



AL MADADD PURIFICATION

Purification of Resources Towards Environment Sustainability



Company Profile

Your Complete Water & Sewage **Solution**





Your Complete Water & Sewage Solution





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INTRODUCTION

Al-Madadd Purification





National Technology Enterprises Company

The National Technology Enterprises Company (NTEC) was established back in November of 2002 and operational in late 2004, by the Kuwait Council of Ministers as a fully owned subsidiary of the Kuwait Investment Authority (KIA). Capitalized at 100 Million Kuwaiti Dinars (Approximately 350 Million U.S. Dollars), with a paid up capital of 85 Million Kuwaiti Dinars.



EnerTech Holding Co.

It is a fully owned subsidiary of the National Technology Enterprises Company (NTEC),

established in 2012 as Kuwaiti Holding Company with a mission to initiate its own projects and participate in projects within in energy, clean tech, recycling, water, waste management and renewable energy sectors although EnerTech through its fully owned subsidiaries.



شركة المدد للتجارة والمقاولات Al Madadd Trading & Contracting CO. W.L.L

Al-Madadd Trading & Contracting CO.W.L.L

Al-Madadd Company was established in 1975 and is now known as one of the main supplier in industry of water systems such as water heating systems , Water storage systems , water supply systems, sewage/ drainage systems, water treatments & sewage treatments.

In 2016, EnerTech had acquired the highest share of the company to strengthen the participation in renewable energy sectors along with water & waste water management Industry .



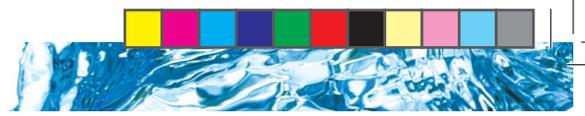
AL MADADD PURIFICATION Purification of Resources Towards Environment Sustainability

Al-Madadd Purification

Al Madadd purification is the branch from Al Madadd company dedicated only to provide all the methods and solutions of water treatment and sewage treatment for all applications.

Al Madadd purification always assure to be able to develop & install the latest technologies in water and sewage treatments.

Al-Madadd Purification is covering cover all the Residential & commercial Water Treatment Processes .



Al-Madadd purification main aim is to develop and install all kind of water treatments processes.

Al-Madadd purification takes into consideration all the methods of water treatment and always assure to be able to develop and install the latest technologies in water & sewage treatments.

Al-Madadd Purification will cover all the Residintial and commercial Water Treatment Processes .

Al-Madadd purification is also expanding on its relationships with the various government agencies in order to position itself as a technology gateway and advisor for both governmental and private sectors; thus, bridging the gap between both sectors and attempting to support the nation's aggressive development plan .

Al-Madadd purification is Owned by Al-Madadd Company which is Owned by Both EnerTech & Mechanical Engineering projects company (MEPCO).

EnerTech is a fully owned subsidiary of the National Technology Enterprises Company (NTEC), established in 2012 as Kuwaiti Holding Company, with a mission to initiate its own projects and participate in projects within in energy, clean tech, recycling, water, waste management and renewable energy sectors although EnerTech through its fully owned subsidiaries. EnerTech Energies activities:

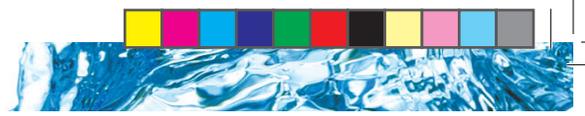
- Generating and Enhancing Electrical Power.
- Renewable Energy Generating Equipment.
- Water Desalination and Heat Exchangers.

Mechanical Engineering projects company (MEPCO) established in Kuwait in 2007 and now it is earning an indisputable reputation in mechanical works as an plumbing, fire fighting, fire alarm & HVAC contractor, supplier, installer & Maintenance service provider in the field of building services & Oil and Gas Sectors.



OBJECTIVES

- 1 - Startup or Partnering in high-tech specialized projects to develop the national economy and to diversify the nation's revenue streams
- 2 - Assist in the development of nationals' technical skills and encourage their participation in high-tech projects.
- 3 - Carry out high-tech industrial, commercial, vocational, professional and service oriented projects' studies throughout all sectors relevant to the country's technology development needs.
- 4 - Start or participate (invest) in technology investments and deals locally and internationally for financial gain as well as for the purpose of supporting local & regional technology developments.



OUR STANDARD

Quality

High Quality Components from Leading Global Manufacturers.

Usability

Easy Operation & Maintenance.

Durability

Advanced & Safe Design.

