

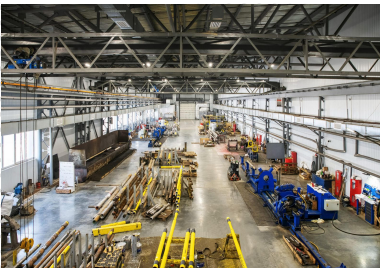
Deepwells

THINK DEEP GO DEEPER

TECHNOLOGY
THERMOTICS
Petroleum Services



Leading
Oil & Gas
Equipment
Supply &
Service
Company in MENA





» Our Core Activities

01

Rental Downhole Products

We rent Downhole Drilling tools like, jars, circulations subs and shock tools with completion tools in addition, offering all sizes for the mentioned tools.

02

Mud Motors

We also rent High-Effective Mud Motor at all sizes, with big storage spare parts in oil base and water base mud, at hard to medium rocks, and high temperature environments

03

Maintenance & Related Services

THERMOTICS offers high-quality maintenance and solutions for all tools, at the workshop using advanced tests and service equipment for precise and safe operations.

» About Us

"THERMOTICS TECHNOLOGY LLC is a leading provider of Downhole Tools like Jars, Circulation Subs, Shock Tools, and Mud Motors. We are able to offer our clients in the oil, gas, petrochemical, and manufacturing industries unparalleled service, ensuring their assets function safely and effectively.

Our comprehensive suite of downhole tools empowers you to optimize every stage of your well drilling operation, from exploration to production. We offer a diverse range of solutions designed to optimize every stage of your well development, from drilling and completion to workover operations.

"At THERMOTICS TECHNOLOGY LLC, providing industry-leading tools is just the baseline. Our true value lies in collaborative problem-solving—working alongside our clients to develop innovative yet practical solutions from conception to completion. THERMOTICS integrates this holistic mindset to streamline your project management from upstream to downstream, ensuring that every technology we deploy translates into tangible, real-world success for your operations."

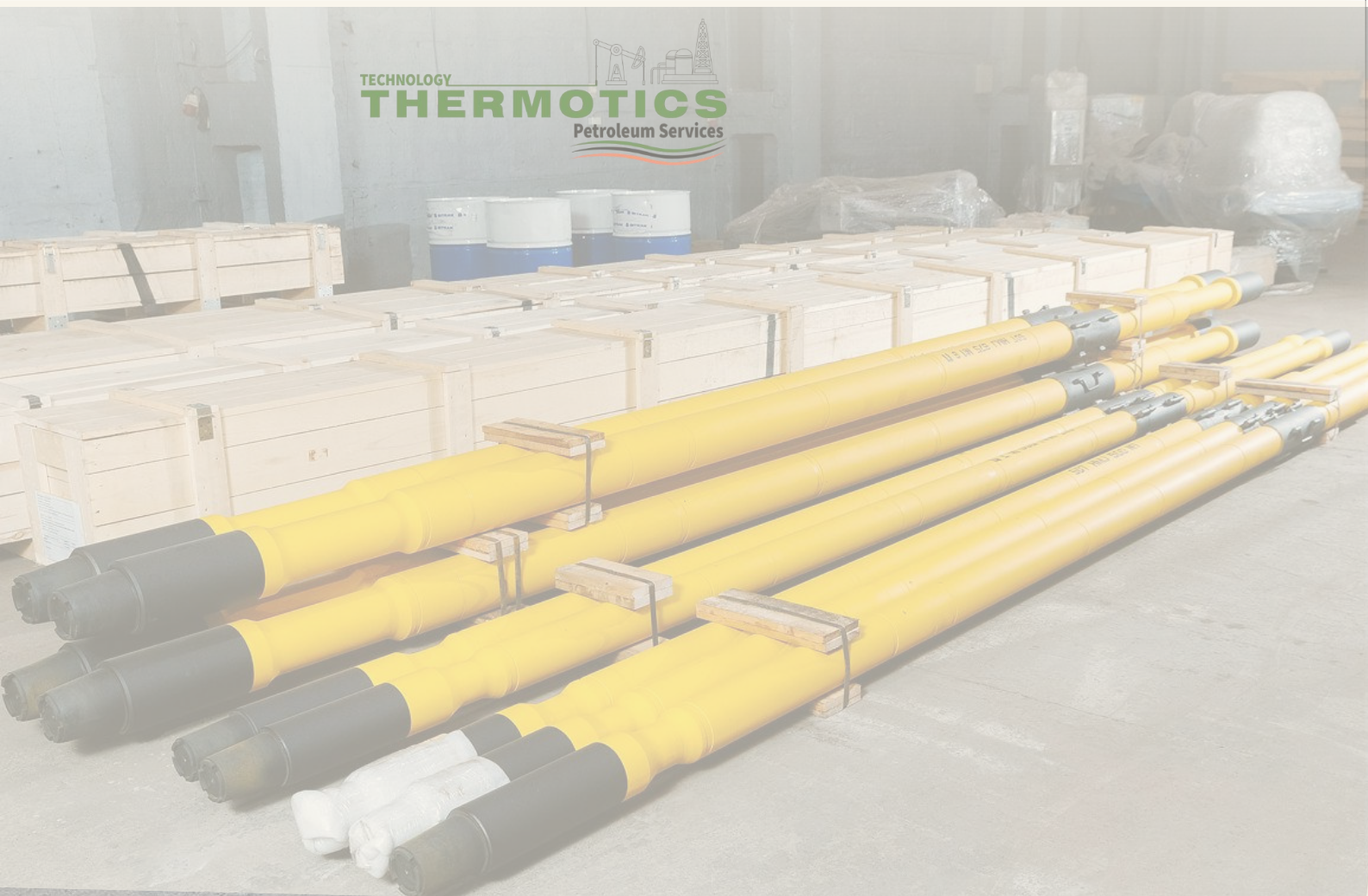
➤ Why Choose Us

-  The expertise of highly skilled professionals.
-  Skilled Team delivers efficient solutions.
-  Value-Added Quality Services.
-  Flexible and Time-Bounded Solutions.



Our Speciality

-  Global partnership with multinational companies, and drilling contractors.
-  Expert team with highly skilled professionals.
-  Holistic approach focusing on the Upstream to Downstream solutions.
-  Unparalleled Client support system.





Mission

To provide our clients with a professional service that meets and exceeds their expectations.



Vision

to be a global leader in the oil industry. We are renowned for our commitment to exceptional service, innovative problem-solving mechanisms, and holistic approaches to our clients' operations from Upstream to Downstream.



Integrity, Excellence, Innovation, and client satisfaction, driving every aspect of our operations and interactions with stakeholders worldwide.



Code of Conduct

We require that all our employees conduct themselves according to the highest standards of ethics, integrity, and behavior when dealing with our:

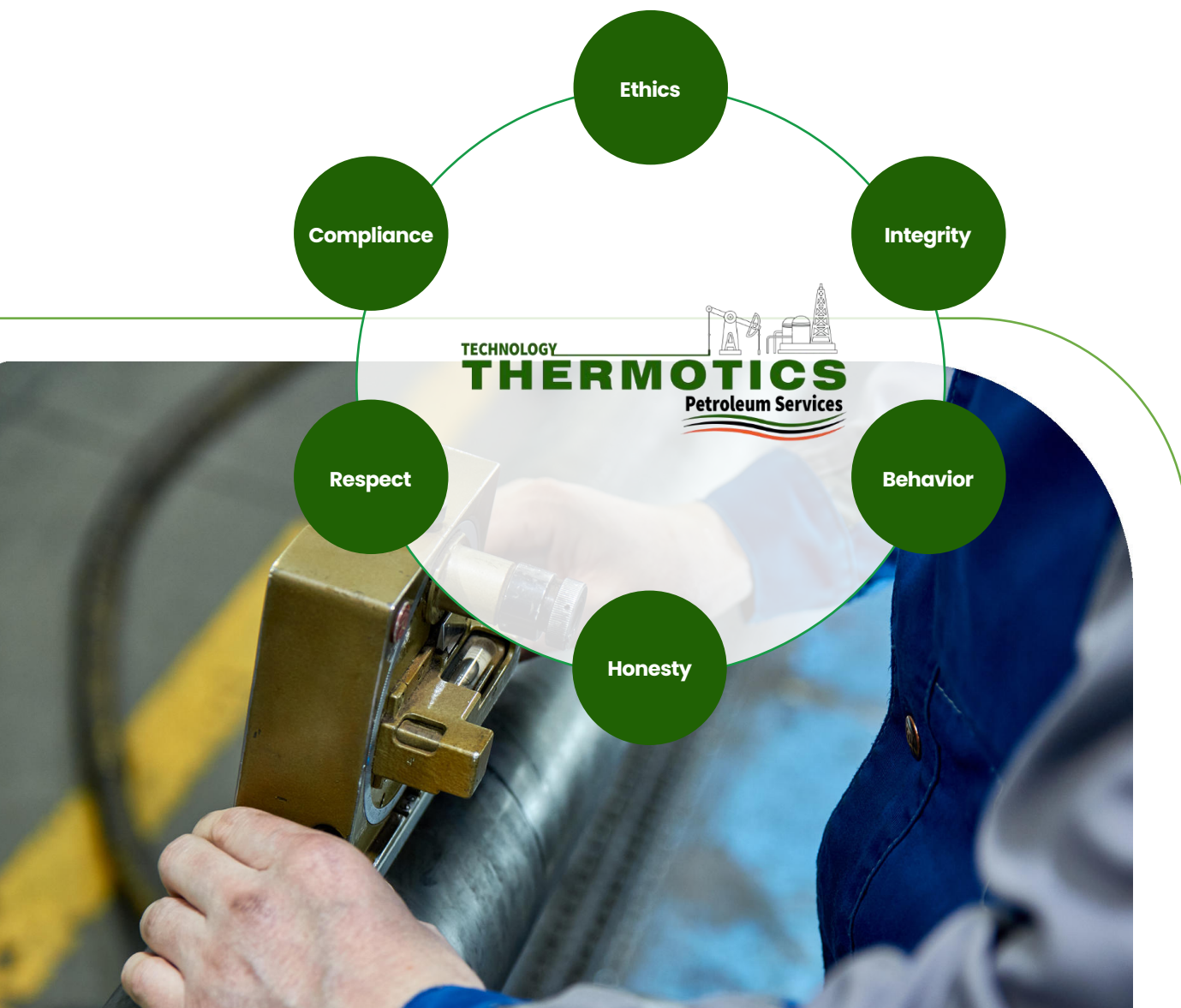
-  Customers
-  Employees
-  Other stakeholders

This includes full compliance with all legal obligations required by any source of law.

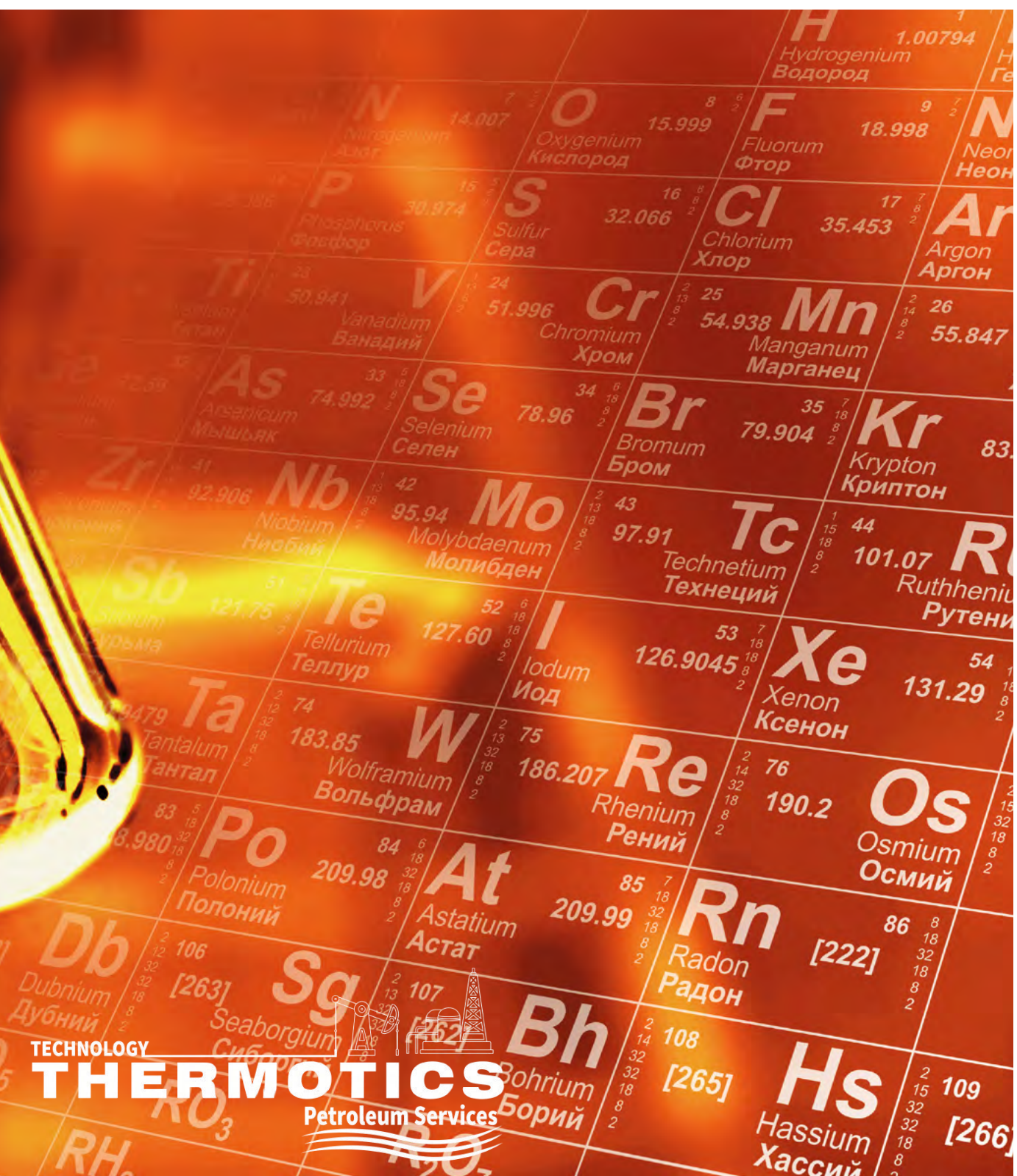
The policy must be complied with the following:

Our policy establishes the standards of behavior that must be met by all employees. If these standards are not met, then we will take appropriate disciplinary action.

If the breach involves serious misconduct, then it may result in summary dismissal. If breaching of any law, then we will notify the relevant government authorities or the police.



Chemicals And Technologies for Improved Oil Recovery And Stimulation of Oil And Gas Production





Non-damaging Killing of Wells

It is impossible to perform high quality repair and maintenance works in wells without killing of the wells. Multiple well killing with aqueous fluid affects negatively the reservoir properties of formation pay zone. To preserve reservoir properties some modifying additives are added to the brines, which provide brine compatibility with formation fluids, reduce oil-water interfacial tension and change rock wettability, reduce the residual water saturation of reservoir and increase relative oil permeability ratio.

Well killing, even within the same area, requires an individual approach to the selection of killing fluid parameters. The use of specialized solid-free killing fluids can reduce significantly the period of bringing of wells to stable production after repair and maintenance operations, as well as increase significantly oil flow rates.

In some cases, compatibility of killing fluids and formation fluids can only be achieved with the application of calcium-free killing fluids.



