ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

EVAPORATION UNITS



RECTIFICATION UNIT AND VACUUM EVAPORATION UNIT

Geropharm LLC

implemented in 2016

- Development of design and operating documentation



RECTIFICATION UNIT AND VACUUM EVAPORATION UNIT

Geropharm LLC

implemented in 2017

- General design of the pharmaceutical substance production plant
- Development of design and operating documentation
- Equipment supply
- Development of APCS
- Installation works, Commissioning
- Personnel training

As part of the project, the following were delivered: :

— vacuum evaporation unit;
— lithium salt drying unit;
— lithium salt bagging unit.



CRYSTALLIZATION UNIT X-102

Gazpromneft Omsk Refinery JSC

implemented in 2019

- Equipment supply

The unit is designed to convert the majority of sodium sulfate salts into solid form using vacuum evaporation crystallization. .



CRYSTALLIZATION UNIT X-102

Gazpromneft Omsk Refinery JSC

implemented in 2019

- Technology development
- Development of design documentation
- Procurement and equipment bundling
- Manufacturing and supply of equipment
- Construction and Installation Works, Commissioning

The unit is designed to convert the majority of sodium sulfate salts into solid form using vacuum evaporation crystallization. .

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

EVAPORATION UNITS



VACUUM EVAPORATION UNIT FOR VOCS

Voronezhsintezkauchuk JSC

implemented in 2019

● Development of design and operating documentation ● Complete supply of process equipment ● Development of APCS ● Construction and Installation Works, Commissioning ● Personnel training

As part of the project, the following were delivered: :

— vacuum evaporation unit;
— lithium salt drying unit;
— lithium salt bagging unit .



ACETONE REGENERATION UNITS BY RECTIFICATION

Samson-Med LLC

implemented in 2019

● Development of design documentation
● Equipment supply



ACETONE REGENERATION UNITS BY RECTIFICATION

Samson-Med LLC

implemented in 2020

● Equipment supply



ACETONE REGENERATION UNITS BY RECTIFICATION

Samson-Med LLC

implemented in 2021

● Process development ● Development of design documentation
● Procurement and equipment bundling
● Manufacturing and supply of equipment
● Construction and Installation Works, Commissioning

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

EVAPORATION UNITS



SALT CONCENTRATE EVAPORATION UNITS

NPF EITEK LLC
for FSUE "Federal Environmental Operator"

implemented in 2023

● Development of Operating Documentation ● Complete supply of process equipment ● Development of APCS ● Construction and Installation Works, Commissioning

The units are equipped with Mechanical Vapor Recompression (MVR) and forced circulation technologies, which promote resource savings, increase energy efficiency and profitability, and ensure environmental safety.



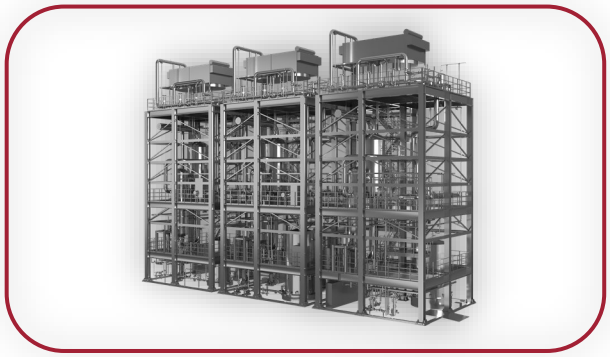
SALT CONCENTRATE EVAPORATION UNITS

ASP-AQUA LLC
for FSUE "Federal Environmental Operator"

implemented in 2023

● Development of Operating Documentation ● Complete supply of process equipment ● Development of Automated Process Control System (APCS) ● Construction and Installation Works, Commissioning

The units are equipped with Mechanical Vapor Recompression (MVR) and forced circulation technologies, which promote resource savings, increase energy efficiency and profitability, and ensure environmental safety.



