European Federation of Corrosion
60th Anniversary

M.F. MONTEMOR

President

www.efcweb.org
THE EFC

The European Federation of Corrosion, founded in 1955, is the largest corrosion organisation in Europe and one of the largest in the world, representing **30 MEMBER SOCIETIES** from 21 European countries.

Since 2010 the Federation has been open to **AFFILIATE MEMBERS**, including universities, research institutes and companies.

The EFC is attracting an increasing number of **INTERNATIONAL MEMBERS** from non-European countries (Brazil, Australia...)

MISSION

The EFC is dedicated to:

Advancing the science of corrosion and protection of materials by promoting cooperation in Europe and collaboration internationally.

Disseminating excellent scientific and technical knowledge.
GOVERNANCE

EFC PRESIDENT and VICE-PRESIDENT

BOARD OF ADMINISTRATORS - The administration of the Federation is in the hands of the Board of Administrators (BoA) - members being drawn from the EFC Member Societies.

SCIENCE AND TECHNOLOGY ADVISORY COMMITTEE (STAC) in charge of scientific and technical affairs.

SCIENTIFIC SECRETARY AND EFC MANAGING OFFICER

GENERAL SECRETARIAT with offices in the UK, Germany and France.
EFC IN NUMBERS

Founded in 1955

31 Member Societies from 21 European Countries

7 Affiliate Members (Companies and Universities)

Around 40,000 individuals

Over 60 thematic publications (Green Books)

20 Working Parties dealing with the thematic fields

Cooperation with large international organizations
INTERNATIONAL COLLABORATIONS

ABRACO – Brazilian Association of Corrosion
ACA - The Australasian Corrosion Association Inc.
ICC - International Corrosion Council
NACE International
WCO – World Corrosion Organization
CSCP - Chinese Society for Corrosion and Protection
MIDDLE EAST - (EFC branch)
OUR ACTIVITIES

Precompetitive knowledge exchange (Congresses, workshops, Business Meetings, Green Books,...).

Peer review of novel techniques, mechanisms, standards, monitoring and inspection.

Identification of challenges, trends and industrial needs.

To release guidelines, good practices and standard tests.

Training and practical work exchange of young researchers (e.g. summer schools/grants).

Network for international collaboration.
OUR ACTIVITIES

EUROCORR – The annual event of the European Federation of Corrosion
The largest Corrosion Congress in Europe and a reference around the world.

EUROCORR attracts around 1000 delegates, from more than 50 countries and it is held in a different European country in September of each year.
EUROCORR – The annual event of the European Federation of Corrosion

EUROCORR 2016

Advances in linking science to engineering
11-15 September 2016, Montpellier / France

www.eurocorr.org
OUR ACTIVITIES

Near Future Eurocorr’s:

2017 - EUROCORR 2017 (joint event with ICC), Prague, Czech Republic

2018 - EUROCORR 2018, Krakow, Poland

2019 - EUROCORR 2019, Seville, Spain
OUR ACTIVITIES

Publication of EFC Series of “Green Books” of which there are now over sixty.

- New Trends
- Basic Guidelines
- Recommended Practice
- Theoretical background
- Round Robin exercise
- ...

WP1: Corrosion and Scale Inhibition
WP 3: Corrosion by Hot Gases and Combustion Products
WP 4: Nuclear Corrosion
WP 5: Environment Sensitive Fracture
WP 6: Surface Science and Mechanisms of Corrosion and Protection
WP 7: Corrosion Education and Computer Applications
WP 8: Physico-chemical Methods of Corrosion Testing
WP 9: Marine Corrosion
WP 10: Microbial Corrosion
WP 11: Corrosion of Steel in Concrete
WP 13: Corrosion in Oil and Gas Production
WP 14: Coatings
WP 15: Corrosion in the Refinery Industry
WP 16: Cathodic Protection
WP 17: Automotive Corrosion
WP 18: Tribo-Corrosion
WP 19: Corrosion of Polymer Materials
WP 20: Corrosion and Corrosion Protection of Drinking Water Systems
WP 21: Corrosion of Archaeological and Historical Artifacts
WP 22: Corrosion in Aerospace
EFC Task Force: CO₂-Corrosion in CCS-Applications
EFC Task Force: Corrosion reliability of Electronics
WP 1 - Corrosion and Scale Inhibition

WP1 is the platform and forum for all aspects of corrosion inhibition and scale inhibition in all kinds of industrial application:
• from basic understanding of protection mechanisms to science-based modelling,
• from compound selection for specific services to appropriate application modes,
• from investigation methods and fitness-for-purpose testing to online monitoring,
• from environmental concerns to legal aspects.

