SNPH

LEADERS IN OILFIELD CHEMISTRY

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SNPH JSC develops and implements chemical products for oil production processes and well construction

More than 220 types of chemical products and technologies have been developed and implemented by SNPH JSC.

All of them are approved for use in the oil and gas industry and are supported by regulatory and technical documentation. The quality management system of the organization is certified in accordance with the GOST 9001-2015 standard.

SNPH JSC can promptly supply the required amount of chemical products and equipment, conduct laboratory tests and field trials, and provide supervision during application.

Chemical solutions under the SNPH brand and their application technologies are successfully used at oil fields in Russia, Azerbaijan, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan.

Our company supplies reagents to various oil companies, including the largest ones: NK Rosneft PJSC, Gazprom Neft PJSC, LUKOIL PJSC, PJSC Tatneft, JSC RITEK, PJSC RussNeft, Surgutneftegas JSC, Zarubezhneft JSC, Belorusneft PC, Transneft PJSC.


90 cities
7 countries
Russia
Belarus
Kazakhstan
Azerbaijan
Kyrgyzstan
Tajikistan
Uzbekistan

SNPH

FIRST IN OILFIELD CHEMISTRY

47
YEARS OF EXPERIENCE





>220
PRODUCTS

333
PATENTS AND COPYRIGHT CERTIFICATES

18 000 TONS
OF ANNUAL PRODUCTION VOLUME

Own production facility in Nizhnekamsk

520
SCIENTIFIC PUBLICATIONS

MAIN AREAS OF ACTIVITY



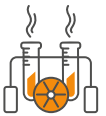
ENHANCED OIL RECOVERY AND WELL STIMULATION:REAGENTS AND TECHNOLOGIES



CHEMICAL REAGENTS FOR OIL PRODUCTION, TRANSPORTATION, AND TREATMENT



CHEMICAL REAGENTS FOR WELL CONSTRUCTION



CHEMICAL REAGENTS FOR OIL REFINERIES



SUPPLY OF INSTRUMENTS AND LABORATORY EQUIPMENT



LABORATORY RESEARCH AND ENGINEERING SUPPORT SERVICES

THE ADVANTAGE OF WORKING WITH US – A COMPREHENSIVE APPROACH TO SOLVING TASKS



AUDIT, MONITORING, AND RESEARCH



PRODUCTION OF CHEMICAL PRODUCTS



DEVELOPMENT AT OUR OWN SCIENTIFIC CENTER



AUTHOR'S SUPERVISION AND TECHNICAL SERVICE



PILOT-INDUSTRIAL TESTING



DEVELOPMENT, PRODUCTION, AND IMPLEMENTATION OF CHEMICAL PRODUCTS FOR OIL PRODUCTION, TRANSPORTATION, AND PROCESSING:

One of the JSC SNPH key areas in the operations shall be ensuring the efficiency of oil production, gathering, transportation, and processing operations. The use of various classes of additives and chemical reagents shall lead to a reduction in operating costs and enhanced performance of field- scale chemical systems.

Oil Preparation	• **Demulsifiers or Demulsification Agents:** SNPH-4410, SNPH-4103, SNPH-4114, SNPH-4315, SNPH-4480, SNPH-4460, SNPH-4880, SNPH- 4870, SNPH -4802, SNPH-4901, SNPH-4810 A • **Demulsifier Active Base:** SNPH C Grade • **Demulsifier Concentrates:** SNPH-7, SNPH-8, SNPH-21, SNPH-23 • **Slurry Upgrading:** SNPH-4802
Oil Rheological Properties Improvement	• **Reagents with Complex Action:** SNPH-7909, SNPH-7963, SNPH-7912M • **Depressant Additive:** SNPH-2005
Sulfate-Reducing Bacteria Fighting	• **Bactericides:** SNPH-1050, SNPH-1517, SNPH-1080
Asphalten-Resin-Paraffin Deposits (ARPD) and Hydrate Deposits Removal and Prevention	• **Paraffin Deposit Removers:** SNPH-7R-14, SNPH-7870, SNPH-7890 (as aqueous solutions) • **Paraffin-Hydrate Deposit Remover:** SNPH-7850 • **Asphalten-Resin-Paraffin Deposits (ARPD) Inhibitors** SNPH-IPG-11, SNPH-7941, SNPH-7920, SNPH-7909, SNPH-7963, SNPH-7912M

Equipment Corrosion Protection	• **Corrosion Inhibitors:** SNPH-6030, SNPH-6418, SNPH-6035, SNPH-6825, SNPH-6438, SNPH-6201, SNPH-6550, SNPH-6850 • **Corrosion Inhibitors for Gas Environments:** SNPH-6030 G, SNPH-6201 G, SNPH-6474, SNPH-6441, SNPH-6474 G
Salt Deposits Prevention and Removal	• **Salt Deposition Inhibitors:** SNPH- 5311-T, SNPH-5312, SNPH-5313, SNPH-5316, SNPH-5317, SNPH-5325, SNPH-5330, SNPH-5340 • **Salt Deposit Removers:** SNPH-53R, SNPH-54R, SNPH-55R • **Complex Action Reagents:** SNPH-5314
Hydrogen Sulfide and Mercaptans Removal	• **Hydrogen Sulfide and Mercaptans Neutralizers:** SNPH-1100, SNPH-1200, SNPH-1300, Desulfon-SNPH-1405
Oxygen Removal	• **Oxygen Absorbent:** SNPH-05-3610
Foam Suppression	• **Foam Suppresant:** SNPH-3510
For Hydraulic Resistance Reducing and Increasing Pipeline Capacity	• **Antiturbulent Additive:** SNPH-ORA, 100, 200, 300, 400 Grades

DEMULSIFIERS OR DEMULSIFICATION AGENTS:

They are used in the process of dehydration and desalting of oil in collection systems and oil preparation units across a wide temperature range; for deep desalting of oil at oil refineries; for dehydration of fuel oils, treatment, and disposal of industrial effluents; for the destruction of intermediate layers stabilized by mechanical impurities (including iron sulfide), associated with Asphalten- Resin-Paraffin Deposits (ARPD).



SNPH JSC
IS THE LEADER
in the volume of demulsifier production in Russia.



For deep dehydration and desalting of oil, effective over a wide temperature range with low specific consumption rates (oil-soluble, water-dispersible)

Brand	Purpose
SNPH-4103	Effective for dehydrating highly viscous stable emulsions from Devonian and coal-bearing horizons. Used to prevent the formation of water-oil emulsions in enhanced oil recovery processes. Modified versions of the reagent can be used in the composition of technological fluids during hydraulic fracturing and acid treatments of the near-wellbore zone. Effective over a wide temperature range. Fully compatible with reagents used in acid treatments and hydraulic fracturing. Effectively prevents the formation of water-oil emulsions, facilitates the breakdown of existing emulsions, ensuring high purity of the separated water.
SNPH-4315 **SNPH-4460**	Possess anticorrosion properties and are effective for the breakdown and dehydration of heavy, highly viscous water-oil emulsions, dehydration of heavy fuels, oil sludges, and the treatment and disposal of industrial waste and effluents. Ensure rapid separation and purity of the separated water.
SNPH-4880 **SNPH-4810A** **SNPH-4901**	Contribute to the effective destruction of stable intermediate layers, forming a clear phase boundary. Possess anticorrosion properties and the ability to inhibit ASP. Effective for the dehydration and desalting of heavy, highly viscous oils. Ensure rapid separation and purity of the separated water.

