

NEWSLETTER

Moving forward together and fostering a sense of community



Dear corrosionists,

Welcome to the first EFC Newsletter of the year. It's a great honour to be the new EFC President and I'm following in the footsteps of a lot of great past presidents, including Tomáš Prošek and the previous past president Jörg Vogelsang. If I manage to continue the great work they have both done then I can consider my time as a President a success. I would particularly like to thank Tomáš for leaving the Federation in such great shape - and now I look to you and your fellow members to help further develop the EFC.

It's a challenging time and also a time of great opportunity. I want to continue the good work done by previous presidents on putting the EFC on a more financially sustainable footing by opening new revenue streams and reducing our administrative costs.

Among the great opportunities available to us is the chance to maintain EUROCORR as EFC's flagship event. It's the jewel in the crown of the EFC and the premier

conference in our calendar that's known the world over. We also have the chance to increase the sense of community within the EFC. I think it's really important to bring people together, and if I can establish that on an equal footing with other EFC priorities during my presidency, then I'll be pretty happy.

World Corrosion Awareness Day is on 24th April, so once again attention will be thrust upon the global challenge. And this year, EFC Member Societies, Working Parties, Task Forces, and the Young EFC are all lending their support to the initiative.

I trust we can make the most of the opportunities given to us and move forward together with groups like the Young EFC a driving force for the future and developing the next generation of leaders.

I hope you enjoy reading this edition of the EFC Newsletter and I look forward helping foster a community of corrosionists across Europe.

Yours, Gareth Hinds

INSIDE YOUR EFC NEWSLETTER

STAVANGER PREPARES FOR EUROCORR 2025

Sustainable solutions will the theme this year

MEET THE PRESIDENT: GARETH HINDS

Learn more about his three presidential priorities

PSK HOST FIRST PRACTICORR CONFERENCE

The Polish Corrosion
Association reveal details

EUROCORR 2024 IN NUMBERS

The record-breaking numbers behind its success

WORKING PARTY NEWS

All the latest from the WPs

YOUNG EFC PREPARE FOR EUROCORR

Previewing the YEFC events to be held in Stavanger

NEW AFFILIATE MEMBER

3X ENGINEERING are the latest EFC Affiliate Member

EFC SUMMER SCHOOL

Providing a solid foundation in corrosion science

EFC EVENTS

Make a date in your calendar for the latest EFC events

Corrosionists from across the world to gather at EUROCORR

Stavanger prepares to become the capital of corrosion this year with a focus on sustainable solutions for fighting corrosion in society



EUROCORR 2025 is only months away in Stavanger, Norway, and this year will focus on the theme of *Joining Forces for Smart* and Sustainable Solutions for Fighting Corrosion in Society.

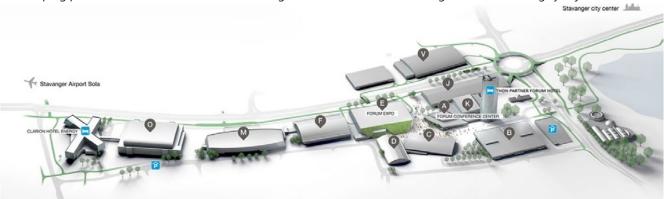
Taking place from Sunday 7 to Thursday 11 September, the congress will be hosted at the Stavanger Forum, one of the largest and most modern conference venues in Norway, located just a short walk or a quick ride from the city centre.

Organised by the Norwegian Corrosion Society, the five-day conference aims to bring together corrosion professionals from all over the world – scientists, researchers, industry experts, and innovators – to exchange insights in corrosion science, technology, and engineering. EUROCORR 2025 will provide a platform for significant progress in understanding corrosion phenomena and developing practical solutions to corrosion challenges.

The local organising committee is proud to offer a unique mix of experience and knowledge rooted in Stavanger, which is considered Norway's capital of oil, gas, and energy, alongside its rich Viking heritage and cultural traditions.

With plenary and keynote lectures, oral and poster presentations, and specialised workshops, every aspect of the field will be covered, while the large exhibition (see below) will showcase the latest corrosion-resistant materials, technologies, monitoring tools, and more, allowing you to explore cutting-edge innovations from around the globe.

And don't miss the opportunity to experience the unique social programme on offer, including the Conference Dinner at the stunning Stavanger Concert Hall and a scenic boat cruise through the breathtaking Lysefjorden.



ABSTRACT SUBMISSION DEADLINE

The abstract submission portal is now closed. Last minute submissions will be possible to submit from April, but only posters can be submitted. **The deadline for late poster submission is 1st June 2025.**

The selection of contributions will be based on reviews of the abstracts by the International Scientific Committee. And several prizes will be awarded at EUROCORR for the best poster and oral presentation of early-career researchers, including the EFC Poster Prize, Best Oral Presentation Award, Nuclear Corrosion Oral & Poster Prize. Three presentation options will form the scientific programme:

- → Lecture (20 min): Regular oral presentation (15 min talk plus 5 min for Q&A).
 - → Poster: "Classical" poster presentation.
- → Short Lecture (five minutes): Short oral presentation (three minute talk with a maximum of four slides including title slide, plus two minutes for Q&A).

Shortly after the conference, the organising committee will provide a digital book of presentations to registered conference attendees, containing those presentation files voluntarily made available by the authors.

SOCIAL EVENTS

A fjord cruise to the beautiful Lysefjord is a must when visiting Stavanger. Electric boats sail from downtown

Stavanger to the Lysefjord and Preikestolen all year. Among the highlights of this trip are the thundering Hengjanefossen waterfall, the Vagabond's Cave and the mighty Preikestolen, towering 604 metres above sea level.

WELCOME RECEPTION ON SUNDAY

This free of charge event at the Siddis Center, Stavanger Forum will begin the five-day conference and will be followed by a Beginner & Mentor Program on Tuesday.

Are you new to EUROCORR 2025 or would like to mentor first-timers and connect with experienced professionals who can guide you through your first conference?

Those who were new at EUROCORR 2024 in Paris are encouraged to become mentors, as they understand first-hand the challenges faced by newcomers and can offer quidance with insights still fresh in their minds.

WOMEN IN CORROSION LUNCHEON

This exclusive event is designed to foster connections, share experiences, and empower women in the corrosion field. The luncheon will feature a special guest speaker addressing topics tailored for women in science and engineering, providing valuable insights and inspiration. Don't miss this opportunity to network with fellow professionals and engage in meaningful discussions that can enhance your career and leadership journey.

Any questions? Contact the team at eurocorr@gyro.no.

Meet the plenary speakers who will be discussing every aspect of the challenges facing the field of corrosion in Stavanger this year



ARNE DUGSTAD IFE – Institute for Energy Technology. Arne's main research areas are dense phase CO2 transport (CSS), corrosion in flexible pipelines, CO2 and H2S corrosion in oil and gas systems and MEG regeneration. He will present, CO2 Transport – when becomes corrosion an issue?



NURIA
ESPALLARGAS
Norwegian Tribology
Center (MTP). Nuria is
a professor with 20
years worth of research
experience in the field
of surface engineering,
chemistry, and
tribology. Nuria will
present, The role of
tribocorrosion and
multidegradation on
the green energy
transition.



JOHN J. DUNN
Carnegie Mellon
University and the
University of
Pittsburgh. John had a
40-year career with
Allegheny Ludlum and
focused on the
development of new
corrosion resistant
alloys (CRA), before
retiring in 2020. He will
present, Lessons
Learned for New CRA
Product Development.



MAHAD NADEEM

JANJUA
Harbour Energy
Norge. Mahad works
as a Data Science
Specialist focused on
implementing data
science and Artifical
Intelligence solutions
at scale in subsurface
and Exploration
workstreams. Mahad
will present, AI
Trends in the Energy
Industry.



SINTEF Industry. Vigdis is a senior research scientist who works in a research group related to the structural integrity of subsea infrastructure in oil and gas, including hydrogen. Vigdis will present, Subsea pipelines – hydrogen embrittlement challenges in natural gas and hydrogen gas transport.