The official Journal of Working Party 1 is the “International Journal for Corrosion on Scale Inhibition” (IJCSI; website: www.ijcsi.pro).

Chairs:
Prof. Dr. Günter SCHMITT
Institute for Maintenance and Corrosion Protection Technologies nfpLtd.
Dr. Wolfgang HATER
R&D/Laboratory Manager Kurita Europe APW GmbH
WP 3 - Corrosion by Hot Gases and Combustion Products

Mission:
To develop tools for a more precise assessment of high temperature corrosion resistance and for lifetime prediction of materials and components under high temperature conditions.

Strategies (examples):
• Exchange of information and ideas at topical EUROCORR sessions
• Organisation of high temperature corrosion networks and initiation of joint research activities at the working party meetings
• Training of young researchers
• Editing of volumes in the EFC-series

Chairs:
Prof. Dr.-Ing. Michael SCHÜTZE
DECHHEMA-Forschungsinstitut
Dr. Mathias GALETZ
DECHHEMA-Forschungsinstitut
WP 4 - Nuclear Corrosion

Mission:
• To provide links between European teams and EU-funded programs in the nuclear corrosion field, with an opening on to the world;
• To initiate and stimulate opportunities of exchange of scientific and technical subjects related to nuclear corrosion, particularly on today's main nuclear research areas (waste systems, water reactors, generation IV and fusion reactors);
• To promote corrosion science and technical developments through events such as seminars, workshops, publications, etc.

Chairs:
Dr. Damien FÉRON
CEA-Saclay "Service of Corrosion" SCCME
Batiment 458 - PC50
Stefan RITTER
Paul Scherrer Institut Nuclear Energy and Safety Research
Department Lab for Nuclear Materials
WP 5 - Environment Sensitive Fracture

Mission:
• Confronting physico-chemical and mechanical approaches in modelling environment sensitive fracture,
• Promoting the use of advanced local investigation methods (AFM, EBSD, Auger/XPS, nanomechanical testing) for submicrometer range description of crack initiation sites and crack-tip characteristics and
• promoting the use of numerical simulations based on multiscale physical approach.
• contributing to the definition of recommendations through joint sessions with colleagues from different application fields.

Chairs:
Dr. Krzysztof WOLSKI
Departement PMI Centre SMS - UMR CNRS 5146
Ecole des Mines de Saint-Etienne
Dr. Vigdis OLDEN
SINTEF Materials and Chemistry
WP 6 - Surface Science and Mechanisms of Corrosion and Protection

The activity of the WP 6 is focused on Corrosion Mechanisms, Methods and Modelling. The Working Party's aims include the discussion and the dissemination of information on the development and the use of advanced surface analytical techniques (imaging and spectroscopy) to understand corrosion mechanisms and solve corrosion problems.

Chair:
Prof. Dr. Philippe MARCUS
Ecole Nationale Superieure de Chimie de Paris
WP 8 - Physico-chemical Methods of Corrosion Testing

Mission
To provide a sound platform for international networking and activities in the area of physico-chemical methods of corrosion testing in itself and in collaboration with other Working Parties (WPs).

Vision
First of all to accommodate a well-recognized international platform for all high level scientific contributions with a focus on the development of innovative physico-chemical measuring techniques during EUROCORR and second to preselect and follow-up novel developments together with the other WPs.

Chair:
Dr. J.M.C. Arjan MOL
Delft University of Technology
Materials Science and Engineering Department
Corrosion Technology and Electrochemistry Research Group
WP 9 - Marine Corrosion

Objectives (examples):
• to provide engineers, designers and materials specialists with information related to the use of materials in the marine environment;
• to act as or to create a platform for discussion by authorities from industry and academic institutions on materials aspects of marine corrosion;
• to identify and to define areas in which information is not up-to-date or not available in the required form;
• to identify areas in which research and development is required

Chairs:
Dr. Ulf KIVISÄKK
AB Sandvik
Materials Technology R&D
Carol Powell
WP 10 - Microbial Corrosion

**Aim:** The main purpose of the working party is to increase basic understanding of biocorrosion and its prevention. These general themes are organised in thematic areas:

- Mechanisms of biocorrosion
- Analytical approaches and monitoring
- Knowledge-based risk assessment and mitigation techniques
- From basic understanding towards new processes.