- **For processing oil sludge, breaking stable trap water-oil emulsions, and intermediate layers stabilized by a significant amount of mechanical impurities, including iron sulfide**

SNPH-4802	Water-soluble. Available in various grades depending on the properties and composition of stabilizers for stable intermediate layers, trap oils, and oil sludges. Significantly reduces iron sulfide content, and by breaking down stable intermediate layers, it contributes to the additional volume of marketable oil.

- **Emulsifier Concentrates**

SNPH-7, SNPH-8, SNPH-21, SNPH-23	Highly effective emulsifier concentrates with an active ingredient content of at least 70% - analogs of concentrates from foreign companies like "BASF", "Clariant", "Croda", etc. Used in the production of effective emulsifiers for oil preparation.

SNPH

- **Active Bases of Emulsifiers Based on Oligourethane Compounds**

Series of Products SNPH-S	Active bases of emulsifiers based on oligo-urethane compounds. Used in the production of highly effective emulsifiers for dehydration and desalting of heavy, high-viscosity water-oil emulsions. Effective at both low temperatures (for in-pipe de-emulsification) and at the final stage of crude oil preparation, ensuring minimal residual water and chloride salts in the prepared oil, as well as high purity of bottom-hole water.

- **They are effective for the preliminary water separation and viscosity reduction of**

SNPH-4114	Oil-soluble, water-dispersible. Ensures quick separation and purity of bottom-hole water, can be used in oil gathering systems and oil preparation units.
SNPH-4410	Water-soluble. Ensures quick separation and purity of bottom-hole water. Effective for deep dehydration and desalting of oil at oil refineries.

CORROSION INHIBITORS FOR WATER-OIL ENVIRONMENTS

Corrosion inhibitors are used to reduce corrosion in water-oil systems, such as those found in oil fields, pipelines, and various industrial processes. They significantly slow down the corrosion processes of oilfield equipment and pipelines. These inhibitors are also effective in suppressing corrosion in water-circuit systems within the oil refining and metallurgical industries.

Brand	Purpose
SNPH-6030	Provides reliable protection at low dosages in highly mineralized environments containing H2S, CO2, and in their absence. Film-forming, with a high after-effect. Improves the rheological properties of oils.



Brand	Purpose
SNPH-6035	Highly effective in highly mineralized environments of the Devonian horizon, as well as in aggressive oilfield environments containing dissolved gases: CO2, O2, H2S. Protective effect exceeds 90% at low consumption rates. High after-effect.
SNPH-6825, SNPH-6418	Exhibits bactericidal action. Effective in aggressive environments containing hydrogen sulfide and carbon dioxide.
SNPH-6201	Effective in aggressive environments containing hydrogen sulfide and carbonic acid. The protective effect exceeds 90% at low dosages.
SNPH-6438	Provides a high anticorrosion effect in aggressive environments containing hydrogen sulfide, as well as in hydrochloric acid environments used during the treatment of the near-wellbore zone of the reservoir.

CORROSION INHIBITORS FOR GAS ENVIRONMENTS

These corrosion inhibitors are intended for use in the gas industry to protect field equipment from corrosion in technological environments containing carbon dioxide and hydrogen sulfide. The corrosion inhibitor has good solubility in methanol, oil, and petroleum products and does not tend to form emulsions or foam.

Brand	Purpose
SNPH-6030 G **SNPH-6201 G** **SNPH-6474 G** **SNPH-6941 G**	Protection against hydrogen sulfide and carbonic acid corrosion in downhole equipment and pipelines at gas extraction and oil refining facilities.



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BACTERICIDES

Brand	Purpose
SNPH-1050 **SNPH-1517**	These products are designed to combat sulfate-reducing bacteria (SRB) in well and oilfield equipment.

OXYGEN ABSORBENT

Brand	Purpose
SNPH-03-3610	Designed for removing dissolved oxygen in oilfield, fresh, and other waters of various mineralizations to prevent oxygen corrosion in oilfield equipment.

ASPHALTEN-RESIN-PARAFFIN DEPOSITS (ARPD) INHIBITORS

Prevent the Asphalten-Resin-Paraffin Deposits (ARPD) in oilfield equipment and pipelines during oil extraction, storage, and transportation.

Brand	Purpose
SNPH-7941 **SNPH-7920** **SNPH-7821**	Prevent paraffin deposits during oil extraction and transportation. Designed for complex-type oils.
SNPH-IPG-11	Prevent paraffin hydrate deposits during oil extraction and transportation.
SNPH-7909 **SNPH-7912 M** **SNPH-7963**	Prevent paraffin deposits during extraction of complex-type oils and reduce viscosity during crude oil transport.
SNPH-7890	Used for cleaning oilfield equipment from deposits using hot aqueous solutions.
SNPH-2005	Depressant. Reduces the pour point and viscosity of oil, improving its rheological properties.

SNPH

ASPHALTEN-RESIN-PARAFFIN DEPOSITS (ARPD) REMOVERS

Brand	Purpose
SNPH-7870, SNPH-7R-14	These products are used to remove the Asphalten-Resin-Paraffin Deposits (ARPD) from oilfield equipment.
SNPH-7850	Remove paraffin hydrate plugs and deposits.



SALT DEPOSITIONS INHIBITORS AND SOLVENTS

They are designed to protect oilfield equipment during oil extraction and preparation processes from the deposition of inorganic salts, including sulfates, calcium and magnesium carbonates, barium sulfate, as well as iron compounds.

Brand	Purpose
SNPH-5311-T	To prevent the deposition of calcium carbonate.
SNPH-5312, SNPH-5316, SNPH-5325, SNPH-5350T5 SNPH-5315	To prevent the deposition of calcium sulfate and carbonate under conditions of high mineralization of reservoir waters.
SNPH-5313	To prevent the deposition of iron sulfide, iron oxides and hydroxides, barium sulfate, and calcium carbonate.

Brand	Purpose
SNPH-5317	To prevent the deposition of barium and strontium sulfate, calcium sulfate, and calcium carbonate.
SNPH-53R	To dissolve carbonate deposits mixed with iron sulfides and oxides on the surface of well equipment, pipelines in oil and water preparation and transportation systems, as well as in thermal energy equipment.
SNPH-5314	A comprehensive agent designed to protect wells and oilfield equipment from calcium carbonate and sulfate deposits, as well as to protect oilfield equipment from hydrogen sulfide and carbon dioxide corrosion.