EUROCORR 2025 Working Party and Task Force sessions announced, alongside a a number of Joint Sessions and Workshops



EUROCORR 2025 WORKING PARTY SESSIONS

- → Corrosion and Scale Inhibition (WP 1)
- → Corrosion by Hot Gases and Combustion Products (WP 3)
- → Nuclear Corrosion (WP 4)
- → Environment Sensitive Fracture (WP 5)
- \Rightarrow Corrosion Mechanisms, Methods and Modelling (WP 6 and WP 8)
- → Corrosion Education (WP 7)
- → Marine Corrosion (WP 9)
- → Microbial Corrosion (WP 10)
- → Corrosion of Steel in Concrete (WP 11)
- → Corrosion in Oil & Gas Production (WP 13)
- → Metallic Coatings (WP 14_1), Inorganic Coatings (WP 14_2), Organic Coatings (WP 14_3), Pretreatments (WP 14_4), and Self-Healing and Smart Coatings (WP 14_5)
- → Corrosion in Refining and Petrochemical Industries (WP 15)
- → Cathodic Protection (WP 16)
- → Automotive Corrosion (WP 17)
- → Tribocorrosion (WP 18)
- → Corrosion of Polymers and Advanced Materials (WP 19)
- → Corrosion in Water Systems (WP 20)
- → Corrosion of Archaeological and Historical Artefacts (WP 21)
- → Corrosion Control in Aerospace (WP 22)
- → Corrosion Reliability of Electronics (WP 23)
- → CO2-Corrosion in Industrial Applications (WP 24)
- → Atmospheric Corrosion (WP 25)
- → Corrosion in Green & Low Carbon Energy Technologies (WP 26)
- → Corrosion Prediction for Medical Implants and Devices (TF)
- → Corrosion and Corrosion Protection of Additive Manufactured Metals (TF)

JOINT SESSIONS AND WORKSHOPS

- \rightarrow JS 1: Microbial Corrosion and Biofouling Issues in Marine Environments (WP 9 and 10)
- → JS 2: Cathodic Protection in Marine Environments (WP 9 and 16)
- \rightarrow JS 3: Multi-scale Modelling for Design of Protective Coatings (WP 6, 8, 14, 22, and VIPCOAT)
- \rightarrow JS 4: Cathodic Protection of Concrete Structures (WP 11 and WP 16)
- → JS 5: Hydrogen in the Energy Transition (WP 5, 25, and 26)
- → JS 6: Corrosion Issues of Electric Vehicles and E-Mobility Systems (WP 17, 23, and 26)
- ightarrow JS 7: Corrosion and Corrosion Protection of Additive Manufactured Metals for Biomedical Applications (TF Med and AM)
- → JS 8: Polymers in Organic Coatings (WP 14 and 19)
- → JS 9: Polymer and Composite Materials in the Refining and Petrochemical Industries (WP 15 and 19)
- \rightarrow JS 10: Corrosion in CCUS-Systems (WP 13 and 24)
- → WS 1: Corrosion Properties of Stainless Steel an Engineering Perspective
- → WS 2: AI-Enhanced Corrosion Science Unveiling Mechanisms, Innovative Materials Design and Advanced Protection Strategies

CONGRESS SPONSORS

Norwegian multinational energy company, Equinor have joined EUROCORR 2025 as platinum sponsors of the event in Stavanger, while AkerBP, VDM Metals, and Effee are gold sponsors, and Imenco Corrosion Technology, TSS Norway, Trenton Anticorrosion Materials, DNV, Parr Instrument Company and Alba Industrials have been announced as silver sponsors. Click here for more information.

"I've learned if I get involved in something, then I go all in"

From maintaining EUROCORR as EFC's flagship event, to improving financial sustainability, and building a stronger sense of community, Gareth Hinds is keen to make an impact as the new President of the EFC



Presidency of the EFC was not on Gareth Hinds' mind when he first joined the Federation. Initially, his membership was purely vocational. He was there to learn, make contacts, and absorb knowledge from his European peers, but his drive and enthusiasm had other ideas. "One thing that I've learned about myself throughout my life," explains Gareth, "is that if I get involved in something, then I go all in." Fast forward to the present day and there is little doubt about his suitability for the role as President of the EFC. Having already served as the President of the Institute of Corrosion (ICorr) and as the outgoing President of the World Corrosion Organization (WCO), the Senior Fellow in the Electrochemistry Group at the UK's National Physical Laboratory is an ideal candidate - and he's determined to make the most of his opportunity.

"I joined the board nearly 10 years ago, and when I did there was absolutely no way in my mind I was even thinking about being President of the EFC. It was just, okay, this opportunity has come up and I'm interested in exploring it, but the more I learned, the more engaged I became. So, when I was asked if I would consider standing for

President, it made sense to me. And at that point, I'd already been President of ICorr and I was about to become President of the WCO, so I kind of knew what it would involve. I knew what I was getting myself into, but I also think I felt a sense of responsibility to contribute to the community and to give something back.

"So, I guess that having been President of ICorr was probably a key thing for me because again, when I joined ICorr in 2003, being President was the last thing on my mind. I joined the Corrosion Science Division and I was there to network with scientists, to present my research and to help organise the annual student conference. And that's as far as I thought. And you just get sucked in. I was proud of what I achieved during that time, but I was also grateful for what I learned and how it developed me as a person and as a professional. So I knew, you give a lot and you can achieve things, but you also gain a lot in what you learn about yourself, the skills you pick up and the people that you get to know. So I was aware that I would make a contribution, but I also knew I would be richer for the experience."

And Gareth has plenty to give back from a career that has largely focused on the development of novel in situ diagnostic techniques and standard test methods for assessment of corrosion and material degradation in energy applications. He is a Fellow of the Royal Academy of Engineering, holds Visiting Professorship positions at University College London, the University of Strathclyde, and Harbin Institute of Technology, , China, and is also the author of over 200 publications. But, there is seemingly still room to learn.

"A lot of being President is dealing with people and for a very technical person like me, whose background is as a scientist (and not just a scientist, but a scientist in a national metrology institute) it is quite far off my radar. My day job is arguably one of the most pedantic and technical roles there is, so dealing with people is way down the list of normal things that type of person would do. So, it's actually good for me to have to do that

Despite being a Fellow of the Royal Academy of Engineering, holding Visiting Professorship positions at University College London, the University of Strathclyde, and Harbin Institute of Technology, and writing of over 200 publications, Gareth Hinds (above) feels there's still room to learn in his role as EFC President

and it's been a real focus of the last few years of my career to move away from just being a technical expert and a scientist and actually think more about softer skills, how to deal with people, how to engage, get people engaged, how to resolve conflict, and how to build a sense of community and motivate people."

PRESIDENTIAL PRIORITIES

This focus on personal development is also reflected in his ambitions for the EFC during his tenure as President. Driven by that desire to "go all in," Gareth is keen to get started and develop the strong framework that he has inherited, with a focus on three key priorities.

"My first priority is to maintain EUROCORR as the EFC's

flagship event," he explains. "It's the premier conference in our calendar and it's known the world over. It has a high international attendance and it's the jewel in the crown of the EFC. We're very dependent on it in almost every way. It is better known than the EFC itself and is our main source of revenue, so ensuring it continues to improve, and that the Working Parties who form the organisational basis on the technical topics for the symposia continue to be fit for purpose, particularly in a rapidly changing world, is really important. So, one of my priorities is to make sure we continue to evolve the conference in terms of its technical topics, its organisation, and its financial sustainability. That's a really high priority for me as President. And I

want to support, in particular, Stefan Ritter, our STAC Chair, in his new initiative to make sure that the balance of the Working Parties is right. He's put in place a clear, transparent, and fair procedure for doing that, and I think that's really important for the future of the conference.

"My second priority is a financial one, as I want to continue the good work of previous Presidents who have put the EFC on a more financially sustainable footing, by opening new revenue streams and reducing our administrative costs. I want to support our COO, Pascal Collet, in opening up new revenue streams. And Pascal's already starting this through things like the PractiCORR conference, the new International Branch, advertising in the newsletter, sales of Green Books, and sponsors and exhibitors at EUROCORR. So, I want to make sure Pascal is given all the support to ensure that not only are we cutting our costs, but we're increasing our revenue. I think Tomáš [Prošek] did a great job in supporting Pascal in the first two years of his role and I think Tomáš gave him great support and encouragement. I also think Pascal started the process of building a sense of community through his interactions with the Member Societies.

"There have also been discussions with the three EFC offices in London, Frankfurt, and Paris to reduce costs because we're spending too much of our revenue on administration. We're registered in Belgium, so there's a lot of bureaucracy and paperwork to comply with the regulations. It's important to understand that the EFC was set up in the 1950s. Those three offices represented the three largest countries (UK, France, and Germany) with their Member Societies contributing to the admin. And in the old days, a lot of this was done for free. As budgets have shrunk and pressure has grown financially on the Member Societies, they've had to charge the EFC more and more. They're still delivering more than they're charging, but the cost to the EFC has increased quite substantially. And at the same time, we haven't really raised the membership fee for the past 10 years. As a result, we have administrative costs that are not sustainable in the long term, and moreover, we're not using the buildings anymore as everything's virtual.

"So, there's a clear consensus among the board that we

need to do something. What exactly we do is still under discussion, but it certainly looks like we need to reduce the number of locations. And I'm confident that we can do this in a way that keeps everybody happy and addresses any concerns about, for example, moving away from having three large Member Societies providing the administrative function for the EFC. But whatever the solution it's got to not only reduce costs and deliver the same functions, but also have some kind of built-in continuity and stability.

"The third priority is more overarching and more on the people side of things, and that's to increase the sense of community within the EFC. The EFC is a large and complex organisation made up

of individual Member Societies from different countries, and it's not necessarily clear to everyone who's in it, what they do, and what the benefits of being a member are. So, I think it's really important to bring people together. And I'm not saying that we don't already do that, we do that very well, but we can always do more. For example, one of the things that we're going to set up in the near future is regular meetings between EFC officers and representatives of the Member Societies, just to make connections, to get to know the people, so they know who they can come and talk to if they have an idea or a concern. And just to open those communication channels a little bit more and build that sense of community. We'll be holding those meetings at EUROCORR in person and then throughout the year online and maybe even at events like the AMPP conference every spring.

"On a related note, I'm keen to continue to support the excellent work of Young EFC, who have been increasingly active in recent years. This is particularly important as they are our future leaders. Indeed, we've already seen some former Young EFC committee members elected to seats on the board and this progression is key to the EFC's future."