Chemicals and technologies for non-damaging killing of wells:

1. Killing of the wells with abnormally high formation pressure:
 - ✓ High density brines of **TZhG** brand with the densities ranging from 1.3 g/cm³ to 2.1 g/cm³;
 - ✓ Dry compositions of **TZhS** brand for preparing high density brines for killing of wells.
2. Killing of the wells with abnormally low formation pressure:
 - ✓ Water-based ultralight killing fluids of **ULZhG** brand with the densities ranging from 0.7 g/cm³ to 0.9 g/cm³;
 - ✓ Hydrocarbon emulsions based on emulsifiers **EKS-EM** and **EMITRIT**®.
3. Modifying of well killing brines and process fluids, displacement fluids, flushing or circulating fluids with hydrophobic surfactant chemical **GF-1**.
4. Fluid loss control at well killing operations at maintenance and repair works in the wells with Abnormally Low Formation Pressure (ALFP) with high formation permeability with the help of temporary blocking pack **PLASTIROX**®.
5. Reducing of H₂S and mercaptans content in killing fluids and in flushing or circulating fluids when performing the works in the wells complicated with the presence of H₂S and mercaptans with the help of H₂S scavengers of **PS** brand.
6. Preventing of scale precipitation with the help of scale inhibitors of **INIPOL**®32 K and **SALTONIX** brands.

Chemical	Description	Purpose of Application	Density	Comments	
TZhG 1,3 1,6 1,8 2,0	Solid-free calcium-based or calcium-free high density brines	Killing of production and injection wells for maintenance and repair works. Drilling of wells	from 1.3 g/cm ³ to 2.2 g/cm ³	Ready-to-use brine	
TZhS 1,3 1,4 1,6 1,8 2,0	Dry compositions for preparing calcium-based or calcium-free high density brines	Killing of production and injection wells for maintenance and repair works. Drilling of wells	from 1.1 g/cm ³ to 2.2 g/cm ³	Dry composition based on mineral salts completely soluble in water	
ULZhG	Hydrocarbon-free water-based ultralight killing fluids containing viscoelastic surfactants	Killing of production wells with abnormally low pressure for maintenance and repair works at the temperatures under 75°C	from 0.7 g/cm ³ to 0.9 g/cm ³	The composition is supplied in the form of components to be mixed at site	
EXTELIGHT	Inert to rock extender for the ultralight killing fluids	Inert to rock extender, which allows to reduce the density of ultralight killing fluids, blocking packs and drilling muds	bulk density 0.4 g/cm ³	Particulate material	
GF-1 grades M, K, V	Hydrophobic surfactant for the modifying of killing brines	Killing of wells. Preparing of process fluids for work-over operations	from 1.0 g/cm ³ to 1.6 g/cm ³	Concentrated product. Recommended consumption 0.2-1.0 % by weight	
EKS-EM	Emulsifier for hydrocarbon emulsions	Killing of wells with abnormally low formation pressure and high fluid loss at the temperatures up to 70°C	from 0.9 g/cm ³ to 1.2 g/cm ³	Concentrated product. Recommended consumption 2-4 % by weight	
EMITRIT®	Emulsifier for hydrocarbon emulsions	Killing of wells with abnormally low formation pressure and high fluid loss at the temperatures over 100°C	from 0.9 g/cm ³ to 1.2 g/cm ³	Concentrated product. Recommended consumption 2-4 % by weight	
PLASTIROX®	Temporary blocking pack for killing of the wells, which prevents well-killing fluid loss	Killing of high permeability wells with ALFP in fractured reservoirs	from 1.06 g/cm ³ to 1.40 g/cm ³	Dry composition. Supplied in the form of components	
PS-1 type 1 type 2	Free formaldehyde free H ₂ S and mercaptans scavengers	H ₂ S removal in water-based media	—	Liquid. Concentrates.	
PS-2	Formaldehyde free H ₂ S and mercaptans scavenger			Liquid. Water-alcohol solution.	
PS-3	Formaldehyde free H ₂ S and mercaptans scavenger			Liquid	
PS-4 type 1 type 2	Formaldehyde-based H ₂ S and mercaptans scavenger			Liquid	
PS-4 type 2	Free formaldehyde free H ₂ S and mercaptans scavengers			Liquid. Concentrates.	
INIPOL® AD 32 K	Scale inhibitor	Protection of oilfield equipment from affecting of calcium, barium and strontium salts	—	Liquid. Recommended consumption is 5-20 g/t	
SALTONIX	Scale inhibitor	Protection of oilfield equipment from affecting of Ca and Fe salts	—	Liquid. Recommended consumption is 5-20 g/t	

To select the optimal consumption of chemicals and application technologies please contact POLYEX specialists.

Scale inhibitor INIPOL® AD 32 K is manufactured according to the technology and from the materials of ARKEMA FRANCE (France).



Fracturing Fluids, Well Completion after Drilling And Well Stimulation after Hydrofracturing

Major prospects for oil production increase in the fields are associated with the involvement of low permeability heterogeneous reservoirs into the active development as well as with a more complete oil recovery in the old fields with hard-to-recover reserves.

One of the most widely used advanced recovery and stimulation methods is hydraulic fracturing of formation (hydrofrac). Thereby to provide hydrofrac fluid with the required proppant carrying properties and to create high enough hydraulic pressure some guar-based gelling agents or other polysaccharide polymers are conventionally used. Quite high residual content of the latter in proppant pack after hydrofrac decreases dramatically the efficiency of the treatment. Proposed by Polyex variants of solving of this problem are based both on the chemicals which allow to remove the guar gel residuals and on the gelling chemicals which do not contain any solid polymer phase.

The process of oil and gas well completion after drilling is the final stage of well construction and it affects to much extent the achieving of designed well yields. Elimination of negative affect of drilling mud on to the pay zone permeability as well as preparing of the perforation media which are non-damaging for formation allow to improve sufficiently the output of wells from the very beginning of their exploitation.



Chemicals and technologies for well completion after drilling and well stimulation after hydrofracturing :

1. Hydrofracturing with the application of non-polymeric viscoelastic fracturing and proppant carrying fluids with gelling agent **SURFOGEL® grade D**.
2. Acid-proppant fracturing with the application of acid gel being a non-polymeric viscoelastic surfactant fracturing and carrying fluid, prepared with gelling agent **SURFOGEL® grade AF**.
3. Acid-fracturing with the application of acid gel being a non-polymeric viscoelastic fracturing fluid, prepared with gelling agent **SURFOGEL® grade AT, AF**.
4. Cleanout of horizontal wellbore from residual proppant in the wells with hydrofrac with the help of ultralight water-based fluids of **ULZhG** brand with the densities ranging from 0.7 g/cm³ to 0.9 g/cm³.
5. Completion of wells after hydrofrac with the use of clay & polymer destructing acid-based stimulation fluid **FLUXOCORE® 110** for the production wells in terrigenous reservoirs.
6. Well completion after drilling with the use of acid stimulation fluids **FLUXOCORE® 110, FLUXOCORE® 210, FLUXOCORE® 201**.

Chemical	Description	Purpose of Application	Area of Application		Comments	
			Reservoir Type	Type of Problems		
SURFOGEL® grade D type 20-40	Complex of viscoelastic surfactant (VES) gel forming chemicals for preparing of water-based fracturing fluids	Preparing of polymer-free fracturing fluids, proppant carrying fluids	T	-	Supplied component-wise	
SURFOGEL® grade D type 40-70						
SURFOGEL® grade D type 70-100						
SURFOGEL® grade AF	Complex of VES gel forming chemicals for preparing of acid fracturing fluids	ACID-PROPPANT FRAC: Preparing of polymer-free gelled acid fracturing fluids, which are also proppant carrying fluids ACID FRAC: Preparing of polymer-free gelled acid fracturing fluids	C	-	Supplied component-wise	
SURFOGEL® grade AT	Complex of viscoelastic surfactant gel forming chemicals for preparing of acid fracturing fluids	ACID FRAC: Preparing of polymer-free gelled acid fracturing fluids	C	-	Supplied component-wise	
ULZhG	Hydrocarbon-free water-based ultralight killing fluids containing VES	Cleanout of horizontal wellbore from residual proppant in the wells with hydrofrac	T	Need to remove the residual proppant from the well tubing	Supplied component-wise and to be mixed at site	
FLUXOCORE® 110	Acid stimulation fluid – clay & polymer destructor	Well stimulation after hydrofrac	T	Polymer gel based fracturing fluids of various chemical compositions, clogging cake formed by hydrofrac fluids and clays. Formation temperatures up to 140°C	Ready-to-use chemical	
		Oil, gas and gas-condensate well completion after drilling	C, T	Natural and synthetic polymers, clays		
FLUXOCORE® 210 grade O grade R	Acid stimulation fluid	Oil and gas well completion after drilling, re-start treatment after conservation or prolonged stops	C, T	Clogging settlements, clay-polymeric muds and oil-water emulsions	Concentrated chemical (grade O) Ready-to-use chemical (grade R)	
FLUXOCORE® 201 grade K grade R	Acid stimulation fluid	Oil and gas well completion after drilling, re-start treatment after conservation or prolonged stops, switching to other horizons	C	Produced fluids are poorly compatible with acids, tending to form precipitation at contact with acids	Concentrated chemical (grade K) Ready-to-use chemical (grade R) May be supplied component-wise in the form of Modifiers	

To select the optimal consumption of chemicals and application technologies please contact POLYEX specialists.



