

CORROSION

STEEL GOING STRONG

Laboratory

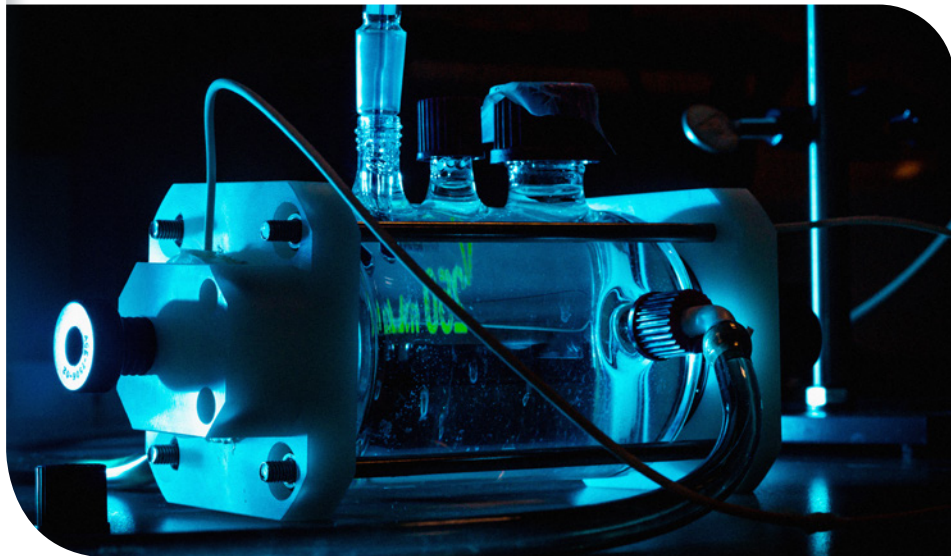


Laboratory

An arena for applied science

CORROSION is unique in many ways. One of the things that makes us different is our on-site research laboratory. This is the place where we build on our many years of experience and expertise.

And while we have a sound reputation and proven products, we want to continue bringing you new developments. CORROSION strives to pioneer in ways that go beyond theory and ideas. Our lab is an ideal place to continue our mission to bring you the most sophisticated, high-quality products and services available in cathodic protection and anti-fouling technologies. It adds specialized services to our already strong reputation for product reliability and performance. And because the environment is an ever-growing concern, our lab also allows us to look into more sustainable solutions and improvements. The best products, with an eye on our surroundings whenever it's possible.



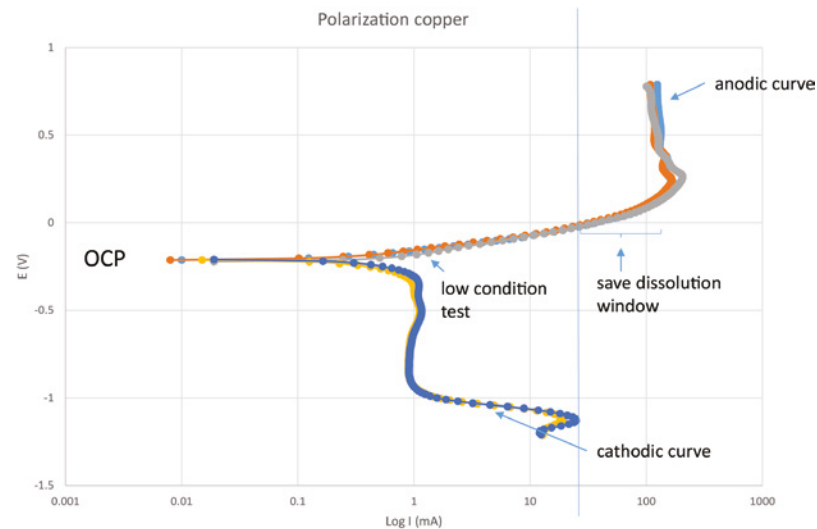
Applied Science

Our laboratory is an arena for applied science. We strive to be the bridge between academic knowledge and practical application. Science for the real world. So, we work with partners who are widely recognized, and like us, specialists in materials and corrosion solutions in a wide variety of environments. This collaboration comes together in our on-site lab, like a melting pot where our expertise is mixed with new ideas. Our findings are then applied to the problems our clients face every day in many different industries.

In addition to these cooperative efforts and our on-site practical facilities, our lab also has access to a large database of scientific publications and reports. This means our clients will always benefit from the latest developments in materials, technology, and scientific knowledge in the field of corrosion and anti-fouling.

CORROSION's laboratory has been actively involved in creating solutions and improvements for a wide variety of applications. It is common knowledge that corrosion and fouling are a constant threat whenever man-made structures are exposed to the elements. Both fresh and seawater environments need protection. This means our research is widely applicable. Some of the types of structures where CORROSION solutions and research are being implemented include:

- Vessels
- Pipelines and storage tanks at water distribution companies (both drinking and industrial water)
- Sprinkler systems and other firefighting reservoirs
- Pipelines and storage tanks in the oil and gas industry
- Port infrastructure, such as mooring poles and quay walls
- Offshore wind foundations and other offshore structures



Typical copper polarization curve showing the current response behavior in both the cathodic and anodic regions

Facilities

Simulating realistic conditions is important when conducting corrosion research. For this reason, we have invested in facilities which allow us to conduct our research in different settings, under variable conditions, including real-life simulations.