GARETH'S THREE PRESIDENTIAL PRIORITIES

- → Maintain EUROCORR as EFC's flagship event – "It's the jewel in the crown of the EFC"
- → Ensure the EFC stays on financially sustainable footing
- "We need to open new revenue streams and reduce our administrative costs"
- → Increase the sense of community within the EFC –

"I think it's really important to bring people together"

MAN IN BLACK

Away from the world of the EFC, "there's probably a lot people don't know about me," teases Gareth. And his

admission of a hobby is perhaps a surprising one, but considering the focus he has applied to his work, it's no surprise that he has also pursued his hobby to a high level.

"My hobby at this stage of my life is refereeing. I'm a referee of two different sports; a summer sport and a winter sport. I pretty much referee all the time and have done for the past 20 years. So, one sport is touch rugby, that's my summer sport. And my winter sport is field hockey. At the moment it's the hockey season, which is very handy for me as the touch rugby season is April to August and the hockey season is September to March. So, they actually don't overlap at all. And they're sufficiently different sports, so I don't feel I need a break as they test different parts of me. Touch rugby, for example, is very physical and demanding and really, really tough on fitness, but less demanding on your brain. It's very predictable when things will happen, whereas with hockey, you don't have to be particularly fit, but something's happening every second, and you need about five pairs of eyes to see everything that's going on."

Gareth is, of course, being modest, as not only are they seasonally convenient hobbies, but he has also ranked number one in Europe for three years running by the International Federation of Touch and is an England Hockey National League umpire.

"The next thing in touch rugby is the National Championships in May. This is a kind of an off year as the World Cup was last year, so we're at the beginning of a new four-year cycle. In a way, the pressure's off a little bit, so we can relax and maybe enjoy it a little bit more."

That down time is convenient, as for the moment the focus is on the EFC and those three priorities, which Gareth



has in mind when it comes to leaving a lasting legacy and providing a sure footing for Dr. Patrick Keil as the current VP and President in waiting.

"I'd like to think I would keep the positive momentum built up by the previous Presidents and make some good progress on the three issues that I've prioritised. Whether I can get them all over the line in my two years, I don't know. I'll try, but as long as I've kept pushing them along and handed over to Patrick as the next President in a strong position, then I'll be pretty happy. And, I think in particular, if I have progressed the third one, the feeling of community; if I had to pick a priority, I think it would be that, because I think that's maybe had less attention than the other two. And if I can establish that on an equal footing with the other two during my presidency, then I'll be pretty happy."



EFC Member Society in the spotlight: PSK

The Polish Corrosion Society is set to host PractiCORR 2025, a new event at the Copernicus Science Center, Warsaw, Poland



Organised by the Polish Corrosion Society (PSK) and the EFC, the first PractiCORR International Conference in Warsaw, Poland from 10th to 13th June is set to offer a vibrant platform for collaboration, innovation, and inspiration in corrosion and fire protection.

The conference at the Copernicus Science Center promises to explore conscious design, prioritising long-term structural protection, and tackle ecological challenges, focusing on sustainable technologies like solvent-free coatings.

It will also address extreme environment challenges in the petrochemical industry, investigate new frontiers in nuclear energy, wind farms, and infrastructure, as well as bridge science and industry to inspire creative solutions for a safer, more sustainable future.

WHY ATTEND PRACTICORR 2025?

Created by practitioners for practitioners, the PractiCORR International Conference will be dedicated to corrosion prevention and protection.

Bringing together industry professionals from various corrosion sectors to provide practical knowledge exchange through technical sessions, discussions, and case studies, PractiCORR 2025 will offer an array of networking opportunities with global experts in corrosion and fire safety engineering.

There will also be a variety of presentations in Warsaw on the latest technology, as well as opportunities to collaborate with scientists and industry leaders in workshops, panel discussions, and business-science speed dating. Students and young professionals looking for career opportunities and hands-on experience are welcome, as well as sponsors and exhibitors to showcase products and services and build the image of a pioneer and leader in the industry.

COMMITTEE MEMBERS

Prof. Adam Wysokowski (Zielona Góra University) and Prof. Tomáš Prošek (EFC Past President) have joined the Technical Committee Board, while Mr. Mohamed Elmetwally (AmpleSolutions, Saudi Arabia) and Mr. Prasanth Karunan (SigmaPaints) have joined the Technical Committee.

SPONSORS

Sherwin-Williams, Novol, and Graco have joined as bronze sponsors, PPG as silver sponsor, and Heggel as platinum sponsor.

SCHEDULED SESSIONS

There will be a total of eight sessions presented, including:

→ Surface preparation → Coatings (organic, inorganic, metal, powder, fire protection coatings, protective coatings in military applications) → Corrosion problems in practice → Anti-corrosion equipment → Inspector's session → Bussines & Science + Speed-Dating → Infrastructure (urban, road and railway, energy sector, offshore structures) → Corrosion in various industries (oil & gas, automotive, petrochemical)

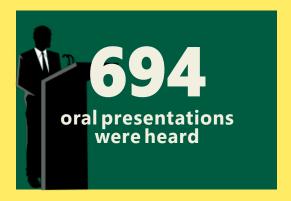
Click here for registration details. Email: sekretarz@psk.org.pl

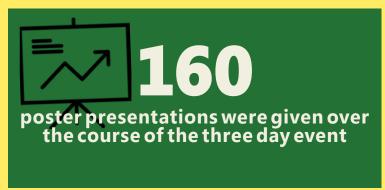
Breaking down the success of EUROCORR 2024 in numbers

EUROCORR 2024 in Paris was a record-breaking event that welcomed more people than ever to Europe's largest corrosion conference













13 f 4 Tourne 14 Tourne 15 Tourne 15

Working Party 15 hold their Spring Meeting near Munich

The WP 15 on Corrosion in the Refining and Petrochemical Industries welcomed 60 guests to discuss corrosion monitoring and prevention

Hosted by Linde Engineering, the (virtual) Spring Meeting 2025 of the EFC Working Party 15 on Corrosion in the Refining and Petrochemical Industries was held in Pullach close to Munich, Germany on Thursday 27th March.

Around 20 attendants met the evening before for a guided tour and dinner in Munich's Beer & Oktoberfest Museum. Then, on Thursday morning, Matthias Grundwürmer and Florian Hairer introduced Linde to around 30 attendants in the room and approximately 30 colleagues online, followed by some news from WP 15 Chairs, Philipp Schempp and Gino De Landtsheer.

The following technical session focused on recent failure cases and material degradation in biorefineries. Lunch in Linde's award-winning canteen was followed by a guided tour through some of Linde's labs, and, virtually with VR headsets, through one production site. The afternoon session consisted of presentations and open discussions on corrosion monitoring and prevention, and further failure cases and corresponding learnings. Click here to find out more about WP 15.



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Event filled year ahead for the WP 4 on Nuclear Corrosion

LTC 2025, a Nuclear Corrosion Session at EUROCORR 2025, and the 6th Online Seminar on Nuclear Corrosion complete a busy calendar for the WP 4



Supported by the Working Party 4 on Nuclear Corrosion, the 9th International Workshop on Long-term Prediction

of Corrosion in Nuclear Waste Systems (LTC 2025) will be held from 3rd to 7th November 2025, in Sendai, Japan.

This prestigious conference, organised by leading experts in the field, has been a cornerstone event for professionals and researchers since its inception. Over the years, LTC has provided a platform for discussing the latest advancements and challenges in the corrosion behaviour of materials used in nuclear waste storage and disposal facilities.

The workshop at Katahira Sakura Hall, Tohoku University will cover a wide range of topics, including national programmes, laboratory

tests, stress corrosion cracking, hydrogen embrittlement, long-term corrosion, and more.

Contributions from young researchers are highly encouraged at LTC. An award, sponsored by the EFC, will be given to the best young presenter. <u>Click here</u> for more information.

NUCLEAR CORROSION SESSION DURING EUROCORR 2025

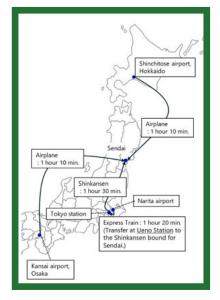
An excellent nuclear corrosion session with around 40 oral and several poster presentations will take place from 8th to 10th September at EUROCORR 2025. Two and a half days at the conference in Stavanger will be dedicated to WP 4 presentations.

And the fall business meeting of the WP 4 is also scheduled to take place on Wednesday 10th September at the Stavanger Forum.

6TH ONLINE SEMINAR ON NUCLEAR CORROSION

Also, a nuclear corrosion-related webinar will be presented by the WP 4 this spring. The exact topic and date will soon be announced on the EFC's website and social media channels. Click here to visit the

Working Party 4 website.





Why attend EUROCORR as an early career corrosionist?

A sneak peek of some of the activities that the Young EFC will be hosting at EUROCORR 2025 in Stavanger in September



The Young EFC has announced it will be hosting a Networking and Job fair at EUROCORR 2025 that will include:

- → **The YOUNG EFC Meeting.** Learn about the YEFC and its activities/events running throughout the year
- → **Mingle and Welcome Session.** Start the evening with a welcome drink and finger food while mingling with fellow young professionals, before gearing up for an exciting Speed Dating session, designed for quick, impactful networking. Then, catch short presentations from industry experts.
- → **Fireside Chats with Industry Experts.** Dive into the Group Dating Job Fair, where you'll rotate between four and six sponsor stations. Each sponsor will give a brief, punchy presentation on what makes them stand out.

