Group of companies

«QazMunayHim»

INNOVATION FOR GOOD

THE FIRST FULL CYCLE PRODUCTION
OF CHEMICAL REAGENTS AND ADDITIVES
FOR THE OIL AND GAS INDUSTRY IN THE REPUBLIC OF KAZAKHSTAN

www.qazmunayhim.kz

INNOVATION FOR GOOD – SINCE OCTOBER, 2018

RELIABILITY
we guarantee the fulfillment of obligations in due time

HONESTY
we support ethical behavior and open communication

INNOVATION
we encourage people to look for new ways to create value

TO BE THE LEADER IN THE PRODUCTION OF **SPECIALIZED PETROCHEMICAL PRODUCTS** IN THE DOMESTIC AND FOREIGN MARKETS TO IMPROVE THE QUALITY AND LIVING CONDITIONS OF THE POPULATION

STRUCTURE OF THE GROUP OF COMPANIES

QazMunayHim
Group of companies

It is a modern manufacturer of chemical solutions for the oil and gas industry.

Today we work with the largest oil and oil service companies in the region.

«QazMunayHim» LLP

«QazMunayHim-Service» LLP

«Qazaqstan Ormany» LLP

PRODUCTION CAPACITY

CURRENT

30 000 tons / year

PERSPECTIVE

50 000 tons / year

1 Factory **in Pavlodar city**, SEZ territory

2 More than **5 hectares of area**

3 More than **50 highly qualified employees**

4 More than **50 types of products and services** in the portfolio of solutions, including **innovative – 20**

RESEARCH CENTER

QazMunayHim

Located in **Pavlodar**
The area of the complex is **~ 150 m2**

More than **40** pieces of equipment
(SI, test and auxiliary equipment)

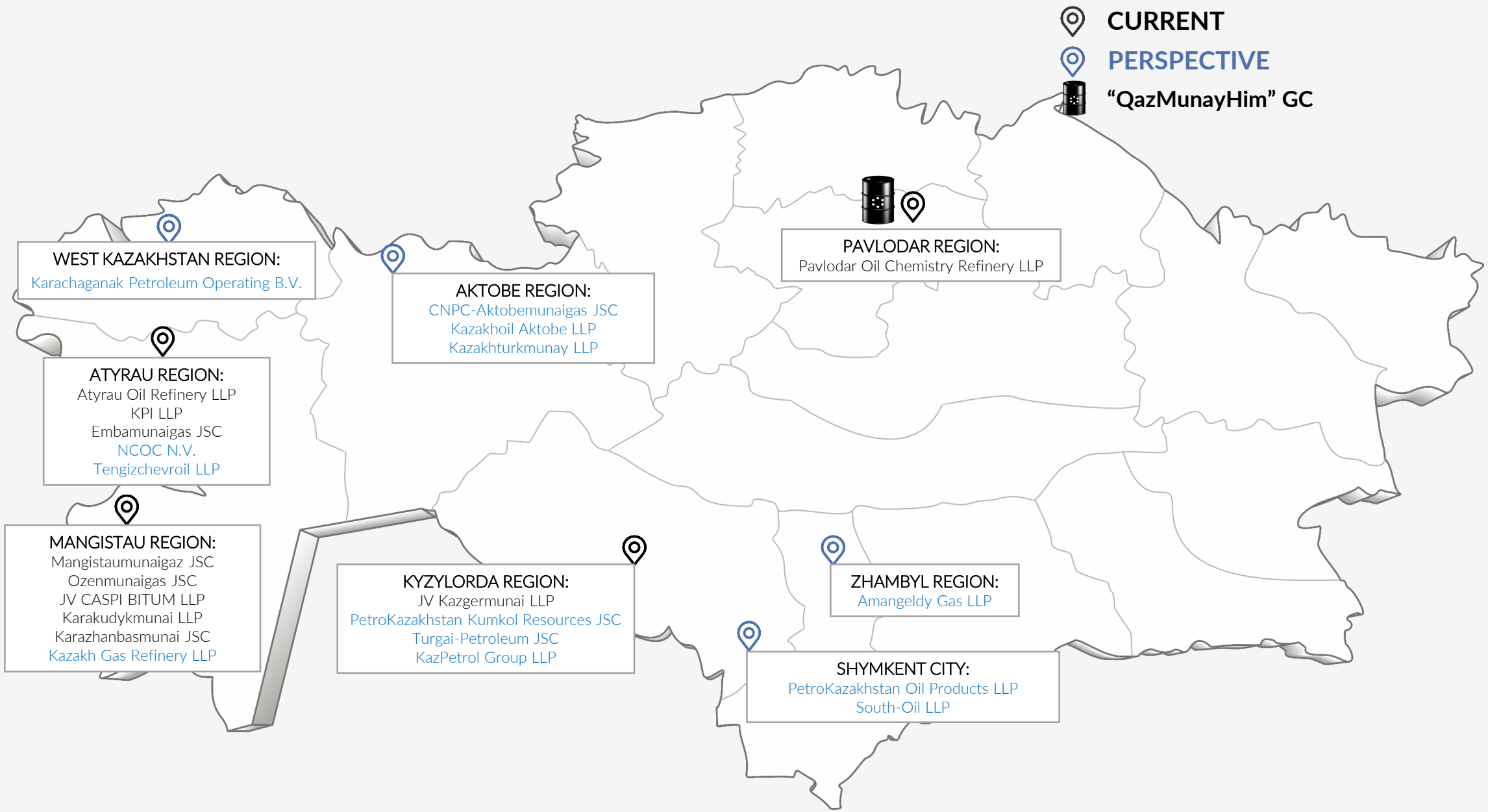
Development and production of reagents comparable with foreign analogues in terms of **price-quality ratio**

The specialists of our laboratory are always ready to **exchange experience** with consumers

Guarantee of **high efficiency** of reagents for various production and refining processes

Experience working with the **largest companies operating in the field of oil production, transportation and refining**

GEOGRAPHY OF ACTIVITIES



KEY DIRECTIONS

QazMunayHim

REAGENTS for drilling

REAGENTS for oil production

REAGENTS for oil and gas processing

REAGENTS for water and wastewater treatment

Forest nursery «Qazaqstan Ormany»

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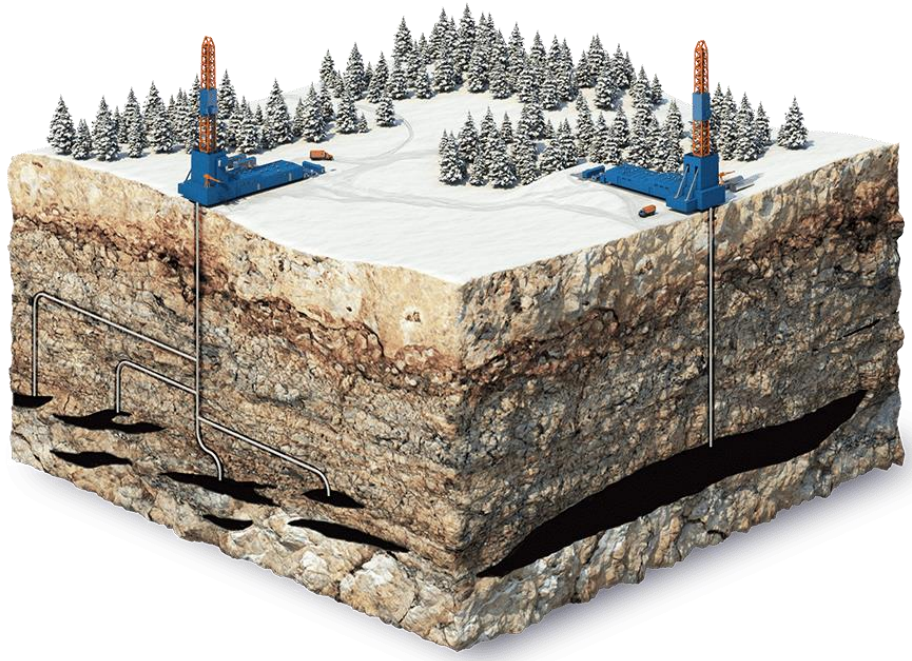
REAGENTS FOR WELL DRILLING



