

COST Action
Progress Report at 24 months
(26/10/2021 to 26/10/2023)

CA20130: European MIC Network
New paths for science, sustainability, and standards

Report on CA20130 Training Courses

(1) Free E-Course on MIC and Corrosion Threat Assessment

Event Overview:

The free E-course on Microbiologically Influenced Corrosion (MIC) and Corrosion Threat Assessment, sponsored by the EUROMIC project under COST Action 20130, provides a valuable opportunity for individuals seeking to enhance their understanding of corrosion threats. This online course aims to introduce participants to the assessment process for MIC and other corrosion threats while emphasizing the information required to make informed decisions about such threats. The course is hosted on the LearnWorlds online learning platform and is easily accessible for registration.

Course Details:

Sponsor: EUROMIC project under COST Action 20130

Course Format: Online, accessible through the LearnWorlds platform

Registration: Users can register for the course by following a simple registration process, creating a username and password.

Duration: Once registered, participants have access to the course materials for one year, allowing them to complete the course at their convenience.

Trainers:

Rick Eckert (US, WG5)

Torben Lund Skovhus (DK, Vice Chair)

Judit Knisz (HU, WG1)

Course Content:

The E-course is designed to provide comprehensive knowledge on MIC and corrosion threat assessment. The course includes the following elements:

Duration: Over 6 hours of learning activities spread across 8 individual lessons.

Learning Activities: The course offers 53 diverse learning activities, including lectures, case studies, articles, assignments, self-assessments, and more.

Certificate: A certificate of completion is awarded to participants upon successful completion of all learning activities.

Outcome:

The free E-course on MIC and Corrosion Threat Assessment, made possible through the sponsorship of the EUROMIC project, achieves significant success. The course provides a platform for individuals to enhance their knowledge of corrosion threats, particularly focusing on the challenging issue of Microbiologically Influenced Corrosion. The learning activities and diverse content ensure that participants gain a well-rounded understanding of the subject matter.

The course's online format allows for flexibility in learning, enabling participants to complete the program at their own pace while their progress is automatically saved. Moreover, the one-year accessibility period means that participants have ample time to revisit the materials and further consolidate their knowledge.

In conclusion, the availability of this free E-course on MIC and Corrosion Threat Assessment is a commendable initiative, opening up opportunities for individuals to develop their expertise in corrosion management. The course serves as a valuable resource, contributing to the dissemination of knowledge in the field of corrosion threat assessment, thanks to the support of the EUROMIC project. Participants are encouraged to register and embark on their learning journey, with a certificate of completion awaiting those who successfully master the course. Good luck to all participants in their pursuit of knowledge through this online course from Euro-MIC!

Registration: <https://mic-academy.mylearnworlds.com/course/cost-assessing-mic>

(2) Microbiologically Influenced Corrosion (MIC) Industry Workshop & Training Event - May 30 to June 2, 2023

Date: May 30 to June 2, 2023

Introduction:

The event, titled "Insights into Microbiologically Influenced Corrosion (MIC) surveillance tools, threat assessment, and mitigation – Industry Workshop & Training," was held from May 30 to June 2, 2023. It focused on addressing the critical issue of corrosion, which poses a substantial global challenge, with an estimated annual cost of \$3 trillion USD. This report provides an overview of the event's key aspects, objectives, target audience, venue, and the organization committee responsible for its success.

Background:

Corrosion, the gradual deterioration of materials, particularly metals, when exposed to their surrounding environment, is a significant concern worldwide. Microbiologically Influenced Corrosion (MIC), also known as biocorrosion, encompasses various processes in which microorganisms directly or indirectly contribute to corrosion. MIC is a substantial issue in numerous industrial systems, including drinking water distribution, cooling systems, sewage treatment facilities, underground pipes, maritime vessels, nuclear power facilities, and particularly the oil and gas industry across its production, refining, and transportation operations.

Workshop Objectives:

The four-day focused workshop aimed to equip participants with a foundational understanding of MIC, enabling them to apply their knowledge in real-world settings and ensure effective mitigation. Specific learning objectives included:

- Understanding the causes of MIC and its recognition and monitoring.
- Familiarity with laboratory and field-testing techniques for MIC.
- Awareness of available mitigation strategies, including practical demonstrations.
- The ability to identify and apply appropriate strategies to mitigate MIC.

Target Audience:

The event catered to a diverse audience, including:

- Industry professionals
- Industry partners
- Postgraduate students
- Postdoctoral research fellows

The workshop provided a valuable opportunity for these individuals to specialize in facility corrosion, particularly focusing on biocorrosion, while facilitating networking with peers in the field.

Venue:

The event was held at Duzce University, Faculty of Engineering, Department of Mechanical Engineering, Corrosion Research Laboratory, located in Duzce, Turkey (81620).

Learning Objectives:

Participants were expected to achieve the following learning objectives:

- Gain a fundamental understanding of corrosion, emphasizing MIC.
- Comprehend various corrosion mechanisms, with a focus on MIC.
- Apply the Multiple Lines of Evidence (MLOE) approach for diagnosing MIC.
- Implement the latest Industry Guidelines and Standards for Corrosion Management and MIC in Engineered Systems.
- Utilize Corrosion Management principles to assess, mitigate, and monitor MIC-related corrosion threats.
- Understand and apply state-of-the-art MIC diagnostic methods.
- Grasp sampling strategies and procedures for different sample types obtained in Engineered Systems.
- Become familiar with chemical, metallurgical, and microbiological test methods used in corrosion investigations and MIC laboratory experiments.
- Gain insight into corrosion and MIC mitigation methods, as well as their implementation and monitoring in various industries.