THE WOMEN LUNCH @ EUROCORR 2025

Designed to foster connections, share experiences, and

empower women in their career and leadership journey in the corrosion field, the luncheon will feature a discussion panel encompassing academia and industrial leaders, addressing topics tailored for women in science and engineering. A slide video of the YEFC Women in Corrosion campaign will be displayed during the event.

BEST ORAL PRESENTATION AWARDS

The two most innovative presentations in terms of their communicative power and scientific quality will be awarded at EUROCORR 2025. The goal of these awards is to highlight outstanding skills in communicating scientific and technical content. A pre-selection of 10 candidates (maximum) will be made before EUROCORR, based on a three-minute video. Once your oral presentation has been accepted, register to participate in the competition. Registration will open at the end of April.

ACKNOWLEDGMENT

The Young EFC would like to acknowledge EFC Member Affiliate, Mankiewicz as a super sponsor of YEFC activities. For more than 130 years, Mankiewicz has been developing innovative coating systems that protect surfaces in a wide range of applications. Their coatings not only offer protection in the highest corrosion classes, but also against constant mechanical stress, UV radiation and aggressive chemicals. They are committed to providing customised solutions that meet the exact customer needs. After all, every industry, every component and every material pose different corrosion protection challenges. With 1,700 employees worldwide, Mankiewicz are always close to their customers. Their aim is to work together to drive innovation and develop new solutions for the challenges of corrosion protection. At EUROCORR 2025, they look forward to exchanging ideas with experts from all over the world and talking to young talents who want to help shape the future of this exciting field. After all, corrosion protection is not just a technical necessity - it is a decisive factor for sustainability, resource conservation and long-term profitability.

Exciting events and Summer Schools on the horizon, and of course, World Corrosion Awareness Day is around the corner



YEFC VIPCOAT CONSORTIUM - OPEN INNOVATION PLATFORMS FOR SCIENCE WEBINAR

The YEFC and the VIPCOAT (Virtual Open Innovation Platform for Active Protective Coatings Guided by Modelling and Optimization) consortium held a webinar on open innovation platforms for science on 20th March.

Marko Horvat (Wikki Ltd, UK), Lisa Sahlmann (Helmholtz-Zentrum Hereon, DE), Katja Schladitz (Fraunhofer Institute, DE), Nourhan Abdelrahman (Vrije Universiteit Brussel, BE), and Mats Meeusen (Vrije Universiteit Brussel, BE) shared their experience of how to create an open innovation platform, and explained why it is important for contemporary scientific-societal collaborations. Click here to see a recording of the webinar on the YEFC YouTube channel.

ONE DAY TRAINING (ONLINE) ON ADVANCED MODELLING APPROACHES FOR MATERIALS SCIENCE

The VUB-coordinated Marie Curie Doctoral Network DurAMat (Vrije Universiteit Brussel) is pleased to announce a one-day training on 5th May 2025.

This training is dedicated to Advanced Modelling Approaches for Materials Science, and will feature lectures on atomistic simulations, phase field models, artificial neural networks, and machine learning approaches in the field of materials science. We warmly invite PhD students, postdoctoral researchers, and young professionals from industry to join us. The training is free of charge. Register here before 30th April.

YEFC AND CREATE CORRECT CSI SUMMER SCHOOL

In collaboration with the <u>CREATE CORRECT</u> initiative, YEFC are organising a summer school from 9th to 13th June 2025.

It will be held in a hybrid format with common activities organised online. Various topics are planned, focusing on ethics and politics related to corrosion science and engineering:

- \rightarrow Corrosion issues and management related to nuclear power plants
 - → Corrosion issues and monitoring in oil and gas
 - → Corrosion considerations in biomedical applications
- → How can synchrotron-based techniques benefit corrosion science and engineering
- \rightarrow Corrosion considerations to advance preservation of cultural heritage
 - → FAIR data and open science
- \rightarrow implications and perspectives of the use of artificial intelligence and machine learning in the corrosion field

The preliminary program can be found <u>here</u>. The event is free of charge, but registration is required. <u>Register here</u>.

CAREER WEBINAR

After a break, the YEFC Career Webinar returns with Jörg Vogelsang (Sika Technology AG) hosting a career retrospective about his 33 years as a scientist in industry, the use of electrochemical impedance spectroscopy for coating characterisation, and career tips for early career professionals. And Torben Lund Skovhus (VIA University College, Dänemark) will be welcomed on 21st May at 14:00 (CEST).

CORROSION AWARENESS DAY

The Young EFC supports and encourages the corrosion community to organise events to mark World Corrosion Awareness Day (WCAD), an initiative led by the World Corrosion Organization (WCO) to highlight the importance of corrosion

prevention in creating a safer, more sustainable future.

In collaboration with the Association for Materials Protection and Performance (AMPP) and the EFC, this year's WCAD will engage professionals, researchers, and organisations worldwide in a collective effort to promote best practices and innovative solutions in corrosion control. The full list of activities can be found here, but there are heaps of ways to get involved.

WCO SOCIAL MEDIA ACTION

Use our suggested topics and hashtags on social media during #WCAD2025 and be part of the movement. And don't forget to tag the WCO, AMPP, and EFC in your posts.

- → #CorrosionInEverydayLife Showcase real-world examples of corrosion, from deteriorating infrastructure to aging equipment, and discuss its impact.
- → #CorrosionFreeFuture Explore what a world with minimal corrosion could look like. What advancements are shaping the future of corrosion prevention? What challenges still need solutions?
- → #WCAD2025 Raise awareness by discussing the importance of corrosion control, its economic impact, and the latest mitigation strategies.

<u>Click here</u> to share your perspective on corrosion prevention, new research, or industry best practices.

YEFC HOSTS CORROSION THROUGH THE LENS

Corrosion is more than just rust. It silently weakens bridges, pipelines, and infrastructure, costing billions, and compromising safety. Yet, within its destructive process lies a compelling visual story. So, grab your camera, smartphone or microscope and join the YEFC Corrosion Photo competition.

Tell the story of your photo and you might win one of many prizes. Submit your photos in any of the following categories:

- → Macro-Scale Damage Capture corrosion on structures or objects visible to the naked eye.
- → Microscopic Deterioration Reveal corrosion at the micro-scale, exposing what's invisible to most.

An exhibition of the best pictures will be displayed at EUROCORR 2025.

WOMEN IN CORROSION (WiC)

WiC will again be celebrating women working in corrosion and STEM-related fields on the International Day of Women in Science on 11th February - and International Women in Engineering Day on 23rd June.

This year, the YEFC want to know what drives the work of the Women in Corrosion in order to inspire and encourage the next generation to enter the corrosion science and engineering field. Meet the Women in Corrosion every week on LinkedIn from 11th February until 23rd June.



MEET THE YOUNG EFC BOARD

The YEFC board consists of **Sajjad Akbarzadeh** (UMons, Belgium), **Arthur Boidot** (NOF Metal Coatings Europe SA, France), **Bartlomiej Guzik** (Mankiewicz Gebr. & Co, Poland), **Nikola Machácková** (VŠCHT Praha, Czech Republic), **Mirsajjad Mousavi** (Teijin Aramid BV, Netherlands), **Noémie Ott** (OST, Switzerland), **Can Özkan** (Delft University of Technology, Netherlands), **Reynier Revilla** (VUB, Belgium), **Valentina Valbi** (Laboratoire de recherche

des monuments historiques, France), and **León Zendejas Medina** (KTH Royal Institute of Technology, Sweden).

SPRING CHANGE

Spring is in the air and the YEFC is similarly evolving as they transition from Gmail to a Microsoft 365 account, so please be patient during this time of change. The new email addresses are: Chair of the YEFC: yefc-chair@efcweb.org YEFC community: yefc@efcweb.org

3X ENGINEERING announced as latest Affiliate Member

Based in Monaco, 3X ENGINEERING operate in critical industrial assets repair and will now benefit from EFC Affiliate Membership

The EFC is proud to announce that 3X ENGINEERING has become the latest EFC Affiliate Member.

Founded in 1990, 3X ENGINEERING (3X) is a global leader in critical industrial assets repair using composite technology and sustainability solutions to extend asset lifespan and protect the environment. Offering a complete integrated service from their head offices in Monaco, 3X ENGINEERING operate worldwide and in any environment (onshore, offshore, and subsea) thanks to their large qualified distribution network of over 60 partners.

Since 2024, 3X has been part of EKOSCAN INTEGRITY GROUP (E.I.G) and they are the Sustainability Division of a group providing innovative solutions for the integrity of industrial assets.

Services offered to EFC Affiliate Members are varied and include international visibility, benefits for exhibitors at EUROCORR, and the possibility to join a network of professionals with interest in corrosion. Further benefits include:

- → Participation in EFC Working Parties as of right; appointment of delegates; access to the Working Party's restriced area
- → Reduced registration fee of the Affiliate's employees at annual EUROCORR conferences
- → Discount on exhibitor booth at EUROCORR
- → Priority for choosing exhibition booth location at EUROCORR (in the frame of the Loyalty Programme)



- → Discounted prices on the EFC Green Book Series
- \rightarrow Access to the restricted area containing the electronic proceedings of past EUROCORR Conferences
- → Participation in the EFC General Assembly (no voting rights)
- ightarrow Listing of any of the Affiliate Member's corrosion-related events in the EFC Calendar of Events on the EFC website and in the EFC Newsletter
- → Publication of promotional write-ups of the Affiliate Member's corrosion-related events, activities and case studies (subject to EFC approval) in the field of corrosion in the EFC Newsletter
- → Discount on advertisement in the EFC Newsletter Click here to find out more about EFC Affiliate Membership.