HYDROGEN SULFIDE AND MERCAPTANSNEUTRALIZERS

Brand	Purpose
Desulfon-SNPH-1200, Desulfon-SNPH-1100, Desulfon-SNPH-1300	Used to absorb hydrogen sulfide (H_2S) and light mercaptans in crude oil, preparing the oil for sale according to GOST standards

FOAM SUPPRESANT

Brand	Purpose
SNPH-3510	Used in the oil and gas industry to break down foam and prevent further foam formation during the processes of oil and gas extraction, preparation, and refining.

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ANTITURBULENT ADDITIVE

Brand	Purpose
SNPH-DRA, Grades 100, 200, 300, 400	Designed to reduce hydraulic resistance in pipelines transporting oil, condensate, and petroleum products. By minimizing energy losses in turbulent flows, the Antiturbulent Additives help decrease pressure drops in pipeline sections, which, in turn, allows for an increase in the volume of hydrocarbons transported under constant flow rates or consistent pressure drops.





ENHANCED OIL RECOVERY METHODS

SNPH JSC provides a range of solutions for enhanced oil recovery (EOR) and oil production stimulation, ensuring maximum efficiency and profitability. The technologies are aimed at optimizing hydrocarbon production parameters from productive formations, reducing costs in mature fields, and developing non-drainable and residual oil reserves.



SANDAXE TECHNOLOGY FOR CONSOLIDATION UNCONSOLIDATED FORMATIONS

Purpose:

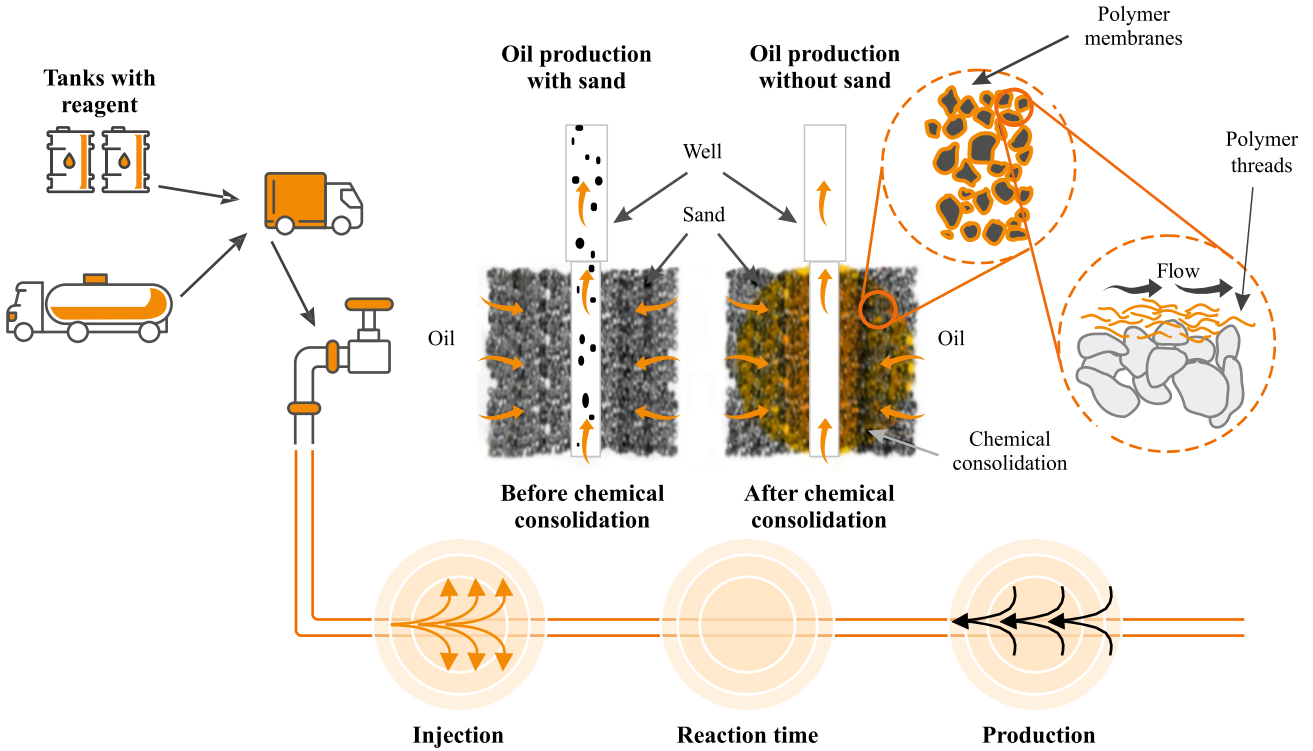
The **SandAxe** line of reagents is designed to reduce sand production from the reservoir with minimal impact on productivity in oil, gas, and gas-condensate wells. They prevent damage to the bottomhole formation zone. Using **SandAxe** can significantly increase the inter-repair interval and the time between failures of downhole equipment; it reduces the вынос of mechanical impurities from the reservoir; and it has strong adhesion in the bottomhole formation zone. The reagent is soluble in hydrocarbons and inert to acids. The minimum effective volume is from 4% to 8% in a solution with UV.

Characteristics:

- A silicon-organic, oil-soluble compound.
- The reagent molecule contains hydrolyzable residual groups. Upon contact with formation water, primary chemical bonds form with sand grains, creating a flexible viscoelastic network within the water phase.

APPLICATION TECHNOLOGY

Implementation of SandAxe technology for consolidating weakly cemented formations in vertical, horizontal, and deviated wells.



- Simple deployment
- Provision of a NWZ consolidation design
- Supervision workover operation
- Turnkey operations.
- Minimal chemical usage (from 4% to 8% in a hydrocarbon solution).

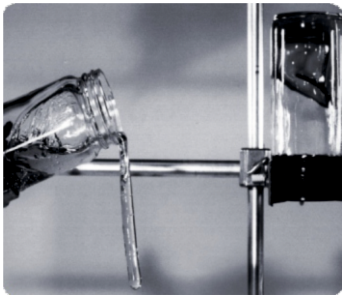
WATER SHUT OFF AND INJECTION PROFILE MODIFICATION

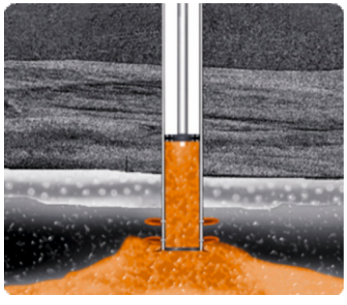
CROSS-LINKED POLYMER SYSTEMS

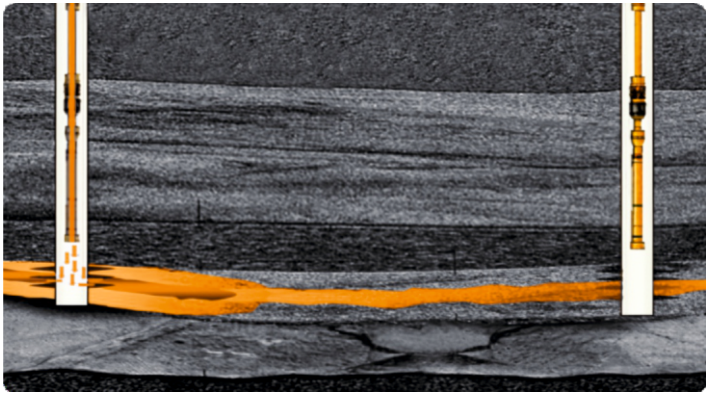
The use of cross-linked polymer compositions (CPCs) based on water-soluble polyacrylamides is one of the effective technologies for increasing reserve recovery, increasing flood coverage, and decrease oil production decline