Who Should Attend:

The event welcomed a broad spectrum of participants, including:

- Industry professionals and partners

Academic professionals

Students interested in corrosion and material degradation in aqueous systems, including MIC Individuals responsible for developing, implementing, and executing corrosion management activities, such as corrosion and materials engineers, microbiologists, production chemists, process engineers, integrity managers, laboratory technicians, and field staff

Asset operators, manufacturers, consultants, academics, and students looking to stay updated on the latest developments in the field.

Organization Committee:

The event was organized by Prof. Dr. Husnu Gerengi, who served as the Local Course Organizer, ensuring the successful execution of the MIC Industry Workshop & Training. Course content director was: Dr Torben Lund Skovhus, VIA University College.

Trainers:

Annie Biwen An Stepec (NO, WG2)

Husnu Gerengi (TR, WG1)

Judit Knisz (HU, WG1)

Matthew Snape (CH, WG3)

Pierangela Cristiani (I, WG1)

Rick Eckert (US, WG5)

Torben Lund Skovhus (DK, Vice Chair)

In conclusion, the Microbiologically Influenced Corrosion (MIC) Industry Workshop & Training event held from May 30 to June 2, 2023, provided a comprehensive platform for industry professionals, students, and researchers to enhance their understanding of MIC and its mitigation strategies. It fostered collaboration, knowledge exchange, and skill development in the fight against corrosion, a pervasive global issue.

Find more here: <https://mic.duzce.edu.tr>

(3) Corrosion Management Event with Special Focus on Microbiologically Influenced Corrosion (MIC) - August 22-25, 2023

Date: August 22-25, 2023

Introduction:

The event titled "Corrosion Management for the Sustainability of Assets in Aqueous Environments - with Special Focus on Microbiologically Influenced Corrosion (MIC)" was held from August 22 to 25, 2023. The primary objective of this report is to provide an overview of this comprehensive training course, including key event details, learning objectives, and the distinguished faculty members facilitating the program.

Event Overview:

Title: Corrosion Management for the Sustainability of Assets in Aqueous Environments - with Special Focus on Microbiologically Influenced Corrosion (MIC)

Date: August 22-25, 2023

Location: Prague, Czech Republic

Target Audience:

The training course was designed to cater to a diverse audience, including:

Graduate students

Post-doctoral researchers

Young researchers

Industrial professionals

This course aimed to offer specialized postgraduate training and foster networking opportunities among participants.

Faculty:

The event featured a distinguished faculty of experts in the field of corrosion management, including:

Elsemieck Croese (NL): An experienced professional from the Netherlands with expertise in corrosion management.

Anette Rasmussen (DK): A specialist from Denmark known for her contributions to corrosion research.

Rick Eckert (US): An esteemed expert from the United States with extensive knowledge in corrosion prevention and mitigation.

Torben Lund Skovhus (DK): A Danish professional renowned for his work in corrosion management.

Scott Wade (AU): An Australian expert in the field of corrosion control and asset sustainability.

Additional trainers:

Jan Stoulil (CZ, WG1)

Judit Knisz (HU, WG1)

Julain Wharton (UK, WG5)

Learning Objectives:

Throughout the course, participants were expected to achieve the following learning objectives:

Understanding Corrosion Mechanisms: Gain comprehensive knowledge of various corrosion mechanisms, with a particular emphasis on Microbiologically Influenced Corrosion (MIC).

Application of MLOE Approach: Learn to apply the Multiple Lines of Evidence (MLOE) approach for diagnosing MIC, a critical aspect of corrosion management.

Industry Guidelines and Standards: Acquire the skills to apply the latest Industry Guidelines and Standards for Corrosion Management and MIC in Engineered Systems.

Corrosion Management Principles: Understand and apply Corrosion Management principles to assess, mitigate, and monitor the corrosion threat posed by MIC.

MIC Diagnostic Methods: Learn to understand, correctly apply, and interpret state-of-the-art MIC diagnostic methods, ensuring effective diagnosis and control.

Sampling Procedures: Gain insight into sampling procedures for various sample types obtained in Engineered Systems, enabling accurate data collection.

Failure Analysis Investigation: Be equipped to plan and execute a failure analysis investigation, particularly when MIC is identified as the root cause of the issue.

Conclusion:

The "Corrosion Management for the Sustainability of Assets in Aqueous Environments" event, held from August 22 to 25, 2023, offered an exceptional opportunity for participants to deepen their understanding of corrosion management, with a special emphasis on Microbiologically Influenced Corrosion (MIC). The distinguished faculty members and the comprehensive curriculum ensured that participants gained valuable insights and practical skills to address corrosion-related challenges effectively. Overall 33 participants attended the course: 20 from Czech institutions, 13 from foreign institutions (Germany, Ukraine, Belgium, Cyprus, Denmark, France, Italy, Slovakia). The ratio of participants from academia and industry was also 20 to 13. Besides 12 lectures and 1 lab practice, the participants also visited the Pump storage hydro power plant Stechovice.

For detailed information, interested individuals were encouraged to visit the event's official website: <https://ukmki.vscht.cz/aki/mic-summer-school>