

INHICOREP RANGE: PRODUCTS AND CHARACTERISTICS

Name	Chemical nature	% active ingredients	pure pH at 20°C	Viscosity (mPa.s) at 4°C	Commercial level of use	Application	Solubility in water at room temperature	Salinity (g/L)
INHICOREP 510	Mixture of amino derivatives	70-80	10-12	50-70	5-10	80 Bar - 110°C 3 phases - H ₂ S	Emulsifiable	50-100
INHICOREP 2040	Mixture of amino derivatives	60-70	11-12	80-90	100-150	170 Bar - 115 °C 3 phases - CO ₂	Soluble	20-50
INHICOREP 2050	Mixture of amino derivatives	60-70	8.5-10	90-100	50-100	50 Bar - 90°C 3 phases - CO ₂ /H ₂ S	Soluble	100-150
INHICOREP 2065	Mixture of amino derivatives	30-40	3-4.5	50-70	100-150	150 Bar - 110°C 3 phases - CO ₂ /H ₂ S	Soluble	150-200
INHICOREP 2200	Mixture of amino derivatives	40-50	8-10	60-80	10-50	30 Bar - 50°C 3 phases - CO ₂	Soluble	150-250
INHICOREP 2300	Mixture of amino derivatives and carboxylate	40-50	10-12	< 40	50-150	150 Bar - 110°C 3 phases - CO ₂	Soluble	50-250
INHICOREP 2400	Mixture of amino derivatives and carboxylate	50-60	11-12	90-100	100-150	210 Bar - 120°C 3 phases - CO ₂	Soluble	50-250
INHICOREP 2500	Mixture of amino derivatives and carboxylate	40-50	9.5-10.5	90-100	50-150	370 Bar - 110°C 3 phases - CO ₂	Soluble	50-250
INHICOREP 2700	Mixture of amino derivatives and carboxylate	40-50	11-12	80-90	50-150	370 Bar - 110°C 3 phases - CO ₂	Soluble	50-250
INHICOREP 2800	Mixture of amino derivatives	40-50	6-8	90-100	20-100	300 Bar - 140°C 3 phases - H ₂ S	Emulsifiable	< 30g/L

For all products, the flash points are above 60°C (closed cup).

Environment

In the field of oil production, REP products, developed in strict compliance with European standards, provide maximum safety, hygiene and prevention.

Packaging

REP products intended for use on site are available in a wide range of containers, notably including 215-liter drums and IBC totes of 1000 liters.

For further information about the INHICOREP Range or to receive a sample, please contact us on +33 (0) 1 30 98 80 00 or at info@rep.fr.



REP is available worldwide through its subsidiaries and distributors. For more information, please contact REP at the following address:

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REP is represented
in your market by:

**REP: SUSTAINABLE SOLUTIONS IN
THE SERVICE OF MANKIND, PRODUCTION
AND THE ENVIRONMENT.**





INHICOREP

Corrosion inhibitors



Additives
for oil production



SOLUTIONS AGAINST CORROSION

Corrosion in oil production

Corrosion is a chemical or electrochemical reaction between a material, usually a metal, and its environment. It causes the degradation and alteration of its properties.

The consequences are severe on facilities: downtime, obligation to replace parts, accidents and pollution risks are frequent events and can have serious economic impact.

In each corrosion, its solution

The multiphase corrosion of production systems is a complex problem, which is dependent on the nature of the crude, the concentration of H_2S and CO_2 , the ratio of the aqueous phase, its salt content and temperature.

There are various types of corrosion that can cause significant damage: general corrosion, localized corrosion, pitting corrosion, crevice corrosion and corrosion cracking.

In order to better identify each case of corrosion, it is necessary to identify the specific factors and their amounts.

- Oxygen content
- pH of the environment
- Temperature
- Pressure
- Alloy composition
- Salinity (impact of chlorides)
- Acid gas content - CO_2 and H_2S
- API gravity of crude
- Composition of crude

Identifying these factors and their interaction is at the heart of the design of the specific inhibitors.