SOLUTION

- **Polyacrylamides SNPH-PM**
- **Crosslinkers SNPH-LK**
- **Destructor SNPH-DS**







PAP: from 5% to 15% of the volume of the washed canal

WATER INFLOW CONTROL BASED ON WATERAXE CHEMICAL PRODUCT

Purpose

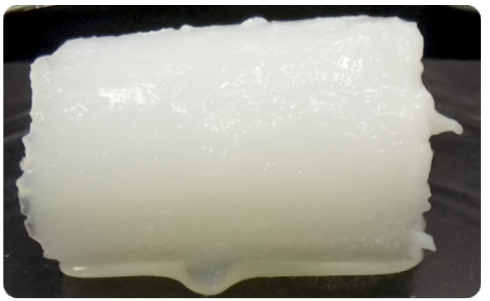
WaterAxe is used as a reagent to reduce water production from the productive reservoir with minimal impact on oil and gas productivity. This reagent is fully soluble in hydrocarbons and forms a gel or precipitate upon interaction with water. It is most effective for sandstones — hydrophilic reservoirs, where it can act as a blocking agent in cases of high water saturation in the pore space, or serve as a phase permeability modifier by reducing water permeability. In hydrophobic reservoirs (carbonates), it is applied after wetability change with specific surfactants

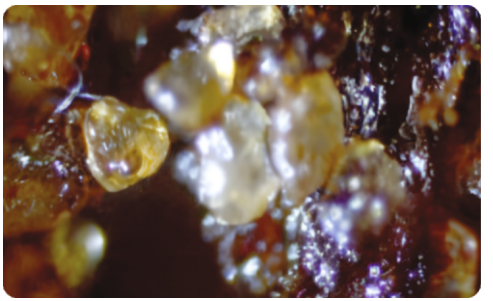
Characteristics

- WaterAxe is a silicon-organic oil-soluble compound.
- The reagent molecule contains hydrolyzable residual groups. Upon contact with formation water, primary chemical bonds are formed with sand grains, resulting in the creation of a flexible viscoelastic network within the water phase.

Reaction

The reaction is initiated upon interaction with water or connate water.





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SEDIMENT-FORMING COMPOSITIONS

Purpose

- Selective isolation and limitation of formation water influx by sequentially injecting the **SNPH-8909 grade B** modifier and an aqueous solution of the multifunctional reagent **SNPH-SG grade B1**, thereby reducing the filtration and capacity characteristics of water-saturated intervals and engaging low- permeability oil-saturated zones into production.

Description

- When the **SNPH-8909 grade B** modifier interacts with an aqueous solution of the **SNPH-SG grade B1** multifunctional reagent, erosion- resistant sediment-forming systems are formed, blocking water flow into the well. Due to the selective treatment and reduced associated water production, the inflow profile of the produced fluid is modified.

Scope of application

- Production and injection wells drilled in carbonate or terrigenous formations with reservoir temperatures up to 100°C, characterized by high water content (more than 80%).

EMULSION COMPOSITIONS

SNPH-9633, SNPH-9640

- for low reservoir temperatures (up to 60°C), reagent **SNPH-9633** has been developed

- for higher reservoir temperatures (60–105°C), reagent **SNPH-9640** has been developed

Production Wells

The HC-SC (SNPH-9633, SNPH-9640) water inflow control technology is designed to reduce water cut in produced fluids and increase oil production rates from carbonate and terrigenous reservoirs with high water cut (60–99%) and varying salinity of formation waters flooding the well.

The method is based on blocking the water-saturated zones of the reservoir with high-viscosity emulsion systems formed during HC-SC injection. The emulsions generated in swept zones are resistant to water washout and are destroyed upon contact with oil. This ensures high selectivity of the method and does not impair the permeability of oil-saturated intervals. Additionally, the developed reagents have a hydrophobizing effect, are capable of dissolving and dispersing asphaltene–resin–paraffin deposits (ARPD), and reduce oil viscosity.

To improve the efficiency of HC-SC application, it is recommended to add a modifier and/or filler to the composition. The introduction of additives enhances not only the formation rate and stability of emulsion systems but also their viscosity and strength. This contributes to stronger blocking properties, reduced sensitivity to drawdown, and decreased risk of emulsion migration from the reservoir

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Injection wells

Technology of HC-SC impact on the oil reservoir through injection wells.This technology is designed to improve oilfield development performance in heterogeneous reservoirs with varying salinity of formation and injection waters, and high water cut in production wells. The method is based on the ability of the “hydrocarbon solvent–surfactant composition–mineralized water” system to form viscous, stable gel-like emulsions with an external hydrocarbon phase. This contributes to redistribution of filtration flows and leveling of the displacement front in injection wells. Ultimately, this leads to reduced water cut and increased oil production in producing wells.Additionally, the technology has a hydrophobizing effect, can dissolve and disperse asphaltene–resin–paraffin deposits (ARPD), and reduce oil viscosity

FIELD APPLICATION EXPERIENCE OF SNPH-9633 TECHNOLOGY (114 sites):	• additional oil production – more than **2,000** t/well treatment; • success rate – **78%**.

Advantages and distinctive features of UK surfactants (SNPH-9633, SNPH-9640) and technologies based on them:

- low pour point (below −55°C);
- does not promote clay swelling;
- capable of binding a large amount of water;
- promotes dissolution and dispersion of ASO;
- standard oilfield equipment can be used;
- supplied in commercial form and does not require dilution.
- low viscosity (usually 1.5 mm^2/s);
- low interfacial tension at the interface with water (10-2–10-4 mN/m);
- selectivity of the effect.

SNPH-9777

Эмульгатор СНПХ-9777 предназначен для:

- Глушения нефтяных и газовых скважин;
- В качестве базового реагента для приготовления технологических жидкостей, используемых в процессах повышения нефтеотдачи пластов и для проведения капитального ремонта скважин;
- При разработке нефтяных и газоконденсатных месторождений на любой стадии заводнения с целью увеличения нефтеотдачи пластов;
- Перед кислотной ОПЗ для временной изоляции высокопродуктивных обводненных пропластков.

Жидкость глушения на эмульсионной основе представляет собой инвертную эмульсию:

- Дисперсионная среда — углеводородный раствор Эмульгатора СНПХ-9777;
- Дисперсная фаза — вода, минерализованная различными солями.

Вязкость и плотность жидкости глушения регулируется соотношением фаз
и степенью минерализации воды.