Reliability

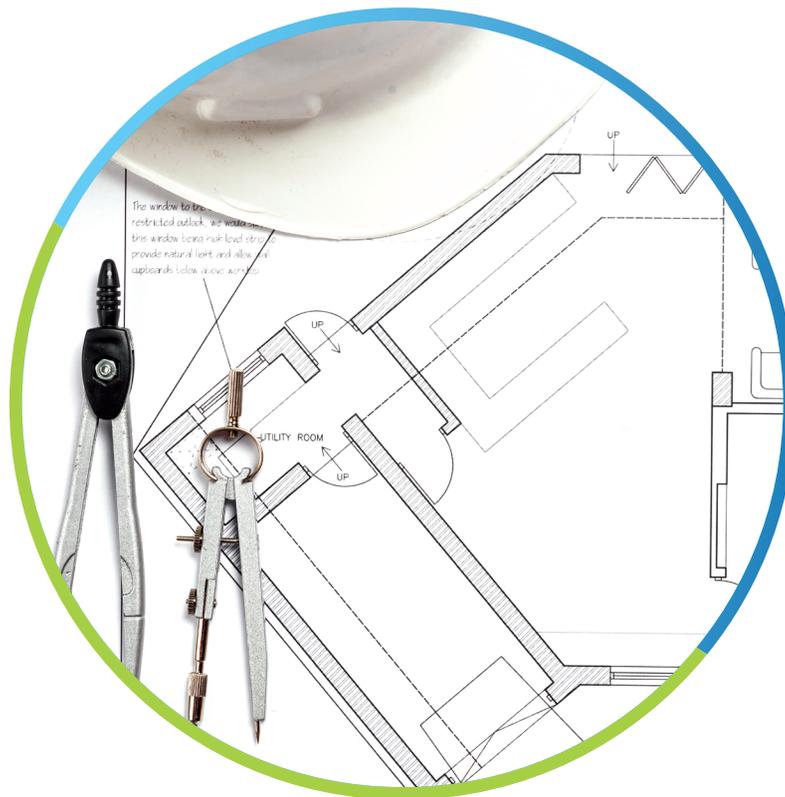
Systems Operating Over Years.

Performance

Superior Technical Expertise.

Service support

24/7 Support & On-site Dispatch.



WHAT WE DO

Al-Madadd Purification



Service Range

We Design, Manufacture, Operate and Maintain (O&M) the quality products mainly :

- Revers osmosis plants
- Waste water treatment units :
 - MBBR
 - MBR
 - SAF
 - SBR
 - SMF
 - ASP
 - Extended Aeration
- Grey water treatment units
- Filtration systems :
 - Water softners
 - Brine tank assemblies
 - Water filters
 - Iron filters
- Dosing pumps
- Chemical injection skids
- Gas chlorination systems
- Reserve osmosis systems (containerized)
- Chlorine gas scrubbers
- Odour control systems for STP
- Lime/polymer preparation systems
- Swimming pool chemical treatment systems
- Cooling tower & HVAC water treatment systems
- Deionisers / Softners & Degassifiers
- Upgrade of the existing systems

Our technically advanced systems are customm-engineered to suit any application, thus providing the most cost economical and efficient solution on the market.



Reverse osmosis plants

Reverse Osmosis is a process in which dissolved inorganic solids are removed from a solution. This is accomplished by household water pressure pushing the tap water through a semipermeable membrane. RO filtration improves taste, odor and appearance of water by removing contaminants that cause taste and odor problems. With an RO system, you can cancel your water delivery service and stop purchasing cases of bottled water. Reverse Osmosis filtration provides "better-than-bottled water" quality water for just pennies per gallon. RO systems have very few moving or replaceable parts make RO systems easy to clean and service. RO systems remove pollutants from water including nitrates, pesticides, sulfates, fluoride, bacteria, pharmaceuticals, arsenic and much more. An RO systems' carbon filter will also remove chlorine and chloramines.

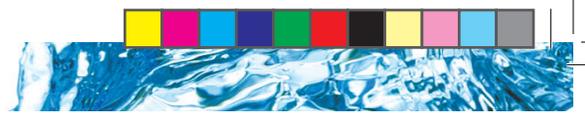


Water Filters

ProFlow Granular Activated Carbon water filters are developed to improve taste, colour and odour of water and to reduce a wide range of chemicals (like Chlorine), pesticides and herbicides. At the same time it removes impurities down to 40 μm . This results in cleaner, safer and better-tasting drinking water and protection of your plumbing, fixtures and water using appliances. ProFlow Filter-Ag water filters efficiently remove suspended particles like dirt, silt, clay, rust, etc down to 20 μm for protection of your plumbing, fixtures and water using appliances.

PROFLOW WATER FILTERS ARE AVAILABLE WITH 2 FILTER MEDIA GRANULAR ACTIVATED CARBON

- High quality coconut based granular Activated Carbon that meets the demands of continuous fixed bed water treatment
 - Selected pore structure for maximum adsorption
 - Excellent backwashing characteristics FILTER-AG
- Its fractured edges and irregular shape provide a high surface area and complex flow path for optimal efficiency
 - Exceptionally high sediment reduction capacity: longer service runs, reduced backwash frequency
 - Lightweight: lower backwash flow rate, reduced backwash water consumption
 - Higher service flow rates/lower pressure drops: smaller equipment will do the job!



MBBR

MBBR Treatment System uses biofilm carriers operate within an aerated wastewater treatment basin. Biocarriers work as a surface area to support the growth of heterotrophic and autotrophic bacteria. The growth of bacteria is the main step in this purification system. MBBR is considered to be one of the best cost-effective treatment technologies. Moreover, it doesn't require a lot of maintenance and it doesn't need a large space.