Acidic stimulation. Production wells. Flow diverters

One of the main methods of the stimulation of oil and gas recovery is acidizing in production wells. Conventionally HCl-based acid stimulation fluids are used for this purpose. The treatment of this kind provides permeability improvement and formation stimulation due to the forming of high-conductivity pathways.

In the conditions of high water-cut of produced fluids especially at the mature fields to increase the efficiency of acidizing jobs it is recommended to apply some flow diverting chemicals in the process of acidizing.



Chemicals and technologies for acid stimulation in production wells:

1. Stimulation of oil and gas recovery in production wells in carbonate and terrigenous reservoirs with the application of acid stimulation fluid **FLUXOCORE®210**, **FLUXOCORE®212**, **KSPEO-2**, **KSPEO-4**.
2. Stimulation of oil recovery in carbonate and terrigenous reservoirs in the wells producing oils apt to precipitation at contact with acids. Treatment with acid stimulation fluid **FLUXOCORE®201**.
3. High volume acidizing of production wells in carbonate reservoirs with acid stimulation fluids **FLUXOCORE®210**, **KSPEO-2**.
4. Stimulation of oil and gas recovery in production wells in the condition of surplus of ferric iron. Treatment with acid stimulation fluid with superinduced acid fluid modifiers **MK-7** or **ACIRONIX®-IRON**.
5. Cleaning of downhole equipment from asphaltene, resins and paraffin deposits with **POLIPAV** chemical prior the acidizing with stimulation fluids.

Flow Diverting Chemicals

6. Acid stimulation of oil and gas recovery in highly drowned (watercut up to 98%) production wells with preliminary water shutoff with sediment forming agent **TAMOLEX®**. The technology is applicable at high temperatures.
7. Acid stimulation of oil and gas recovery in highly drowned production wells with preliminary blocking of thief interlayers with hydrocarbon emulsions formed with the help of emulsifying agents **EKS-EM** or **EMITRIT®** (at higher temperatures).
8. Acid stimulation of oil and gas recovery in carbonate fractured reservoirs with temporary blocking self-degrading water-based system containing fiber extender **EXTELINT®** and **VES SURFOGEL® grade D**. The application of the system allows to divert selectively the amounts of stimulating acid fluids and to cover low-permeability zones of formation with acidic treatment.
9. Stimulation of oil and gas recovery with self-diverting acid stimulation system **FLUXOCORE®210 grade C** with gelling agent **SURFOGEL® grade A**.

Acidic stimulation. Injection wells



Injectivity degradation in injection well is connected with the pay zone colmatation with organic and non-organic impurities contained in the water being injected. Among the methods of improving of well injectivity the leading position belongs to the processes of complex chemical treatment of near-wellbore formation.



Chemicals and technologies for improving and enhancing the injectivity of injection wells:

1. Matrix acidizing for improving and enhancing the injectivity in injection wells with the application of acid stimulation fluid **KSPEO-N**.
2. Matrix acidizing for improving and enhancing the injectivity in injection wells complicated with the oil hydrocarbons presence in injected water. Acidizing is performed with acid stimulation fluid **KSPEO-N** with adding of specialized acidic modifier **MK-R** which contains solvents.
3. Matrix acidizing in injection wells with acid stimulation fluid **KSPEO-N** and squeezing liquid containing **POLYPAV**-chemical enabling the washing off the residual film oil.



Complex Modifiers for Making and Additives for Improving of Acid Stimulation Fluids

Along with the ready-to-use and concentrated acid fluids for stimulation of injection and production wells Polyex company offers the range of specialized additives: basic acid modifiers, specific acid stimulation fluid modifiers and corrosion inhibitors, which allow to prepare high quality HCl-based acid stimulation fluids at well site or in the conditions of a mud room, as well as to improve the performance of acid fluids for well stimulation.

Basic acid modifiers allow to solve the problems of making acid stimulation fluids both for production and for injection wells close to the objects to be treated. Adding of such modifiers to the acid helps to reduce the interfacial tension at the “spent acid-oil” boundary, and facilitates the penetration of the active acid into the pore space, slows down the reaction rate of the acid with the rock. When inducing feed-in the use of the modifying additives facilitates more complete removal of the neutralized acid from the formation.

Specific acid stimulation fluid modifiers may be added both at the stage of making of acid stimulation fluids and into the ready-made acid stimulation fluids with the purpose of solving the problems of acid treatment in complicated conditions.



Chemicals for preparing acidic composition with the use of modifiers:

1. Making of acid stimulation fluids of **FLUXOCORE®210** and **KSPEO** brands for the stimulation of production oil and gas wells based on pure HCl acid with the help of complex modifiers **MK-2**, **MK-3**, **MK-5**.
2. Making of acid stimulation fluids of **FLUXOCORE®110** brand designed for oil, gas, and gas-condensate well development after drilling in carbonate and terrigenous reservoirs, as well as for completion of wells after hydrofrac in terrigenous reservoirs based on pure HCl acid with the help of complex modifier system consisting of **MK-9** and **MK-10**.
3. Improving of HCl-based acid stimulation fluids for the stimulation of production wells in the condition of surplus of ferric iron with the adding of acid fluid modifiers of **MK-7** or **ACIRONIX®-IRON**.
4. Making of acid stimulation fluids of **KSPEO-N** brand for the stimulation of injection wells with the purpose to improve their intake capacity based on pure HCl acid with the help of complex modifier **MK-N**.
5. Acidizing of injection wells in cases when the injected water contains oil hydrocarbons with the use of acid stimulation fluid **KSPEO-N** with adding of acid fluid modifier **MK-R**.
6. HCl corrosion inhibiting with the help of **SOLING** brand inhibitors.