INHICOREP RANGE

How does a corrosion inhibitor function?

The goal of an inhibitor is to lower the corrosion rate of the metal while maintaining its physical and chemical features. Not only has it to be stable in the presence of other constituents in the environment, but it must also not affect the balance of the species in this environment. An inhibitor is active if it is stable in the utilization temperature and effective in very weak concentrations (a few ppm).

Innovate and adapt to each case

REP offers a wide range of corrosion inhibitor products designed to reduce and/or control the aggressiveness of the environment.

For 25 years, our expertise has adapted to serve our customers to serve optimized solutions to our customers. Our inhibitors are formulated for application and specific conditions. Each product in the range is tailor-designed to precisely take the needs of each client into account. Meticulous care is taken in selecting raw materials for perfect cost control, safety and quality of all our products.

Meanwhile, the chemical compatibility of the inhibitor are also studied on the fluid that is susceptible to come into contact with it (sea water, reservoir water, methanol and other chemicals injected, etc.). Finally, the thermal stability of the product is monitored over several months.

**To provide increasingly efficient solutions to its customers,
REP has partnered with universities and laboratories
specialized in corrosion.**

TESTS AND PERFORMANCES: THE BUBBLE TEST



To evaluate the effectiveness of an inhibitor according to the specific characteristics of an oil field, REP includes a Bubble Test that allows the precise optimization of formulations.

The tests can be performed on water “alone”, or on water from a partitioning to determine the affinity of anti-corrosion molecules with the water-crude mixture.

Pressure or flow tests, of the *Wheel Test-Jet Impingement* type, may also be performed.

Cross-section of a carbon steel piece with various types of visible corrosion.





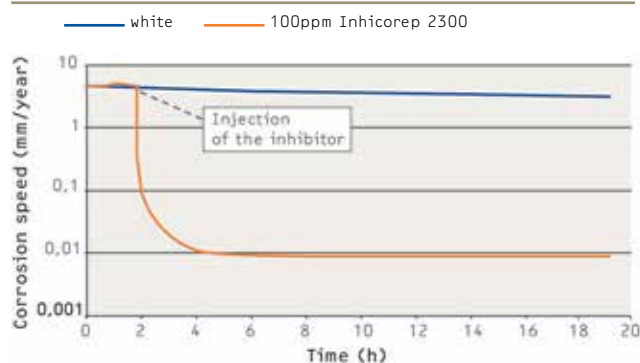
Example of Bubble Test

- The corrosion rate measurements (one measurement every 5 minutes) and the properties of the film are performed by LPR (*Linear Polarization Resistance*) and EIS (*Electrochemical Impedance Spectroscopy*).
- They monitor the evolution of the corrosion rate in real time over a given period and ensure the formation of a protective surface metal film at the end of the test (see *Bode and Nyquist*).

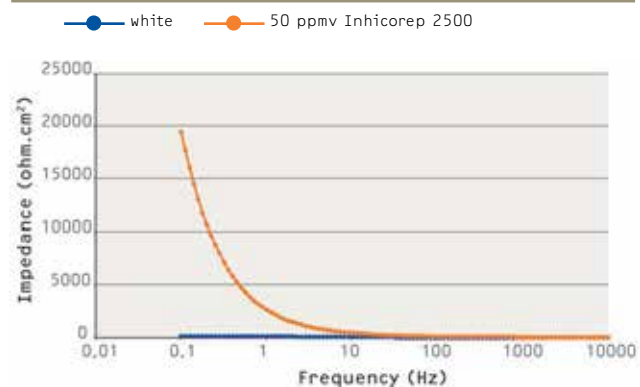
For many years REP has controlled mixed mixtures, corrosion inhibitors and scaling, and developed a range called Coridos, which can be used particularly in the context of a deep offshore application.

The tests are performed in reactors by bubbling CO_2 . The inhibitor is introduced after a pre-corrosion of electrodes.

Bubble Test, 90°C, 250 rpm



BODE diagram, 90°C, 250 rpm



NYQUIST diagram, 60°C, 250 rpm