ADVANTAGES

- Preserves the reservoir properties of the productive formation;
- Rapid well return to operational mode without loss of oil production, potentially reducing water cut;
- Kill fluid density adjustable from 1.0 to 1.6 g/cm³; Thermal stability up to 90°C.

SNPH-9777 WITH MODIFIED ADDITIVE (MA)

Results of filtration studies on changes in reservoir model permeability after treatment with an emulsion based on SNPH-9777 with 0.7% MA:

№	Component	Model length	Water permeability (initial), μm²	Volume of injected reagent, ml	Permeability to emulsion, μm²	Water permeability (initial), μm² / pressure, MPa	Observations
1	Emulsion	50	3,78	85	0,07	0,015/0,8	Emulsion breakthrough at 0.8 MPa. Displaced from the model as low-viscosity flakes.
2	Emulsion with MA	50	3,37	85	0,38	0,015/1,6	Emulsion breakthrough at 2.0 MPa. Emulsion remains stable.

The addition of MA to SNPH-9777 emulsifier promotes the formation of a viscoelastic emulsion with water, which is stable under reservoir depressions and has high penetration capacity.

PG-UWS TECHNOLOGY

BY INJECTION OF POLYMER-CLAY AND HYDROCARBON OIL-WASHING SYSTEM

Purpose of the technology

Increase reservoir sweep efficiency during waterflooding, followed by enhanced displacement efficiency of injected water. Achieved through sequential injection of a polymer-clay system and a hydrocarbon oil-washing composition.

Application object characteristics

- Waterflooded terrigenous reservoirs of any water salinity. Heterogeneous in permeability with no communication between oil-saturated and water-saturated intervals exposed by the injection well.

Operational conditions

- Secondary perforation of the reservoir before or after treatment is not performed
- Hydrodynamic connection between injection and production wells is required
- Water cut of produced fluids: 50%–98%
- Fluid rate: at least 50 m^3/day

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TECHNOLOGIES BASED ON SNPH-9110 REAGENT



Purpose

The reagent is designed to regulate reservoir sweep efficiency during water flooding and to control water inflow in production wells



Technology Description

When treating the reservoir with SNPH- 9110, the oil displacement efficiency increases due to the redistribution of flow within reservoir layers.
This occurs as a result of reduced filtration- capacity properties in high-permeability intervals and the subsequent involvement of low-permeability zones in production



Advantages

Preservation of reservoir properties of the productive formation quick well recovery to operating mode without oil production losses, with potential reduction of water cut in produced fluids



CHEMICAL FLOODING TECHNOLOGY

Description

The compositions for chemical flooding with specified parameters, based on the SNPX-PM polyacrylamide line and the SNPX-SM surfactant compositions / SNPX-96 micellar formulation, are selected individually for the conditions of a specific field based on the results of laboratory studies and the design of the chemical flooding process.

Polymer flooding (polyacrylamides SNHX-PM)-is a technology for increasing oil recovery from reservoirs by increasing the reservoir coverage factor — achieving a more uniform distribution o the displacement agent across the reservoir and reducing residual oil saturation in the washed-out zone.

PAV-polymer flooding (polyacrylamides SNPH-PM and reagents SNPH-SM/micellar composition SNPH-96)-is an additional method for increasing the oil displacement coefficient; it allows reducing the residual oil saturation even in those zones of the reservoir that have already been washed with water. The effect is achieved by reducing the residual oil saturation.

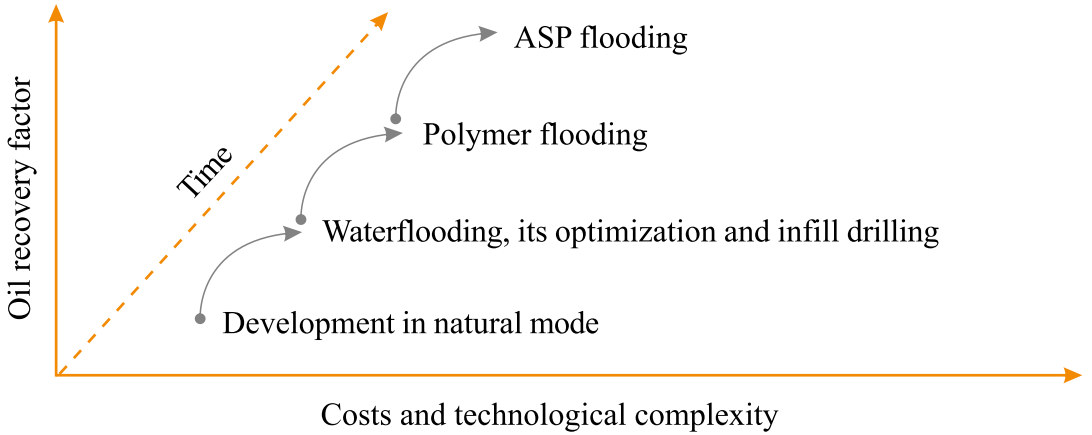
Water flooding using foam-forming agents (SNPH-SM reagents)-is a method of enhancing oil recovery based on the sequential introduction of foam-forming compositions into the reservoir and the formation of foam under reservoir conditions, which significantly increases the reservoir coverage coefficient and the displacement coefficient.

Application criteria

- Mobility of injected agent (water) higher than that of displaced oil
- Low water injection efficiency
- Premature water breakthroughs
- High residual oil saturation

Solution

- Polymer series **SNPH-PM** based on polyacrylamide
- Surfactant reagents **SNPH-SM**
- Crosslinkers **SNPH-LK**



Comprehensive service support

- Chemical flooding process feasibility study and design
- Detailed modeling and effect calculation
- Selection and supply of polymers and other necessary chemicals
- Installation and maintenance of polymer injection equipment
- Implementation of the polymer flooding project at the field using in-house engineering and field personnel



OIL PRODUCTION INTENSIFICATION TECHNOLOGIES

ACID COMPOSITIONS

- SNPH-9010Zh composition — well treatment in carbonate reservoirs or terrigenous reservoirs with carbonate cement.
- SNPH-9021, SNPH-9030 composition — well treatment in terrigenous reservoirs.

The technologies are designed to intensify oil production from carbonate and terrigenous reservoirs, prevent the formation of oil emulsions, and effectively clean the bottomhole zone.

ADVANTAGES

- Thermal stability up to 100°C
- Ability to stabilize Fe^{3+} ions
- Inhibition of scale formation processes
- Optimization of raw material base
- Competitive cost

Effect achieved through:

- Increasing the radius of active drainage in the near-wellbore zone by partial dissolution of the rock framework and dispersion of clay particles
- Cleaning pore channels from mechanical impurities, dispersed clay, and ASP deposits
- Reducing capillary forces at the oil–water interface
- Preventing the formation of oil-acid emulsions
- Effective cleaning of the near-wellbore zone from formations that clog the porous medium.