ADVERTISEMENT



A new generation of sustainable, environmentally friendly products for corrosion protection!

Cortec® Corporation, a world leader in green corrosion prevention technologies, presents EcoLine® products based on renewable resources. EcoLine® products are safer for the environment and leave behind a high-performance Vapor phase Corrosion Inhibitor (VpCI®) layer. VpCI's are revolutionary technology that simplifies corrosion protection. VpCI's are effective at protecting multi-metals in electrical, static, rotating, and civil equipment and structures. This technology is designed to save time, money, and offer more thorough, reliable, and easier-to-use protection than a variety of other metals preservation strategies. EcoLine® products exemplify Cortec's long-standing commitment to conserve our natural resources while providing powerful corrosion protection.

EUROCORR Summer School set to host leading experts

The Challenges of Corrosion Failure Analysis, Monitoring, and Maintenance Summer School will take place at the University of Stavanger



Corrosion failures present significant challenges across industries, from infrastructure and energy to transportation. Understanding the underlying failure mechanisms and implementing effective monitoring strategies are crucial for improving material performance, enhancing safety, and reducing costs.

With that in mind, young researchers and professionals will soon have the opportunity to deepen their understanding of these challenges at the *Challenges of Corrosion Failure Analysis, Monitoring, and Maintenance* EUROCORR Summer School, taking place from 4th to 6th September 2025 at the University of Stavanger, Norway.

The Summer School will bring together a range of leading experts from academia and industry, offering a blend of theoretical insight and real-world experience.

Participants will explore key topics, such as corrosion failure mechanisms, failure analysis from both a management perspective and the viewpoint of material producers and end users, and the latest techniques in corrosion monitoring and infrastructure condition assessment.

ORGANISER INSTITUTIONS Universitetet i Stavanger



ESSENTIAL KNOWLEDGE

The programme will also cover the evaluation of existing structures and modelling strategies for predicting service life – essential knowledge for improving the long-term performance of materials in demanding environments.

What sets the EFC Summer School apart is its strong industry connection. The programme features a dedicated career development session focused on helping participants navigate the job market in the field of corrosion science and engineering.

VIBRANT CULTURE

The location of Stavanger adds to the experience. As one of Europe's leading hubs for the energy and maritime industries, Stavanger provides a unique setting for corrosion research and real-world application. Beyond the lectures and visits, participants can enjoy Stavanger's stunning coastal landscapes and vibrant city culture.

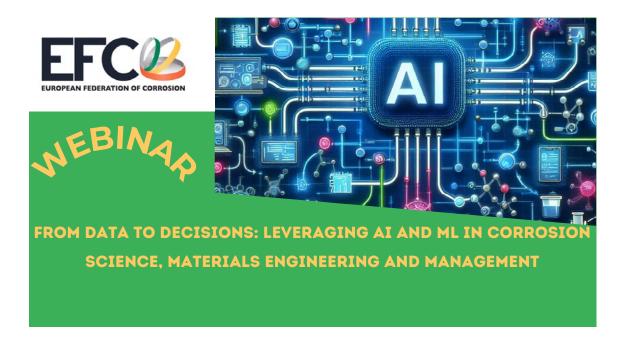
Registration opens in mid-April, so stay tuned for more details and <u>click here</u> to find out more about this opportunity to connect with leading minds in corrosion science.





EFC to host webinar on the role of Artificial Intelligence

From Data to Decisions: Leveraging AI and ML in Corrosion Science, Materials Engineering and Management will take place on 13th May



The EFC is set to host a new webinar on Artificial Intelligence, with a special focus on machine learning (ML) on Tuesday 13th May 2025.

Gathering speakers from academia, research, and technical centres and industry, the guests will present their various experiences in corrosion science, materials engineering, and management.

Offering a broad array of different applications, the webinar will include a presentation by Prof. David Winkler from the Monash Institute, Australia (pharmaceuticals sciences), who will lead a presentation on the

Development of new machine learning technology and

its application to bio- and nanomaterials, materials for energy and environment applications, with Prof Nicholas Harrison from Imperial College, London presenting, The detection, prevention and mitigation of Corrosion: Connecting Molecular Science to Engineering.

Dr Christian Feiler from Helmholtz-Zentrum Hereon, Germany will discuss *Al-driven corrosion inhibitor discovery*, while Al expert, Dr Mikhail Zheludkevich, also from Helmholtz Zentrum-Hereon, expert in Al, will act as a highly-valued moderator.



INDUSTRY FOCUS

From an industry perspective, Chee Zhen Qi and Dr Tan ShiLiang Johnathan from Matcor will present *Al-driven Monitoring and Detection for Industrial Corrosion*. Christophe Baete from Elsyca will focus on the *Future of Digital Twin for corrosion management and compliancy*, while Antonin Braun from Aquila Data Enabler will present, *Case studies of Generative AI related to Documentation*, *Conformity and Maintenance*.

PANEL DISCUSSION

Dr Axel Homborg from the Netherlands Defence Academy

will conclude the webinar by moderating a panel discussion about the requirements for ML to earn the trust of asset owners, maintenance contractors, and the wider scientific community. The list of panellists will be announced separately, so stay tuned on the LinkedIn EFC account.

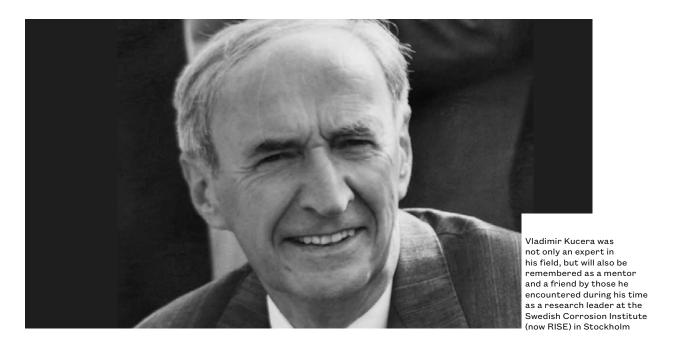
The webinar is scheduled to take place on Tuesday 13th May 2025 from 9:00am to 1:00pm (CEST time).

REGISTRATION

It's an easy process – just scan the QR code and follow the instructions.

EFC pay respect to 'skilled leader' Vladimir Kucera

Christofer Leygraf and Johan Tidblad lead tributes to the internationally renowned researcher in the field of corrosion, who has died at the age of 88



As a research leader at the Swedish Corrosion Institute in Stockholm, Vladimir Kucera played a key role in the institute's important development throughout the 1960s and '70s. With his forward-thinking wisdom, positive outlook, and subtle sense of humour, he played an important role in the daily lives of his colleagues and coworkers.

Vladimir had a unique ability to truly see the people he met. He was not only an expert in his field but also a mentor and a friend. His perspective on the world was shaped by an open mind, where every discussion – no matter how complex – often ended with an understanding of all viewpoints.

Vladimir was a skilled leader of international research projects in the field of atmospheric corrosion, and his work extended far beyond laboratories and research reports. He initiated the International Co-operative Program on Effects on Materials in 1985 and this project is still active today.

CULTURED INDIVIDUAL

An active member of the Swedish Corrosion Institute, which was incorporated into Swerea and later became Swedish EFC Member Society, RISE, Vladimir had a special interest in the effects of air pollution on cultural heritage and even published a book on this subject in 2009. Having grown up in both Prague and Stockholm,

Vladimir became a remarkably versatile and cultured individual.

Despite his vast experience, he remained curious, well-read, and an inspiring travel companion. His ability to combine technical expertise with a unique diplomatic sense made him a true leader.

For this he was honoured with the Marcel Pourbaix Award by the International Corrosion Council in 2008. He understood the needs of different project participants and worked to accommodate their interests. Through his contacts with decision-makers at the United Nations, he ensured that this research was both recognised and implemented worldwide.

REDUCED CORROSION

This led to concrete changes, such as restrictions on acidifying air pollutants, which reduced corrosion of building materials, infrastructure, electronics, and cultural heritage.

We [Christofer and Johan] worked closely with Vladimir and are deeply grateful for the wisdom he shared, as well as for the friendships we built.

A truly remarkable person has left us. In today's polarised world, we need many more like Vladimir.

Words provided by Christofer Leygraf (KTH Royal Institute of Technology) and Johan Tidblad (RISE, Corrosion department).

AIM host second school and look ahead to GN CORR 2025

The Italian Association for Metallurgy hosted a three-day school in February and will now focus on the 16th National Days on Corrosion and Protection



Following the success of the first edition in 2023, the Italian Association for Metallurgy (AIM) organised the 2nd edition of the School on Electrochemical Techniques for the Study of Corrosion, which was held at the University of Ferrara from 11th to 13th February 2025.

The school honoured the memory of Cecilia Monticelli, an esteemed professor of the Daccò Centre of Corrosion at the University of Ferrara, who dedicated her academic and professional career to corrosion science. The co-ordinators of the three-day school were Prof. Andrea Balbo (University of Ferrara), Prof. Tiziano Bellezze (Polytechnic University of Marche), and Fabio Bolzoni (Politecnico di Milano).