REAGENTS FOR WELL DRILLING

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POLYANION CELLULOSE PAC "LV"
(low viscosity)

CARBOXYMETHYL CELLULOSE "LV"
(CC)

POLYANION CELLULOSE PAC "HV"
(high viscosity)

CARBOXYMETHYL CELLULOSE "HV"
(CC)

HYDROGEN SULFIDE ABSORBERS
(hydrogen sulfide neutralizer based on manganese dioxide or nitrogen compounds)

BACTERICIDES
(for the control of various bacteria and microalgae)

LUBRICANT ADDITIVE

XANTHAN BIOPOLYMER

REAGENTS FOR WELL DRILLING

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FILTER CONTROLLER	
Umay PAC LV *Low-viscosity filtration reducing agent*	***It is a purified low viscosity polyanionic cellulose. Umay PAC LV polyanionic cellulose is designed to reduce the filtration index of water-based drilling fluids. It has no significant effect on rheological characteristics. It is used to reduce water yield of drilling fluids of different mineralization. Contributes to the formation of thin, dense, low-permeable filtration cakes.***
Umay PAC HV *Diesel-based gelling agents*	*It is a purified high-viscosity polyanionic cellulose. Umay PAC HV polyanionic cellulose is designed to regulate rheological and filtration characteristics of water-based drilling fluids. It is used to reduce water yield of drilling fluids of different mineralization. Contributes to the formation of thin, dense, low-permeable filtration cakes.*
Umay Starch *Modified starch*	*It is a modified swelling starch. "Umay Starch" is used to stabilize and reduce the filtration index of drilling fluids of different mineralization, from fresh to highly mineralized. It does not affect the viscosity of the drilling fluid. It is used in drilling fluids for primary penetration of productive formations.*
Umay PAA *Filtration reducing agent based on sodium polyacry*	*It is a low molecular weight acrylic polymer with a high degree of anionic charge. "Umay PAA" is designed to stabilize and reduce the filtration rate of clay drilling fluids, encapsulation of drilled rock, strengthening of well walls. It promotes formation of thin, dense, low-permeable filtration crust. Effective both in dispersed systems with high solid phase content and in non-dispersed solutions with low solid phase content.*

REAGENTS FOR WELL DRILLING

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STRUCTURATORS

Umay XAN *Xanthan biopolymer*	*Highly purified xanthan biopolymer with high molecular weight. It is used as a structure-forming agent for water-based drilling muds, both fresh and highly mineralized. Umay XAN-based drilling muds are more effective than other types of drilling muds in removing cuttings to the day surface from horizontal and directional well sections.*
Umay Poly *Polyacrylamide*	*It is a partially hydrolyzed polyacrylamide with high molecular weight and medium anionic activity, obtained by copolymerization of acrylamide and sodium acrylate. "Umay Poly" is used in water-based drilling fluids to increase viscosity, strengthen well walls, and encapsulate drilled rock. It improves the rheological properties of drilling fluids, which contributes to the effective removal of rock particles from the well. Forms a thin, strong filtration crust on the borehole walls, which prevents clay hydration and ringing of pore channels.*

LUBRICANTS

Umay D-Lub-1	*Lubricating additives are intended for treatment of drilling fluids in order to reduce downhole friction forces, reduce and prevent sticking situations when sinking vertical, directional wells. This additive is used for clay drilling fluids.*
Umay D-Lub-2	*Lubricating additives are designed for treatment of drilling fluids to reduce downhole friction forces, reduce and prevent sticking situations during sinking of vertical and directional wells. This additive is used for biopolymer drilling fluids with low bentonite content.*
Umay D-Lub-3	*Lubricating additives are designed for treatment of drilling fluids to reduce downhole friction forces, reduce and prevent sticking situations during sinking of vertical, directional wells. This additive is used for hydrocarbon-based drilling fluids.*

REAGENTS FOR WELL DRILLING

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BACTERICIDES

Umay Bio	*Designed to prevent bacterial decomposition of organic components of water-based drilling fluids, such as polysaccharides and biopolymers. These reagents effectively inhibit the activity of most microorganisms, both aerobic and anaerobic bacteria and fungi. "Umay Bio" bactericides are very effective for preservation of drilling mud and for transportation of drilling mud to the mud station, which is very important for pitless drilling.*

INHIBITION OF CLAY SHALE

Umay CL-1 *Glycolene-based clay inhibitor*	*Organic clay and shale inhibitor for drilling fluids based on glycol compositions. BPN-22 grade A effectively inhibits hydration and swelling of clay shale, prevents further dispersion of drilled clay sludge, helps to reduce packing on drilling tool elements.*
Umay CL-2 *Borsilicate clay inhibitor*	*It is an aqueous solution of silicates, borates and humates of alkali metals and is intended for treatment of water-based drilling fluids. It reduces the rate of clay hydration, showing inhibitory ability, provides stabilization of rheological parameters of dispersed systems of drilling fluids. This reagent is easily mixed with drilling fluids, so it does not require special equipment for dispersing the reagent in the system.*

FOAMING AGENTS

Umay DEF	*Foam suppressants are used for elimination and prevention of volume and surface foam formation in drilling fluids. They are intended for use in all types of water-based drilling fluids to effectively eliminate and prevent the formation of bulk and surface foam in them.*

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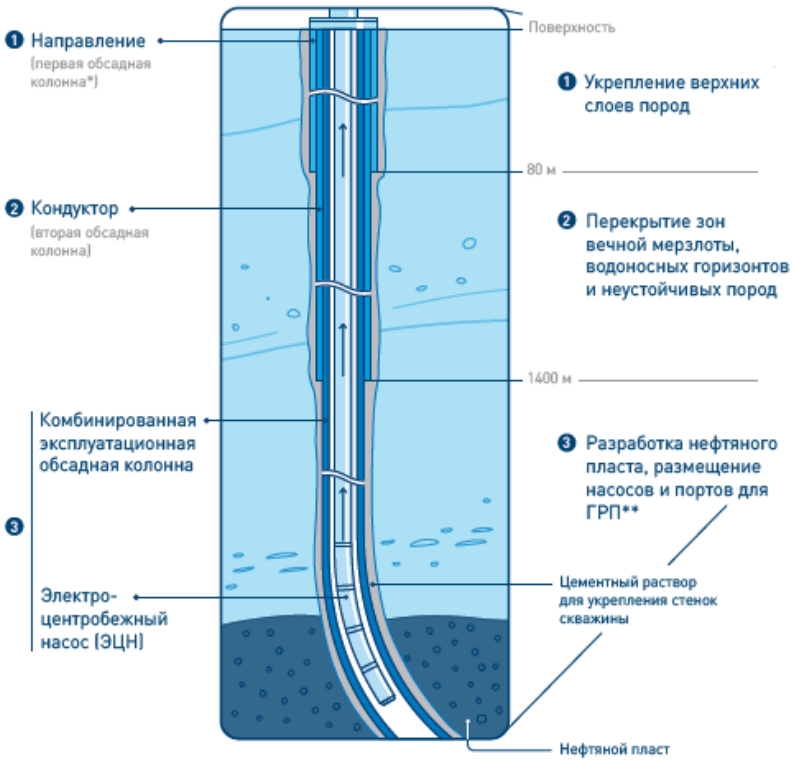
REAGENTS FOR WELL CONSTRUCTION