MBR

MBR is a Membrane Bioreactors combine conventional biological treatment (e.g. activated sludge) processes with membrane filtration to provide an advanced level of organic and suspended solids removal. When designed accordingly, these systems can also provide an advanced level of nutrient removal. MBR plants use simultaneous aerobic sludge stabilization, which means that pre-clarification is no longer required. Biomass separation and extraction from the treated wastewater is accomplished by membrane filtration, which as a rule takes the form of ultra- or microfiltration. This level of filtration allows for high quality effluent to be drawn through the membranes and eliminates the sedimentation and filtration processes typically used for wastewater treatment.

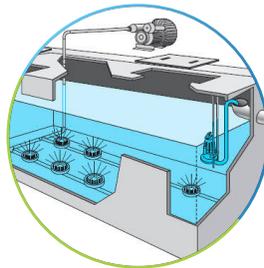
• Waste water treatment units



SAF

SAF is a fixed-film biological reactor that uses coarse media requiring no backwashing. It is ideally suited for biological treatment applications that do not also require solids removal, or that already have a downstream solids removal process. A robust and small footprint system, it can be used as either a secondary or tertiary treatment.

When combined with primary and final settlement, SAF offers a complete high performance treatment process. The design encourages the growth of a robust biomass capable of consistently producing high quality effluents, even during large variations in hydraulic and biological loadings.



SBR

Sequencing batch reactors or SBRs use a separate pre-treatment section to mechanically hold back solids and a biological aeration and settling tank. Small SBR wastewater treatment systems clean incoming wastewater over a number of cycles. It achieves a cleaning performance of up to 98 %. A sequencing batch reactor is a fill-and-draw activated sludge system for wastewater treatment. Oxygen is bubbled through the wastewater to reduce biochemical oxygen demand (BOD) and chemical oxygen demand (COD), producing a high-quality effluent with a low turbidity and nitrogen levels capable of meeting Title 22 effluent quality standards. The SBR accomplishes equalization, aeration, and clarification in a timed sequence in a single reactor basin.

By varying the operating strategy; aerobic, anaerobic, or anoxic conditions can be achieved to encourage the growth of desirable micro-organisms.

• Waste water treatment units



SMF

Submerged membrane filtration (SMF) technology is a new type of membrane technology. It is a new type of membrane filtration process in which ultra-low-pressure hollow-fiber membrane technology and continuous membrane filtration technology are combined together. It uses open-ended hollow fiber membrane elements, which put the membrane directly into the membrane tank that is full of water, then go through the vacuum suction pump, use atmospheric pressure, so that the surface water can go through the membrane, get out from the inside, and the purpose of purification is achieved.



ASP

The Activated Sludge Process (ASP) is a sewage treatment process in which air or oxygen is blown into raw, unsettled sewage to smash the solids and develop a biological 'soup' which digests the organic content & pollutants in the sewage. These plants do not have a primary settlement chamber which is the chamber that needs emptying by tanker on a regular basis with most three stage sewage treatment plants. In all activated sludge plants, once the sewage has been 'bubbled' long enough, excess sewage liquor is discharged into a clarification chamber where live bacteria settle to the bottom, dead bacteria rise to the top and form a crust with a clear liquid in the middle. This clean water is then discharged into either a watercourse or a soak away. The live bacteria, called activated bacterial sludge, are returned to the digestion chamber to re-seed the new raw sewage entering the tank and the dead bacterial crust is removed either by the homeowner or a service engineer on a regular basis

- Waste water treatment units



Extended Aeration

The Extended Aeration Treatment is an effective way to treat wastewater. The idea of the design is to make an aeration system that provides 24 hours detention time with a final settling tank which will provide 4 hours detention time. First the aerobic bacteria will develop by using the diffused air in the aeration tank, this will provide the needed environment for the bacteria to grow. These bacteria will digest the material that causes the contamination of the water. In the settling compartment the separation of the solids will occur. The solids separate from the liquid after the aeration tank. Then the treated water will be discharged for reuse, while the solids will be pumped from the bottom of the settling tank back to the aeration system.

Extended Aeration Plants are proven to be a great way of treatment, it reduces the BOD and TSS level which provides the needed criteria to reuse the water.

- Grey water treatment units



Grey water treatment units

standard basis of design includes an aeration system, providing a 24-hour detention time and a final settling tank, with an effective 4-hour detention time. Diffused air is introduced into the aeration tank, this provides the proper environment for the development of aerobic bacteria. These bacteria thrive on the materials contained in the wastewater. The prolonged period of aeration, in addition, oxidizes a portion of the solids in the system.

Oxygenation by diffused aeration provides operating flexibility and standby reserve to meet the demanding requirements of varied package plant applications.

Separation of the solids from the mixed liquor developed in the aeration tank takes place in the settling compartment. The clarified effluent is withdrawn for reuse or discharged into a receiving stream from the top of the settling tank. The settled solids are rapidly pumped from the bottom of the settling tank back to the aeration system. These Extended Aeration Plants are proven workhorses, providing excellent Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) removal efficiency. Only minimal routine housekeeping and operational tasks are required of the plant operator.

- Filtration systems :



Water Softeners

Water softeners are developed to efficiently remove calcium and magnesium hardness minerals from the water and provide a cost-effective solution for all hard water problems. Their advanced technology, rugged construction and proven reliability ensure many years of reliable and carefree operation.