SNPH

PHYSICOCHEMICAL METHODS FOR ENHANCED OIL RECOVERY (EOR)

TREATMENT WITH ACID COMPOSITION SNPH-9010J COMBINED WITH ULTRASOUND

The technology is based on combining chemical and physical methods to enhance oil recovery. The use of chemical reagents together with physical fields creates a synergistic effect, significantly increasing the effectiveness of the treatment.

The innovative method involves injecting an acid composition (SNPH-9010J, SNPH-9021/9030, or hydrochloric acid modified with SNPH-8903A additive) into the formation and treating it with acoustic waves.

Combined application allows for:

- Several-fold increase in the penetration of the acid composition into the formation;
- Controlled activation of the chemical reaction in the zone of acoustic influen

Depending on the characteristics of the wells being treated, ultrasonic acoustic waves and acoustic shock waves can be used.



TECHNOLOGIES FOR MODIFYING ACID SOLUTIONS FOR WELL OVERHEAD TREATMENT

MULTIFUNCTIONAL ADDITIVE SNPH-8903

A multifunctional, comprehensive additive for modifying (enhancing) hydrochloric acid or a mixture of hydrochloric and hydrofluoric acids.

The additive is a balanced composition that includes: a reaction retarder with the rock matrix, a mutual solvent, a complexing agent, and a mixture of surfactants (PAV) that provide demulsifying properties and help remove ASPO (asphaltenes, paraffins, and other deposits).

ADVANTAGES

- Slows down the reaction rate of hydrochloric acid with carbonate reservoir rock.
- Ensures uniform penetration into high- and low-permeability zones, increasing the radius of active drainage and involving the entire thickness of the formation.
- Prevents the formation of emulsions and deposits during acid contact with formation fluids.
- Inhibits precipitation in the formation after the acid reacts with the rock.
- Reduces interfacial tension at the acid-oil contact
- Minimal costs for preparing the acid composition.

Application Experience:

- Number of wells treated: 400
- Additional oil production: 300 tons per well
- Average oil rate increase per well: over 2.0 t/day
- Average duration of effect: more than 10 months
- Success rate of treatments: over 85%

ACID CORROSION INHIBITOR SNPH-8904



Purpose

SNPH-8904 is used in acid formulations to reduce their corrosive aggressiveness toward metal surfaces



Description

The corrosion inhibitor SNPH-8904 is applicable in acid formulations with high HCl content and under reservoir temperatures up to 150°C.

The specific corrosion rate of St35 steel at 120°C in 20% HCl with a concentration of 15 g/dm³ of SNPH-8904 is approximately 4.5 g/m²·h



Advantages

Suitable for reservoir temperatures up to 150°C

Low freezing point (below -50°C)

Can be used in combination with other acid components and with hydrochloric acid of varying concentrations

IRON ION STABILIZER SNPH-8905

The iron ion stabilizer SNPH-8905 is designed to stabilize iron ions in the technological processes of acid treatment of the bottom-hole zone of a well.

SNPH-8905 reduces trivalent iron ions to divalent ones. The consumption rate of the reagent in the acid composition is 0.8 - 1.0% vol. (5000 ppm Fe^{3+}), 0.5 - 0.7% by volume (2500 ppm Fe^{3+}).

ADVANTAGES:

- Low freezing point (below -50°C).
- Prevents precipitation and formation of stable emulsions with formation fluids.
- Preserves the reservoir properties of productive formations.
- Can be used in combination with other acid components and with hydrochloric acid of various concentrations.
- Uses standard oilfield equipment.



SNPH

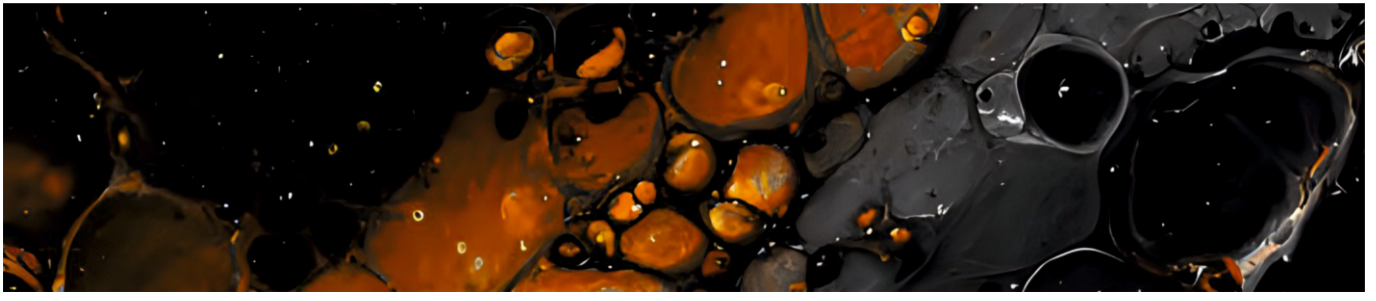
WELL REMEDIATION AND ISOLATION WORK REAGENT SNPH-8909

Purpose

SNPH-8909 modifier + acid composition (AC).
The reaction products of the modifier with hydrochloric acid promote the dissolution and removal of natural and man-made colmatants from porous media, while the surfactants contained in the composition increase rock wettability, slow the reaction rate, and prevent the formation of insoluble compounds.

Description

The technology involves structural deformation of clays under the influence of the SNPH-8909 + AC.
The process is accompanied by changes in the mechanical properties of the clays: their sorption capacity is lost and their hydrophobic properties are altered. The use of this technology prevents the precipitation of poorly soluble compounds in the porous medium that arise during clay acid treatments.



HYDROPHOBIZER

The hydrophobizer **SNPH-GF**, available in several grades, is used in technological fluids for treating drilling muds and well-killing fluids. Its goals are to maximize the retention of filtration-capacity properties of the near-wellbore zone (NWZ), enhance oil recovery and injectivity, and reduce costs associated with prolonged well start-up and bringing wells to production mode after underground equipment replacement

Description

SNPH-GF is produced according to TU 20.59.59-443-05765670-2021 and is a water-alcohol-based fluid with a density of 800–1150 kg/m³ and a freezing point down to -50°C. The effective dosage of the surfactant hydrophobizer in technological fluids ranges from 0.1% to 3.0% by mass.

- Using a water-repellent agent as part of the fluid used for killing the well allows you to eliminate or reduce the loss of performance of underground equipment associated with pumping the killing fluid before the pump intake or stopping its supply, and also allows you to reduce or eliminate the decline in well productivity after repair work.

SNPH-GF can be transported by all means except air transport, in accordance with applicable cargo transportation regulations.

SNPH

HYDROPHILIZERS

- SNPH-SM series hydrophilizers. Rock wettability modification technology.
- Application of hydrophilizers for tight reservoirs and heavy oils.
- The use of hydrophilizers allows for increased oil production at lower unit costs by mobilizing immobile reserves and enhancing long-term reservoir recovery.