WELL CEMENTING CHEMICALS

QazMunayHim

- More than **50 types** of cementing additives
- **Unique** approach to each client
- **Experienced** professionals
- Representation in **China** and **India**

REAGENTS FOR CEMENTING WELLS

QazMunayHim

FILTRATION REDUCER	• Synthetic • Polysaccharide • Combined	**UmayCem Super FL** **UmayCem FL HV/LV** **UmayCem FL-1/FL-2**
RETARDERS	• Low, medium temperature • High temperature	**UmayCem RT** **UmayCem RT-HT**
PLASTICIZERS	• Based on polycarboxylate polymer • Based on acetone-formaldehyde derivatives	**UmayCem SPA** **UmayCem AFP**
BUFFER COMPOSITIONS	• Separation buffer • Liquid wash buffer • Dry wash buffer	**UmayCem ReBuf** **UmayCem Well Cleaner L** **UmayCem Well Cleaner P**
COLMATANTS	• Inert fillers	**UmayCem Fiber**
DEFOAMERS	• Liquid form • Powder form	**UmayCem SFA L** **UmayCem SFA P**
VARIOUS ADDITIVES	• Elasticizer • Expanding additive • Chemical filler	**UmayCem Elastic** **UmayCem GAS** **UmayCem LAC**

REAGENTS FOR CEMENTING WELLS

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FILTRATION REDUCERS	
UmayCem FL HV / LV *Filtration reducer polysaccharide*	*The product is a filtration reducer for cement slurry based on cellulose ethers of varying degrees of viscosity (high and low viscosity product grades HV and LV). Acts as a water loss regulator, thickening and anti-sedimentation agent.*
UmayCem FL-1 / FL-2 *Filtration reducer combined*	*The product is a filtration reducer for cement slurry based on acrylamide copolymer. Acts as a water loss regulator, thickening and anti-sedimentation agent.*
UmayCem Super FL *Filtration reducer synthetic*	*Universal filtration reducer for cement slurries based on synthetic polymers. Has gas-blocking properties. Does not affect the time it takes for cement stone to gain strength. Works well when mixed in highly mineralized water.*

PLASTICIZERS	
UmayCem SPA *Plasticizer polycarboxylate*	*Highly effective plasticizer, dispersant and friction reducer for all classes of well cements. Compatible with all types of additives. Effective at low dosages. The introduction of the product is possible both into the dry mixture and into the mixing liquid. Enhances the effect of filtration reducers when used together.*
UmayCem AFP *Plasticizeracetone-formaldehyde*	*Plasticizer, dispersant and friction reducer for all classes of well cements. Compatible with all types of additives. The introduction of the product is possible both into the dry mixture and into the mixing liquid. Suitable for mixing with highly mineralized water.*

REAGENTS FOR CEMENTING WELLS

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ADDITIVES	
UmayCem LAC *Chemical filler*	*The additive is used to prepare lightweight cement mortars in order to reduce the amount of free water. Accelerates the strength gain of cement stone. Helps reduce water separation and stabilize the dispersed phase due to the formation of a gel-like structure of the cement slurry.*
UmayCem Elastic *Elasticizer*	*The additive improves the deformation stability of cement stone and reduces the likelihood of cracks. Increases the resistance of cement stone to loads arising during hydraulic fracturing, pressure testing, etc. Improves the adhesive properties of cement mortar at the boundaries of contact with the column and rock.*
UmayCem GAS *Gas blocker*	*Compression-type gas blocker and expansion additive. Compensates for shrinkage of cement stone during hydration. Prevents the formation of channels (crossflows) for the migration of formation fluids. Due to expansion, the cement slurry effectively fills the annulus.*
UmayCem SFA L / P *Defoamer (liquid and dry form)*	*A highly effective anti-foam additive that destroys the resulting foam during the mixing of cement mortar. Compatible with all types of cement cements and mixtures.*
RETARDERS	
UmayCem RT *Setting retarder*	*Set retarder for cement mortars. Used in low and moderate temperatures. Has plasticizing properties. Compatible with all classes of cement cements. The introduction of the product is possible both into the dry mixture and into the mixing liquid.*
UmayCem RT-HT *High temperature setting retarder*	*Set retarder for cement mortars for moderate and high temperatures. The product is used in cementing processes of oil and gas wells to regulate the setting time of cement solutions at dynamic temperatures up to 180^{0}C.*

REAGENTS FOR CEMENTING WELLS

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BUFFER COMPOSITIONS	
UmayCem ReBuf *Separation buffer (rheological)*	*Separation buffer. It is used to prepare high-density solutions, which allow the maximum possible displacement of drilling fluid from the wellbore in preparation for cementing. Has high load-bearing and displacement capacity. Compatible with drilling and cement slurries.*
UmayCem Well Cleaner L *Detergent buffer (liquid form)*	*Washing buffer composition for preparing the wellbore for cementing for wells. Has high cleaning power. Effectively removes drilling mud filter cake. Compatible with drilling and cementing fluids.*
UmayCem Well Cleaner P *Detergent buffer (powder)*	*Washing buffer composition for preparing the wellbore for cementing for wells. Has high cleaning power. Effectively removes drilling mud filter cake. Compatible with drilling and cementing fluids. Operable in low temperature conditions.*
COMMATING AGENTS	
UmayCem Fiber *Colmatizing agent*	*Fibers of inert material up to 5 mm long. Improves the strength properties of cement stone. Compatible with any type of cement. Does not affect the thickening time of the cement mortar.*