UNIT FOR TECHNICAL WATER PRODUCTION FROM MIXED WASTEWATER

Gazprom VNIIGAZ LLC

implemented in 2023

● Development of Operating Documentation

During the design phase, ZAVKOM-ENGINEERING specialists considered the natural features of the KTOZhS site, namely: seismic activity and proximity to the marine coastal zone. The customer's elevated requirements for reliability and corrosion resistance of equipment were taken into account, which was reflected in the use of corrosion-resistant steels and special protective coatings. .



UNIT FOR TECHNICAL WATER PRODUCTION FROM MIXED WASTEWATER

Gazprom VNIIGAZ LLC

implementation

● Complete supply of process equipment ● Development of Automated Process Control System (APCS)

High-tech heat exchange and separation equipment was manufactured, with a total weight exceeding 600 tons. Over 100,000 units of equipment were shipped. .

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

EVAPORATION UNITS



EVAPORATION UNIT

NPO Ecosystema LLC

implemented in 2021

- Equipment supply



RECTIFICATION COLUMN WITH SCRUBBER

Ion Exchange Technologies JSC

implemented in 2024

- Development of Operating Documentation
- Equipment supply
- Construction and Installation Works, Commissioning



EVAPORATION UNITS FOR ELUATES AFTER ION EXCHANGE AND REVERSE OSMOSIS CONCENTRATE

FSUE "Federal Environmental Operator"

implementation

- Process design
- Development of Operating Documentation
- Manufacturing and supply of main process equipment
- Development of APCS
- Construction and Installation Works, Commissioning
- Personnel training

The supplied units are part of a treatment plant for alkali-containing effluents with a capacity of 2,000 m³ per day. .



POST-TREATMENT BLOCK FOR REVERSE OSMOSIS CONCENTRATE

FSUE "Federal Environmental Operator"

implementation

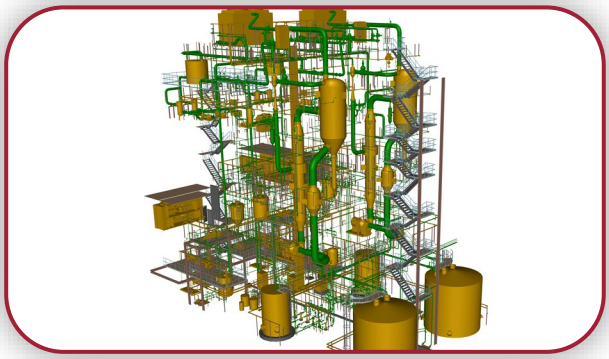
- Pre-design surveys
- Basic and detailed engineering
- Process and general design
- Development of Automated Process Control System (APCS)
- Equipment procurement and bundling
- Construction and Installation Works, Commissioning

The post-treatment block for reverse osmosis concentrate is housed in a prefabricated building shared by three lines.

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

EVAPORATION UNITS



EVAPORATION AND CRYSTALLIZATION UNIT FOR SALT CONCENTRATE

Tekhnotex LLC

implementation

• Process design ● Development of Operating Documentation ● Manufacturing and supply of main process equipment ● Development of APCS ● Manufacture and supply of control panels, power cabinets, and software

● Construction and Installation Works, Commissioning ● Personnel training



COMPLETE FILTRATION UNIT

Treatment Facilities of Gazpromneft Omsk Refinery JSC

implementation

● Complete equipment supply
● Commissioning



RECTIFICATION UNIT AND VACUUM EVAPORATION UNIT (VVU) FOR VOCS

Gazpromneft Omsk Refinery JSC

implementation

● Process development
● Development of design documentation
● Equipment bundling and procurement
● Manufacturing and supply of equipment
● Construction and Installation Works, Commissioning



UNIT FOR OBTAINING STRIPPED WATER FOR TECHNOLOGICAL USE

M Synthesis LLC

implementation

● Process development ● Development of Operating Documentation
● Manufacturing and complete supply of equipment
● Construction and Installation Works, Commissioning

The unit is implemented as part of a new plant construction project in Bashkortostan for producing a cetane-enhancing additive for diesel fuels. The plant's design capacity is 30,000 tons per year.