**Chairs:**
Dr. Pierangela CRISTIANI  
RSE - Ricerca sul Sistema Energetico S.p.A. - Milano - Italy  
Sustainable Development and Energy Sources Department  
Dr. Régine BASSÉGUY  
CNRS - Laboratoire de Génie Chimique - Toulouse - France  
Bioprocesses and Microbial Systems, Biofilm Engineering
WP 11 - Corrosion of Steel in Concrete

Aims: International Cooperation, Transfer of Knowledge, Education

Activities:
• Annual meetings
• EUROCORR Conference sessions
• Task groups on special topics
  ➢ Example: “Planning, execution and evaluation of corrosion surveys of steel in concrete”, report published in the journal Materials and Corrosion
• International Publications, e.g. EFC-books, Special Issues in Materials and Corrosion
• Workshops on special topics

Chairs:
Prof. Dr.-Ing. Michael RAUPACH
Aachen University, Institute for Building Materials Research
Dr. David M. BASTIDAS
Dept. Surface Engineering, Corrosion & Durability National Centre for Metalurgical Research - CENIM-CSIC Madrid
WP 13 - Corrosion in Oil and Gas Production

Develop guidelines and documents for new topics related to corrosion in oil and gas production, considering:

- Sour environments
- Material selection

Prediction, mitigation and monitoring solutions for different corrosion problems in oil and gas environments (CO$_2$ corrosion, H$_2$S + CO$_2$ corrosion, MIC, erosion-corrosion, ...)

Chairs:
Steve PATERSON - Principal Technical Expert - Upstream Materials
Marc WILMS - Group Lead Materials Performance Testing
Shell Projects & Technology
P.O. Box 38000, 1030 BN, Grasweg 31, 1031 HW Amsterdam, The Netherlands
WP 14 - Coatings

Corrosion protection

Organises the largest session of EUROCORR considering: pretreatments, metallic, inorganic, organic and self-healing coatings.

Joint sessions in close cooperation with other WPs (e.g. EUROCORR 2016):
  Coatings for high temperature
  Pipeline coatings and cathodic protection

Preparation of standards related to the study of organic and inorganic coatings (e.g. ISO standards on Impedance Spectroscopy).
Publication of technical books on coatings for corrosion protection.
Network for partnerships in European and International Projects.

Chairs:
Priv.-Doz. Dr.-Ing. Wolfram FÜRBETH
DEHEMA-Forschungsinstitut, Theodor-Heuss-Allee 25 - 60486 Frankfurt Germany
Prof. Marjorie Olivier, University of Mons Belgium
WP 15 - Corrosion in the Refinery Industry

Information Exchange: refinery materials /corrosion/inspection experiences by operating company representatives.
Technology exchange: materials/ corrosion/protection/ monitoring information by providers, users, R&D.
Scientific exchange: Sharing materials/ corrosion/ protection scientific works.
Preparation of documents, guidelines, publications related to corrosion in the refinery industry.

Next activities:
- Survey of corrosion problems in the refinery industry
- Corrosion under insulation (new EFC Guideline No 55)
- Failure cases presentations and discussions
- Corrosion resistant materials - new CRA for refinery application.
- Corrosion by sour waters (SSC, SOHIC)
- Selection of Inhibitors
- Corrosion monitoring and Inspection

Chairs:
François ROPITAL - IFP Energies nouvelles, BP 3, 69630 Solaize, France
Johan VAN ROIJ, Shell, Amsterdam, Netherlands
WP 16 – Cathodic protection

Exchange of information and recommendations for CP measurements and coating survey techniques for buried pipelines.

Follow-up the progress on Certification of CP personnel in Europe, particularly after the publication of EN 15257.

EFC Publications gathering the best papers presented at EUROCORR.

Certification of personnel, services and companies active in cathodic protection.

Cathodic Protection measurements and coating surveys techniques for buried pipelines.

Chairs:
Jérôme CROUZILLAC, BAC Corrosion Control
164 Avenue Joseph Kessel, 78960 Voisins-le-Bretonneux France
Anne Marie GROLLEAU, DCNS RESEARCH
BP 440 50104 Cherbourg-Octeville Cedex France
WP 17 – Automotive corrosion

• Guide automotive manufacturers, suppliers and material producers to select optimum material combinations for durable, reliable and safe in-service conditions.

• Stimulate the exchange of scientific & technical papers in the field of automotive corrosion: accelerated corrosion testing, material selection for anti-corrosion application, corrosion prediction and prevention, corrosion and design (multi-material and lightweight concepts...)

• Create a scientific network to enable links between industries and research academic organisations.

New activities: Digital tools usage for automotive corrosion application
Collaboration in automotive corrosion standardisation activities.