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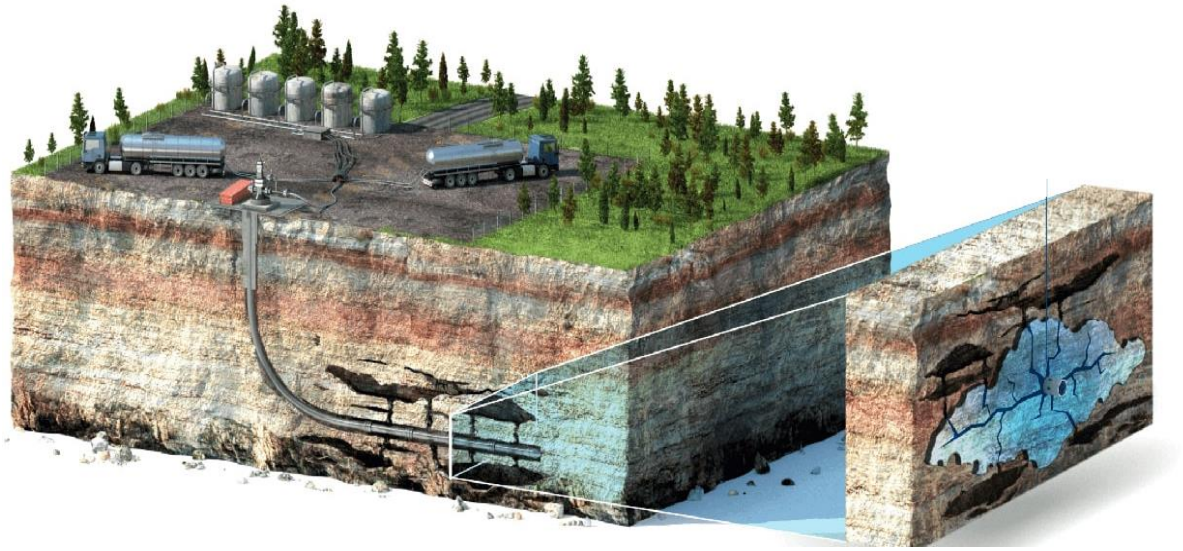
REAGENTS FOR HYDRAULIC FRACTURING



REAGENTS FOR HYDRAULIC FRACTURING

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GELLING AGENTS
(Dry; Liquid; Synthetic gelant)

STAPLEERS
(Liquid delayed; Liquid fast)

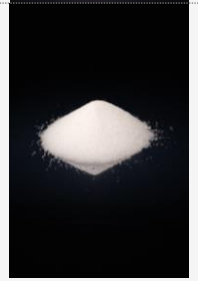
CLAY STABILIZER

BIOCIDE

DESTRUCTORS
(Capsulated; Liquid; Encapsulated)

DESTRUCTOR ACTIVATORS

DE-EMULSIFIER



OTHER ADDITIVES
(Rheology modifier; Temperature stabilizer)

REAGENTS FOR HYDRAULIC FRACTURING

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GELLING AGENTS	
Umay GG *Gelling agents*	*Umay GG gelling agents are guar self-hydrating gelling agents. Excellent crosslinking with borate crosslinkers. Once crosslinked, the fluid can withstand high proppant concentrations and provides increased crack thickness and length. Recommended concentrations from 2.0 to 4.8 kg/m3.*
Umay GL *Gelling agents diesel-based*	*Umay GL gelling agents are a suspension of self-hydrating guar in diesel fuel. It crosslinks perfectly with borate crosslinkers. Once crosslinked, the liquid can withstand high proppant concentrations and provides increased crack thickness and length. Recommended concentrations from 6.0 to 9.2 kg/m3.*
STITCHERS	
Umay W-Cross *Delayed-action staplers*	*Umay W-Cross is a highly concentrated borate delayed-action crosslinker on a diesel base. The crosslinked guar, hydroxypropylguar systems have high viscosity to effectively keep the proppant in suspension. Umay W-Cross does not require pH adjusting additives for fresh water, making it very economical and convenient.*
Umay F-Cross *Quick-acting stapler*	*Umay F-Cross is a highly concentrated water-based borate crosslinker. The crosslinked guar, hydroxypropylguar systems have a high viscosity to effectively keep the proppant in suspension. Umay F-Cross does not require the use of pH adjusting additives for fresh water, making it very economical and user friendly.*

REAGENTS FOR HYDRAULIC FRACTURING

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BREAKERS	
Umay AP *Unencapsulated breakers*	*They are used to provide gradual controlled breakdown of fluid viscosity, which is necessary for free filtration of gel with its further removal into the well, if necessary, activators can be added; can be used as a breaker for additional cleaning of bottomhole formation zone at the final stages of hydraulic fracturing.*
Umay L-Break *Liquid breakers*	*They are used to provide a gradual, controlled breakdown of fluid viscosity to allow free filtration of the gel into the wellbore, and activators can be added as required.*
Umay Cap-LT\MT\HT *Capsule breakers*	*Umay Cap-HT/LT is an encapsulated oxidizer for use as a delayed release breaker in fracturing fluids.* *Umay Cap-HT/LT gradually releases the breaker into the fracturing fluid allowing for long term stability of the crosslinked gel without adversely affecting the rheological properties.*
BREAKER ACTIVATORS	
Umay B-Activ *Liquid breaker activator*	*The use of an activator allows one type of breaker to be used on formations with a wider temperature range. Additionally, the breaker activator can be used to control the rate of crosslinked gel fracture.*

REAGENTS FOR HYDRAULIC FRACTURING

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CLAY STABILIZERS, DEMULSIFIERS

Umay C-Stab *Clay stabilizers*	*Umay C-Stab is a new generation clay stabilizer that effectively inhibits a wide range of clay types. Umay C-Stab does not freeze down to -30,0 C making it easily used in field conditions. Umay C-Stab Effectively prevents clay swelling and immediately bonds to clays on contact.*
Umay CS-DM *Clay Stabilizers - Demulsifier*	*Umay CS-DM is a new comprehensive clay stabilizer-demulsifier product, which effectively inhibits a wide range of clay types, and promotes the breakdown of oil-water emulsion. Umay CS-DM does not freeze down to -30.0℃, which makes it easily used in field conditions. Umay CS-DM neutralizes the negative surface charge of clays and additionally creates a hydrophobic layer that prevents water molecules from penetrating into the clay.*
Umay DM *Demulsifiers*	*Demulsifiers - designed to provide emulsion breaking, surfactants can be used as reagents of this type.*

BIOCIDES

Umay Biocide *Biocides*	*Umay Biocide is used to block the growth of sulphate reducing bacteria that cause microbiological corrosion of oilfield equipment.*

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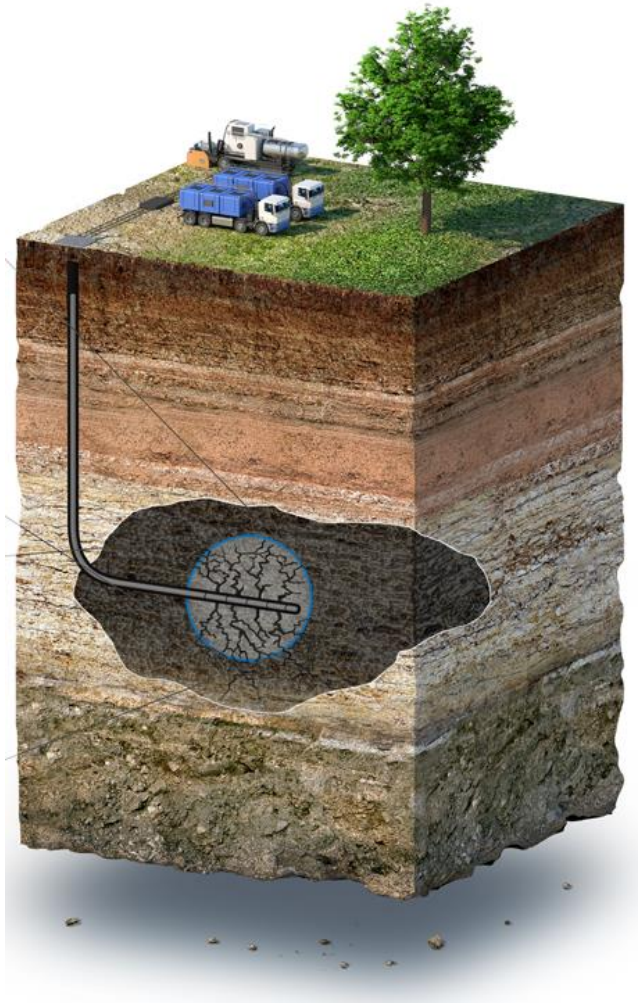
REAGENTS FOR PRODUCTION INTENSIFICATION