ADVANTAGES OF INSTALLATING A PROFLOW WATER SOFTENER

- Water heaters and boilers retain their maximum efficiency and last longer
 - The lifespan of fixtures and appliances is noticeably extended
 - Use of anti-scaling products can be eliminated completely
 - Process water is more consistent and efficient
- Guests enjoy all the comfort of softened water, when bathing/showering
- Sinks, faucets, bath tubs, showers,... remain spotless without time-consuming cleaning
- Costly special scale removal chemicals and maintenance downtime, for descaling of boilers, steam handling equipment, washing machines, etc. can be eliminated
- Consumption of detergents and other cleaning agents can be significantly reduced
 - Fabrics, linen and clothing washed in softened water last longer
- Car washes will have improved rinsing results and save on Detergents



Brine Filters

- High-impact resistant plastics
- Premium quality High-Flow safety brine valve with interchangeable polytube connection (3/8" or 1/2")
 - Completely pre-assembled
- Equipped with overflow connection, drain hose and proprietary drain connection with air gap



Iron Filter

Water wells very often face high levels of iron and/or manganese in the water. In well water, the iron/manganese usually appears in the invisible dissolved state, so when the water is first drawn, it appears clear! But as soon as the water is exposed to air, the dissolved iron/manganese is 'oxidized' and forms insoluble particles.

Another problem in well water is hydrogen sulfide - a gas that occurs naturally in groundwater and is produced by the decomposition of organic material and by sulfur-reducing bacteria.

Birm®, the filter media used in all ProFlow iron filters, has a double function:

- As a catalyst between dissolved oxygen and dissolved iron/ manganese compounds present in the water; greatly enhances the oxidation reaction that converts dissolved iron/manganese into insoluble particles.
- Its extremely high active surface area is very efficient in capturing insoluble particles and filtering them out from the water. On top of the proven oxidation process, the revolutionary feature of the ProFlow iron filter is its compressed aeration chamber' integrated in the filter system itself.
 - During each regeneration, air is being sucked up into the pressure tank by the control valve, which forms an air chamber in the top section of the pressure tank.
- In service, the untreated water that enters the pressure tank first comes into contact with the air in this 'compressed aeration chamber', where it gets super-oxygenated; this aeration highly accelerates the oxidation process of dissolved iron/manganese, but it also takes care of hydrogen sulfide by oxidizing it into insoluble sulphur particles. At pre-determined intervals the system will backwash and remove all contaminants from the filter media.



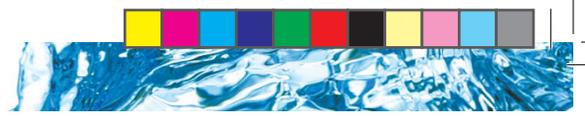
Dosing System

Ph dosing system & controller designed to detect the Ph and dose the Chemical to neutralize the flow water in the pipeline.



Chemical Injection Skid

The Chemical Injection Package serves the purpose of injecting a precise and accurate amount of chemicals into a system with the required back pressure, either continuously or intermittently. The purpose of injecting the chemicals into a system is to protect the mechanical integrity of the system from accelerated corrosion and prevent scale formation. The aim is also to control hydrate formation, prevent oxygen induced corrosion, emulsion breaker for rapid and sharp separation of water from oil, reduce wax formation, water treatment, Odorization, foam control etc.



Gas Chlorination System

Disinfection - Raw water may contain potentially dangerous materials which can be harmful if ingested. Chlorination kills these harmful materials. Some examples :

- E-Coli Bacteria (O157:H7) – Walkerton, Ontario.
 - Giardia.
 - Typhoid.
 - Cholera.
- Taste and Odor Control.
- Prevention of Algal Growths (Algae).
 - Iron and Manganese Removal.
- Destruction of Hydrogen Sulfide (Rotten Egg).

In Disinfection, chlorine residual surrounds the pathogenic organism, oxidizing its cell wall. The chlorine then penetrates the organism and upsets the natural life cycle processes or alters the cell's enzymes. The end result is the organism dies or cannot reproduce (bacteriologically safe) .



Reverse Osmosis System (containerized)

Reverse Osmosis is a process in which dissolved inorganic solids are removed from a solution. This is accomplished by household water pressure pushing the tap water through a semipermeable membrane. RO filtration improves taste, odor and appearance of water by removing contaminants that cause taste and odor problems. With an RO system, you can cancel your water delivery service and stop purchasing cases of bottled water. Reverse Osmosis filtration provides "better-than-bottled water" quality water for just pennies per gallon. RO systems have very few moving or replaceable parts make RO systems easy to clean and service. RO systems remove pollutants from water including nitrates, pesticides, sulfates, fluoride, bacteria, pharmaceuticals, arsenic and much more. An RO systems' carbon filter will also remove chlorine and chloramines.

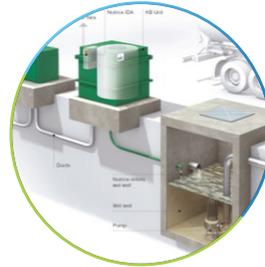


Chlorine Gas Scrubber

Chlorine is a frequent byproduct in many chemical reactions. However, manufacturers are required by law to reduce or eliminate emissions of this poisonous gas. Turn to Pollution Systems for a high-quality chlorine scrubber built to fit your requirements.

It removes pollutants by injecting liquid into the gas stream.

