

Engineering and Maintenance Support for Oil Refinery Operations

We supply chemical reagents as part of integrated programs that include the inspection and optimization of technological processes and chemical dosing systems, as well as systems for monitoring the effectiveness of their application.

After conducting a comprehensive inspections and analyses of the operations of oil refinery units, we develop integrated programs for the implementation of:

- Corrosion protection for the technological equipment of primary oil processing units.
- Mitigation of fouling (formation of deposits) in technological equipment.
- Protection against corrosion, scale deposits, and biofouling in condensation refrigeration equipment using water from recirculating water supply systems.

Based on years of operational experience and the consideration of the specific features of each facility's technological units, and utilizing existing scientific and experimental base, our company specialists develop Comprehensive programs for technical support.

The industrial application of our comprehensive programs requires mandatory engineering and service support for the reagents and technologies used by our company at the refinery.

All of our programs are developed based on the use of highly effective reagents produced in-house and we implement these programs according to the following algorithm:

1. Inspection of units and processes, analysis of equipment operating conditions.
2. Development of comprehensive programs for protecting technological equipment.
3. Conducting trials.
4. Service support.
5. Optimization of dosing rates.
6. Supervision.
7. Dosing equipment, monitoring, and automation systems.
8. Preparation of technical and regulatory documentation.

A quick example:

The inspection of desalting and dehydration units and atmospheric-vacuum distillation units (AVT/AT), analysis of their operation to identify the causes of unstable desalting of oil and/or increased corrosion rates.

- Development of recommendations for adjusting process parameters, improving the technological scheme, and equipment.
- Analysis of the effectiveness of reagent application: Demulsifiers, alkali, corrosion inhibitors, and neutralizers, optimization of their consumption.
- Development of recommendations and provision of scientific and engineering assistance in the application of modern methods, equipment, and devices for more effective control of technological processes, monitoring of their indicators, in particular, corrosion rates.
- Provision of necessary regulatory and methodological documentation.

The monitoring of the effectiveness of technological programmes is accomplished in three stages:

1. Technological

Desalting and Dehydration Unit

- Oil load
- Consumption of demulsifier
- Consumption of water by stages
- Pressure drop across mixers
- Temperature

Atmospheric (and Atmospheric-Vacuum) Distillation Unit (AT/AVT)

- Consumption of alkali
- Consumption of corrosion inhibitor
- Consumption of neutralizer amine

2. Analytical

Based on the content in oil of:

- Residual chlorides
- Residual water

- Total sulfur
- Hydrogen sulfide
- Chlorinated organic compounds

pH value of the drainage water from the Electric Desalting Unit

Content in the water of reflux tanks:

- Chloride ions
- Dissolved iron
- Sulfides
- pH value

3. Physicochemical

Corrosion rate:

- Based on corrosion coupon
- Based on corrosion probes