Chemical	Description	Purpose of Application	Reservoir Type	Properties of The Modifier As A Component of Acidic Composition	Comments	
MK-2	Acid modifier	Making of KSPEO-2 g.B and g.A acid stimulation fluid for production wells	C, T	Preventing of trice high-viscose oil-acid emulsions forming during the process of acid stimulation. Preventing of precipitation of acid – rock reaction products. Reducing of «crude oil – acid» inter-phase tension	Liquid. Consumption rate up to 6 % by the volume of ready acid stimulation fluid	
MK-3	Acid modifier	Making of KSPEO-3 g.TA acid stimulation fluid based on the mixture of HCl and HF for production wells	T	Preventing of trice high-viscose oil-acid emulsions forming during the process of acid stimulation. Preventing of precipitation of acid – rock reaction products. Reducing of «crude oil – acid» inter-phase tension	Liquid. Consumption rate up to 6 % by the volume of ready acid stimulation fluid	
MK-5 grade O	Acid modifier	Making of FLUXO-CORE® 210 g.O and g.R acid stimulation fluid for production wells	C, T	Preventing of trice high-viscose oil-acid emulsions forming during the process of acid stimulation. Preventing of precipitation of acid – rock reaction products. Reducing of «crude oil – acid» inter-phase tension	Liquid. Consumption rate up to 6 % by the volume of ready acid stimulation fluid	
MK-5 grade C		Making of FLUXO-CORE® 210 g.C and g.N – the base for self-diverting acid stimulation fluid for production wells	Carbonate porous fractured reservoirs with non-uniform layer structure	Preventing of precipitation of acid – rock reaction products. Reducing of «crude oil – acid» inter-phase tension	Liquid. Consumption rate up to 4 % by the volume of ready acid stimulation fluid	
MK-9	Acid modifier	At site preparing of acid stimulation fluid FLUXOCORE® 110 . Used in combination with acid modifier MK-10	C, T	Acidic corrosion control, synergetic effect with HCl in clay and polymer dispersing	Dry composition. Consumption rate is 2.6-3.0% by the volume of ready acid stimulation fluid	
MK-10 grade NT	Acid modifier	At site preparing of acid stimulation fluid FLUXOCORE® 110 for the application at reservoir temperature <60°C. Used in combination with acidic modifier MK-9	C, T	Acidic corrosion control, reducing of the «crude oil – acid» inter-phase tension	Liquid. Consumption rate is 5.0-5.5% by the volume of ready acid stimulation fluid	
MK-10 grade VT		At site preparing of acid stimulation fluid FLUXOCORE® 110 for the application at reservoir temperature <110°C. Used in combination with acidic modifier MK-9				
MK-7 grade A grade R	Acid stimulation fluid additive – iron control agent	Specialized additive superinduced to the acid stimulation fluids of FLUXO-CORE® 210 and KSPEO brands for production wells, added into the working solutions	C, T	Preventing of emulsion forming and precipitation in the presence of surplus of ferric iron	Dry composition (grade A). Liquid (grade R). Consumption rate 0.3-1.0 % by the volume of ready acid stimulation fluid	
ACIRONIX®-IRON	Acid stimulation fluid additive – iron control agent	Specialized additive superinduced to the acid stimulation fluids for production wells added into the working solutions	C, T	Prevention of emulsion forming and precipitation in the presence of surplus of ferric Iron	Dry blend. Tentative consumption ranges from 0.5 – 1.5% of the volume of ready acidizing fluid correspondingly*	
MK-N	Acid modifier	Making of KSPEO-2 g.NA and g.NB acid stimulation fluids for injection wells	C, T	Preventing of precipitation of acid – rock reaction products.	Liquid. Consumption rate up to 6 % by the volume of ready acid stimulation fluid	
MK-R grade A grade B	Acid modifier containing alcahest	Oil hydrocarbons dissolving at the acidizing of injection wells	C, T	Dissolving of oil hydrocarbons at the acidizing of injection wells in which produced waters with high content of hydrocarbon residuals are injected	Liquid. Applied together with KSPEO-2 N acid stimulation fluid	

Chemical	Description	Purpose of Application	Area of Application	Comments
SOLING grade LU	HCl corrosion inhibitor	Anticorrosive protection in HCl solutions, hydrofluoric acid solutions and their blends	Protection of black steel equipment meant for acid storage, which is used in chemical, petrochemical and oil-producing industry	Liquid. Consumption rate 0.2 – 0.7% of the volume of acid
SOLING grade D	HCl corrosion inhibitor	Anticorrosive protection in synthetic HCl solutions	Protection of black steel equipment meant for acid storage, which is used in chemical, petrochemical and oil-producing industry. Reduces interfacial tension between crude oil and acid	Liquid. Consumption rate 0.3% of the volume of acid
SOLING grade T	High temperature HCl corrosion inhibitor	Anticorrosive protection in HCl solutions of high concentration (up to 30 % by HCl) or under high formation temperature conditions (up to 90°C / 194°F)	Protection of black steel equipment meant for acid storage in chemical, petrochemical and oil-producing industry, and oilfield equipment used in production wells	Liquid. Consumption rate is 0.2% of the volume of acid



Acid Package for HCl Stimulation Operations

R & D team of Polyex has developed an acid package designed to make a stimulation fluid based on hydrochloric acid, including the one available at the customer's. This stimulation fluid may be tailor-made so that to be the optimal and the most efficient for the treatment of particular production wells, including the ones with complicated geological conditions and the ones producing oils poorly compatible with acids.

Correct selection of the ratio of acid package components allows to optimize the content of surfactants, antisludge additives, HCl corrosion inhibitor, acid retardant, demulsifier, iron control agent, etc. in the finished stimulation fluid.



Chemicals for making acid based stimulation fluids:

1. Acid package **ACIRONIX®** for making the fluid for matrix acidizing jobs based on HCl or HCl/HF mixtures for well stimulation in carbonate and sandstone reservoirs, especially for the wells producing oils apt to precipitation at contact with acids.

Chemical	Description	Purpose of Application	Reservoir type	Properties of The Additive as A Component of Acid Stimulation Fluid	Comments
ACIRONIX® - ASL grade C grade L type 1	Acid additive of complex action	Applied as a component of acid package for making the stimulation fluid for acidizing of production wells	C, T	Preventing of stable high-viscose oil-acid emulsions forming and precipitation of hydrous ferric oxides, asphaltenes and sludge	Dry blend (grade C). Liquid (grade L type 1). Tentative consumption ranges from 2.5% and from 6% of the volume of ready acidizing fluid correspondingly*
ACIRONIX® - IC Type 1 Type 2 Type 3	Acid additive of inhibiting action	Applied as a component of acid package for making the stimulation fluid for acidizing of production wells	C, T	Protection of oilfield equipment and pipe-lines from HCl, HF and acid blend corrosion, reducing of interfacial tension in oil-acid interface area	Liquid. Depending on the type the products vary in the freezing temperature. Tentative consumption ranges from 0.2 – 1.0% of the volume of ready acidizing fluid correspondingly*
ACIRONIX® - IRON	Acid additive – iron control agent	Applied as a component of acid package for making the stimulation fluid for acidizing of production wells	C, T	Prevention of emulsion forming and precipitation in the presence of surplus of ferric Iron	Dry blend. Tentative consumption ranges from 0.5 – 1.5% of the volume of ready acidizing fluid correspondingly*

*The consumption of the component of acid package varies to great extent depending on the properties required from the resulting stimulation fluid.





Enhanced Oil Recovery

The problem of water cut of produced fluids and the growth of costs for the utilization of produced waters become the most acute at the late development of mature fields. The existence of effective solutions for water shut-off, for redirection of filtration flows and for conformance control (i.e. changing the profile of the injectivity of wells) can extend significantly the period of cost-effective operation of oil and gas wells.

However, in conditions of rapid depletion of hydrocarbon reserves, the value of technologies aimed at improving the HC recovery factor. Active implementation of polymer flooding, surfactant-polymer flooding and alkali-surfactant-polymer flooding technologies both at the stage of applying tertiary oil recovery enhancement methods and from the very beginning of field development can improve significantly oil recovery factor.

The use of polymers in flooding technologies allows increasing the sweep efficiency and changing the water/oil mobility ratio.