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS



STORAGE FACILITY FOR KFK-85 AND 37% FORMALIN

Murom CJSC

implemented in 2015

● Development of design and operating documentation ● Manufacturing and complete supply ● Construction and Installation Works, Commissioning

The storage facility is used for receiving, storing, and feeding KFK-85 and 37% formalin into production and includes 6 tanks. .



TECHNICAL RETROFITTING OF RAW MATERIAL STORAGE FOR KFK-85 AND 37% FORMALIN PRODUCTION

Murom CJSC

implemented in 2018

● Development of design and operating documentation ● Complete supply of equipment ● Designer supervision ● Construction and Installation Works, Commissioning ● Personnel training

The storage facility is used for receiving, storing, and feeding KFK-85 and 37% formalin into production and includes 6 tanks.



SUPPLY OF TANKS

Sibmetakhim LLC

implemented in 2015

● Equipment supply



SUPPLY OF TANKS

Allnex Belgorod LLC

implemented in 2015

● Equipment supply

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS



RESIN PRODUCTION UNIT

Shattdecor LLC

implemented in 2015

● Development of design and operating documentation ● Complete supply of process equipment ● Development of APCS ● Construction and Installation Works, Commissioning ● Personnel training

As part of the project, the following were delivered:
— resin production unit
— raw material and reagent storage warehouse
— finished product storage warehouse

Unit capacity — 60,000 tons/year



RESIN PRODUCTION UNIT

Shattdecor LLC

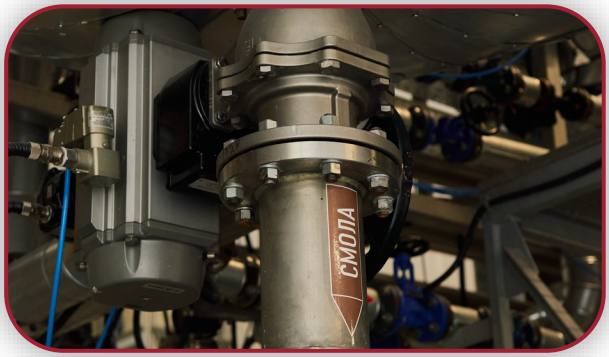
implemented in 2017

● Equipment supply

As part of the project, the following were delivered:

— resin production unit
— raw material and reagent storage warehouse
— finished product storage warehouse

Unit capacity — 60,000 tons/year .