ENHANCED OIL RECOVERY

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EQUALIZATION OF INJECTIVITY PROFILE OF INJECTION WELLS
(polymer flooding)

INCREASE IN INJECTIVITY OF INJECTION WELLS
(acid treatment)

INCREASE IN THE PRODUCTION RATE OF PRODUCING WELLS
(acid treatment)

OIL-DISPLACEMENT PROPERTIES OF RESERVOIR FLOODING SYSTEM
(surfactant)

INTENSIFICATION OF PRODUCTION OF HIGH-VISCOSITY AND HARD-TO-RECOVER OIL RESERVES

IMPROVING OIL-DISPLACEMENT PROPERTIES OF THE RESERVOIR PRESSURE MAINTENANCE SYSTEM

CLEANING OF THE WELLBORE AND BOTTOMHOLE ZONE FROM SALT AND ASPHALT DEPOSITS
(acid-free treatment)

ACID PACK

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COMPLEX ACID COMPOSITION
Umay C-Acid

COMPLEX ADDITIVE FOR ACID COMPOSITIONS
Umay Acid-Light

INHIBITOR ACID CORROSION
Umay Anti-Corr

DEMULSIFIER OF OIL-ACID EMULSIONS
Umay DM-Acid

GELATOR
Umay PAA

BLOWING AGENT
Umay-SA

COMPLEXING AGENT
Umay-Ba

ANTI-SLUDGE AGENT
Umay-701

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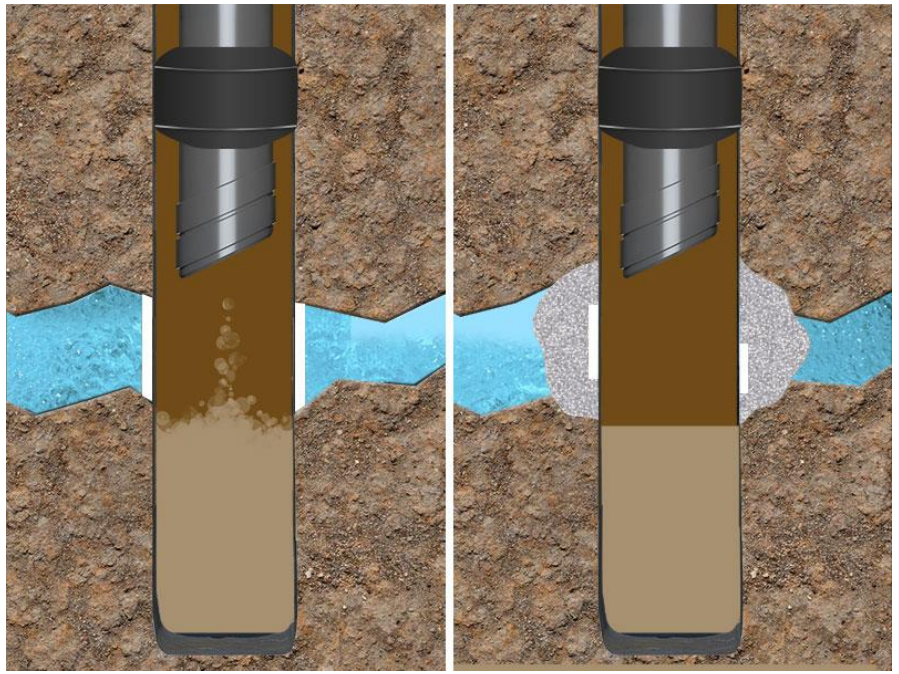
REAGENTS FOR REPAIR AND INSULATION WORKS AND WATER RESISTANCE LIMITATIONS



REAGENTS FOR RIW AND WRL

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ORGANOSILICON COMPOUND

SELECTIVE EMULSIFIER
QMH-801

OIL-SOLUBLE HYDROPHOBIZER
QMH-HP

BIOPOLYMERS SELECTIVE ACTION
UMAY-GL

RIW SYSTEM
UMAY BG-1

INSULATION SYSTEM
UMAY BG-2

SYNTHETIC POLYACRYLAMIDES

PACK UNIT FOR GENEROUS SILENCING

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SALT COMPOSITION FOR TGS
KMF-TJ

HEAVY-DUTY SILENCING FLUID
QMH-BR up to 2300 kg/m3

EMULGATOR
QMH-801

WATER-SOLUBLE HYDROPHOBIZER
QMH-HP

POLYMER BLOCKING COMPOUNDS

ADDITIONAL MATERIAL

ORGANOSILICON COMPOUND

appearance of the resulting structure

It is an ideal solution of low molecular weight compounds. The principle of action is based on interaction with water-soaked rock particles in the process of reaction with which a structural skeleton is formed in the rock preventing the removal of mechanical particles into the wellbore.

It is designed for selective water isolation in production wells and blocking of washed intervals of the formation during treatment of injection wells.

Features:

- Low initial viscosity (less than 20 cSt) allows the use of organosilicon composition for blocking low-permeability reservoirs
- Easy technological process
- No crosslinking components required
- Solidification temperature of the commercial form is below minus 50°C
- Curing under the action of any type of water and any level of mineralization
- Gel time depends on the amount of water and temperature
- Curing rate depends on temperature

SELECTIVE EMULSIFIER

It is designed for selective water shut-off in production wells and blocking of washed out intervals of the formation during treatment of injection wells.
The principle of operation is based on formation of stable high-viscosity emulsions with external hydrocarbon phase in interaction with mineralized formation water.
It is used as a sediment-forming composition in technologies of injection well injectivity profile equalization.

commodity form

$\longrightarrow$

$CaCl_2 + H_2O + C_nH_{n+2}$

«inoculum»

$\longrightarrow$

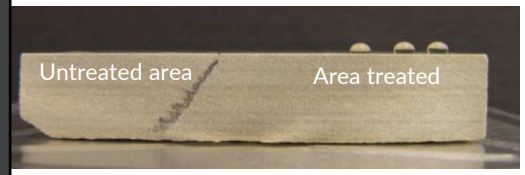
H2O

hydrophobic emulsion

OIL-SOLUBLE HYDROPHOBIZER

commodity form

C_nH_{n+2} ↓



Hydrophobized rock

It is intended for hydrophobization of the reservoir rock of the productive interval of a producing well in order to limit the inflow of water, both injected to maintain reservoir pressure and water coming into the producing wells from the bottom part of the oil-saturated formation (bottom water).

The technology of bottomhole formation zone hydrophobization is implemented by injection of a composition including hydrophobilizer and hydrocarbon into the formation.

