Göksu arıtma

wastewater treatment plants | water treatment plants | pool systems

People establish maintainable development centers.

Every person has the right to lead a healthy life in harmony with nature.*

*United National Environmental Conferance 1- Rio dev Janeiro1992

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Our firm has been providing domestic and international environment and treatment technology project, implementation and management services since 1990 until date. It is among our main objectives to produce "Turnkey" solutions.

We are holding the proper pride for being the one of Turkey's first and important firms operating in this field of activity. We are conscious and aware that our field of operation requires top level specialty. In addition to our specialist personnel, remaining in close contact and coordination with the universities is a sine-qua-non principle that we can never leave out. Industrial activities all over the world are heading with an amazingly fast increasing speed. So, it is indispensably essential to continue production without harming or damaging the environment to save humanity and the world. If we consider that Turkey is one of the developing countries, we can see that the path we need to walk through is long and tough. The most essential things we need to have while taking this hard path simply are the accumulated experience, specialty, manpower and hardworking. As we see the advanced countries in the area of industrialization, the investments made in the environment technologies and protection of the natural resources are extremely important. While still in the beginning of the way, the investments we will make in the environment technologies will return to us with clean water, soil and atmosphere. If prosperity is the aim, then we cannot talk about it without having all these. We should always bear in mind and remember that it will be impossible for us to live in a country and a world where these components are missing.

Spreading out and providing of utilization of the developed environmental technologies that are applicable to both the environment itself and coming generations would contribute in the country's economy with the staff comprising from the best agents and advanced technology.

QUALITY POLICY | VISION | MISSION | VALUES

OUR QUALITY POLICY

Our firm which has been practicing its activities in the field of environment and water treatment has the structure that is efficiently capable to execute sound works to maintain life and produce overseas works to create a cleaner future to plant the following principles as its quality policy: All our activities are focusing on the satisfaction of our customers and respect to the environment and human and hence to produce products and services compatible to the internationally admitted standards.

Aiming at constant improvement in the existent quality in the path to be followed by the firm hand in hand with our staff members paying great attention and care to education and awareness raising.

Spreading out and providing of utilization of the developed environmental technologies that are applicable to both the environment itself and coming generations would contribute in the country's economy with the staff comprising from the best agents and advanced technology.

To promote effectiveness and productivity by employing the best resources by implementing and practicing the continuous development and improvement in all units.

OUR VISION

In order to produce effective solutions and technology in the field of treatment, we follow and chase all what is new to provide the best services and products to the desire of our clients which will meet their expectations and taking the rank and place we are aiming at amongst the leading names of the business as we do have the organizational structure that targets to achieve the highest levels of quality in the best global standards.

OUR MISSION

To focus on the success of our client by presenting the best solutions to the market in accommodation with the highest international standards by furnishing our clients with all information in the easiest and fastest manner possible to provide effective and reliable services in a cost effective way to save time and produce much work.

VALUES

Client focused working
Reliability
Innovation
Leadership
Entrepreneurship
Research
Dynamism
Productivity
Team Spirit

Our company is one with long years of experience that has been serving since 1990 in the section of environment protection techniques and treating water and wastewater technologies.

Water and wastewater are analyzed at our special laboratories which are equipped with the state of art technological equipment and latest technical devices. Specifications of water and wastewater are determined by our experienced and well trained engineers by conducting the required analyses prior to implementation of the feasibility study and building of the planned water and wastewater treatment facilities. Accordingly, projects are executed in accordance with correct data and applications compliant to the actual facts. We have to bear in mind that the essential factor to solve the problem is to determine its core exactly.

Our highly experienced and competent staff is capable to carry out and execute the project they undertake according to the available data and procedures under the structure of the firm. When necessity calls so, our staff are highly experienced and specialized to perform the required tests for the purification for large plants and particularly industrial treatment facilities. The results of analyses conducted by our firm are obtained at miniature facilities established by our firm at the factory or such plants to be established at the place where the project shall be built. Thus, our firm becomes capable to get precise and complete results for the obtained water after carrying out all the mentioned analyses and tests the case which facilitates the determination of the defects and or the troubles that might have been unnoticed during the execution of the project. Moreover, all project details are accomplished within project planning in result of these analyses.