Aiming to present a complete picture of electrochemical techniques used in corrosion science and engineering, the school, organised by the EFC Member Society, focused on the ability to select the most adequate techniques to study a specific problem, to understand its limitations, and to correctly interpret the results. The teachers of the school were representatives of the Italian groups active in research of metallic corrosion and protection.

The first day the school addressed the thermodynamic and kinetic of the corrosion phenomena, the Evans diagrams and a basic introduction about the instruments used for electrochemical tests. The morning of the second day was devoted to the Direct Current techniques (linear polarisation resistance, potentiodynamic and potentiostatic polarisation), while the Electrochemical Impedance Spectroscopy (EIS) was

introduced in the afternoon. And on the third day, the applications of EIS to the study of metallic and organic coatings, as well as the electrochemical noise, the photo-current spectroscopy and localised electrochemical techniques were discussed by the 30 participants. Among these 20 were from universities (PhD students and young researchers) and the remaining from industry and private sector.

GN CORR 2025

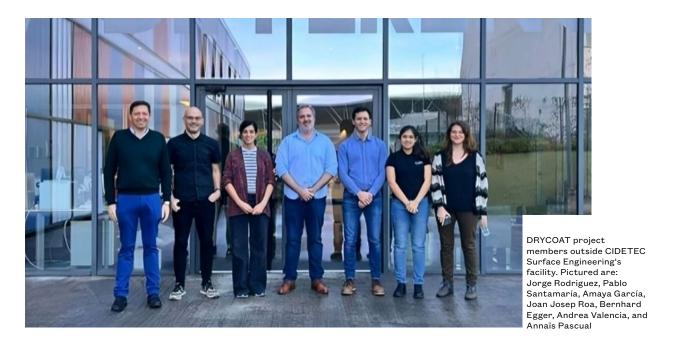
Together with APCE and AMPP Italy Chapter, in cooperation with Polytechnic University of Marche, AIM will organise the 16th edition of the National Days on Corrosion and Protection (GN CORR 2025) in Ancona from 25th to 27th June 2025, at the Faculty of Engineering of the Polytechnic University of Marche. Chaired by Prof. Tiziano Bellezze, the conference is supported by corrosion related associations and will include an area for exhibitors.

GN CORR 2025 is the most important national event in Italy dedicated to corrosion and protection of materials. The event will show the results achieved by various research groups and several companies operating in the field, through a range of oral and poster presentations. The call for paper was closed in January and more than 70 abstracts were received.

Within GN CORR 2025, AIM announces a prize in memory of Prof. Cecilia Monticelli reserved to PhD students or Post Doc scholarship holders. <u>Click here</u> for more information.

DRYCOAT project produces some revealing results

Research in collaboration with EFC Member Society, CIDETEC Surface Engineering shows dry electrolytes have the capacity to anodise titanium



At the end of last year, the DRYCOAT project (DRY electrolytes for mass application of COATings) came to an end after almost three years of intensive and innovative research that has led to a considerable breakthrough in the development of dry electrolyte technology.

With an increasing focus on sustainable practices, with finishing methods that minimise environmental impact and use cleaner technologies, the main objective of DRYCOAT project has been to develop safe and sustainable electrochemical surface treatment processes based on dry electrolytes. The project aims to replace the use of traditional liquid electrolytes with dry ones and substitute the currently used baths and lines containing polluting and hazardous liquid electrolytes by a technology which can be easily integrated with the other production systems.

Dry electrolytes consist of porous polymeric particles in which the liquid electrolyte is retained without being able to escape. When the electrical current is applied to perform the electrochemical process, the particles act as an electronic bridge and allow the electrochemical reaction on the metallic surface in contact with the particles. Compared to conventional liquid surface electrochemical treatments, dry electrolyte based processes offer several advantages including: (1) environmental safety (the absence of liquid electrolytes minimizes hazardous waste generation); (2) enhanced surface quality, due to the fact that the generated layer is uniform; (3) precise control of the dry electrolyte

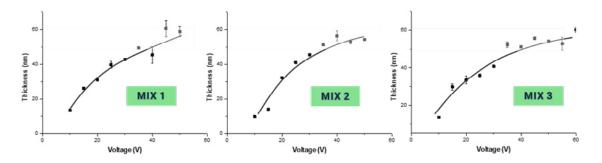
based processes, such as voltage, current density, and electrolyte composition; (4) energy efficiency, since this technology requires low voltages and can be more energy-efficient than conventional liquid processes, and (5) material versatility, because this new process can be tailored for different metals and alloys.

One of the studied cases within the DRYCOAT project has been titanium dry anodising process, as it is widely used in a wide range of relevant applications as aerospace, automotive and biomedical industries. In addition to titanium's low density and high strength to weight ratio, the produced anodic oxide layer provides an improved wear and corrosion resistance as well as the possibility to obtain coloured surfaces due to an interference phenomenon. All these features provided by the anodising process add value to titanium extending its performance and enabling its use to further applications. In this scenario, one of the main efforts within the DRYCOAT project has been devoted to the understanding and optimisation of this first time explored titanium dry anodising process, with the aim of meeting the performances obtained using liquid-based routes. The study has allowed gaining a deeper understanding of the process in terms of electrical parameters and acid concentration, and the obtained results represent a huge leap forward in titanium anodising treatment effectiveness.

The results of the study have proven that the developed dry electrolytes have the capacity to effectively anodise

titanium, allowing the finishing colour modulation depending on the applied electrical parameters. The developed processes have been continuously monitored, and it has been found that independently of the acid concentration present in the dry electrolyte, there is a voltage limit at approximately 50-60 V, from which the excessive local heating produced by the Joule effect causes a substantial temperature increase that leads to the thermal degradation of the dry electrolyte. Although this voltage limitation restricts the available colour range that can be generated comparing to the traditional anodising process with liquid electrolytes, by the application of low-frequency

that the thickness of the anodised layer is dependent on voltage and current density, being able to grow linearly and potentially, respectively, reaching a homogeneous layer thickness of around 60 nm. It has been also found that the thickness is not dependent on the acid content, for both investigated concentrations, as the same thickness is achieved for both dry electrolytes under the same conditions. Other relevant aspect of the study is that an iterative process has been applied to develop a predictive simulation tool for calculating the anodic layer thickness as an output parameter. This has allowed the development of a Genetic Aggregation Model that can estimate the layer



pulses the possibility to reach 150V and broadens the colour range has been satisfactorily achieved. This is because the low-frequency pulses allow a better heat dissipation during the process, and this is reflected in a lower temperature increase that keeps the dry electrolyte temperature stable under service-like working conditions. Using this approach, it has been also possible to preserve the effectiveness of the media and increase the lifetime of the dry electrolyte under service-like working conditions. Regarding the thickness of the anodic layer, that has been measured using both reflectometric methods as well as advanced focussed ion beam (FIB) characterisation techniques, it has been found

thickness without the need of experimental measurement by knowing the applied voltage and anodising time. Finally, preliminary trials on dental prosthetics have been conducted with very promising results in terms of corrosion performance (open circuit potential and potentiodynamic analysis) in conditions simulating in-vivo conditions.

DRYCOAT has been funded in the framework of the Eurostars-Eureka research and innovation programme. The project has been led by GPAInnova (Spain) in collaboration with DLyte (Spain) and Bionic Surface Technologies (Austria). Both Spanish companies have worked in collaboration with CIDETEC Surface Engineering (Spain).



French Corrosion Institute expand NH3 testing capabilities

The subsidiary of EFC Member Society, RISE, has a new test facility designed with the necessary safety measures for handling ammonia



In response to the increasing global demand for alternative energy sources to mitigate greenhouse gas emissions, the French Corrosion Institute (FCI) is undergoing a strategic transformation of its traditional activities and is developing a new portfolio focused on low-carbon energy solutions, including hydrogen production, carbon capture, utilisation

and storage (CCUS), ammonia, biomass processing, and electrolyser technology.

A subsidiary of EFC Member Society, the Research Institutes of Sweden (RISE), the FCI initiated efforts in 2020 to expand testing capabilities to include material evaluations under ammonia pressure. Supported by key industry stakeholders, the existing testing infrastructure – comprising test benches and pressure vessels – was first upgraded to ensure the safe handling of ammonia under pressurized and sub-zero conditions. This initial phase of development enabled testing within a defined range of pressures and temperatures, marking a significant

milestone in the extension of material testing capabilities in this domain.

As of 2024, a newly established test facility designed with the necessary safety measures for handling ammonia, is now operational with the following capacities:

- \rightarrow Liquid phase exposure mitigating ammonia compatibility, contamination impact up to 40 bar and temperature range [-40 / +70°C].
- → Gas phase exposure under constant gas flow with composition variation with temperature range [-20 / +70°C].
- \rightarrow Batch autoclave testing for lower concentration up to 350

bar and 350°C

- \rightarrow Slow strain rate or Ripple load testing at sub-zero temperature (down to -150°C) and up to 700 bar.
- → Pressure permeation test through metal, polymers or composites.
- → High temperature exposures in furnace under ammonia flow.
- \rightarrow Full-Scale and fit for purpose test development

To meet evolving industry demands, the FCI adapted to develop specialised test benches upon request. A recent example is the construction of a dedicated test unit designed to assess full-scale pipes compatibility with ammonia and

replicating real-field conditions. This facility allows for the qualification of materials and components by simulating full operational lifetimes under controlled laboratory conditions. For more information contact <u>Christophe Mendibide</u> or <u>Matthieu Régnière</u>.