SYSTEM FOR REPAIR AND ISOLATION WORK UMAY BG-1

The system is a mixture of two grades of product, namely:

- synthetic resin composition (1)
- alkaline based low freezing hardener of the system (2)

Physico-chemical parameters	Марка	
	1	2
Appearance at 20±2°C	Viscous homogeneous liquid of light to brown color	Homogeneous transparent liquid
Density at 20°C, g/cm3	1,18 - 1,30	1,20 - 1,23
Mass fraction of non-volatile substances (dry residue),%, not less	75	-
Solidification temperature, °C, not higher	-40	-30
Conditional viscosity at 20±1°C, B3-4, sec, not less	65	-

INSULATION SYSTEM UMAY BG-2

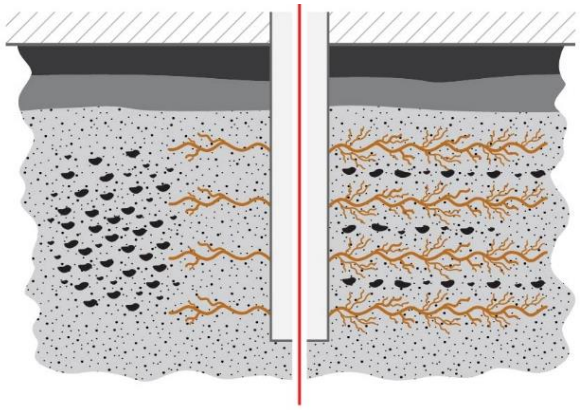
The system represents 5 functional grades of product, namely:

- synthetic resin composition, the main component of the system (1)
- moderate temperature hardener (2)
- low temperature hardener (3)
- cure gas pedal (4)
- system rheology modifier (active diluent) (5)

Depending on requirements, the formulation contains from 2 to 4 system components

Variations in formulations allow to obtain from elastic to hard (stone-like) structure (stone-like structure)

COMPLEX ACID COMPOSITION
Umay C-Acid

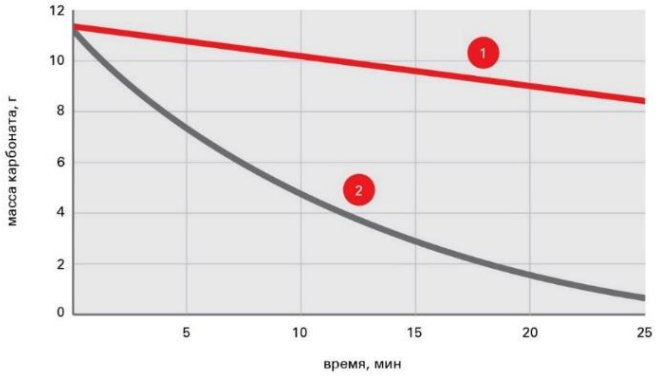


Acidic composition based on inorganic acids, surfactants and scale inhibitor.
The reagent is used in technologies of acid treatment of carbonate (grade K) and terrigenous (grade T) reservoirs.

Features:

- Ready-to-use acid formulation
- Increases the radius of formation treatment by slowing down the reaction rate of acid composition with reservoir rock
- Reduces the rate of acid corrosion of inorganic acids included in the composition due to the presence of corrosion inhibitor
- Prevents undesirable salt deposition on downhole pumping equipment and production interval due to the presence of a salt deposition inhibitor
- Possesses demulsifying properties of oil-acid emulsions

COMPLEX ADDITIVE FOR ACID COMPOSITIONS Umay Acid-Light



Замедление реакции 14% HCl с карбонатной горной породой в присутствии 5% присадки «Катол 22А» (1) и без нее (2)

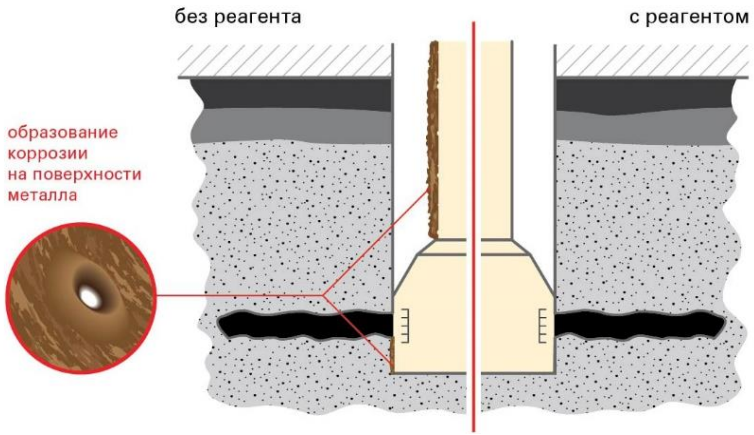
It is used in technological processes of acid treatment of production and injection wells.

It is a composition based on surfactants, which have inhibiting and demulsifying properties.

Features:

- Works in a wide temperature range (from 0 to 110 °C)
- Increases the radius of formation treatment by slowing down the rate of reaction of acid composition with reservoir rock
- Reduces the rate of acid corrosion of inorganic acids included in the composition due to corrosion inhibitor
- Prevents undesirable salt deposition on downhole pumping equipment and production interval due to the presence of a salt deposition inhibitor.
- Possesses demulsifying properties of oil-acid emulsions

ACID CORROSION INHIBITOR



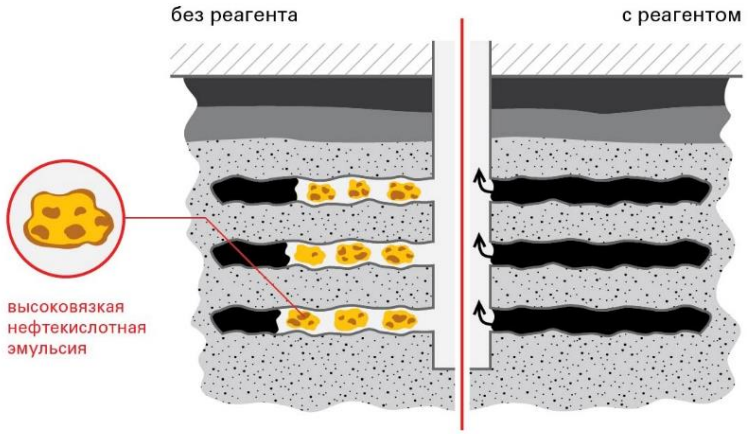
Additive to acid compositions used in technological processes of acid treatment of production and injection wells.

It is a composition based on nitrogen-containing surfactants in a combination of solvents. It refers to adsorption type of corrosion inhibitors, reduces (prevents) corrosion of metal surfaces of deep well pumping equipment and well structure.