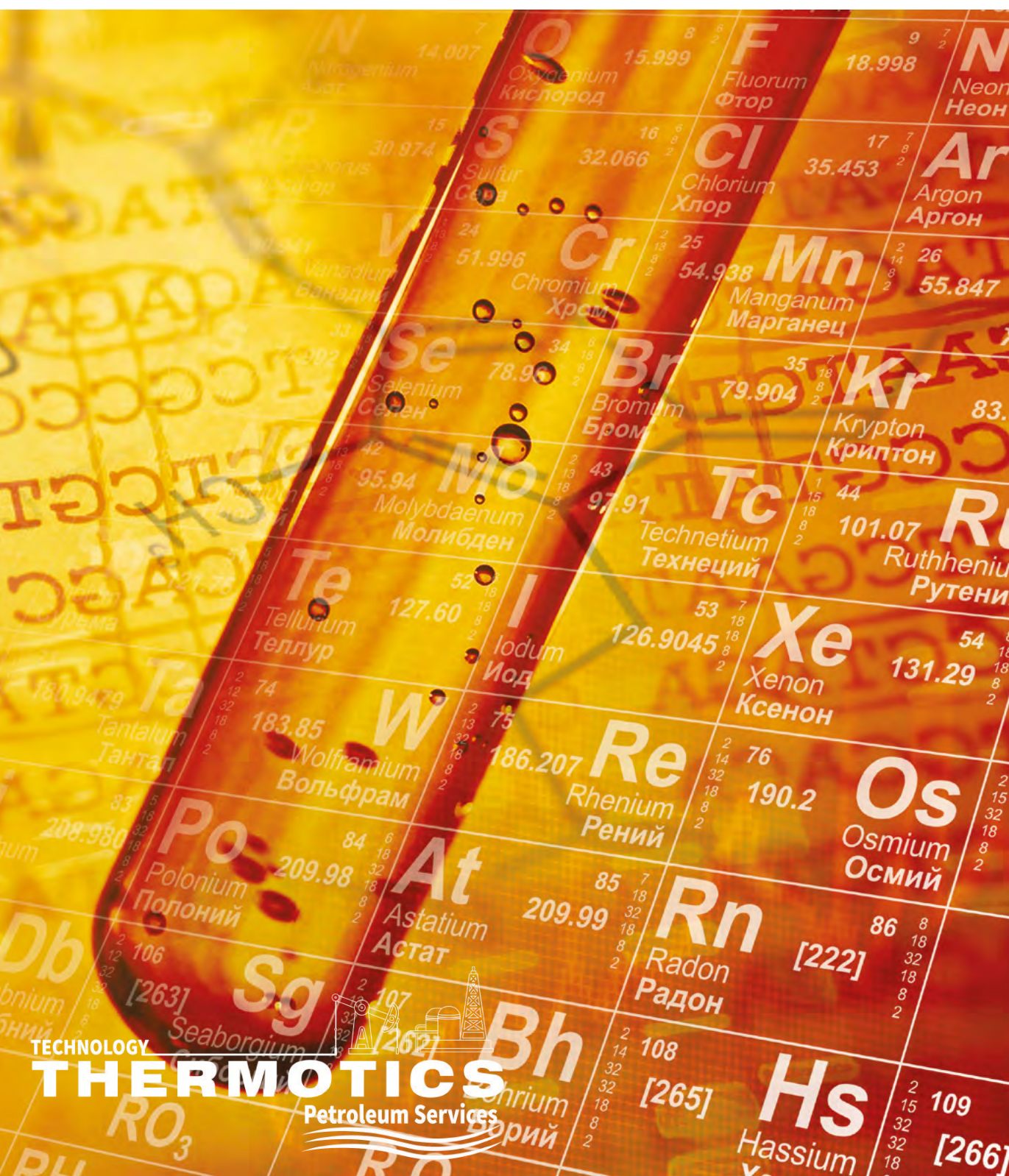
Chemicals and technologies for decreasing the water cut of produced fluids for conformance control in injection wells and for redirecting of filtration flows:

1. Technologies of water shut-off, water cut decrease in production wells and conformance control in injection wells with the help of **TAMOLEX®**.
2. Technologies of conformance control in injection wells with hydrocarbon emulsions based on **EKS-EM** or **EMITRIT®**.
3. Polymers of **EXPOL** brand manufactured by Polyex allow to select solutions both for polymer systems capable of crosslinking and intended for the use in the treatment of bottomhole zone in order to block areas with increased permeability, and for reducing of water /oil mobility ratio which contribute to the increasing of sweep efficiency and displacement efficiency.

Chemical	Description	Purpose of Application	Area of Application		Comments	
			Reservoir Type	Type of wells to be treated		
TAMOLEX®	Sediment forming composition, flow diverting chemical	Conformance control in injection wells	C, T	Injection wells with intake capacity up to 800 m³ per day and with permeability up to 0.5D	Granulated product	
		Water shut-off	C, T	Production wells with water cut up to 98%		
EKS-EM grade A grade B grade V	Emulsifier for hydrocarbon emulsions	Conformance control in injection wells	C, T	Injection wells with intake capacity up to 600 m³ per day and with permeability up to 0.5D	Liquid. Ready hydrocarbon phase (grades A, V)	
		Water shut-off	C, T	Formation temperature up to 70°C	Concentrated product for preparing the emulsion composition (grade B)	
EMITRIT®	High temperature emulsifier for hydrocarbon emulsions	Conformance control in injection wells	C, T	Injection wells with intake capacity up to 600 m³ per day and with permeability up to 0.5D	Liquid. Concentrated composition	
EXPOL	Modified polyacrilamides	Creation of polymeric slugs while implementing polymer flooding, surfactant-polymer flooding and alkali-surfactant-polymer flooding	C, T	Injection wells	Granulated product	
POLIPAV81 grade V	Oil wash-off complex surfactant	Lowering of pumping pressure for viscous polymeric systems injected into injection wells at conformance control operations	C, T	Injection wells	Liquid. Complex chemical, mixture of concentrated surfactants. Winterized product	

To select the optimal consumption of chemicals and application technologies please contact POLYEX specialists.

Chemicals And Technologies for Oil And Gas Production And Transportation





Removing And Preventing of Asphalt, Resin And Paraffin Deposits And Oil Viscosity Reducing

Forming of asphalt, resin and paraffin deposits leads to well production rate decrease, premature failure of expensive equipment and additional well servicing. Polyex company offers the range of chemicals for removing asphalt, resin and paraffin deposits and for preventing of their forming.

During the production of heavy oils the increase in pressure in pipeline equipment may be observed. Strong pressure differences between the tubing base and the wellhead cause deformation of the pumps and constrains oil production. Thus, the production of heavy oils also leads to equipment failure. Periodic cleaning of the equipment is necessary because of the formation of paraffin plugs. To reduce the pour point of oils and improve their rheological properties some viscosity reducers, pour point depressants, are used.



Chemicals and technologies for removing and preventing of asphalt, resin and paraffin deposits, oil viscosity reducing:

1. Technology of treatment with **POLYPAV** chemical for cleaning of the equipment and prevention of asphalt, resin and paraffin deposits.
2. Technology of asphalt, resin and paraffin deposits dissolving with **NEFRAS-M** solvent.
3. Technology of protection of equipment with **POLYDEX 07**, **PROCHINOR® AP 07**, **PROCHINOR® AP 104** inhibitors showing dispersing force for asphalt, resin and paraffin deposits and improving crude oil rheology.
4. Technology of reducing the pour point of oils and reducing their viscosity with the application of **FLOWDIN** pour point depressants.

Chemical	Description	Purpose of Application	Area of Application	Comments	
POLYPAV -81 grade B	Oil washing-off complex surfactant	Washing-off the asphalt, resin and paraffin deposit residuals from the equipment after the treatment with organic solvents	Cleaning of oilwell tubing, field pipelines and main pipes from the residuals left after the treatment of asphalt, resin and paraffin deposits with organic solvents	Liquid. Concentrated composition	
NEFRAS-M	Asphalt, resin and paraffin deposit solvent	Cleaning of equipment from asphalt, resin and paraffin deposits	Cleaning of oilwell tubing, field pipelines and flow lines and oil pipelines	Liquid	
		Cleaning of pay zone from asphalt, resin and paraffin deposits	Removing of asphalt, resin and paraffin deposits from pay zone of oil wells. Removing of heavy oils and hydrocarbon residuals		
PROCHINOR® AP 07	Asphalt, resin and paraffin deposit inhibitor	Prevention of asphalt, resin and paraffin deposits	Crude oil treatment with the purpose of prevention of asphalt, resin and paraffin deposits	Liquid	
			Prevention of asphalt, resin and paraffin deposits in pipelines		
			Protection of equipment, storage reservoirs, etc. from asphalt, resin and paraffin deposits		
PROCHINOR® AP 104	Asphalt, resin and paraffin deposit inhibitor/dispersant	Prevention of asphalt, resin and paraffin deposits	Crude oil and gas condensate treatment with the purpose of prevention of asphalt, resin and paraffin deposits	Liquid	
			Prevention of asphalt, resin and paraffin deposits in oil wells, oil and gas condensate production lines		
			Protection of equipment, storage reservoirs, etc. from asphalt, resin and paraffin deposits		
POLYDEX 07	Asphalt, resin and paraffin deposit inhibitor	Prevention of asphalt, resin and paraffin deposits	Crude oil treatment with the purpose of prevention of asphalt, resin and paraffin deposits		
PROCHINOR® 07A	Asphalt, resin and paraffin deposit inhibitor / dispersant	Prevention of asphalt, resin and paraffin deposits	Crude oil and gas condensate treatment with the purpose of prevention of asphalt, resin and paraffin deposits	Liquid	
			Prevention of asphalt, resin and paraffin deposits in oil wells, oil and gas condensate production lines		
			Protection of equipment, storage reservoirs, etc. from asphalt, resin and paraffin deposits		
FLOWDIN-SN	Pour point depressant - oil viscosity reducer	Reducing the viscosity of intermediate oils	Crude oil treatment during the process of production and transportation	Liquid	
FLOWDIN-TN	Pour point depressant - oil viscosity reducer	Reducing the viscosity of heavy oils	Crude oil treatment during the production process	Liquid	

Asphalt, resin and paraffin deposit inhibitors PROCHINOR® AP 104, PROCHINOR® AP 07 are manufactured in accordance with the technologies and from the components of ARKEMA FRANCE, France.