THESE ARE OUR FEATURES DISTINGUISHING US FROM OTHERS

Another significant feature that makes our firm engage a prestigious rank in this field is manufacturing of the equipment and mechanical components used in the projects at our own plant. Shortly, our firm is entirely capable to manufacture all parts and the equipment used in the projects except water pumps, blowers and electronic control devices.

As a manufacturer Goksu for Treatment always makes its clients feel that it is standing behind the works and services it produces and offers to them in the field of manufacturing spare parts of the equipments at its own factories to protect trademark value and promote it for longer years.

Besides, the staff our firm has the quality of high competence in mantling the parts and components it manufactures as it cares a lot for installation work. Furthermore, our firm carries out infrastructure of the project it executes for water and wastewater treatment.

The establishments which are constructed and installed by our firm are tested by the treatment engineers and then the secondary technical staff and are then operated and finally delivered to their owners. Our abovementioned laboratories undertake a vital and active role in contribution to the commissioning of the projects we build. The routine tests we carry out at some of the projects instantaneously or hourly or daily or weekly constitute vital importance. Training works and technical staff training works to operate the facility until normal operation stage is secured are services submitted by our firm in a routine manner to our clients. We also provide services of operating treatment systems at the request of our clients.

Our firm's technical staff is always prepared to render their best services to our clients around the clock since our firm has the full capacity to offer these services in the best manner possible in both national and international levels in conformity with the international services with the staff and equipment it possesses. As we have just stated, we always keep in our storehouses the sufficient number of spare parts that will be required for the equipment we manufacture. our firm insures that sufficient number of spare parts are timely and economically made available for the pumps and ventilation and moving gear we import from abroad and get supplied from other leading companies. Hundreds of facilities we had built since 1990 are the tangible evidence of our achievement.

AREAS OF ACTİVİTY

- **Urban Wastewater Treatment Plant**
- **Urban Water Treatment Plant**
- **Industrial Wastewater Treatment Plant**
- **Process and Drinking Water Treatment**
- **Operational Management And Maintenance**
- **Our Other Services :**

Water and wastewater treatmen equipment producing,
Package water and Wastewater treatment plant,
Water supplying, Sewerage network design and construction,
Pool Systems,
Air pollution and smell removing plant,
Solid waste facility,
Water and Wastewater Treatment Plant operational Management.

Our firm has achieved lots of treatment project since 1990 until date. It had taken part in the designing and implementation of many wastewater treatment plants of settlement areas at various regions. Our urban scale plants address populations from 10.000 people up to millions. The urban wastewater treatment plants can be delivered on turkey basis by our specialist team. Plants we build meet the wastewater discharging standards stipulated by the laws and directives of our homeland. However, our firm is going beyond these standards to build plants that meet the European Union standards.

URBAN WASTEWATER TREATMENT SYSTEMS

Wastewater Treatment Processes

Wastewater treatment usually consists of two major steps—primary treatment and secondary treatment—along with a process to dispose of solids(sludge) removed during the two steps. In some areas where receiving waters are more sensitive to pollution or where specific pollutants have not been removed by secondary treatment, a third step called advanced waste treatment (also called tertiary treatment) may be required. Some plants use prechlorination for hydrogen sulfide and odor control prior to beginning any treatment processes.

Primary Treatment.

In primary treatment, the objectiveis to physically remove sand, grit, and larger solids from the wastewater by screening, settling, or floating. Screens, settling tanks, and skimming devices are most commonly used for the separation. Primary treatment removes 45 to 50 percent of the pollutants.After primary treatment, wastewater still contains solid materials either floating on the surface, dissolved in the water, or both. Under natural conditions, these substances would provide food for such organisms as fungi, algae, and bacteria that live in streams or lakes.

Secondary Treatment.