For particulate systems such as dust scrubbers, the particulates are caught by water droplets as it enters the waste stream. In the case of chemical scrubbers, the liquid injected reacts chemically with the gas pollutant to strip it out of the waste stream.



Odour control systems for STP

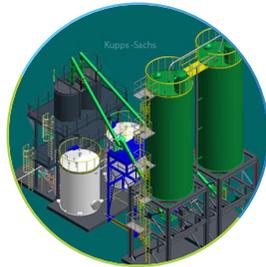
The odors associated with collection systems and primary treatment facilities are generated as a result of an anaerobic or “septic” condition. This condition occurs when oxygen transfer to the wastewater is limited. In the anaerobic state, the microbes present in the wastewater have no dissolved oxygen available for respiration. This allows microbes known as “sulfate-reducing bacteria” to thrive. These bacteria utilize the sulfate ion (SO_4^-) that is naturally abundant in most waters as an oxygen source for respiration. The by-product of this activity is hydrogen sulfide (H_2S). This by-product has a low solubility in the wastewater and a strong, offensive, rotten-egg odor. Solids handling facilities are another significant odor problem area. In biosolids dewatering and treatment processes, the biosolids commonly undergo extreme turbulence, pH adjustment and/or thermal treatment. Depending on the nature of the biosolids stream and the treatment used, the odor compounds released can consist of any combination of the following compounds in a wide range of concentrations: ammonia, amines, hydrogen sulfide, organic sulfides and mercaptans. Additionally, anaerobic digestion of sludge creates the anaerobic conditions in which sulfate-reducing bacteria thrive, causing the formation of hydrogen sulfide that is vented with the digester “biogas” formed from the digestion of sludge.

Vapor-phase technologies typically are used in point-source applications such as wastewater treatment plants and pump stations or for the treatment of biogas.

Liquid-phase technologies typically are used in collection systems where control of both odors and corrosion are concerns and/or where multiple point odor control is an objective. Here we provide ozonators of higher capacity for recycling of STP water to be potable and odour free and very good clarity.

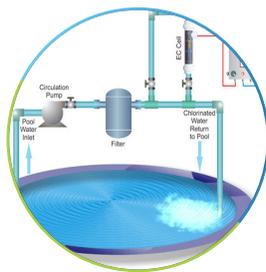
Hydrogen Sulphide and Ammonia are two main parameters restricted by regulations:

The concentration of H_2S found in the exhaust air of Sewage Treatment Plant is in the range of 5 – 15 ppm.
Threshold limit of H_2S = 0.002 – 0.15 ppm



Lime/Polymer Preparation Systems

Dry powder preparation systems are used to produce a chemical solution out of dry material like lime milk, aluminum sulfate or activated carbon. It can be used in sludge dewatering, sludge thickening, process water treatment, coagulation/flocculation and many other areas.



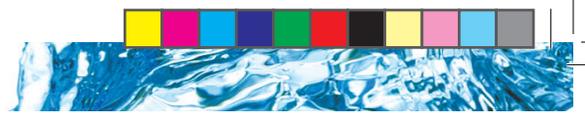
Swimming Pool Chemical Treatment Systems

Swimming pool water is treated by means of various purification steps . The water is first transported from swimming pools to a water purification plant. In the water purification plant, it will flow through a hair removal filter, which removes raw pollutions, such as hairs, plasters and leaves, from water. After that, a flocculant is added, which causes smaller colloids to bind together. Colloids are visible floating particles of organic matter, such as skin tissue and textile fibers. This group of pollutants also concerns colloidal pollutants, such as saliva, soap remains, cosmetic products and skin fats. When these pollutants are abundant, they cause turbidity.

Parameters that indicate the presence of undissolved particles are water turbidity and potassium permanganate (KMnO₄) demand of the water. Potassium permanganate is used as an indicator of organic matter oxidation.

Floating particles are removed from water in a sand filter. The sand filter is back flushed periodically.

Finally, pollutants are discharged into the sewer.



Cooling Tower & HVAC Water Treatment System

filtration system removes suspended particles down to submicron levels and provides a cost effective solution to protecting your water treatment systems from fouling caused by particles smaller than 5 microns.

The system protects cooling water loops, cooling towers and heat exchangers by keeping your water crystal clean, allowing your system to be at its best efficiency all year round. The system typically requires 3-5% of the cooling tower flow or a turnover rate of 7-12, depending on the cooling tower location. Other technologies will require typically 10-30% of the cooling tower flow.

Reduce & Enhance Chemical Use - Significantly improve the effectiveness of chemical treatment by reducing the total suspended solids (TSS). Over time requiring less chemical usage.

Reduce Water Consumption - Requires up to 50% less water during backwash when compared to traditional multi-media (MM) filtration systems. Cleaner water will also result in less routine backwash cycles.



Deionisers / Softners & Degassifiers

The Process of Deionization or Ion-exchange. In the context of water purification, ion-exchange is a rapid and reversible process in which impurity ions present in the water are replaced by ions released by an ion-exchange resin. The impurity ions are taken up by the resin, which must be periodically regenerated to restore it to the original ionic form.

(An ion is an atom or group of atoms with an electric charge. Positively-charged ions are called cations and are usually metals; negatively-charged ions are called anions and are usually non-metals).