High Velocity Thermal Spray used to protect biomass boilers

EFC Affiliate Member, Integrated Global Services, implements solution to stop metal wastage issues at a combined heat and power plant in Sweden



THE BACKGROUND

The Idbäcksverket combined heat and power (CHP) plant, operated by Vattenfall since 1997, is a vital energy facility in Nyköping, Sweden. The plant plays a crucial role in the region's energy infrastructure, providing approximately 95 percent of the Nyköping urban area with district heating and electricity. Aligned with Vattenfall's commitment to fossil freedom, the facility primarily utilises renewable fuel sources, with the majority consisting of industrial and forestry waste.

THE CHALLENGE

At the Idbäcksverket power facility, a biomass-fired Bubbling Fluidized Bed (BFB) boiler that processes waste wood was facing erosion and corrosion wastage, particularly affecting the waterwall surfaces, a common challenge in biomass boiler operations. As a major energy producer in the region, maintaining reliable operations at this renewable energy facility is crucial.

This degradation, if left untreated, would have resulted in a costly and time-consuming replacement of the boiler roof the following year.

THE SOLUTION

The plant approached Integrated Global Services' (IGS) European division for a solution to stop the metal wastage issues. To address the issue, IGS deployed its proprietary

HVTS (High Velocity Thermal Spray) cladding technology, a proven solution for protecting biomass boilers against aggressive operating conditions. This solution focused on the lower section of the furnace, treating approximately 100m² of surface area to protect and extend the lifetime of the aging weld overlay.

The project scope also included the protection of the carbon steel waterwalls in the upper furnace section and the connecting roof area between the furnace and second pass, ensuring comprehensive protection throughout critical areas of the boiler.

HVTS was applied at a nominal thickness of 500 microns. The technology works by creating dense protective layers while minimising internal stresses. The process applies ultra-fine particles in a dense pattern, creating longer pathways from surface to substrate that effectively prevent permeation. This corrosion-resistant alloy (CRA) cladding creates a robust barrier against further material degradation.

According to IGS, a key advantage of HVTS is its ability to protect and extend the life of existing panels with minimal remaining thickness, eliminating the need for intensive panel replacements. In areas with existing Inconel protection, HVTS provides an effective method to further extend the operational life of these critical boiler components, offering a cost-effective alternative to complete panel replacement.

THE TIMELINE

The plant has implemented a systematic biomass boiler protection program over several years:

- → **2020**: Initial application covering 35.0 m²
- \rightarrow **2022**: Major expansion to 158.0 m²
- → **2023:** Additional 80.0 m² coverage
- → 2024: Latest refurbishment of 17.0 m²

All projects were completed on time and with zero safety incidents.

THE INSPECTION

Regular inspections were conducted to verify the cladding's performance. Thickness measurements were taken every 300mm and detailed mapping of application areas was conducted.

Inspection results showed that the cladding was in excellent condition with consistent thickness readings above 400 microns.

THE BENEFITS

- → **Enhanced Protection.** The cladding prevented further erosion and corrosion of the biomass boiler surfaces.
- → **Reduced Project Duration.** Shorter project time compared to Weld Overlay (WOL), reducing downtime and allowing faster return to operation.
- → **Minimal Operational Disruption.** Can be applied simultaneously with other maintenance tasks such as tube replacements in other boiler sections, as the process doesn't generate heat-induced distortion. This enables efficient maintenance planning and reduced outage time.
- → **Non-Invasive Application.** No heat-related distortion, making it ideal for sensitive hanger panels and dividing walls. No pressure testing required for the protected area.
- → Flexible and Customisable. Possibility to customise the

alloy for specific wear mechanisms. It's repairable, unlike other protection processes. Can extend the life of existing panels, including those previously protected with Inconel.

- → **Quality Assurance.** Post-application inspections confirmed uniform coverage and quality, ensuring long-term protection.
- → **Cost Avoidance.** By protecting the boiler roof areas with HVTS, the plant avoided a costly and time-consuming replacement the following year.
- → **Safety Excellence.** Zero safety incidents throughout the project execution. IGS Europe is ISO 45001:2018 certified and follows OSHA best practices and all local safety regulations, whichever is stricter.

THE RECOMMENDATIONS

Based on the successful implementation and monitoring results, the following recommendations were made:

- → Regular inspections during scheduled outages to monitor cladding performance
- → Proactive identification of additional areas requiring protection
- → Continued monitoring of existing applications to optimise future maintenance schedules

THE CONCLUSION

According to IGS, the systematic application of HVTS cladding technology has proven to be an effective solution for protecting biomass boiler surfaces against erosion and corrosion. IGS has performed over 4,000 site projects and installed reliable surface protection across the globe. IGS enables plants to avoid costly equipment replacements without sacrificing long-term reliability of boilers and vessels. Click here to find out more.





IOM3 Training Academy course open for booking

Focusing on corrosion science's bright future and what that means for the European Federation of Corrosion



The IOM3 Training Academy course, *Introduction to Corrosion & Its Prevention* is now open for booking.

Corrosion and its prevention are issues that impact every industry. Understanding how materials will react in their service environment is a crucial aspect of materials selection and appreciating how potential corrosion problems can be mitigated is an important part of the design process. The training course aims to enhance discussions between customers and suppliers and to assist engineers and designers when specifying materials.

The Training Academy course is one of nine in the IOM3 Metallurgy in Practice suite. If you choose to attend this and two of the other courses in the series, then you will receive an IOM3 Certificate in Metallurgy in Practice. And, if you attend this and five of the other courses in the series, then you will receive the IOM3 Diploma in Metallurgy in Practice. Book all of the courses at once to receive a discounted rate. Click here to find out more about the course.

EFC APPROVED

In 2024, the IOM3 Training Academy course, *Introduction to Corrosion & Its Prevention* was awarded European Federation of Corrosion (EFC) Approved Course status. The one-day virtual course from IOM3 is delivered by the experienced corrosion expert, Clayton Thomas twice a year.

EFC Past President Tomáš Prošek discussed the EFC Approved Courses and the contribution of Member Societies like IOM3 in the previous Newsletter. Click here to read the full interview.

SOMETHING NEW

The Institute of Materials, Minerals & Mining (IOM3) is hosting its flagship event with the aim of bringing together a range of disciplines and technical communities in an entirely new way.

M3P3: Materials, Minerals & Mining for People, Places, Planet will take place on 11th and 12th November 2025 at Millennium Point, Birmingham. The two-day event will bring together industry leaders, experts, and innovators to explore key topics including AI, sustainability, and the circular economy.

The two-day conference will address current policy issues around industrial strategy, the circular economy, the UK skills landscape, and (critical) materials strategy through Spotlight Speeches from sector leaders in conversation panels.

M3P3 is about collaboration and meaningful conversations and aims to introduce future generations to the opportunities in the exciting world of materials, minerals, and mining with activities for teachers and pupils It's an opportunity for networking, professional development, and tackling future challenges. Click here for more information.

Details of ACA's flagship conference announced

C&P 2025 will have a focus on Materials Protection for the Future in Melbourne, Australia from 9th to 13th November 2025



The Australasian Corrosion Association Inc. has announced details of Corrosion & Prevention 2025, Australasia's leading corrosion mitigation event, which will this year take place in Melbourne, Australia, from 9th to 13th November 2025.

This year's conference will focus on innovative solutions for global corrosion challenges and highlight international collaborations driving sustainability and technological advancement across industries.

Corrosion & Prevention 2025 will feature a full programme of peer-reviewed papers and case studies, technical forums, research symposium, networking, and more. The five-day conference is designed for industry field practitioners who combat corrosion on a daily basis and researchers working in corrosion-related fields to share and exchange ideas.

The peer-reviewed papers, technical forums, and case studies, will cover topics such as asset management, cathodic protection, coatings, and the latest advancements in corrosion technology.

With corrosion being a universal concern, C&P 2025 welcomes contributions from researchers, asset owners, and industry professionals from across the world. The conference will provide a platform to present research findings, showcase case studies, and engage in discussions on shared challenges and solutions relevant to industries worldwide.

CONFERENCE HIGHLIGHTS

- → Main Conference: 9th to 13th November 2025
- → **Location:** Marvel Stadium, Melbourne, Australia
- → **Applicator Day:** A range of live demonstrations and hands-on workshops
- → **Theme:** Innovating corrosion solutions for a sustainable future
- → **Papers Topics:** Asset management, cathodic protection, coatings, and the latest advancements in corrosion technology.

GLOBAL COLLABORATION

C&P 2025 offers the opportunity for industry leaders, researchers, and policymakers to:

- $\ \, \rightarrow \text{Exchange knowledge with international experts}$
- → Build partnerships to address global corrosion challenges
- \rightarrow Explore opportunities for collaborative research and innovation

BOOKING PLATFORM

This year, the EventsAir platform aims to streamline sponsorships and exhibition booth management:

- → <u>Click here</u> to find out more about sponsorships.
- → <u>Click here</u> to find out more about exhibition booths.

<u>Click here</u> for registration details and for further information. The Australasian Corrosion Association Inc. is an EFC International Member Society.

