The study of materials and its behaviour in service conditions is being a constant activity line for TECNALIA.

Since 1985 our Corrosion Team is giving service and support in the selection of materials, protective techniques to improve their behaviour in service conditions and the implementation of monitoring techniques to guarantee the safety of industrial infrastructures.

With more than 25 engineers, chemists and physics, TECNALIA is one of the leading organizations in Europe in the field of corrosion and corrosion protection, fully specialized in the study of materials in a large variety of aggressive industrial condition.

Our corrosion assessment services include Onsite and Lab Investigation, Corrosion testing, Inspection and Monitoring, Failure Analysis and Corrosion Research.

Our facilities include both indoor labs and outdoor corrosion expositions sites.

CORROSION TESTING FACILITIES AND SERVICES

General corrosion testing facilities:
- High pressure high temperature autoclave for general corrosion studies
- General, Pitting and Crevice corrosion testing
- Corrosion Fatigue
- 3 & 4 Point Bend Testing
- Intergranular corrosion Test

Oil & Gas Service Testing
- Hydrogen Inducted Cracking (HIC) and Hydrogen Stress Cracking (HSC) tests
- Sulphide Stress Cracking (SSC) tests (tensile and C-ring test)
- Stress Corrosion Cracking (SCC) by Slow Strain Rate Testing (SSRT)
CORROSION TESTING FACILITIES AND SERVICES

Electrochemical Measurements

- Electrochemical cell and electrode designs for high-temperature/high-pressure kinetic measurements
- Rotating disk electrode for kinetics studies with different flow regime conditions
- Linear sweep voltammetry and linear polarization resistance, for corrosion rate calculations and mechanisms.

Accelerated testing

- Salt spray test
- Cyclic testing
- Kesternich Test
- Climatic chambers
- Condensation testing (humidity)
- Accelerated weathering test (UV-Condensation)
- Immersion and alternate Immersion test
- Rain Erosion Test (RET)
- Solid particle impingement test.

Failure analysis and corrosion inspections

- Classification of corrosion environments
- Monitoring program inspections
- Field Investigation, report and recommendations
- IR Thermography for the non-destructive evaluation of protective coatings

Coating Laboratory Testing

- Visual and Microscopic Examination
- Electrochemical Impedance Spectroscopy
- Cathodic disbondment tests
- Fourier Transform Infrared Spectroscopy
- Coating Failures and Defects
- Impact test
- Abrasion test
- Chemical Resistance
- Coating characterization tests: flexibility, tensile strength and elongation, film thickness, colour & gloss measurements, film hardness, film adhesion
CORROSION TESTING FACILITIES AND SERVICES

High Temperature and High Pressure Corrosion Testing · Autoclaves

- HTHP autoclaves to simulate sour/non sour service environments and determine corrosion rate
- Specialist in materials qualification for sour service applications
- Environmental cracking tests: sulphide stress cracking (SSC) / stress corrosion cracking (SCC) tests / hydrogen induced cracking (HIC), etc.
- Corrosion inhibitor performance
- Electrochemical corrosion testing in autoclave.
- Rigorous methodologies to ensure the integrity of the tests e.g. H₂S saturation, temperature, pH, oxygen (ppb level)

OUTDOOR EXPOSURE SITES

Natural offshore marine exposure site: HarshLab1.0

- Unique offshore corrosion laboratory in Europe.
- Moored in BiMEP, Biscay Gulf, 2 km away from Armintza (Bizkaia, Spain)
- Real offshore environment equipped with 3 different exposure zones: atmospheric, splash and immersion (IM2).
- 24/7 surveillance and monitoring.

Biofouling exposure testing site

- Immersion zone in floating jetty in the port of Pasaia (Gipuzkoa, Spain) with easy access and monitoring of environmental parameters.
- Estuarine port conditions with a mix of sea water (Cantabrian sea) and fresh water (Oiartzun river).
- Designed for fouling and biofouling assays in pure immersion zone (no tidal influence).

Atmospheric exposure site

- Samples exposed in the terrace of Tecnalia’s building in Donostia-San Sebastian (Gipuzkoa, Spain).
- Atmospheric corrosivity category established as C2 (according to ISO 9223:2012).
- Meteorological and air quality data available thanks to nearby monitoring stations.
CATHODIC PROTECTION

In collaboration with IR Corrosion we can provide:

→ Engineering and consultancy: design, installation and start up of cathodic protection systems; soil resistivity studies.
→ Products and materials supply.
→ Inspection and maintenance: analysis and evaluation of the best cathodic protection solution, periodic surveys and installed systems maintenance.

NETWORKING

TECNALIA takes active part in several organisations and associations contributing with its experience in materials corrosion.

For the development of new products and services

→ In joint industrial projects
→ In public and private R&D projects

Assays under International Standards, certificated by:

→ ISO 9001 and ISO 17025 Accredited Laboratory (ENAC Certification)
→ NADCAP MTL accreditation for Materials Testing
→ AIRBUS authorized Laboratory for Surface Treatment
→ ESA authorized laboratory
→ NACE Coating Inspectors

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WE CAN DO SO MUCH TOGETHER
Our work is not understood without yours; we want to work together so your company can compete better. Because together, we can develop technologies that transform the present.

The future is technological, let’s share it!

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