Chemicals for Oil Treatment

Oil treatment in the oilfields is an integral part of the main processes associated with the extraction, gathering and transportation of commercial oil. The quality of the produced crude oil affects both the efficiency and the reliability of the operation of the main pipeline transport, and the quality of the products obtained from this oil in oil refineries. At the later stages of oil field development, the water cut of produced oil increases substantially and may reach 90% or even more. The presence of a great number of mineral salts, resins, paraffin, and mechanical impurities in the produced fluids, which may act as emulsifiers, also contributes to the forming of stable water-oil emulsions. As a result, produced oil does not meet the industry quality standard for the product (for water content, chloride salts content, etc.). Repeated cycles of oil treatment lead to the additional costs. The solution of this problem is the use of highly effective demulsifiers.



Chemicals and technologies for the breaking of water-oil emulsions:

1. Demulsifiers for light oils of **DEMULTRIM-LN** brand.
2. Demulsifiers for intermediate oils of **DEMULTRIM-SN** brand. .
3. Demulsifiers for heavy oils of **DEMULTRIM-TN** brand.

Chemical	Description	Purpose of Application	Area of Application	Comments	
DEMULTRIM-LN	Demulsifier	Breaking of trice water-oil emulsions in light oils	Pipeline deemulsification	Liquid.	
			Deemulsification at oil treatment	Consumption rate from 10 gr/ton to 50 gr/ton	
DEMULTRIM-SN	Demulsifier	Breaking of trice water-oil emulsions in intermediate oils	Pipeline deemulsification	Liquid.	
			Deemulsification at oil treatment	Consumption rate from 20 gr/ton to 70 gr/ton	
DEMULTRIM-TN	Demulsifier	Breaking of trice water-oil emulsions in heavy oils	Pipeline deemulsification	Liquid.	
			Deemulsification at oil treatment	Consumption rate from 50 gr/ton to 150 gr/ton	



Removing And Preventing of Scale Deposits

Forming of mineral sediment deposits or so called scale deposits is a serious problem in oil and gas industry. Even within one day of exploitation the water, which passes through the pay zone of the well, the production string and the oilfield equipment may contain hundreds of kilograms of dissolved salt ions. Pressure fluctuation and temperature variation during the production process promotes solid scale forming.

Formed in this way solids, calcium sulfates and carbonates, strontium sulfates and barium sulfates in particular, are characterized with the property of surface bond especially with metals. Solid mineral scale deposits inside the pump and compressor equipment lower the fluid flow and thus lead to the decrease in oil production. Scale removing may be a very complicated and expensive operation. Polyex offers chemical solutions for removing and preventing scale deposits.



Chemicals and technologies for removing and preventing of scale deposits:

1. Technology of cleaning the equipment from scale deposits with the solutions of specialized hydrochloric acid for oil and gas industry.
2. Technology of cleaning the equipment from sulphate scale deposits with the help of alkali-based scale dissolvent **DESCAVENT**.
3. Technology of protecting the equipment from scale deposits with the help of **INIPOL® AD 32 K**, **SALTONIX** scale inhibitors containing surfactants, which suppress the process of scale depositing at the stage of crystal forming.

Chemical	Description	Purpose of Application	Area of Application	Comments	
Inhibited Hydrochloric Acid for oil & gas industry	High quality acid containing HCl-corrosion inhibitor SOLING	Carbonate scale removing	Cleaning of oilwell tubing, field pipelines and flow lines and oil pipelines from mineral scale deposits	Hydrogen chloride content is 20-32 %	
DESCAVENT	Alkali-based scale dissolvent	Sulphate scale removing	Cleaning of oilwell tubing, field pipelines, flow lines and oil pipelines from mineral scale deposits	Liquid. Treatment is per-formed with dynamic bath technique	
INIPOL® AD 32 K	Scale inhibitor	Prevention of scale deposits: calcium carbonate, calcium sulfate, barium sulfate and strontium sulfate	Protection of oilfield equipment from scale deposits	Liquid. Inhibitor for continu-ous injection	
			Protection of pipelines and water lines from scale deposits		
SALTONIX	Scale inhibitor	Prevention of scale deposits: calcium carbonate, iron carbonate, calcium sulphate	Protection of oilfield equipment from scale deposits	Liquid inhibitor for continuous dossing	
			Protection of pipelines and water lines from scale deposits		

Scale inhibitor INIPOL® AD 32 K is manufactured in accordance with the technologies and from the components of ARKEMA FRANCE, France.



Removing and Preventing of Hydrate Formation

The main causes of hydrate growth during the production and transport of hydrocarbon fluid are high gas factor, low flow rates in the pipeline and low temperature of the transported fluids. Such deposits lead to the forming of ice plugs in the pipes or in the wells. POLYEX offers chemical solutions for preventing this problem - hydrate inhibitors.



Chemicals and technologies for removing and preventing of hydrate growth:

1. Technology of protecting the equipment from hydrate deposits with the help of **INIPOL® AH 23 K** and **POLY-INGYD** kinetic hydrate inhibitor.
2. Cleaning of oilfield equipment and oil and gas wells from the deposits of hydrates with the help of hydrate dissolver with inhibiting properties **POLY-INGYD** grade A.



Anticorrosive Protection

Corrosion is a very severe problem in oil and gas fields, as many stages of technological processes imply the use of water either invading from geological formation or injected through the reservoir pressure maintenance system (RPMS). Casing pipes, ground pipelines, pressure tanks and storage tanks suffer from internal corrosion increased by the presence of carbon dioxide and hydrogen sulfide, and sometimes the presence of oxygen in the injected water.

Losses connected with corrosion damages in oil-&-gas industry including the costs connected with premature failure of the equipment, its replacement, operating losses and environment protection costs are estimated as billions of dollars. This has prompted the experts to research the options of extending the service life and reliable operation of equipment while ensuring the continuity of the production cycle and controlling the corrosion risks. This problem to a great extent can be solved with the application of corrosion inhibitors.

To control corrosion rate the company of Polyex offers both its own chemicals and the chemicals worked out by the company of ARKEMA FRANCE, France.



Chemicals and technologies for anticorrosive protection:

1. Wide range of film forming CO_2 and H_2S corrosion inhibitors of **POLY-INCORE 365** and **NORUST** brands allows selecting the chemicals both for continuous injection and for batch treatment. Inhibitor injection in oil pipeline systems is usually performed continuously with the help of controlled-volume pump. For the treatment of annular space of wells equipped with electric centrifugal pumps and for the underground equipment protection the treatment is normally performed periodically, one time every one or two weeks. Polyex also offer the chemicals applicable by the technique of inhibitor squeezing into formation and the technique of placing specialized downhole containers with the inhibitor under electric centrifugal pump.

Choosing of an inhibitor and a technique of its application depends on the requirements to protective film stability over time, on the operation mode and on the factors affecting oil field equipment exploitation. Inhibitor consumption rate depends on H_2S content in the medium and its corrosiveness and is defined with laboratory tests.