The goal of secondary treatment is to biologically remove contaminants that are dissolved in wastewater. In secondary treatment air is supplied to accelerate the growth of bacteria and other organisms which consume most of the waste materials. The wastewater is then separated from the organisms and solids, disinfected by chlorine or ultravioletlight to kill any remaining harmful bacteria, and released to a nearby lake, river, or stream. At this point 85 to 90 percent of the pollutants have been removed. The treated wastewater may be dechlorinated with sodium bisulfite or sulfur dioxide where low level chlorine residuals could be toxic to aquatic organisms in receiving waters. This treated wastewater discharge is now referred to as effluent.

Tertiary Treatment.
Any additional processing after secondary treatment is called tertiary treatment. Tertiary treatment can remove more suspended solids, organic matter, nitrogen, phosphorus, heavy metals, or bacteria. This treatment relies on the addition of chemicals or on filter beds of rock, sand, or other materials.

Treatment Of Sludge.
The solid material that is removed from wastewater, called sludge, requires proper treatment and disposal and can often be reused. The ultimate disposal of this material is one of the most difficult and expensive problems of wastewater treatment. The goal of sludge treatment is to destroy harmful organisms and remove water. The end product of the sludge handling process is a relatively dry material known as "cake." It can be applied to agricultural land as a soil conditioner, placed in landfills, or cleanly burned. At some plants, sludge serves as a fuel to produce energy. For land application, sludge is often kept in a liquid slurry form for ease of handling and for subsurface injection into soils with special equipment.

Other Wastewater Treatment Methods
Primary treatment (the mechanical removal of floating, settleable, or suspended solids) and secondary treatment (the biological removal of dissolved organic material) can be accomplished by several different methods including ponds, lagoons, filters, and land application.

WASTEWATER TREATMENT EQUIPMENT

Göksu Treatment Grilles and Screens

Göksu Treatment Oil and Sand Separation Systems

Sludge Filtration Systems : Filter Presses & Belt press

Flow Control Equipment Göksu Treatment

Mechanic Aeration Equipment

Mixers

URBAN WATER TREATMENT PLANTS

Water purification is the process of removing undesirable chemical and biological contaminants from raw water. The goal is to produce water fit for a specific purpose. Most water is purified for human consumption (Drinking water). In general the methods used include physical process such as filtration and sedimentation, slow sand filters, chemical process such as flocculation and chlorination and the use of electromagnetic radiation such as ultraviolet light.

The purification process of water may reduce the concentration of particulate matter including suspended particles, parasites, bacteria, algae, viruses, fungi; and a range of dissolved and particulate material derived from the minerals that water may have made contacted after falling as rain.
The standards for drinking water quality are typically set by Governments or by international standards. These standards will typically set minimum and maximum concentrations of contaminants for the use that is to be made of the water.

According to a 2007 World Health Organization report, 1.1 billion people lack access to an improved drinking water supply, 88% of the 4 billion annual cases of diarrheal disease are attributed to unsafe water and inadequate sanitation and hygiene, and 1.8 million people die from diarrheal diseases each year. The WHO estimates that 94% of these diarrheal cases are preventable through modifications to the environment, including access to safe water.

URBAN WATER TREATMENT PLANTS

Göksu arıtma

Water Treatment
The processes below are the ones commonly used in water purification plants. Some or most may not be used depending on the scale of the plant and quality of the water.

Pre-treatment
Pumping and containment , Screening , Storage – Aeration, Pre-chlorination, Ph adjustment and Pre-conditioning : Many waters rich in hardness salts are treated with soda-ash (Sodium carbonate) to precipitate calcium carbonate out utilising the common-ion effect.

Flocculation
Flocculation is a process which clarifies the water. Clarifying means removing any turbidity or colour so that the water is clear and colourless. Clarification is done by causing a precipitate to form in the water which can be removed using simple physical methods. Initially the precipitate forms as very small particles but as the water is gently stirred, these particles stick together to form bigger particles - this process is sometimes called flocculation. Many of the small particles that were originally present in the raw water absorb onto the surface of these small precipitate particles and so get incorporated into the larger particles that coagulation produces. In this way the coagulated precipitate takes most of the suspended matter out of the water and is then filtered off, generally by passing the mixture through a coarse sand filter or sometimes through a mixture of sand and granulated anthracite (High carbon and low volatiles coal). Coagulants / flocculating agents that may be used include: Iron (III) hydroxide, Aluminium hydroxide, Polyectrolite.

