
REDSTAR

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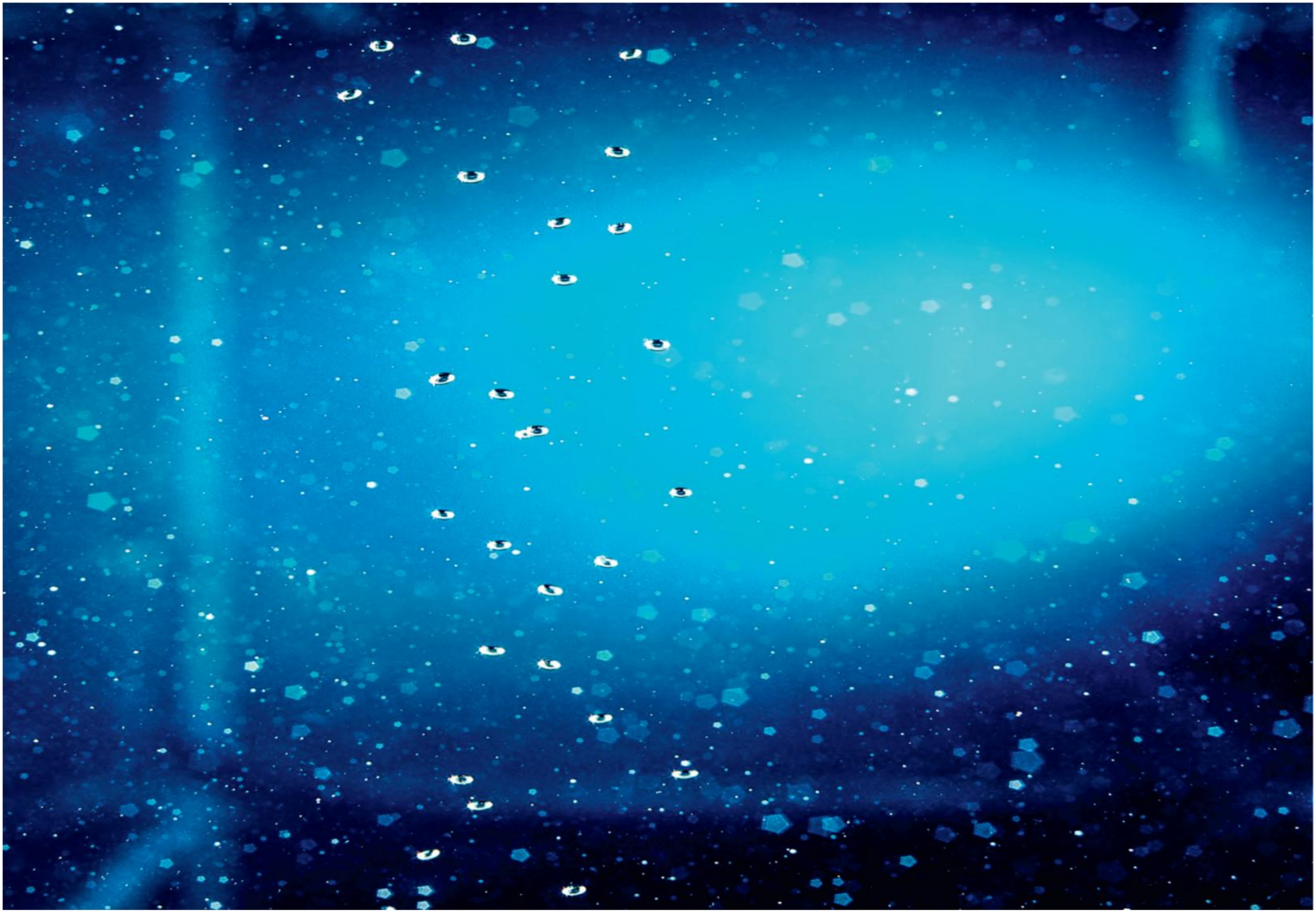
presents

an innovative multi-purpose
low molecular, amphoteric,
complex double-action
(flocculant-coagulant)
reagent