Mixer/Re-circulating

Applications

- **Swirling of deposits and solids destruction of floating sludge layers**
 - **Activated sludge tanks for creation of fluid current**
- **Homogenisation and prevention of floating sludge layer**
 - **Industry, agriculture & water supply**

Product/ Design Features

- Submerged operating mode: S1 protection class: IP 68
- Two-stage planetary gear with exchangeable second planetary gear
- Permanently lubricated anti- friction bearing
- Max. Submersion depth: 12.5 m



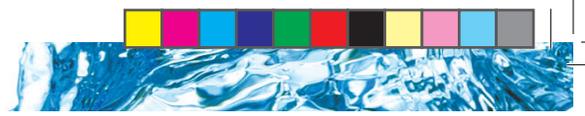
Mixer/Re-circulating

Applications

- **Municipal raw sewage transfer**
- **Sewage treatment plants**
- **Effluent treatment plants**
- **Dirty water in industry**
- **Sugar mills**

Product/ Design Features

- End suction top discharge
- Mounting: Horizontal
- Stage: Single
- Casing with hand hole inspection cover mechanical seal/ gland packing large free passage up to 200 mm
- Grease lubricated antifricition bearing



Submersible Sewage Pump

Applications

- Municipal raw sewage transfer
- Sewage treatment plants
- Effluent treatment plants
- Dirty water in industry

Product/ Design Features

- Vertical submersible sewage pumps
- Stage: Single
- Non clog (free flow / single / multichannel) impeller
- Large free passage size up to 200 mm double mechanical seal
- Oil barrier chamber with float switch winding/ bearing temperature indicators/ moisture sensor

APPLICATIONS

Our solutions are environmentally friendly, consume less energy and are compact for both onshore and offshore application. Our reliable systems are ideally suited for various industry sectors.



Food & beverage

Advanced integrated water technology and conceptualisation of water treatment systems for food & Beverage manufacturing and processing.



Hotels, tourism & leisure

Our advanced treatment delivers solutions for hotels, beach resorts, labor camps, water parks, swimming pools, water playgrounds, wellness centres, clubs and fish farming.



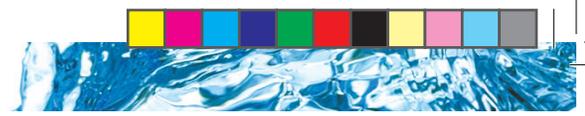
Military & defense

Our systems require less maintenance and minimum intervention during emergencies, aid relief operations, military operations and construction of accommodation camps.



Agriculture

Agriculture often faces uncertainties of changing climate and drought, We are able to provide reliable water solutions to ensure consistent fresh water availability.



SERVICE SUPPORT

We offers extensive after-sales service and technical support and stocks a full range of spare parts .

We also have a team of qualified technicians and service experts on-hand annual operation & maintenance contracts can also be arranged .

- Supervision of Installation and commissioning .
- After Sales Services – and site Support .
- Maintenance Contracts for new and of old plants .



Maintenance & Services

we are equipped with call centers working 24x7, which will give a good response to all your maintenance related issues.



Maintenance Fleet

we are having a good maintenance fleet of 20 Vehicles running all over Kuwait to maintain our reputation in the field.



PROJECTS REFERENCES

Al-Madadd Purification



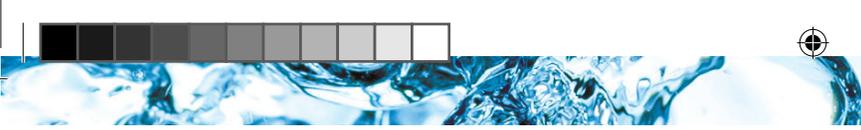
B.O.T - Greywater Treatment Plant | Ministry of Public Works



BOT - Greywater Treatment Plant

standard basis of design includes an aeration system, providing a 24-hour detention time and a final settling tank, with an effective 4-hour detention time. Diffused air is introduced into the aeration tank, this provides the proper environment for the development of aerobic bacteria. These bacteria thrive on the materials contained in the wastewater. The prolonged period of aeration, in addition, oxidizes a portion of the solids in the system. Oxygenation by diffused aeration provides operating flexibility and standby reserve to meet the demanding requirements of varied package plant applications. Separation of the solids from the mixed liquor developed in the aeration tank takes place in the settling compartment. The clarified effluent is withdrawn for reuse or discharged into a receiving stream from the top of the settling tank. The settled solids are rapidly pumped from the bottom of the settling tank back to the aeration system. These Extended Aeration Plants are proven workhorses, providing excellent Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) removal efficiency. Only minimal routine housekeeping and operational tasks are required of the plant operator.





