SOCIEMAT: CORROSION RESEARCH ACTIVITIES

***M. Mohedano*[1], *A. Muesmann*[2]**

[1]*Departamento de Ingeniería Química y de Materiales, Facultad de Ciencias Químicas, Universidad Complutense, 28040 Madrid, Spain. mmohedan@ucm.es*

[2]*SOCIEMAT. Sociedad Española de Materiales. info@sociemat.es*

SOCIEMAT is proud to have among its members representatives of the main corrosion research groups in Spain. Some of them are:

- The **Group of Degradation and Corrosion of Materials**, **GRUDECORR of the University of Cantabria**, which studies the relation between microstructure and corrosion behavior of ferrous and nonferrous metallic system, related also with mechanical properties, cost corrosion analysis, on site failure analysis and selection of materials and protection measurements to prevent corrosion in hostile environments. Key words: corrosion, duplex stainless steels, nickel aluminium bronzes, NAB, risk, failure analysis, petrochemistry, marine environments. https://sociemat.es/wp-content/uploads/2017/11/GRUDECORR_2017.pdf

- The **Group of Characterization Corrosion and Degradation of Materials of the Complutense University of Madrid** is interested in alloy engineering and tailoring of surface protective and functional properties. A range of available facilities for that purpose include accelerated atmospheric corrosion tests, in-vitro corrosion, tribological equipment and access to alloy manufacturing facilities. The Group specializes in advanced surface treatments that include anodizing and plasma electrolytic oxidation (PEO) combined with conversion coating and sol-gel methods for active protection of Al-, Mg- and Ti-based substrates. https://www.ucm.es/ccrm/

- The **Surface Technologies from Mondragon University**, which studies the correlation between surface topography, protective film degradation and stainless steel corrosion behavior, the corrosion analysis in different

environments and conditions and its effect in the tribological behavior of grey cast iron sheaves, and Nickel-based alloy forging strategies for minimum cost and intergranular corrosion.
https://www.mondragon.edu/en/research-transfer/engineering-technology/research-and-transfer-groups/-/mu-inv-mapping/grupo/tecnologias-de-superficies

- The **Corrosion Group of Tekniker**, dealing with the study of corrosion and protection measurements and specialized in the characterization of all kind of materials and coatings in extreme conditions, reproducing the hostile working conditions for a wide range of applications, also has expertise evaluating the synergistic effect of tribocorrosion of metals and coatings, simulating the working conditions under wear-corrosion solicitations.
https://www.tekniker.es/es

- The **Group of Reinforcement Corrosion and Structural Safety of IETcc-CSIC**, whose main goal is to generate knowledge and to develop new technologies in the field of construction materials and particularly in durability of cement-based materials.
https://www.ietcc.csic.es/en/construction-department/reinforcement-corrosion-and-structural-safety/

- The **COPROMAT group of CENIM CSIC** is devoted to optimize metallic materials behaviour in a wide range of environments as well as imprint new functionalities or enhanced properties to the metallic surfaces. COPROMAT group carries out a fundamental research to understand, the corrosion mechanisms responsible for metals degradation in their working environment. The research activity can be summarised in the study of corrosion and mechanically-assisted-corrosion processes and the development of new corrosion protection methods to improve their behaviour in aggressive environments as well as provide with new functionalities the metallic surfaces.
http://www.cenim.csic.es/index.php/inicio-copromat

- **EURECAT (Centro Tecnológico de Cataluña)** corrosion research line is focused on the development of materials solutions to environmental degradation problems in different aggressive environments. Through advanced characterization techniques. The Centre specializes in the identification of corrosion mechanisms and failure analysis of components, as well as the study of the effect of aggressive environments on the mechanical properties: Stress corrosion cracking, Tribo-corrosion, fatigue-corrosion, H embrittlement, etc.
https://eurecat.org/

- The **Materials and Manufacturing Division of CEIT (Centro de Estudios e Investigaciones Técnicas de Gipuzkoa)**, focused on the development of the highest standards for Stainless steel and Nickel Alloys elements to address extreme environments (the design of new grades,the optimization of processing routes and the development of new fabrication technologies), the composition design and thermomechanical processing of API grades and surface technology and coating systems: Laser technology, environmentally friendly coatings. Main capacities: thermomechanical simulation, and analytical and Multiscale Finite Element Modeling FEM of processes/mechanical behavior. Mechanical properties assessment, Advanced Microstructural Characterization (FEGSEM, EBSD, STEM, EELS). Failure analysis: identification of failure mechanisms (fatigue, corrosion, creep, defects,…).
https://www.ceit.es/es/