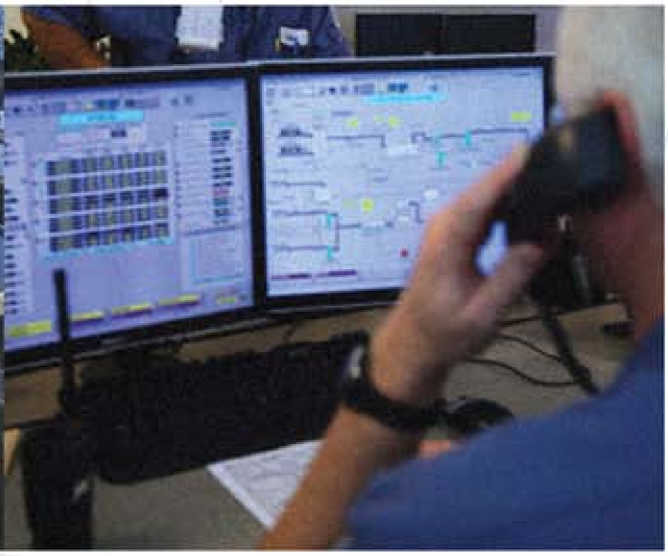
Filtration
After separating most floc, the water is filtered as the final step to remove remaining suspended particles and unsettled floc. The most common type of filter is a rapid sand filter. Water moves vertically through sand which often has a layer of activated carbon or anthracite coal above the sand. The top layer removes organic compounds, which contribute to taste and odor. The space between sand particles is larger than the smallest suspended particles, so simple filtration is not enough. Most particles pass through surface layers but are trapped in pore spaces or adhere to sand particles

Slow sand filters
Slow sand filters may be used where there is sufficient land and space as the water must be passed very slowly through the filters. These filters rely on biological treatment processes for their action rather than physical filtration. The filters are carefully constructed using graded layers of sand with the coarsest sand, along with some gravel, at the bottom and finest sand at the top. Drains at the base convey treated water away for disinfection.

Removal of ions and other dissolved substances
Ultrafiltration membranes use polymer membranes with chemically formed microscopic pores that can be used to filter out dissolved substances avoiding the use of coagulants. The type of membrane media determines how much pressure is needed to drive the water through and what sizes of microorganisms can be filtered out.

Disinfection
Disinfection is accomplished both by filtering out harmful microbes and also by adding disinfectant chemicals in the last step in purifying drinking water.Water is disinfected to kill any pathogens which pass through the filters. Possible pathogens include viruses, bacteria, including Escherichia coli, Campylobacter and Shigella, and protozoans, ect.

Other water purification techniques
Other popular methods for purifying water, especially for local private supplies are listed below. In some countries some of these methods are also used for large scale municipal supplies. Particularly important are distillation (de-salination of seawater) and reverse osmosis.
Boiling ,Granular Activated Carbon filtering ,Distillation ,Reverse osmosis ,The use of iron in removing arsenic from water ,Direct contact membrane distillation (DCMD) ,Gas hydrate crystals centrifuge method.



INDUSTRIAL WASTEWATER TREATMENT SYSTEMS

Characteristics and impacts of industrial wastewaters are very different. Therefore, wastewater treatment facilities to be established at the businesses require specific solutions and designs. In the industrial facility and treatment of wastewaters of the businesses need to have a good etude study from the aspects of production, water use, wastewater formation, wastewater output and wastewater characterization and local conditions specific to the industry are taken into consideration and then industrial wastewater facilities are designed accordingly. In this contest, GÖKSU continues producing its TREATMENT SYSTEMS in strict compliance with wastewater laboratory analyses, pilot criteria treatment model designing, feasibility studies and manufactures efficient wastewater treatment systems for several various sectors and businesses.