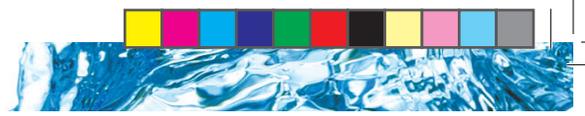
Expatriats Housing Projects | Ministry of Public Works



Biological Filtration reactors system

Maintenance and operation of waste water treatment plant. The hydraulic capacity is 3000CMD connected to 12,000 person. It has three processes. The first one is pretreatment followed by 3 biological filters and the final treatment in which the purified waste water will go through the three sand filters and disinfection chlorination step



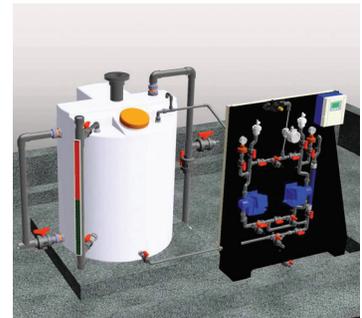


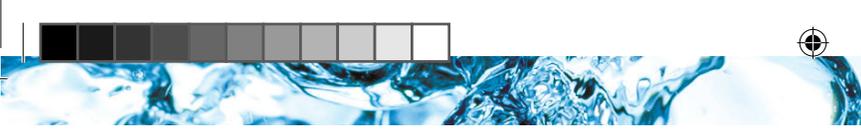
Ambulance Stations | Ministry of Health



Dosing systems

Ph dosing system & controller designed to detect the Ph and dose the Chemical to neutralize the flow water in the pipeline.





Renewable Energy Power Park - Shagaya | Kuwait Institute of Scientific Research



KISR Renewable Energy - MBBR

MBBR Treatment System uses biofilm carriers operate within an aerated wastewater treatment basin. Biocarriers work as a surface area to support the growth of heterotrophic and autotrophic bacteria. The growth of bacteria is the main step in this purification system. MBBR is considered to be one of the best cost-effective treatment technologies. Moreover, it doesn't require a lot of maintenance and it doesn't need a large space.





NH Housing | Public Authority for Housing Welfare



NH housing - Packed grey water treatment system

standard basis of design includes an aeration system, providing a 24-hour detention time and a final settling tank, with an effective 4-hour detention time. Diffused air is introduced into the aeration tank, this provides the proper environment for the development of aerobic bacteria. These bacteria thrive on the materials contained in the wastewater. The prolonged period of aeration, in addition, oxidizes a portion of the solids in the system. Oxygenation by diffused aeration provides operating flexibility and standby reserve to meet the demanding requirements of varied package plant applications. Separation of the solids from the mixed liquor developed in the aeration tank takes place in the settling compartment. The clarified effluent is withdrawn for reuse or discharged into a receiving stream from the top of the settling tank. The settled solids are rapidly pumped from the bottom of the settling tank back to the aeration system. These Extended Aeration Plants are proven workhorses, providing excellent Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) removal efficiency. Only minimal routine housekeeping and operational tasks are required of the plant operator.





APPROVALS

Al-Madadd Purification





Expatriats Housing Projects | Ministry of Public Works



وزارة الأشغال العامة
MINISTRY OF PUBLIC WORKS



وزارة الأشغال العامة
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وزارة الأشغال العامة
Ministry of Public Works

الإشارة : ٧٨٦ - ١٥١ - ٢٠
التاريخ : ٢٨ مارس ٢٠١٨

REF :
DATE :

المحترمين
السادة / الشركة الكويتية الأولى للتجارة العامة والمقاولات
ص.ب: 480 السوق الداخلي - الرمز البريدي: 15255 الكويت
ت: 1800500 - ف: 1800600
تحية طيبة وبعد،،،

الموضوع: العقد رقم (هـ م خ / 156)
المشروع: دراسة وتصميم وإنشاء وإنجاز وصيانة سكن العمالة الوافدة بمنطقة الشدادية
بخصوص: تشغيل وصيانة محطة الصرف الصحي

بالإشارة إلى الموضوع أعلاه ، ولحاقا لكتابنا رقم 20-151-377 بتاريخ 2018/2/08
(مرفق نسخة) وإلى كتابكم رقم 166/2018 /CONS/SHAD./FKTC. بتاريخ
2018/02/19 (مرفق نسخة) ، نعلمكم بموافقة قطاع الهندسة الصحية بكتابهم رقم
6/14-515 بتاريخ 2018/03/13 (مرفق نسخة) على الطلب المقدم منكم بكتابكم أعلاه وذلك
بتعديل اسم المقاول المعتمد ليصبح " شركة المدد للتنقية " بدلاً من شركة المدد الخليجية
للتجارة العامة والمقاولات كماقاول باطن متخصص لأعمال تشغيل وصيانة محطة تنقية
مياه الصرف الصحي بالمشروع أعلاه .

وتفضلوا بقبول فائق الاحترام،،،



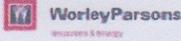
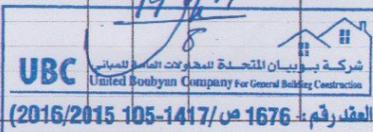
الوكيل المساعد لقطاع المشاريع الإنشائية
المهندس / غالب ثلاث صفوق
الوكيل المساعد لقطاع شؤون المشاريع الإنشائية