Chemical	Description	Purpose of Application	Application Technique	Comments	
POLY-INCOR® 365 Grade 011	CO ₂ and H ₂ S corrosion inhibitor	Protection of infield flow lines, oil gathering system, RPMS and oil processing system from CO ₂ and/or H ₂ S corrosion	Continuous injection, Batch treatment	Liquid. Consumption rate varies from 15 to 30 g/m ³	
		Protection of casing pipes and production tubing from CO ₂ and/or H ₂ S corrosion			
		Protection of pipeline transportation systems from CO ₂ and/or H ₂ S corrosion			
		Protection of oil field equipment from CO ₂ and/or H ₂ S corrosion			
		Protection of recovered water systems from CO ₂ and/or H ₂ S corrosion			
POLY-INCOR® 365 Grade 021	CO ₂ and H ₂ S corrosion inhibitor	Protection of watered out oil gathering systems from CO ₂ and/or H ₂ S corrosion	Continuous injection	Liquid. Consumption rate varies from 15 to 30 g/m ³	
		Protection of RPMS from CO ₂ and/or H ₂ S corrosion			
		Protection of pipeline transportation systems from CO ₂ and/or H ₂ S corrosion under conditions of low watercut but stratified horizontal flow			
		Protection of casing pipes and tubing from CO ₂ and/or H ₂ S corrosion			
		Protection of oil field equipment from CO ₂ and/or H ₂ S corrosion			
POLY-INCOR® 365 Grade 920 B	CO ₂ and H ₂ S corrosion inhibitor - bactericide	Protection of flow lines, oil gathering systems, RPMS and oil treatment systems from CO ₂ and/or H ₂ S corrosion	Continuous injection, Batch treatment	Liquid. Consumption rate varies from 20 to 50 g/m ³	
		Protection of casing pipes and tubing from CO ₂ and/or H ₂ S corrosion and suppressing of the growth of sulphate-reducing bacteria (SRB) during the oil and gas production			
		Protection of pipeline transportation systems from CO ₂ and/or H ₂ S corrosion and suppressing of the growth of SRB during oil transportation.			
		Protection of oilfield equipment from CO ₂ and/or H ₂ S corrosion and suppressing of the growth of SRB			
		Equipment protection from CO ₂ and/or H ₂ S corrosion and suppressing of the growth of SRB while sour waste water disposal			
POLY-INCOR® 365 Grade C	CO ₂ and H ₂ S corrosion inhibitor	Protection of casing pipes and tubing from CO ₂ and/or H ₂ S corrosion	Continuous dosing of inhibitor with downhole dosing containers	High concentration liquid	
NORUST®760	CO ₂ and H ₂ S corrosion inhibitor	Protection of casing pipes from CO ₂ and/or H ₂ S corrosion	Continuous injection	Liquid. Consumption rate varies from 15 to 50 g/m ³	
		Protection of RPMS from CO ₂ and/or H ₂ S corrosion			
		Protection of pipeline transportation system from CO ₂ and/or H ₂ S corrosion			
		Protection of oilfield equipment from CO ₂ and H ₂ S corrosion			
NORUST®9805	CO ₂ and H ₂ S corrosion inhibitor	Protection of oil and gas-condensate wells from CO ₂ and/or H ₂ S corrosion	Continuous injection	Liquid. Consumption rate varies from 20 to 50 g/m ³	
		Protection of oil gathering system from CO ₂ and/or H ₂ S corrosion			
		Protection of RPMS from CO ₂ and/or H ₂ S corrosion			

To select the optimal consumption of chemicals and application technologies please contact POLYEX specialists. H₂S and CO₂ corrosion inhibitors of NORUST® brand are manufactured in accordance with the technologies and from the components of ARKEMA FRANCE, France.



H₂S Scavengers

One of the most serious problems of oil and gas producing and refining companies is the contamination of products with hydrogen sulfide and light mercaptans. Hydrogen sulfide is an explosive and toxic substance, poisoning with which can cause serious damages to respiratory system and nervous system, and in increased in concentration it may even cause death. High corrosiveness of hydrogen causes the failure of equipment and pipelines.

Therefore, hydrogen sulfide control is one of the key safety issues for the operation of oil and gas production and processing facilities. Such solutions for this issue as alkaline washing, oxidation, hydrotreating, and blowing off followed by absorption cleaning are economically viable only at high concentrations of hydrogen sulfide and require large capital expenditures. When the concentrations of hydrogen sulfide are of moderate level or the object of purification is a complicated one, for example, heavy fuel oil, the most effective solution is to use chemical cleaning methods, that is the use of hydrogen sulfide scavengers (neutralizers). This type of chemicals, when reacting with hydrogen sulfide, binds it irreversibly to form some inert and non-volatile compounds, minimizing its negative impact.



Chemicals and technologies for H₂S mitigation in oil and gas production, transportation and refinery:

1. H₂S scavengers of PS and THIOBLOCK brands.

The choice of H₂S scavenger and the technique of its application depends on the medium to be treated, on the initial level of H₂S content and the desired level of H₂S content in the medium, on the temperature of treatment, and on some other factors.

Chemical	Description	Purpose of Application	Area of Application	Comments	
PS-1 Type 1 Type 2	H ₂ S scavenger	Free formaldehyde free H ₂ S and mercaptans scavengers	Commercial oils purification	Liquid. Soluble in crudes, crude products, refinery products as well as in water-based media. High boiling temperature (up to 115°C)	
			Killing of oil and gas wells for maintenance and repair works in cases where wells are complicated with H ₂ S showing		
			Purification of formation waters containing H ₂ S and mercaptans		
			Treatment of bottom waters to be injected into formation		
PS-2	H ₂ S scavenger	Formaldehyde free H ₂ S and mercaptans scavenger	Purification of oil-water emulsion (fluids showing oil-gas and water)	Liquid. Water-alcohol solution. High H ₂ S absorption rate in water-based media	
			Killing of oil and gas wells for maintenance and repair works in cases where wells are complicated with H ₂ S showing		
			Purification of formation waters containing H ₂ S and mercaptans		
			Treatment of bottom waters to be injected into formation		
PS-3	H ₂ S scavenger	Formaldehyde free H ₂ S and mercaptans scavenger	Killing of oil and gas wells for maintenance and repair works in cases where wells are complicated with H ₂ S showing	Liquid. The product is ecologically friendly, almost odorless. Wide range of operating pH is achievable	
			Purification of formation waters containing H ₂ S and mercaptans		
			Treatment of bottom waters to be injected into formation		
PS-4 Type 1 Type 2	H ₂ S scavenger	Formaldehyde-based H ₂ S and mercaptans scavenger	Killing of oil and gas wells for maintenance and repair works in cases where wells are complicated with H ₂ S showing	Liquid. Conventional solution based on nitrogen and oxygen containing aldehyde reaction products	
			Purification of formation waters containing H ₂ S and mercaptans		
			Treatment of bottom waters to be injected into formation		
PS-4 Type 3	H ₂ S scavenger	Free formaldehyde free H ₂ S and mercaptans scavenger	Commercial oils purification	Liquid. Product has high scavenging properties	
			Killing of oil and gas wells for maintenance and repair works in cases where wells are complicated with H ₂ S showing		
			Purification of formation waters containing H ₂ S and mercaptans		
			Treatment of bottom waters to be injected into formation		
THIOBLOCK grade P	H ₂ S scavenger	H ₂ S scavenger	Killing of oil and gas wells for maintenance and repair works in cases where wells are complicated with H ₂ S showing	Solid non-organic product	
			Purification of formation waters containing H ₂ S and mercaptans		
THIOBLOCK grade K	Complex chemical – H ₂ S scavenger	Complex chemical based on nonorganic matters	Treatment of bottom waters to be injected into formation	Solid non-organic product	
			Landfill filtrate purification from heavy metals and other foreign matters		
			Solid municipal waste flammability reduction		

» Business Partners / Clients

We prioritise client partnerships by collaborating with global oil companies and contractors. Our skilled staff, including Welding Engineers, QA/QC Engineers, and more, deliver efficient solutions. From innovative problem-solving to project management, we add value across the Upstream to Downstream spectrum.





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