Purpose

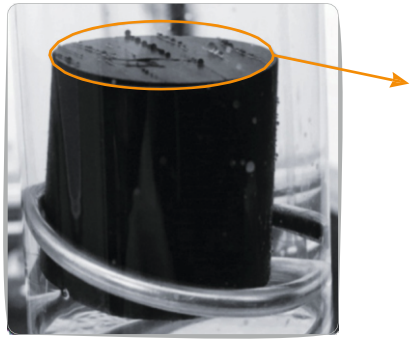
Increase the filtration area of the near-wellbore zone (NWP) of producing wells:

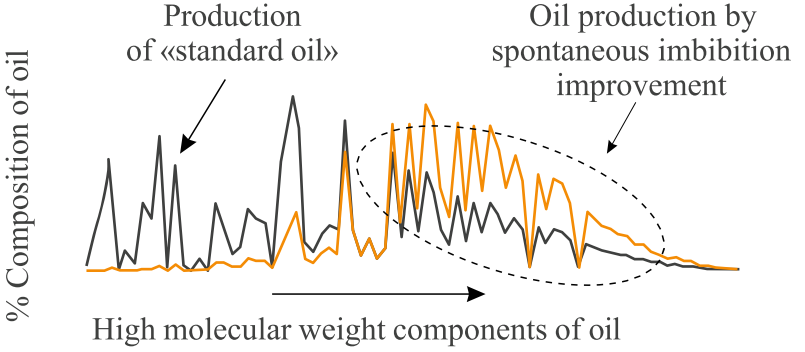
- NWP after hydraulic fracturing (HF)
- NWP to improve productivity index after drilling
- NWP during well completions

Waterflooding: improvement of sweep efficiency through wetting alteration

ADVANTAGES

- Reduced adhesion allows easier separation of bitumen from the rock or sand grains
- Significantly increases oil recovery factor (ORF)





ADDITIVE FOR STEAM INJECTION

Purpose

The technological additive from the **SNPH-SM** series is designed to increase the displacement coefficient of high-viscosity oil during steam-thermal stimulation; to reduce the surface tension force in the “oil-steam” system; and to reduce the residual oil saturation behind the displacement front.
The steam additive based on the **SNPH-SM** reagent is a specialized steam additive recommended for use in SAGD and SAGD-enhanced oil recovery. Studies show an increase in efficiency of up to \$30\%\$ in oil displacement by steam with an additive based on the **SNPH-SM** additive compared to the injection of pure steam.

Heat and chemical transport:

- From the surface to the condensation zone
- Efficient distribution of the chemical additive due to reduced contact angle

Optimization of drainage processes:

- Bitumen displacement through reduced contact angle
- Reduced adhesion of bitumen to the rock
- Improved bitumen flow due to lower surface tension

- **The SNPH-SM additive allows achieving higher oil recovery at low residual oil saturation (SOR). SOR can be reduced by 30% or more to maximize the oil recovery factor.**

SNPH

CHEMICAL SOLUTIONS FOR HYDRAULIC FRACTURING (HF)

GEL FORMING AGENT – SNPH-3800

The liquid gel-forming agent SNPH-3800 is used as a gelling agent for hydraulic fracturing fluids and as a thickener for technological fluids to intensify well inflow.

LIQUID CROSS-LINKER – SNPH-3801

The liquid cross-linker SNPH-3801, based on borates, is used in guar-based fracturing fluids. It is available in two grades: M (instant-action) and N (low-temperature). It is intended for preparing cross-linked gels based on guar-containing gelling agents. The recommended concentration is from 0.5 to 5 L/m³, depending on the gelling agent load and the reservoir temperature.

DRY CROSSLINKER SNHP-3802

The dry crosslinker SNHP-3802 is based on boron-containing minerals with the addition of surfactants for preparing a suspension based on hydrocarbon solvents. It is used as a crosslinker in water-based hydraulic fracturing fluids. It is available in two grades: M (instant action) and Z (delayed action).

DESTRUCTOR – SNPH-3803

A persulfate-based destructor used to break polymer-borate bonds in guar-based HF fluids (e.g., SNPH-3800). Working concentrations depend on formation conditions, injection volume, and required gel stability, typically 0.05–1.0 kg/m³.

DELAYED LIQUID CROSS-LINKER – SNPH-3804

SNPH-3804 is a suspension-type delayed cross-linker for preparing cross-linked gels based on guar-containing gel-formers (e.g., SNPH-3800). Recommended concentration: 2–10 L/m³ depending on gel-former loading and formation temperature.

SYNTHETIC GEL-FORMER – SNPH-3820G

A hydrocarbon solution of a polymer with rheological additives. Used as a thickener for technological fluids in oil production.

BIOCIDE – SNPH-3810

SNPH-3810 biocide is a soluble powdered bactericide (biocide) designed to control microorganisms in a wide range of oil and gas industry facilities, including water from artesian wells and surface sources before it is used for hydraulic fracturing operations. For the best effect, it is recommended to add it to the water before preparing the biopolymer solution.

FRICTION REDUCER – SNPH-3820

A high molecular weight polymer dispersion. SNPH-3820 is added to technological fluids during drilling, HF, and well maintenance to improve lubrication and reduce friction coefficient.

CLAY STABILIZER – SNPH-SG

An additive for drilling muds and HF fluids to prevent clay swelling and migration.

DRY GEL-FORMING AGENT – SNPH-3830

A fast-hydrating guar gum powder used as a gel-former in HF fluids and as a thickener for technological fluids in formations up to 80°C. Available in two grades: CC (medium flowability) and PS (high flowability).

DE-EMULSIFIER – SNPH-4001G

Water-soluble de-emulsifier for HF fluids, ready to use without additional preparation. Applicable across a wide temperature range. Dosage in prepared fluids: 0.1–0.5%.



REPAIR AND INSULATION WORKS

REAGENT SNPH-9800

The SNPH-9800 composition is designed to eliminate casing-bore flow, loss zones, and water influx during the drilling and repair of oil and gas wells; it is effective in well remediation operations in cases where cement slurries do not yield the desired results.

The composition polymerizes over a wide temperature range under the influence of an initiator (the SNPH-E hardener with a controlled ratio) to achieve the required physical and mechanical properties and the life time of the mixture.

Technology Description:

- A mobile, low-viscosity two-component system.
- The polymerized composition based on SNPH-9800 is elastic and has high adhesion to metal and rock.
- Curing time can be adjusted from 4 to 48 hours.

ADVANTAGES

- The volume of the resulting polymer stone is equal to the volume of the cement slurry (no shrinkage).
- The resulting cement stone is resistant to aggressive reservoir media and acid-base solutions.
- Easy to use.
- Environmentally safe.
- Consumption per well — 1–5 tons.

Application Experience

- Number of wells treated: **50**
- Success rate: **75%**



REAGENTS FOR DRILLING FLUIDS

JSC SNPH produces a wide range of high-performance reagents for drilling fluids, designed to operate effectively across a broad spectrum of temperatures, pressures, and varying degrees of water salinity. The company is capable of developing customized solutions to meet the specific requirements of each client.