Göksu Treatment Grilles and Screens

Göksu Treatment brand grilles and screens are manufactured by Göksu Treatment especially for water and wastewater treatment purposes. These equipments are manufactured of stainless steel, galvanized coated carbon steel and various coated carbon steel materials. We classify the major grilles and screens we manufacture as; PKI – Plastic Conveyor Grilles, Mechanically Cleanable Linear Grilles, Static Screen Internal and External Flow Drum Screens and Revolving Circular Screens with Discs. Floatation and DAF (Dissolved Floatation) Units used to separate and keep away from water pollutants such as but not limited to oil, grease, petroleum etc. are manufactured by Göksu Treatment as floatation systems, DAF or DAF chemical units. Floatation or DAF units are indispensible systems for some wastewater types.

Package Industrial Wastewater Treatment Facilities

Package Industrial Wastewater Treatment Facilities are developed for industrial businesses that have low water output and those businesses which need this system. The portability of the facility, requiring no construction works, capability of manufacturing in separate parts as dismantled and possibility of on site installation and its compact structure, little space occupation, low initial investment cost and rapid manufacturing the main advantages of the facility. Materials to be used for manufacturing the facility are chosen according to the water to be treated. Facilities have long lives since materials used in manufacturing are resistant to the water to be treated.

DIFFUSERS

Diffusers of various capacities and different geometrical structures are used for securing transfer of oxygen to water in biochemical processes and removing nitrogen and phosphor. DIFFUSER TYPES are Disc Diffusers – Tube Diffusers.

FILTRATION SYSTEMS

Göksu Treatment Filtration systems comprise of fast and slow sand filters, pressurized sand filters, active carbon filters and different filters according to the water and wastewater properties. Filters are manufactured in accordance with the processes resulted from special designing.

FILTER PRESSES

Filter presses consist of hollow plates positioned sequentially side by side and pressed in a manner to prevent water leakage where filter cloth inserted inside. It is compressed inside these plates with a high pressure. This remains in between as a cake.

BELT PRESSES

Belt presses run according to the principle of compression by spreading the sludge, which is chemically conditioned with the belt press mechanical dehydration equipment, over the running belt and passing the sludge from the rollers. In belt presses, prior to compression operation, sludge is delayed on the running belt that allows sludge water to diffuse. Meanwhile water diffusion is secured. Part of the sludge water is taken by this means. Then, the running belt over which sludge is spread will pass through rollers exposed to low pressure.

FLOW CONTROL EQUIPMENT GÖKSU TREATMENT

Flow control equipment, penstocks, stoploggers, adjustable penstocks, telescopic valves, buoy penstocks etc. are produced. Equipments are manufactured manually, automatically or PLC controlled. They are manufactured from various carbon steel materials.

MECHANIC AERATION EQUIPMENT

These are the major ventilators used in urban wastewater treatment plants; Floating Buoy Ventilators, Fixed Vertical Shafted aerators and Aerojet Blowers.

MIXERS

Sludge and foam scrapers designated for the sedimentation pools are manufactured at our factory entirely in accordance with our own designing according to the shape of the pools. Scrapers are built as peripherally driven models for circular pools. However, linear bridged scrapers are made for rectangular or square pools and pedaled mixers are built for sludge condensers. Moreover, at our own facilities we build coagulation and flocculation units and mixers which are used in different treatment processes.

GÖKSU TREATMENT OIL AND SAND SEPARATION SYSTEMS

It is possible to remove both oil and sand from the water in one unit. Generally, more efficiently operating ventilated systems are used. Substances separated with the sludge and foam scrapers provided in the bottom and surface are smoothly cleared off.

These equipments are manufactured of stainless steel, galvanized coated carbon steel and various coated carbon steel materials. Pools are generally built of reinforced concrete.