Chairs:
Elizabeth SZALA - R & D - Innovation Centre Duffel
ALERIS ALUMINIUM DUFFEL BVBA
Stocletlaan 87, 2570 Duffel, Belgium
WP 18 – Tribocorrosion

• to inventory the industrial concerns and needs in the area of tribocorrosion,
• to stimulate multidisciplinary research activities in order to develop solutions to the industrial problems of tribocorrosion,
• to structure and strengthen the European research area (ERA) in line with the CEC-6 FP, 7FP, Cost-ESF,
• to disseminate new insights acquired on typical aspects of tribocorrosion in order to get a worldwide recognition of European research and technological developments on tribocorrosion.
• to create industrial awareness of the risks linked to tribocorrosion,
• to organize meetings on tribocorrosion at European and local level, in different fields of technology,
• to attract funding for research and development activities on tribocorrosion from European and national entities.

Chairs:
Dr. Stefano Mischler
École Polytechnique Fédérale de Lausanne (Switzerland)
Prof. Jean GERINGER
Ecoles des Mines de Saint-Etienne (France)
WP 19 – Corrosion of Polymer Materials

• To improve harmonisation of the theoretical understanding of corrosion mechanisms leading to the sustainable use and safe application of polymer materials, using a European network of experts to assemble the present understanding in the field of corrosion of polymers,
• To identify the needs for further research, both in basics and application,
• To valuate existing testing methods,
• To promote new investigation methods, and
• To foster pre-normative work on an international basis".

Chair:
Dr.-Ing. Jürgen HEINEMANN
Technische Universität Darmstadt (Germany)
WP 20 – Corrosion and Corrosion Protection of Drinking Water Systems

- Test methods
- Copper corrosion in respect of leaching and pitting corrosion
- Lead on surface
- Inhibitors in drinking water installations
- Qualification of stainless steels
- Problems of cementitious coatings (Inliners)

Chair:
Dr. Johann Wilhelm ERNING
Bundesanstalt für Material-forschung und –prüfung Fachbereich (Germany)
WP 21 – Corrosion of Archaeological and Historical Artefacts

Special issue 2016 in Materials and Corrosion

The next Metal conference meeting of the ICOM-CC will be held in September 2016 in New Delhi, India.

Chairs:
Dr Delphine NEFF
Archaeomaterials and Alteration Prediction Laboratory
CEA/CNRS (France)
Professor David WATKINSON
Department of Archaeology and Conservation
SHARE - Cardiff University (United Kingdom)
WP 22 – Corrosion Control in Aerospace

• To support and contribute to the definition of research work programmes with respect to industrial and scientific needs
• To initiate projects in the field of aerospace corrosion research & development on transnational, international and the European level.
• To collaborate on the exchange and production of scientific & technical publications in aerospace corrosion topics and to promote standardisation activities
• To utilise synergies in corrosion science and engineering with other transport industries (e.g. automotive) or related applications (e.g. offshore wind energy, marine corrosion)
• To organise common workshops with other WPs on certain hot topics (WP17 Automotive Corrosion, WP14 Coatings, WP6 Corrosions mechanism, ...)
• To enhance representation and contribution from the industrial sector for EUROCORR events

Chairs:
Dipl.-Ing. Theo HACK, Airbus Group Innovations, Munich (Germany)
Prof. Dr. Mikhail Zheludkevich, Helmholtz-Zentrum Geesthacht (HZG) (Germany)
Task Force: CO$_2$-Corrosion in CCS-Applications

- Test methods
- CO$_2$-effect concerning scaling, general and pitting corrosion
- Interactions with typical precipitations like SO$_x$, NO$_x$, H$_2$S and water
- Qualification of carbon and stainless steels
- Special considerations within the different parts of an installation (separation, compression, transport and injection)
- Problems of composition variations in practice

Chair:
Dr. Ralph Bäßler - Bundesanstalt für Material-forschung und –prüfung Fachbereich, Berlin (Germany)
Task Force: Corrosion Reliability in Electronics

- Corrosion failure modes and mechanisms
- Process cleanliness, design aspects, and humidity
- Corrosion mitigation strategies and early prediction
- Testing methods and standards
- Specific corrosion issues related to material in electronics and components
- Importance of enclosure design and various levels of packaging

Chairs:
Prof. Dr. Rajan Ambat - Technical University of Denmark – Lyngby (Denmark)
Dr.-Ing. Helmut Schweigart - Head of Technology Development - ZESTRON Europe Ingolstadt (Germany)
OUR CONTACTS

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