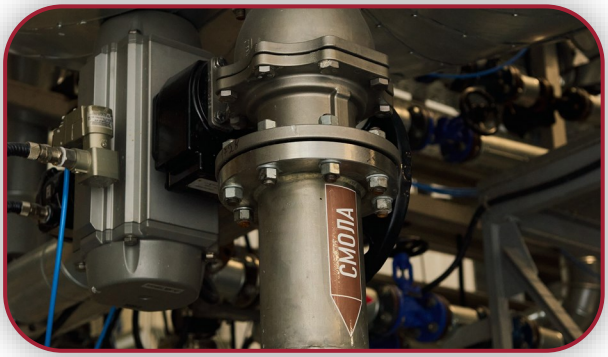
RESIN RECEPTION VESSEL

Arkhangelsk Plywood Plant JSC

implemented in 2016

● Equipment supply

● Installation and supervision services



RESIN RECEPTION VESSEL

Arkhangelsk Plywood Plant JSC

implemented in 2018

● Equipment supply

● Installation and supervision services

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS

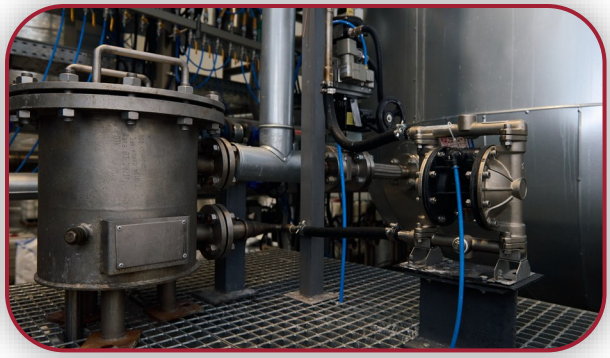


GLUE COMPOUND PREPARATION UNIT

Murom CJSC

Implemented in 2016

● Equipment supply



PRODUCTION CAPACITY EXPANSION UNIT FOR COOLING

Pigment PJSC

Implemented in 2017

● Development of design and operating documentation ● Equipment bundling and procurement ● Manufacturing and supply of equipment ● Construction and Installation Works Commissioning ● Personnel training



NAPHTHALENE PRODUCTION UNIT

MMK JSC

Implemented in 2018

● Development of a process for naphthalene production from naphthalene-containing fraction

● Development of design and operating documentation ● Development of APCS

● Construction and Installation Works, Commissioning ● Personnel training

The unit enables the production of commercial-grade naphthalene in both liquid and solid forms with a concentration of at least 97.5%, while fully eliminating atmospheric emissions.



UREA-FORMALDEHYDE RESIN PRODUCTION

Pavlovsky DOK LLC

Implemented in 2018

● Process development ● Development of design and operating documentation ● Equipment bundling and procurement ● Manufacturing and supply of equipment ● Construction and Installation Works, Commissioning

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS



RESIN PRODUCTION EQUIPMENT

Metadinea LLC

implemented in 2018

● Equipment supply

The phenol-formaldehyde resin production equipment doubled plywood manufacturing capacity. To increase raw material throughput, the plant area was expanded with the installation of a third discharge point in the phenol unloading section.



RESIN PRODUCTION EQUIPMENT

Metadinea LLC

implemented in 2020

● General design
● Complete equipment supply
● Installation works ● Commissioning

The phenol-formaldehyde resin production equipment doubled plywood manufacturing capacity. To increase raw material throughput, the plant area was expanded with the installation of a third discharge point in the phenol unloading section.



UREA-FORMALDEHYDE RESIN PRODUCTION

Pavlovsky DOK LLC

implemented in 2018

● Process development ● Development of design and operating documentation ● Equipment bundling and procurement ● Manufacturing and supply of equipment ● Construction and Installation Works, Commissioning



POLYMERIZATION REACTORS FOR TURBULENCE INHIBITOR PRODUCTION

NIKA-PETROTECH LLC

implemented in 2018

● Development of Operating Documentation

● Manufacturing and supply of equipment

The 0.63 m³ polymerization reactors are made of stainless steel with polished internal surfaces (minimum surface finish Ra 0.8, grade 7). They are equipped with upgraded PUALM-4 (350) ribbon agitators, coaxial magnetic couplings (based on Sm-Co permanent magnets), explosion-proof drives, and bottom valves. All components were produced at NIKA-PETROTECH LLC, Special Economic Zone "Alabuga".

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS



REACTOR SUPPLY

Syntanol Plant LLC

implemented in 2019

- Equipment supply



CAPROLACTAM CRYSTALLIZATION UNIT

Shchekinoazot JSC

implemented in 2020

- Development of Operating Documentation Manufacturing and complete supply of equipment
- Development of Automated Process Control System (APCS)
- Construction and Installation Works, Commissioning

Unit capacity is 60,000 tons per year.



RESIN PRODUCTION UNIT

Shattdecor LLC

implemented in 2020

- Equipment supply



RESIN PRODUCTION UNIT

Shattdecor LLC

implemented in 2021

- Development of design and operating documentation
- Complete supply of process equipment
- Development of Automated Process Control System (APCS)
- Construction and Installation Works, Commissioning
- Personnel training

Unit capacity — 60,000 tons/year .