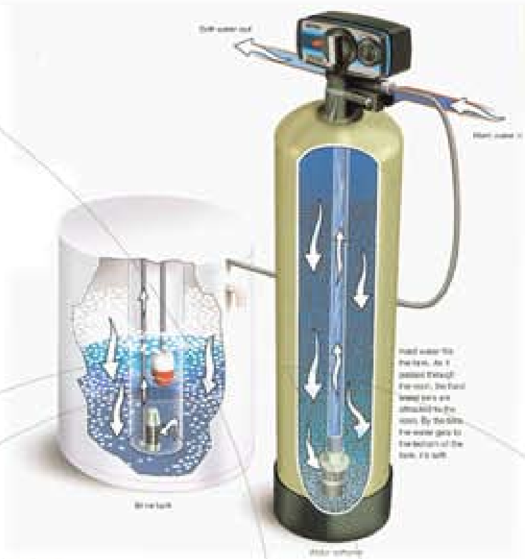
We as Göksu Treatment with our experienced staff examine wastewater resource and water's characteristic properties and then choose the most appropriate process. We undertake to execute water treatment projects that meet the standards stipulated by water pollution regulations or those set forth by the local administration. After completing treatment facility's installation, the system becomes operational and water is obtained in the receiver medium discharging standards. Every treatment facility we had built is under our company's warranty. We regularly inspect and check the treatment system during the warranty period and do all works necessary for amending the detected faults in the system during inspection periods. As Göksu Treatment, we provide maintenance services after expiration of warranty period if so is requested by the clients.

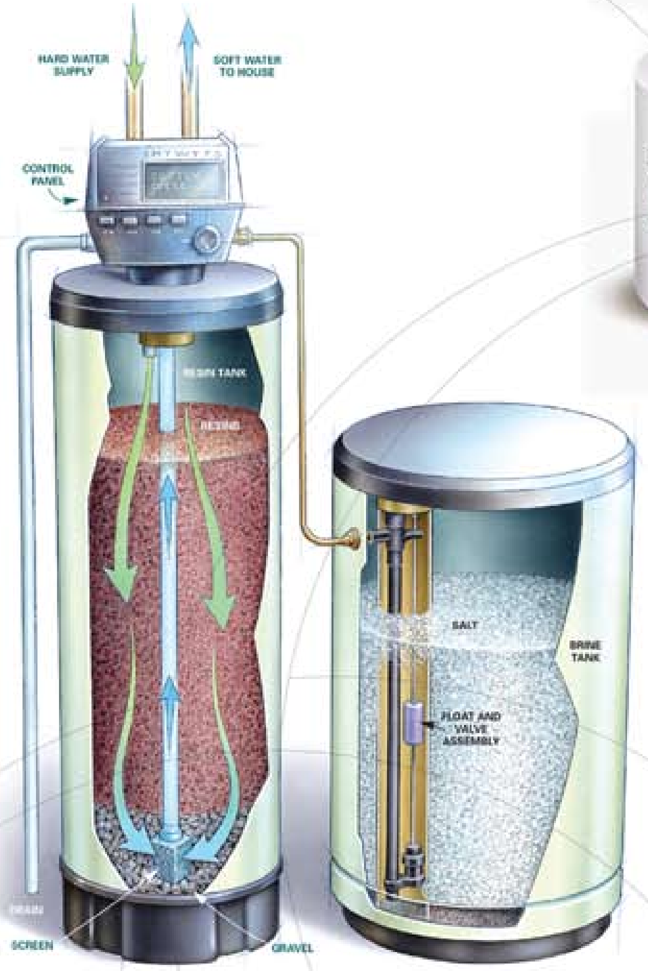
MULTIMEDIA FILTERS

Solid substances such as residues, organic materials, silica and similar substances make water look turbid. To remove this turbidity, sand filters are used. Sand filters comprising of different granule size quartz and anthracite minerals provide a multilayer passing. Crude water flows from top and by anthracite's electrostatic feature is retained inside the sand layers after. Thus, water gains residue free, clear and brilliant appearance. Sand filters are used as pre-treatment process in drinking water treatment or to remove turbidity from waters that are treated in wastewater treatment system. The system regeneration is realized by the microprocessor it has in a fully automated system with timing, output and pressure control.

