

Who we are

Water is an essential element for human, animal and plant life, as well as an indispensable resource for the economy. Water also plays a fundamental role in the climate regulation cycle.

ANR Engineering GmbH is a company with years of experience in design, manufacture and installation of wastewater and water treatment plants for several industries with own production facility located in Germany.

Our aim is to conserve this important resource and to significantly reduce the costs associated with industrial wastewater treatment. In this regard, we have been a reliable partner for more than 15 years. ANR Engineering GmbH offers reliable solutions for the sustainable and sustainable use of water, energy and resource recovery.

Your project is our focus!

Dr. Rustam Kialbekov
Founder



MADE IN GERMANY

www.anr-engineering.de



Mechanical treatment

Mechanical wastewater treatment involves the separation of solid and suspended particles in the treated wastewater. Most often, the principle of mechanical treatment is used in the preparation of wastewater for their subsequent finer physical-chemical or biological treatment.

Mechanical treatment devices are used for mechanical treatment of municipal and industrial wastewater . In the purification process of municipal wastewater, they are used in the fase of removing solid matter from wastewater that may be floating or dispersed (plastic bags, rags, leaves, pieces of wood or other substances). In the case of industrial wastewater, they are used to remove parts of raw materials that may interfere with the proper operation of treatment plants (clogging of pipelines, pumps, etc.). Devices for mechanical wastewater treatment are used also for reduction of organic load from wastewater(BOD₅ and COD).





We offer the following equipment:

- **Screens any type**
According to your demands we choose between drum, step or static wedge wire screens
- **Sand removers**
We have several versions of classification, separation or sand washing equipment
- **Oil/fat remover**
This equipment helps to remove petroleum byproducts, vegetable and animal oils and industrial lubricants
- **Filters any type**
We offer three types of filters: cartridge sediment filters, single media and multimedia filters





Physico-chemical treatment

Physico-chemical treatment of wastewater focuses primarily on the separation of colloidal particles. This is achieved through the addition of chemicals (called coagulants and flocculants).

Physical and chemical treatment is considered the most effective for use for effluents contain a high proportion of impurities in dissolved or colloidal form. The task of the physico-chemical method is to eliminate completely these contaminants.

The process is based on the interaction of chemical reagents with each other and with impurities contained in water: hydrophobic substances are separated from hydrophilic ones, they are concentrated, and physical parameters change. Hydrophobes precipitate or are converted to foam. This method is used for deep cleaning, removal of toxic insoluble elements.

Based on many years of experience, our specialists will select for you the optimal line of equipment of our own production.



We offer the following equipment:

- **DAF (dissolved air floatation) units**
A water treatment process that clarifies wastewaters by the removal of suspended matter
- **Settlers**
A primary treatment technology for wastewater; designed to remove suspended solids by sedimentation
- **Polymer preparation stations**
Automated system for the liquid or powder polymer preparation, designed for homogeneity in flocculant concentration
- **Floculators**
A type of plug-flow reactor coagulation / flocculation system consisting of a long serpentine pipe with a specific length and diameter
- **Chemical dosing stations**
Chemical dosing is the adding of chemicals into wastewater or sludge to achieve required conditioning
- **Electrocoagulators**
Electrocoagulation as an alternative method to classical coagulation reduce the need for chemicals due to the fact that the electrodes provide the coagulant





Biological treatment

Biological wastewater treatment harnesses the action of bacteria and other microorganisms to clean water.

Biological wastewater treatment is a process that seems simple on the surface since it uses natural processes to help with the decomposition of organic substances, but in fact, it's a complex process at the intersection of biology and biochemistry.

Biological wastewater treatment method, also known as the conventional method, is a common and widely used method of treatment. It takes into account biodegradation bleaching by taking aid of several micro-organisms, fungi, bacteria, yeasts, and algae. This is a cheap and easy process that goes through a combination of aerobic and anaerobic processes.



We offer the following technology`s:

- **SBR**
Aerobic process / removal of excess activated sludge with sedimentation
The essence of this technology is the implementation of all stages of the biological treatment process sequentially in one reactor
- **FBR**
Aerobic process / removal of excess activated sludge with flotation
A significant difference of this technology is the separation of activated sludge in special flotation plants
- **MBR**
Aerobic process / removal of excess activated sludge with membrans
Membrane bioreactor is a combination of membrane treatment - micro- or ultrafiltration with the process of biological wastewater treatment with activated sludge
- **EGSB**
Anaerobic process / several methods for excess of activated sludge
This anaerobic technology includes a reactor with an expanded bed of granulated sludge





Sludge dewatering

Sludge dewatering is the practice of minimizing waste by volume to prepare for its effective disposal. Sludge originates during the process of treating wastewater before the water can be released back into the environment. Sludge is the by-product extracted from the slurry during the process of industrial or municipal wastewater treatment. Sludge dewatering separates sludge into liquids and solids for waste minimization.

It is important to note that dewatering is not intended to treat the sludge or liquid, it only separates the solid and liquid components so that it is easier and more cost-effective to handle the separate phases for final disposal. Once the sludge has been dewatered, both the solid and liquid components may contain contaminants that will need to be treated separately.