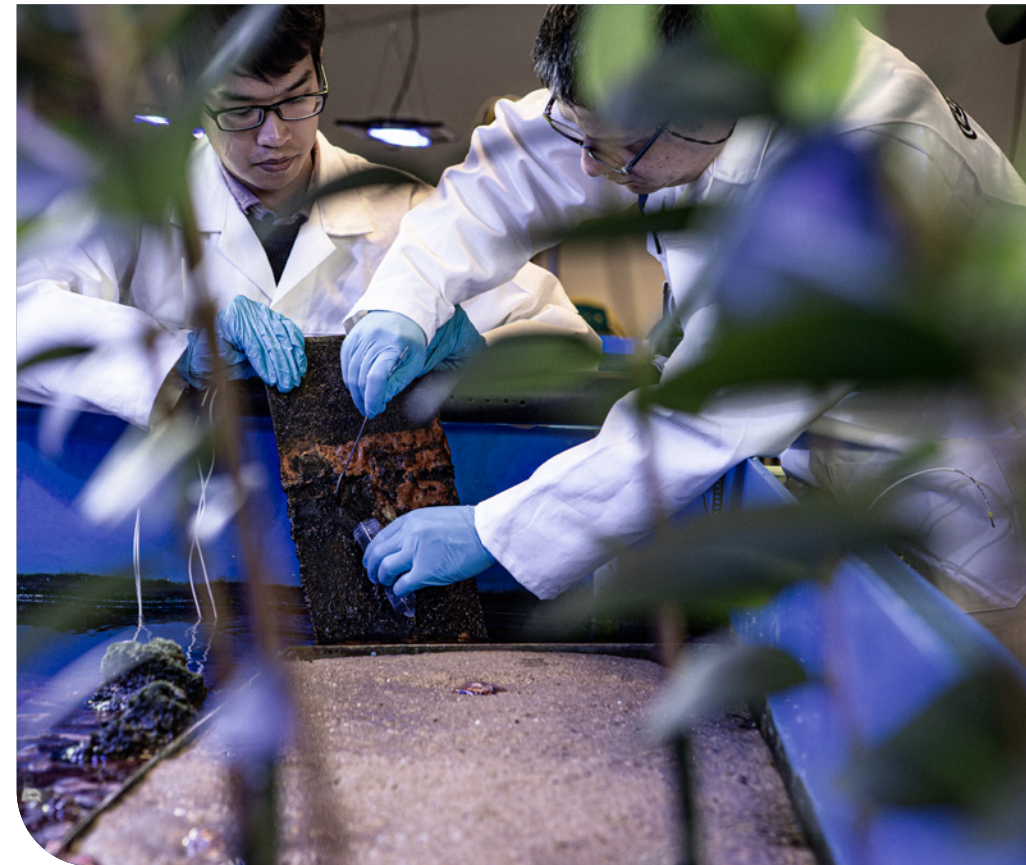
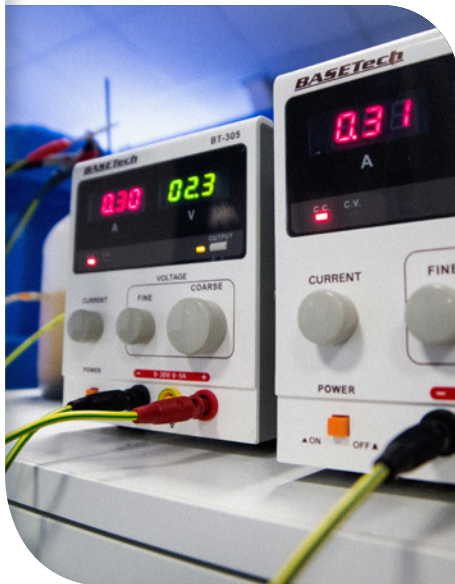
One of the features of the CORROSION Laboratory is a self-constructed, natural seawater system, composed of interconnected test tanks where both lateral flow as well as tidal movement are simulated. The main tank contains a biological community including fish, plants, and sessile marine invertebrates. Water from this tank can recirculate through two other fixed tanks for a total volume of approximately 8000 liters of natural (active) seawater. Or, when necessary, small portable tanks can be used instead. This simulated environment makes it possible to replicate more realistic marine corrosion conditions.



In addition to the seawater tanks, we also have instrumentation and facilities available for working with electrochemistry, microscopy and X-ray-based analytical techniques, to name a few.

Overview instrumentation:

- 3D scanning setup (EinScan-SP) for digitation of specimens
- Digital microscopy (Keyence VHX-600) for surface topography measurements
- Optical microscopy techniques such as fluorescence, polarization, and phase contrast for both metallographic and (bio)fouling investigations
- Analytical tools such as UV/Vis spectrophotometry for colorimetric chemical quantification
- X-ray fluorescence (Horiba XRF microscope) for element analyses of surfaces, including element surface maps with a resolution of up to 100 μm
- X-ray diffraction (Rigaku MiniFlex II – XRD) for crystalline phase identification and relative quantification
- Electrochemical techniques for corrosion and coating analyses including:
 - Linear polarization resistance polarization (LPR)
 - Electrochemical impedance spectroscopy (EIS)
- Basic microbiology lab for the assessment of micro-organisms involved in Microbiologically Influenced Corrosion (MIC), including but not limited to SRB, APB, IOB, and IRB



Our Clients Benefit

The CORROSION Laboratory makes our many years of expertise in corrosion and anti-fouling related issues available to you. From customized research, including desk studies, to routine tests, we are ready to use our unique facilities and instrumentation to help you. Please feel free to contact us for more information.

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