FULL AUTOMATIC SOFTENING DEVICES

Göksu Treatment Full Automatic Water Softening Devices are used to remove calcium and magnesium ions that cause water hardness. These systems which operate by simple ion variation principle give water sodium irons instead of calcium and magnesium ions they capture. Standard models of softening systems are time controlled. Particularly in industrial steam boilers, industrial and domestic hot water producing devices and machinery, calcifications cause huge damages. Moreover, these calcifications increase energy consumption and heat transfer losses. The system by the automatically controlled valve washes the resin with saltwater and renews it, washes it straight and reversely and rinses it then puts it on services. The system automatically prepares the saltwater water sediment in the salt vessel.





ACTIVE CARBON FILTERS

Göksu Treatment Active Carbon Filters are used to get rid of colors insoluble in water, chloride, taste, odor solved gases, wastes and organic substances. Coconut shells, firewood, coal and petroleum wastes are used in active carbon filter production. Surface area of carbon minerals that are increase about 100 times by activation process carries out filtration mechanism and absorption mechanism as well. Active carbon systems are those which can operate full automatically. Active carbon filters renew themselves by automatic Reverse wash operation for 15 – 20 minutes a day.

REVERSE OSMOSIS SYSTEMS

We could name osmosis as the solvent's diffusion, is the event of equalization of ion concentration through the osmotic pressure of the two solutions in between of which semi-permeable membrane is placed within different ion concentrations. Equalization of ion concentration is secured by making the liquid pass through low ion concentration solution to high ion concentration solution. Penetration speed of the liquid, temperature and pressure depend on the types of ions in water and membrane structure.

Having water pass through the semi-permeable membrane system under high pressure is the process made to obtain demineralized water. In addition to treatment of Reverse osmosis well water and surface water, it is used in the treatment of waters with high sourness grades such as seawater.

DEMINERALIZATION SYSTEMS

The electric conductivity of water comes into existence because of the dissolved minerals within water. With the increase of the mineral concentration, water's electric conductivity increases as well. That's why electric conductivity is a measurement unit. The process of purifying ions existing in water is called DEMINERALIZATION process.

PROCESS WATER TREATMENT SYSTEMS

Water is passed through two resin columns at least in demineralization systems. The first resin column comes to exist from cationic and the second column from anionic resins. In the first column (+) loaded ions are retained and the (+) loaded ions (cations) retained by the resin in regeneration process replace with hydrogen ions. It gives the water with hydrogen ions during management process. In the anion column (-) loaded ions are retained. When resin becomes saturated, it is regenerated with caustic. In regeneration the (-) loaded ions (anions) and (OH) – ions charge places. During management process (OH) – ions are given to water inside anion column, they merge with the (H) + ions coming from cation to form the H2O (water) molecule. In the exit of the process, demineralized water is obtained.

The demineralization systems manufactured by Göksu are capable to produce water at >10-20 us/cm. However, according to the required water specifications, they are manufactured for devices with much lower conductivity value. For designing demineralization systems, first of all, detailed measurements must be conducted at sight on the specifications of the feeding water's cations and anions. Water specifications of which are unknown, a sample of fresh water can be submitted to our laboratory and the laboratory will carry out the due tests and analyses. A demineralization device is then chosen in appropriateness with the water specifications.

OPERATIONAL MANAGEMENT AND MAINTENANCE

As a result of completion of over 300 plants and long-therm experence in operational management GOKSU ARITMA disposes over extencive expertise and recognised in the area of water–related operational manegement. İn long term , this results in considerable cost advanteges fort he respective owner.

- Water and wastewater treatment feasibility studies.
- WTP and WWTP start-up
- Due diligence process problem of WWTP - WTP and resolving problems.
- Operational consulting
- Troubleshooting of Mechanichal equipment
- Upgrade of WTP and WWTP

REFERENCES

Please visite our web site for other referece

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