Applications	Filtration Control
Solutions	Sodium Polyacrylate SNPH-PAN Starch-based Reagent SNPH-PFK (Grades HB, BB) Polymeric Cellulose SNPH-PATs (Grades HB, BB)
Applications	Rheological Control
Solutions	Xanthan Biopolymer SNPH-BP Polyacrylamide SNPH-PM
Applications	Clay Inhibition
Solutions	Polyglcol-based Inhibitor SIPX-PGI Asphaltene-based Inhibitor SNPH-ASF Polyamine-based Inhibitor SNPH-AMIN Complex Inhibitor SNPH-IG

Applications	Hydrocarbon-Based Solutions
Solutions	Emulsifier for Hydrocarbon-Based Solutions SNPH-EMUL Base for Hydrocarbon-Based Solutions SNPH-BM Hydrophobizing Additive SNPH-GFD Organophilic Clay for ROU SNPH-OFG

Applications	Functional Additives
Solutions	Lubricant Additive SNPH-SD (Grades A, B) Defoamer SNPH-PG (Grades A, B) Bactericide SNPH- BAKCID Anti-sloughing Additive SNPH-DPP Anti-scaling Additive SNPH-DET Complex Clogging Agent SNPH-KS



REAGENTS FOR WASTEWATER TREATMENT AND TECHNICAL WATER PREPARATION

The preparation of technical water and the treatment of industrial wastewater are becoming critically important areas for any sector of industry and environmental safety today. Stricter regulations, rising costs of water resources, and the need to reduce the environmental footprint require the most optimal solutions today. Drawing on the company's many years of experience in the chemical industry, JSC "SNPH" is expanding its activities in the field of developing and implementing reagents for wastewater, as well as for water treatment in technical and recycled water supply systems.

SOLUTIONS FOR INDUSTRY

We offer:

- Our own range of coagulants and flocculants, adapted to the specifics of various industries and types of wastewater/industrial water.
- Technical support at all stages of implementation, including assessment of the effectiveness of reagent use.
- Technologies and reagents that help reduce the costs of preparing industrial water and treating wastewater.
- Individual selection of reagents for specific tasks
- Eco-friendly solutions that meet the strictest international standards.

In the context of stricter environmental legislation and growing requirements for the quality of industrial water, our solutions are becoming not just beneficial, but strategically essential for ensuring the stable and efficient operation of industrial water treatment systems.



SNPH

COAGULANTS

The line of aluminum-containing coagulants based on aluminum polyoxychlorides has been developed taking into account all possible variations in the molecular composition and properties of the reagents used in industrial water treatment. This makes it possible to select the most technologically and economically effective brand of reagent for any industry, taking into account the specifics of the production process and the type of water being treated.

The differences in the physical state, concentrations of commercial products, and properties make the SNPH-CW coagulant line as versatile as possible.



Mass fraction of aluminum oxide (Al_2O_3), %			
SNPH-CW-M-01		**SNPH-CW-H-02**	
28-30		28-30	
SNPH-CW-M-10	**SNPH-CW-M-03**	**SNPH-CW-H-04**	**SNPH-CW-H-06**
8-10	16,5-17,5	18-20	21-25

FLOCCULANTS

To date, the most effective flocculants in the field of industrial wastewater treatment and industrial water range of molecular weights, as well as the degree and nature of charge (anionic, cationic, non-ionic). This creates opportunities for selecting and further using reagents in any industry — both for clarifying recycled water and for effectively dewatering sludge and wastewater осад.



Flocculants of the SNPH-AKVA brand		
Cationic (CFL)	**Anionic (AFL)**	**Non-ionic (NFL)**
100-105 110-115 400-405 600-605 900-905	200-205 210-215; 300-305 500-505	1000-1005

SNPH

INDUSTRIES AND TECHNOLOGICAL PROCESSES INVOLVING THE USE OF THE SNPH LINE OF COAGULANTS AND FLOCCULANTS:

- **Wastewater treatment: industrial, stormwater, municipal.**
  - Reduction of COD and BOD of wastewater due to the sedimentation of organic pollutants.
  - Acceleration of the sedimentation of suspended particles in water-containing systems (activated sludge, sludges, fibers, lignin, dyes, colloidal particles).
  - Dewatering of sludge using centrifuges and filter presses.

- **Water treatment for technical needs:**
  - Treatment of river water for technical and circulating water supply systems.
  - Clarification of process water in closed systems of circulating cycles.

- **Целлюлозно-бумажная промышленность:**
  - The deposition of fibers and dyes in wastewater, the dewatering of paper pulp, and the reduction of cellulose fiber loss in water recycling systems.

- **Mining of minerals:**
  - Water treatment in quarries and mines, sedimentation of fine particles in mine water.
  - Deposition of ore processing tailings (coal, gold, bauxite).

- **Petrochemical industry**
  - Cleaning of drilling fluids, separation of petroleum products, dewatering of sludge, and separation of oil-water emulsions.

  Application in closed-loop water recycling systems

They are used in technological processes:

Systems of technical and recycled water supply	Textile	Metallurgical	Oil-producing	Chemical
Pulp and paper	Construction	Mining	Oil refining	Agricultural and otherindustries

SNPH

DOWNSTREAM CHEMICALS

Petroleum additives are the key component for achieving world-class standards in refined products quality. Our innovative solutions enable not just the modification of base operational properties of fuels and lubricants, but also significantly expand their scope of application.

The products of JSC SNPH are the result of deep scientific expertise and advanced technologies, guaranteeing reliability, efficiency, and consistently high quality of the final product on par with the best global counterparts.



SNPH

ADDITIVES FOR HEAVY PETROLEUM PRODUCTS (GAS OIL, FUEL OILS)

POUR POINT DEPRESSANT ADDITIVES (PPD)

Active base:
polymers of various structures and compositions

- A wide range of in-house active bases enables custom selection for each client's needs, and if required – development of new solutions
- Extensive raw material base. Reliable supply channels for imported components

1. Prevent the growth and agglomeration of paraffin particles
2. Ensure achievement of the required pour and solidification temperatures
3. Improve viscosity and rheological properties
4. Reduce the time for draining and pumping petroleum products.

ADDITIVES FOR DIESEL FUEL

COLD FILTER PLUGGING POINT ADDITIVES

DEPRESSANT

Active base:
EVA

- European component ensuring target cold filter plugging values are met
- Established high-volume supply chains (parallel exports)

DISPERSANT

Active base:
amides of organic polyacids

- In-house components used to improve sedimentation stability of middle distillates during cold storage

LUBRICITY (ANTI-WEAR) ADDITIVES

Active base:
fatty acids and their esters

- Our research in additives synthesis allows us to develop highly efficient solutions for improving diesel fuel lubricity
- The use of in-house development significantly reduced the final cost

SNPH

ADDITIVES FOR AUTOMATIVE GASOLINE

OCTANE-BOOSTING ADDITIVE

Active base:
aromatic amines

- Established logistics chains ensure stable reagent supply
- Environmentally friendly formulation: does not contain banned N-methylamine (mono- methylamine or MMA) and is free from lead, iron and manganese



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