Features:

- Reduces corrosion rate over a wide temperature range (0 - 110˚C)
- Has a low freezing point of commercial form (minus 40˚C)
- Compatible with all types of organic and inorganic acids used in FPSO processes

DEMULSIFIER OF PETROLEUM ACID EMULSIONS



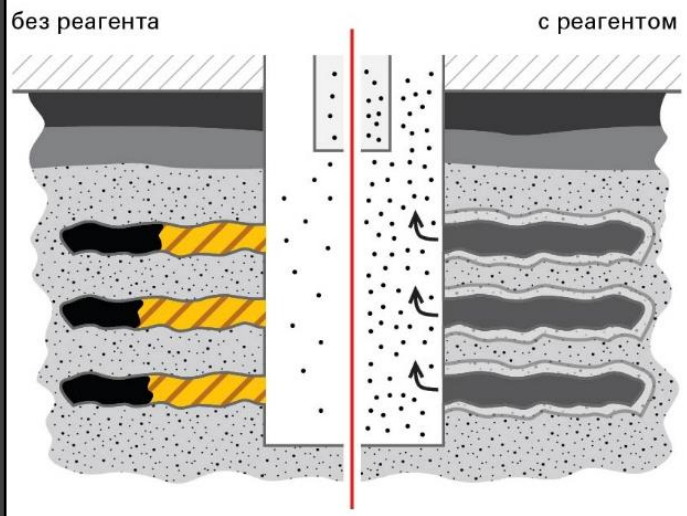
A demulsifier designed to prevent formation of oil-water emulsions in production stimulation processes.

It is a composition based on polymer and copolymer compounds in a mixture of solvents. It can be used as part of process fluids for acid treatment of bottom-hole zone of carbonate and terrigenous reservoirs, as well as hydraulic fracturing.

Features:

- applicable in a wide range of temperatures (0 - 90 ˚C)
- is injected into the well as part of process fluids for acid treatment of the formation (or hydraulic fracturing fluid) without requiring additional preparation

GELATOR



Gel-forming agent for acids used in acid treatment technologies for carbonate reservoirs of production and injection wells. Represents a modified, synthetic polyacrylamide.

Features:

- Applicable over a wide temperature range (0 - 120˚C)
- Increases viscosity of acid formulations to reduce acid filtration losses
- Increases the radius of formation treatment by slowing down the rate of reaction of acid composition with reservoir rock
- Stable viscosity of the formulation keeps acid reaction products suspended in the rock
- Available in three brands:
  - granules, applicable up to 90˚C
  - granules, applicable up to 120˚C
  - liquid, applicable up to 90˚C

FOAMING AGENT

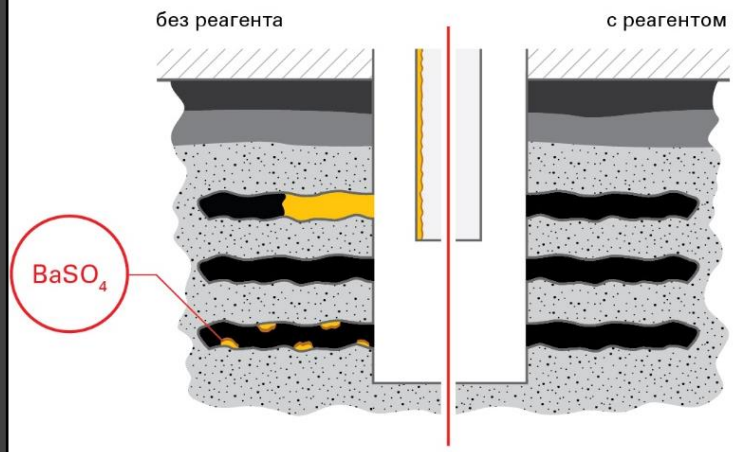
Blended product based on anionic and non-ionic surfactants.

Capable of effectively converting bottomhole fluid of gas and gas condensate wells into foam. Produced in the form of two brands.

Features:

- Works in a wide temperature range (from 0 to 110 °C)
- Liquid commercial form of the product
- Solidification temperature of the commercial form of the product is not higher than minus 45˚C
- The product is non-corrosive, both in commercial form and in the working solution

COMPLEXING AGENT



Aqueous solution of a mixture of effective chelating agents forming stable soluble complex compounds with barium ion.

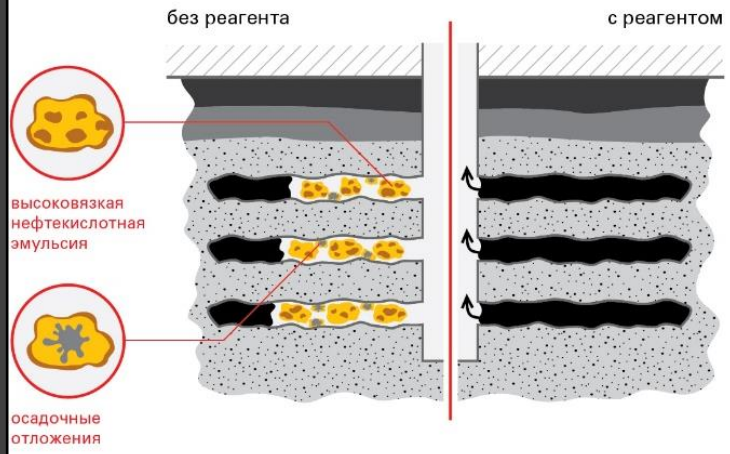
It is intended for removal of barite (barium sulfate) deposits, restoration and increase of filtration-capacity properties of bottomhole formation zone of oil and gas wells, as well as cleaning of downhole pumping and process equipment from barium sulfate deposits.

Dissolves barium sulfate deposits (BaSO4), strontium sulfate deposits (SrSO4), gypsum deposits and carbonates (CaCO3).

Features:

- Works in a wide temperature range (60 to 150 °C)
- Produced in concentrated form. Effective dosage of the reagent 15%
- No corrosion in contact with metal surfaces

ANTI-SLUDGE AGENT



Multifunctional additive, which imparts anti-settling and demulsifying properties to hydrochloric acid, and also has properties of mutual solvent.

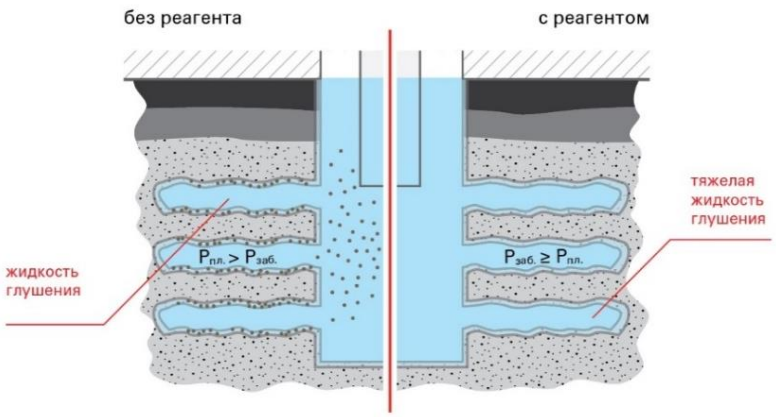
It is used in technological operations of oil production stimulation in order to prevent formation of asphalt-resin and paraffin deposits and oil emulsions.

The product is a mixture of anionic surfactants in hydrocarbon solvent.