REKOMIN-M



- Breaking down stable aqueous emulsions, including oil, petroleum and other hydrocarbon emulsions
- Highly efficient in breaking down stable polydisperse systems with wide range of zeta-potential of colloid particles

OIL & GAS PRODUCTION AND PROCESSING

- Oil demulsification, desalination and dehydration
- Corrosion inhibitor for production equipment and pipelines
- Well rehabilitation - well flow rate rejuvenation
- Flushing of shipping and storage tanks
- Septic and sludge tanks cleaning
- Wastewater treatment, including water-methanol mixtures with emulsified hydrocarbons and suspended solid particles

OTHER INDUSTRIES

- Metals & Metalworking and manufacturing industries - waste water treatment from oils, lubricants, cutting fluids etc.
- Fine wash up of metal surfaces - deoiling, degreasing
- Precipitation acceleration of fine-grained colloid solutions of metal oxides and hydroxides
- Mining - benefication of non-iron ore at ore processing plants
- Paper industry - waste water treatment
- Waste water treatment facilities - waste water purification

EFFICIENCY

РЕКОМИН–М

In a series of comparative lab and field tests, including:

- **Field tests against widely-used reagents (such as Praestol and Flopam) carried out by TATNEFT Oil Research & Design Institute (TatNIPI)**
- **Lab tests carried out in Germany against industry recognised reagent Oilbreak**

REKOMIN-M has proved to be 5x to 10x times more efficient than other tested reagents

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WASTE WATER TREATMENT

When applied for waste water treatment and reinjection process, Rekomin-M increases the degree of water purification by 1.6x to 7.5x times as compared to conventional oil-water separation without reagents.

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FIELD WATER TREATMENT

Rekomin-M reduces the average duration of water treatment process from 6-8 hours (standard oil-water separation without reagents) to ca.1 hour*

*** - target oil-in-water concentration 60 mg/dm3**

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BENEFITS AND EXTRA PROFIT

In comparison to other reagents currently available on the market, REKOMIN-M allows to:

- **Reduce costs: 2x to 3x times lower consumption of water treatment chemicals**
- **Reduce processing time: 5x to 7x times quicker impurities precipitation**
- **Reduce energy consumption by 30-50%**
- **Extend life of injection wells**
- **Extend life of pumping equipment**
- **Increase commercial oil yield by 10-15%**

Based on TatNIPI's cost-benefit analysis of water treatment technology using REKOMIN-M showed that economic benefits could exceed $460m per annum, excluding the benefits from increased oil production.

Less Time

Less power expenses

10÷15% more of Oil

Cleaner Wellbore + Cleaner Piping System + Cleaner Injection Water + Less of Chemicals

MULTI FUNCTIONALITY

Key advantages of Rekomin-M as compared to other reagents currently available on the market, namely reduced non-production related costs and minimised CAPEX, are determined by its unique and versatile chemical properties:

- **3x to 10x times higher efficiency of removing hydrocarbon and solid suspended particles from produced water during oil production and processing**

- **<u>Unique chemical formula of Rekomin-M:</u>**
- **enables it to act as both a flocculant and a coagulant**
- **allows to use the same compound for emulsions of any stability level by simply changing Rekomin-M concentration (50-100 g/t)**
- **Rekomin-M is also effective in processing oil sands, sludge and septic tanks, as well as cleaning of oil storage and transportation equipment**
- **2x to 3x times reduction of water treatment related overheads**

- **<u>Technological effectiveness and near-to-zero CAPEX-intesity:</u>**
- **possibility to automate concentration control and feed-in processes of Rekomin-M into the water treatment system based on real-time monitoring and analysis of waste water composition and contamination level**
- **Seamless integration into any operating water treatment system**
- **Simple set-up and control of reagent's concentration and feed-in in the water treatment system**
- **Significantly lower level of environmental hazard**

- **<u>Unique innovative product - no other products with the same set of characteristics currently available on the market:</u>**
- **several various chemicals currently used for water treatment can be replaced by a single versatile agent applicable for a wide range of aqueous emulsions and disperse systems for both conventional and shale oil & gas production and other water-intensive industries.**