We offer the following methods of dewatering:

- **Decanter centrifuge**

Decanter Centrifuges are able to treat continuously a small-medium and large quantities with high solid content, extracting the greatest part of suspended solid, and generating a dryer sludge

- **Filter press**

An industrial filter press is a tool used in separation processes, specifically to separate solids and liquids. The machine stacks many filter elements and allows the filter to be easily opened to remove the filtered solids, as well as easy cleaning or replacement of the filter media

- **Screw press**

Screw Press is made of a cylinder containing the screw, moving and stationary discs, solid chamber, motor and gear. A strong and self standing chassis support the working parts, altogether with flow accessories and safety components





Reuse of wastewater

In order to assist you with your sustainable water management policies, we offer numerous technical solutions for reusing purified wastewater. Avoiding discharges whilst increasing available water at a lower cost is one of the key advantages of wastewater reuse, especially in regions affected by water shortages and drought.

Wastewater reuse is the process of converting municipal wastewater (sewage) or industrial wastewater into water that can be reused for a variety of purposes.

Types of reuse include urban reuse, agricultural reuse (irrigation), environmental reuse, industrial reuse, planned potable reuse, de facto wastewater reuse (unplanned potable reuse). For example, reuse may include irrigation of gardens and agricultural fields or replenishing surface water and groundwater (i.e., groundwater recharge).



We offer the following equipment:

- **Any type of filtration**

According to your demands we choose between sand filters, adsorption filter, mechanical filters, micro-, ultra- and nanofiltration

- **Reverse osmosis**

Reverse osmosis (RO) is a water purification process that uses a semi-permeable membrane to separate water molecules from other substances

- **Ozonation**

Ozonation is an effective way to treat water contaminated with industrial contaminants, pesticides, organics, BOD, and COD. WWTP uses Ozone as a water polisher that reduces BOD/COD to safe levels. Reduction of processing costs and elimination of penalties associated with the disposal of contaminated water are the principal benefits

- **UV treatment**

UV light is able to inactivate microorganisms, reducing the microbial load in thin film of drinking water and wastewaters. The germicidal effect consists of damaging the nucleic acid, thus preventing the replication of microorganisms





Water treatment

There are many uses of water in industry and, in most cases, the used water also needs treatment to render it fit for re-use or disposal. Raw water entering an industrial plant often needs treatment to meet tight quality specifications to be of use in specific industrial processes.

Water treatment is used to optimize most water-based industrial processes, such as heating, cooling, processing, cleaning, and rinsing so that operating costs and risks are reduced.

Industrial water treatment seeks to manage four main problem areas: scaling, corrosion, microbiological activity and disposal of residual wastewater.

Common industrial water treatment methods are filtration, softening, reverse osmosis, nanofiltration, adsorption and UV treatment.

Our team will offer you best solution suitable for your needs.



We offer the following equipment:

- **Any type of filtration**
According to your demands we choose between sand filters, adsorption filter, mechanical filters, micro-, ultra- and nanofiltration
- **Reverse osmosis**
Reverse osmosis (RO) is a water purification process that uses a semi-permeable membrane to separate water molecules from other substances
- **Ion exchange / Softening**
Ion exchange gets rid of magnesium and calcium by binding to a resin, a small, negatively-charged sand-like bead.
- **UV treatment**
UV light is able to inactivate microorganisms, reducing the microbial load in thin film of drinking water and wastewaters. The germicidal effect consists of damaging the nucleic acid, thus preventing the replication of microorganisms



Applications

We offer full service for wastewater and water treatment in the following industries.



Dairy industry



Potato processing



Meat & Poultry processing



Fat & oil industry



Fish & crustacean processing



Fruit & Vegetable processing



Grain Mills & Bakeries



Beverages





Chemical industry



Wood processing



Rendering & Fish meal



Metal working



Oil and gas extraction



Pharmaceutical & cosmetics



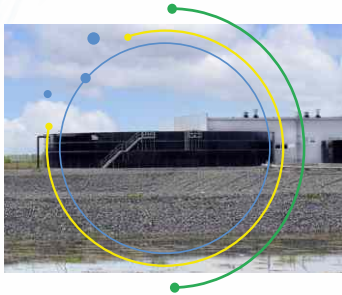
Pulp and paper industry



Textile industry & tannery



Projects



Milk & cheese processing plant

- Full cycle of wastewater treatment
- Amount of wastewater up to **4000 m³/day**
- Discharge into the river



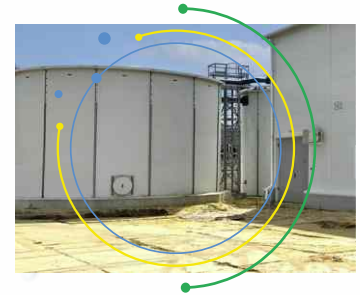
Meat processing plant

- Chemical physical wastewater treatment
- Amount of wastewater up to **2000 m³/day**
- Discharge into urban WWTP



Potato flakes production

- Full cycle of wastewater treatment
- Amount of wastewater up to **2000 m³/day**
- Discharge into the river



Mayonnaise production

- Chemical physical wastewater treatment
- Amount of wastewater up to **400 m³/day**
- Discharge into urban WWTP



Projects



Cosmetic production

- Chemical physical wastewater treatment
- Amount of wastewater up to **400 m³/day**
- Discharge into urban WWTP



Wheat processing plant

- Chemical physical wastewater treatment
- Amount of wastewater up to **1200 m³/day**
- Discharge into urban WWTP



Vegetables processing plant

- Full cycle of wastewater treatment
- Amount of wastewater up to **400 m³/day**
- Discharge into the river



Wood processing plant

- Chemical physical treatment of rainwater
- Amount of wastewater up to **1200 m³/day**
- Reuse of treated wastewater