Features:

- Works in a wide temperature range (from 0 to 90 °C)
- Prevents formation of sediments with oil at ROP
- Compatible with additives based on nonionic and anionic surfactants
- Contains micellar surfactant, which has high wettability with reservoir rock
- Can be used both as part of acid compositions and as a stand-alone solution

SALT COMPOSITION



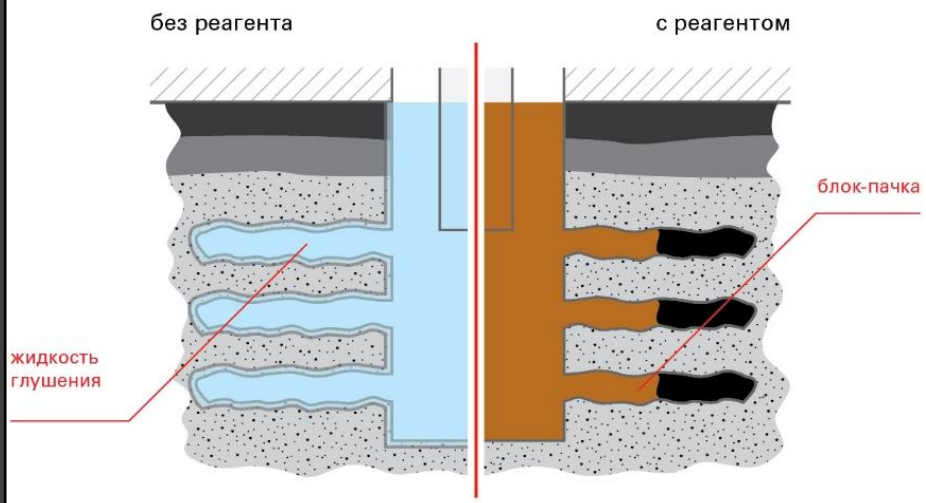
It is intended for use in oil and gas industry in the processes of preparation of process fluids without solid phase with density of 1300-1800 kg/m3, used for killing, perforation and conservation of wells.

It is a dry water-soluble composition based on salts, contains additives that reduce the corrosive activity of the process fluid.

Features:

- Capable of producing killing fluids with densities up to 1800 kg/m3
- Does not contain water insoluble, solid phase in its composition
- Low corrosive activity of killing fluids
- Application temperature range from 0 to 120˚C
- Used for killing wells with normal and abnormally high formation pressures.

EMULSION BLOCKING COMPOUNDS

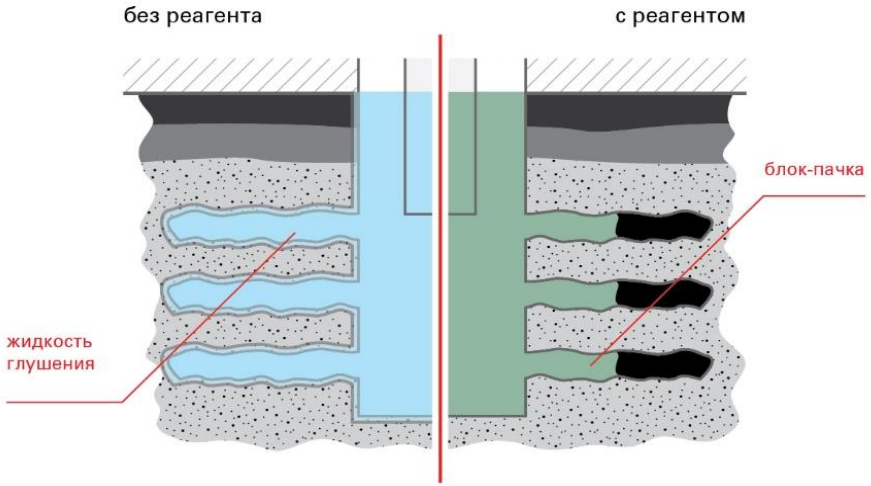


They are used in technologies of gentle killing of wells in order to prevent saturation of the productive interval with the main killing fluid based on salts.

Features:

- Reversible, high-viscosity emulsion of water-in-oil type
- Does not contain solid insoluble phase
- Low solidification temperature of commercial form
- Cleave emulsifier can be supplied as a concentrate (grade C) or with solvent (grade R)
- Compatible with silencing fluids with densities up to 1320 kg/m3
- Emulsion is stable up to 80°C for three days
- Used for killing wells with normal and abnormally low formation pressures

POLYMER BLOCKING COMPOUNDS



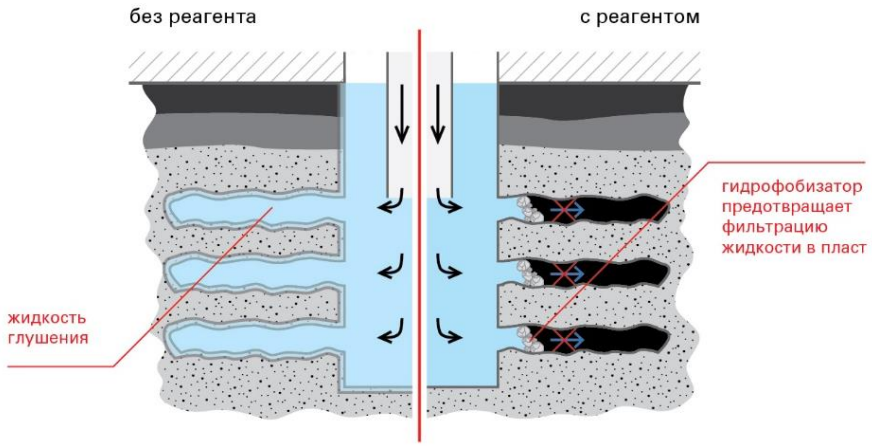
They are intended for use in technologies of gentle killing of wells in order to prevent saturation of the productive interval with the main killing fluid based on salts.

The principle of action is formation of cross-linked polymer system when system components interact with each other.

Features:

- Thermal stability of blocking packs up to 110˚C
- Formation of blocking compound on killing fluid with density up to 1500 kg/cm3
- Do not contain insoluble solid phase
- Destruction under the action of downhole temperature and acids
- Used for killing wells with normal and abnormally low formation pressures

WATER-SOLUBLE HYDROPHOBIZER



It is used in well construction technologies as a stabilizer of clay solutions, as well as in enhanced oil recovery technologies for treatment of bottomhole zone of wells to block water.

It is a composition based on organosilicon compounds.

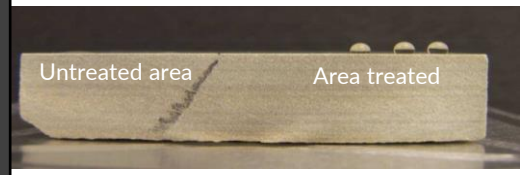
Features:

- Reduces wettability of the bottomhole formation zone with killing fluid
- Prevents seepage of killing fluid into the formation
- Prevents swelling of clayey rocks
- Application temperature range from 0 to 120˚C

OIL-SOLUBLE HYDROPHOBIZER

commodity form

C_nH_{n+2} ↓



Hydrophobized rock

It is intended for hydrophobization of the reservoir rock of the productive interval of a producing well in order to limit the inflow of water, both injected to maintain reservoir pressure and water coming into the producing wells from the bottom part of the oil-saturated formation (bottom water).

The technology of bottomhole formation zone hydrophobization is implemented by injection of a composition including hydrophobilizer and hydrocarbon into the formation.

SYNTHETIC POLYACRYLAMIDES

Trademark	Molecular weight, mln Dalton	Degree of hydrolysis, %	Dissolution time, min	Features
UMAY R-1	13-15	13-15	60	Partially hydrolyzed PAA
UMAY R-3	10-12	10-13		Sulfonated, heat stable, salt resistant
KMX NP	9-11	8-11		Medium molecular

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