Stay up to date with EFC events 2025-2027

Make a date in your corrosion calendar for all the latest EFC events and conferences from around the world



9TH SWISS CORROSION SCIENCE DAY 2025

Lausanne, Switzerland, 24 April 2025

EFC Event No. 530

Organised by SGO-SST, EFC Member Society and official Swiss Representative at EFC

Scope: The meeting is related to World Corrosion Awareness Day activities. It consists of scientific presentations and a poster session for PhD students. There is also a meeting of the representative of main institutions (academic, industry) working on corrosion in Switzerland. SGO-SST (and SwissCorr) aim to bring corrosion groups in Switzerland together for presentations, knowledge exchange, interaction and networking. Scientists and engineers from academia and industry who are interested and/or confronted with corrosion related issues in Switzerland are all cordially invited.

The event is free of charge. <u>Click here</u> for more information.

FROM DATA TO DECISIONS: LEVERAGING AI & ML CORROSION SCIENCE MATERIALS ENGINEERING AND MANAGEMENT

Online, 13 May 2025 **EFC Event No. 532**

EFC Webinar

Scope: Shared experience of using AI, mores specifically machine learning for deployment of methods, research

knowledge of materials behaviour. <u>Click here</u> to read more. **Contact:** EFC COO, Pascal Collet, email: coo(at)efcweb.org

PractiCORR 2025

Warsaw, Poland, 10-13 June 2025

EFC Event No. 523

The international conference on practical aspects of corrosion protection and coating solutions is organised by the Polish Corrosion Society (PSK) and EFC.

Scope: Surface preparation; Organic and inorganic coatings; Metal coatings; Powder coatings; Fire protection coatings; Anti-corrosion protection in urban, road and railway infrastructure; Protective coatings in military applications; Anti-corrosion protection in the energy sector; Anti-corrosion protection in the petrochemical industry; Anti-corrosion protection for offshore structures; Anti-corrosion protection in the automotive industry; Inspection; Standards, regulations and requirements in various countries; Anti-corrosion equipment; Corrosion problems in practice; Business & Science.

Click here for more information.

14TH ELECTROCHEMICAL METHODS IN CORROSION RESEARCH (EMCR 2025)

San Servolo island, Venice, Italy, 15-19 June 2025 **EFC Event No. 522**

Organised in cooperation with EFC Member Society AIM.

The EMCR symposia are well-established conferences in the field of electrochemistry, electrochemical methods and corrosion research. These have been included in the past as EFC numbered events in the EFC calendar (EMCR 2018, EFC event no. 418; EMCR 2015, EFC 386; EMCR 2006, EFC 295; EMCR 2003, EFC 263). The conference includes three plenary lectures, 60 oral presentations, a poster session and an exhibition.

Scope: To discuss the latest developments in the application of electrochemical methods in corrosion studies. The programme of the 14th EMCR symposium will include the use of traditional and local techniques in corrosion studies, coupling between electrochemical techniques and non-electrochemical methods, modelling and investigation of corrosion mechanisms. **The call for papers has closed**. Click here for more information.

GIORNATE NAZIONALI CORROSIONE E PROTEZIONE - XV EDIZIONE - GN CORR 2025

Ancona, Italy, 25 - 27 June 2025

EFC Event No. 525

GN CORR 2025 is the most important national event on corrosion organised by the Associazione Italiana di Metallurgia (AIM) with the full support of APCE, the AMPP Italy Chapter and Università Politecnica delle Marche. Click here for more information.

SUMMER SCHOOL - MULTIFUNCTIONAL AND SMART COATINGS FOR CORROSION PROTECTION

Trento, Itay, 14 – 19 July 2025

EFC Event No. 527

Organised by EFC Working Party 14 on Coatings

Scope: The Summer school is devoted to the development of smart coatings for the corrosion protection of metals. The program includes frontal lectures (morning session)

and laboratory activity (afternoon session). Click here for more information.

EUROCORR 2025

Stavanger, Norway, 7-11 September 2025 **EFC Event No. 520**

EFC's annual EUROCORR conference in 2025.

Scope: The programme will include plenary lectures, keynote lectures oral and poster presentations in all areas covered by EFC Working Parties and Task Forces, and other hot topics. Click here for more information.

TRIBOCORROSION 2025

Vienna, Austria, 21-23 October 2025

EFC Event No. 521

Organised by the Austrian EFC Member Society ASMET; initiative proposed by EFC Working Party 18.

Scope: International conference on the topic of tribocorrosion. Tribocorrosion 2025 is aimed to bring together scientists and engineers working in academia or in industry interested in getting better understanding and control of the mechanical and chemical interactions governing friction, wear and lubrication in contacts operating in extreme environments (i.e. marine, presence of hydrogen, CO, new fuels or green lubricants). Prior to the conference, a specialisation course will be offered targeting postgraduate students.

The call for papers has now closed. <u>Click here</u> for more information.

9TH INTERNATIONAL WORKSHOP ON LONG-TERM PREDICTION OF CORROSION DAMAGE IN NUCLEAR WASTE SYSTEMS (LTC 2025)

Sendai, Tohoku Region, Japan, 4-6 November 2025

EFC Event No. 501

Japan Society of Corrosion Engineering (JSCE), Nuclear Waste Management Organization of Japan (NUMO) and EFC WP 4 on Nuclear Corrosion

Scope: The workshop will provide an overview on national disposal programmes with emphasis on similarities, common challenges and different approaches, regulatory issues, retrievability, etc. Development of and long-term performance assessment of high-level waste disposal containers. Experimentation with candidate materials, including laboratory tests, full-scale demonstration, in-situ testing, methodology, modelling, monitoring and design. Click here for more information.



FUTURE SURFACES 2025

Edegem, Belgium, 19 -20 November 2025

EFC Event No. 533

Benelux knowledge and networking event for Surface Finishing. Associations VOM and Vereniging ION present a varied conference programme to delve into current topics and challenges. FUTURE SURFACES 2025 is also an informal event built around five themes where knowledge sharing, inspiring demos and plenty of networking opportunities take centre stage. Click here for more information.

19TH NORDIC CORROSION CONGRESS

Stockholm, Sweden, 14-16 April 2026

EFC Event No. 531

Co-organised by EFC Member Society Rise Research Institutes of Sweden together with Swerim and KTH.

Scope: Corrosion (various topics)

4TH CONFERENCE AND EXPO 2026 "CONNECTING EXPERTS, DRIVING INNOVATION IN CORROSION MANAGEMENT"

Genova, Italy, 9-12 June 2026

EFC Event No. 534

Scope: The Conference is aimed to collect specialists from Europe and worldwide to discuss topics concerned with any fundamental, engineering and applied aspects in the field of corrosion prevention, while the Expo will present materials, equipment and services addressing corrosion prevention systems. Click here for more information.



EUROCORR 2026

Dublin, Ireland, 6-10 September 2026 **EFC Event No. 510**

Click here for more information.

SAVE THE DATE

GLOBAL CORROSION CONGRESS – JOINT EUROCORR & ICC 2027

Prague, Czech Republic, 12-16 September 2027

EFC Event No. TBC

Co-organised by the European Federation of Corrsion and International Corrosion Council

Scope: In 2027, Prague will become the capital of corrosion protection when the city hosts the Global Corrosion Congress – Joint EUROCORR & ICC 2027, bringing together leading experts and professionals to discuss the latest findings in corrosion science and technology.

The joint EUROCORR & ICC 2027 will take a unique approach by spotlighting the next generation of corrosion engineers, giving young scientists a prominent platform throughout the congress.

The organisers believe that the Prague congress will provide participants with a unique opportunity to enhance collaboration, establish new connections among attendees, and immerse themselves in the cultural atmosphere of Prague, experiencing its

hospitality and friendliness.

Hosted by EFC Member Society, the Association of Czech and Slovak Corrosion Engineers (AKI), the five-day event will be held at the O2 Universum in Prague.

The organisers are confident that your participation in the joint EUROCORR & ICC 2027 congress will be highly rewarding – not only from a scientific perspective – but also through reconnecting with friends and meeting new colleagues. You are warmly invited to be part of the joint EUROCORR & ICC 2027 in Prague.

Click here for more information.

CONGRESS SECRETARIAT CONTACT:

GUARANT International spol. s r.o.

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Email: eurocorr-icc2027@guarant.cz

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EFC Approved Courses 2025

Attributed to courses from Member Societies with high professional standards, the EFC Approved Courses support the education and training of corrosion professionals across Europe



Milano, Italy, 5-9 May 2025

TECNICO SENIOR addetto alla Protezione Catodica di strutture metalliche interrate e immerse

Lyon, France, 3-5 June 2025

<u>Traitement des eaux industrielles: générateurs de vapeur et circuits de refroidissement – Notions de base (Niveau 1)</u>

Milano, Italy, 9-13 June 2025

SPECIALISTA addetto alla Protezione Catodica di strutture metalliche interrate e immerse

Milano, Italy, 22-23 September 2025

ADDETTO alla Protezione Catodica di strutture metalliche interrate e immerseLyon, France

Online, 24 September 2025

Introduction to Corrosion & Its Prevention

Milano, Italy, 6-10 October 2025

<u>TECNICO addetto alla Protezione Catodica di strutture</u> <u>metalliche interrate e immerse</u>

Lyon, France, 4-6 November 2025

<u>Traitement des eaux industrielles : générateurs de vapeur et circuits de refroidissement – Approfondissement (Niveau 2)</u>

For full details of these EFC Approved Courses and a complete listing of many other future corrosion events held across Europe and throughout the world, then visit the EFC Calendar of Events.

LEGAL NOTICE

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