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS



FORMALDEHYDE, RESIN, AND POLYNAPHTHALENESULFONATE PRODUCTION PLANT

Suez Methanol Derivatives

Implemented in 2020

- Basic engineering



FORMALDEHYDE, RESIN, AND POLYNAPHTHALENESULFONATE PRODUCTION PLANT

Egyptian Maintenance Company

Implementation

- Detailed engineering
- Construction and Installation Works
- Commissioning



BIG-BAG DISCHARGE SYSTEM FOR GLUE PREPARATION UNIT

Murom CJSC

Implemented in 2023

- Equipment supply



BIG-BAG DISCHARGE SYSTEM FOR GLUE PREPARATION UNIT

Murom CJSC

implemented in 2024

- Equipment supply

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

PRODUCTION OF RESINS, RUBBER AND WOOD PRODUCTS



GLUE COMPOUND PREPARATION UNIT

Synergia LLC

implemented in 2023

- Equipment supply for the glue preparation section
- Technical support of glue kitchen operation

The unit was implemented as part of the project "Construction of a plywood production facility and a biomass-fueled CHP plant".



GLUE COMPOUND PREPARATION UNIT

Synergia LLC

implemented in 2024

- Process design
- Complete supply of process equipment
- Development of Automated Process Control System (APCS)
- Construction and Installation Works, Commissioning

The unit was implemented as part of the project "Construction of a plywood production facility and a biomass-fueled CHP plant".



FORMALIN AND KFK PRODUCTION UNITS

Confidential

implemented in 2024

- Development of design documentation
- Development of Operating Documentation Manufacturing and supply of main process equipment • Development of (APCS)
- Construction and Installation Works, Commissioning

The production is organized as a continuous technological process. A single process line allows for the production of both formalin and various grades of KFK-85, with minimal transition time between aqueous solutions.

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST
GAS PURIFICATION



CO_2 PURIFICATION BLOCK FOR INDUSTRIAL ALCOHOLS PRODUCTION COMPLEX

Confidential

implementation

- Development of design documentation
- Development of Operating Documentation
- Manufacturing and supply of main process equipment
- Development of Automated Process Control System (APCS)
- Manufacturing and supply of control cabinets, power cabinets, and software
- Construction and Installation Works, Commissioning

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST

OIL AND GAS PREPARATION, PROCESSING AND TRANSPORTATION



LOADING AND FEED BLOCK FOR NONAHYDRATED SODIUM SULFIDE FOR NGL DEEP PURIFICATION UNIT

SIBUR Holding PJSC

implemented in 2018

● Development of Operating and Design Documentation ● Complete equipment supply ● Construction and Installation Works, Commissioning



MEG REGENERATION BLOCKS, REFLUX TANKS, AND LIQUID MIX DEGASSER-SEPARATOR

RGSH LLC for Gazprom PJSC

implementation

● Development of Operating Documentation ● Manufacturing and complete supply of process equipment



RIMARY AND LOW-TEMPERATURE SEPARATOR BLOCKS

RGSH LLC for Gazprom PJSC

implemented in 2025

● Development of Operating Documentation ● Manufacturing and complete supply of process equipment



BUFFER AND EMERGENCY TANK BLOCKS

RGSH LLC for Gazprom PJSC

implementation

● Development of Operating Documentation ● Manufacturing and complete supply of process equipment

:

ZAVKOM ENGINEERING
OIL AND GAS CHEMISTRY

REFERENCE LIST
PILOT PLANTS



PILOT VAPOR-PHASE CATALYTIC UNIT

IFOTOP LLC

implemented in 2017

● Development of the conceptual process diagram ● Development of Operating and Design Documentation ● Fabrication of tank and reactor equipment
● Procurement of auxiliary equipment
● Construction and Installation Works, Commissioning



PILOT UNIT

OSMOTICS LLC

implemented in 2024

● Execution of pilot trials



PILOT UNIT FOR PROCESSING OF GROUND NATURAL RAW MATERIALS

Dichte-Rus LLC

implemented in 2019

● Equipment supply

Equipment for a continuous laboratory-scale unit