the pandemic.

Webinar

When in early 2020 it became clear that physical meetings and international travel wouldn't be possible for quite a while, PPCHEM developed a new format to bridge the gap and stay in contact with the power plant chemistry community. In 2020 and 2021, PPCHEM organized webinars on two different but interrelated topics.

Case Studies of Damages and Impairment Due to Chemistry and the Resulting Economic Effects

Plant damage caused by corrosion, unplanned shutdowns, or impairment of efficiency and plant performance for chemical reasons are still some of the major root causes of huge economic losses. In this two-hour live session, Michael Rziha discussed real life experiences of chemistry upsets, their individual root causes, as well as the resulting economic damage. Based on these case studies, the economic impact of insufficiently controlled chemistry was explained, and it was shown how to avoid such failures in your own plant.

Boiler Types and Design and the Resulting Requirements on Plant Chemistry

Not all boilers are alike. There are many different designs – ranging from fired drum and once through (Benson) boilers to the various types of HRSGs, flame-tube boilers, etc. Aside from the various designs, the materials used for these boilers also need to be taken into consideration, as well as the different operating pressures and operating modes. This webinar dealt with the

question: Which factors and design features have an impact on the selection of the optimal chemistry?

In this two-hour live session, Michael Rziha discussed the design details of various types of steam generators, explaining why and how these features are crucial for the decision of which chemicals should or shouldn't be applied. He also spotlighted the various relevant industry standards.

CUSTOMIZED TRAINING FOR INDIVIDUAL COMPANIES

In addition to the four different kinds of public events, PPCHEM AG also offers individual and customized in-house chemistry training for all aspects of power plant chemistry, such as:

- Guidelines such as IAPWS, VGB, and other applicable standards
- Plant and boiler / HRSG design (also materials)
- Feedwater, boiler, and steam chemistry
- Flow-accelerated corrosion
- Chemical cleaning
- Sampling and monitoring including data evaluation and data management
- Water treatment plants and condensate polishing plants
- Cooling water treatment
- Layup and storage
- Commissioning
- Air leakage
- Chemical dosing systems

Individual and customized in-house chemistry trainings are tailor-made training sessions for all types of staff (including for non-chemistry experts, managers, plant operators, etc.) and thus for any level of required knowledge. Since 2019, Michael Rziha has conducted these training sessions both remotely, i.e., via video calls, and on site, meaning at the individual company/organization.

ORGANIZER OF IAPWS EVENTS

PPCHEM AG has been organizing two prestigious international event series for the International Association for the Properties of Water and Steam (IAPWS). The IAPWS International Conference on Film Forming Substances (FFS) since 2019 and the IAPWS Meeting of the European HRSG Forum (EHF) since 2020.

The FFS conferences are developed and supported by IAPWS [3], while the EHF is supported by IAPWS and is held in association with the Australasian Boiler and HRSG Users Group (ABHUG) and the US HRSG Forum (HF) [4].

CONCLUSION

To the same extent as with the publication of the PPCHEM journal, PPCHEM AG's main mission is to increase knowledge about cycle chemistry around the world by organizing different kinds of events. Over the years, the PCIS, PPCF, PPCHEM Seminars, and PPCHEM Trainings have been developed to serve the international community and to enable international exchange on the latest developments in power plant chemistry. PPCHEM AG will continue to organize these event series, be it in virtual space or as physical meetings.

REFERENCES

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THE AUTHORS

Tapio Werder is the current editor in chief of the PPCHEM® journal.

He started his work for the journal in 2014 as an editorial assistant, and in 2015 the responsibility for finding appropriate submissions and for the production of the journal as the editor in chief was handed over to him completely.

As a member of management at PPCHEM AG he is responsible for all administrative tasks and the organization of the international conferences and seminars.

Since 2015 he has been the secretary of the Swiss Committee for the Properties of Water and Steam (SCPWS) – the Swiss national committee of IAPWS.

Michael Rziha is the chief key expert power plant chemistry at PPCHEM AG, where he conducts worldwide seminars, lectures, and conferences on all power plant chemistry related topics, as well as provides individual technical consultancy. As a member of management at PPCHEM AG he is responsible for the technical content of all seminars and events and for the entire consultancy service. Before joining PPCHEM AG, Michael worked at Siemens Power Generation, Germany, from 1983 until January 2019.

At Siemens he initially started in the chemical analytical laboratory in Erlangen before he became a chemical commissioning engineer, where he was involved in numerous projects (nuclear and fossil fired and combined cycles) around the globe during their commissioning period until 1995. From 1995 on he worked for 3 years in the design department of Siemens Power Generation for water treatment plants and power plant chemistry. Between 1998 and 2013 he was the head of the department Power Plant Chemistry and Chemical Cleaning. In 2013 he was appointed as key principal expert for plant chemistry at Siemens AG.

Michael is a member of several VGB committees concerned with chemistry and water processing and is the chair of the Power Cycle Chemistry working group of the International Association for the Properties of Water and Steam. He is also a member of the International Advisory Board of the PPCHEM journal.

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PPCHEM AG

Conferences and Seminars

2012 March	■ Bangkok, Thailand
October	■ Johannesburg, South Africa
2013 March	■ Kuala Lumpur, Malaysia
April	■ Dubai, UAE
October	■ Orlando, USA
2014 March	■ Beijing, China
May	■ Krakow, Poland
September	■ Manila, Philippines ■ Seoul, South Korea
2015 April	■ Beijing, China
July	■ Santiago, Chile ■ Buenos Aires, Argentina
September	■ Tokyo, Japan
November	■ Carlsbad, USA
2016 March	■ Beijing, China
April	■ Johannesburg, South Africa ■ Istanbul, Turkey
May	■ Jakarta, Indonesia
2017 March	■ Bogotá, Colombia ■ Buenos Aires, Argentina
April	■ Beijing, China
September	■ Bangkok, Thailand ■ Dubai, UAE
2018 April	■ Mexico City, Mexico ■ Lima, Peru ■ Buenos Aires, Argentina
May	■ Beijing, China
November	■ Delhi, India
2019 March	■ Heidelberg, Germany (FFS2019)
April	■ Beijing, China
September	■ Washington, DC, USA
October	■ Campinas SP, Brazil
November	■ Pretoria, South Africa ■ Muscat, Oman ■ Dubai, UAE
2020 June	■ 3 Webinars, Spanish ■ 1 Webinar, English
July	■ 1 Webinar, English
2021 March	■ Virtual (FFS2021)
May	■ Virtual (EHF2021)
June	■ 2 Webinars, English

Conferences and Seminars

- Power Cycle Instrumentation Seminar (PCIS)
- PowerPlant Chemistry Forum (PPCF)
- IAPWS International Conference on Film Forming Substances (FFS)
- IAPWS Meeting of the European HRSG Forum (EHF)
- PPCHEM Seminar