وزارة الأشغال العامة

المرفقات : كما هو مذكور أعلاه

Renewable Energy Power Park - Shagaya | Kuwait Institute of Scientific Research

   															
PROJECT: RENEWABLE ENERGY POWER PARK - SHAGAYA															
OWNER : Kuwait Institute for Scientific Research CONSTRUCTION MANAGER : Worley Parsons CONSULTANT : Osama Bukhamseen Design CONTRACTOR : Specialities Construction TRADE : Road Work	SITE SUBMITTALS SUB No.: RD.020 Rev.: 02 DIV / SEC.: III-2 DATE: 19/8/2017														
WE REQUEST APPROVAL FOR THE FOLLOWING: SUB Sub Contractor MT Material SM Sample DWG Drawing GT Guarantees OT Other															
<table border="1"> <thead> <tr> <th>Item No.</th> <th>Spec</th> <th>Item description</th> <th>Type</th> <th>Copies</th> <th>Submittal Code</th> <th>Action Code</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>III-2</td> <td>Treated Plant Supplier and Design from m/s AL MADADD PURIFICATION COMPANY</td> <td>OT</td> <td>1</td> <td>1</td> <td></td> </tr> </tbody> </table>	Item No.	Spec	Item description	Type	Copies	Submittal Code	Action Code	1	III-2	Treated Plant Supplier and Design from m/s AL MADADD PURIFICATION COMPANY	OT	1	1		
Item No.	Spec	Item description	Type	Copies	Submittal Code	Action Code									
1	III-2	Treated Plant Supplier and Design from m/s AL MADADD PURIFICATION COMPANY	OT	1	1										
Details of information, literature, catalogue cuts and the like attached are : 2 copy from Design Shopdrawing and Company profile															
N.B. We certify that above items have been reviewed in detail and are correct and in strict performance with the contract. Documents unless noted below.															
Project Manager's Signature: <i>For Eng. Yassad</i> Date: 19.8.2017	Received by Consultant : _____ Date: _____														
Consultant's Remarks: <i>Recommendation for approval * B التقييم بالامتثال وملاحظات * بعد الدراسة والاطلاع على اللوحات وملاحظات المرفقات. وعلى خطوط العنايه المبينه في الخططات المرفقه وتكميل بيانات المعونات والذبحه المستقيه - لدمالتم لدينا من الترميم باعتماد نظام العنايه المبولوجيه (MBBR) بشرط التزام التاول بالملاحظات والتطابق الدقيق في الورقه المرفقه.</i>															
R. E. Signature : _____ Date : _____	Received by Contractor : _____ Date : _____														
* SUBMITTAL CODE : 1. Submitted for Approval 2. Submitted for information	** ACTION CODE A. Approved B. Approved as Noted <i>(checked)</i> C. Not Approved D. For Information														
NOTE : A Separate Transmittal should be made for each material.															
CC : <input type="checkbox"/> KISR <input type="checkbox"/> W.P.															
 Date 24/8/2017 12:20 Pm Received by: <i>Sulaiman</i>															

B.O.T Project | Ministry of Public Works

Transmittal No. MD/15/38 REV02		Dated 15/01/2018		نموذج اعتماد مواد (صحي)	
A APPROVED	C NOT APPROVED	مادة مطابقة	مادة بديلة	B.O.T ال	
B APPAS NOTED	D RESUBMITT	المادة	الوكيل	إعادة تقييم	مرفوض سابقا
GRAY WATER TREATMENT SYSTEM		AL MADADD PURIFICATIONS		X	
المواصفات الخاصة		المواصفات الخاصة		مواد حسب الكatalog المقدم	
Section 15450		Substitution Submittal for the Upgraded Equipment		المهندس المختص:	
1-Bar Screen		Changed from Manual to Automatic. Inlet 88", outlet 6" Made: WES		① تسليم المخرجات حسب	
2-Feed Pump		CronoLine-IL. Head 40m, Motor Kw: 3KW, made: Wilo		المواد المصنفة والمواد	
3-Air Blower (Comply)		Duty Flow=30 m3/hr, 2.2 KW, Manufacturer: Emme Con-Italy		② الترخيص مع بيات الختمات	
4-Air Bubble Diffuser		AX9E-ITALY, Active Surface area: 0.04m2, Temperature Capability: 150 c		③ اعتماد الرهبة لسحب	
5-Self-Cleaning Filter		230V/1Phase/50Hz. Duty Flow: 1.2m3/hr. Made: Filternox Turkey		البيوت بعد ابطال التيار	
6-Pressure Sand Filter		Changed the size from 16" to 18" Made: Pentair-Belgium		الكهربائيات	
7-Activated Carbon Filter		Changed the size from 16" to 18" Made: Pentair-Belgium			
8-Coagulant Dosing System		Pump Duty Flow: 2.5l/hr. Regulation control with analogical control. Automatic Electronic diaphragm Pump. Made: ITC-Spain Tank capacity 200L			
9-Ultrafiltration		HYFLUX K60DETI Membrane Filtration area: 55m2. Filtration Pore size: 0000 Da. Design Flux 1.1-6.5 m3/hr. Made: Hyflux- Malaysia			
10-Ultra Violet Sterilizer		LBS-062, Flow: 4.4-11 GPM, Lamp watts: 22W, Power Watts: 30W, V weight: 4.2Kg, Made: Luminor-Canada			
11-Post Chlorination Dosing System (Comply)		Pump Duty Flow: 2.5l/hr. Regulation control with analogical control. Automatic Electronic diaphragm Pump. Made: ITC-Spain Tank capacity 60l			
12-Treated Water Lifting Pump (Comply)		Head: 20m, Duty Flow: 1.5m3/h, Motor Kw: 0.55 KW, Made: WILLO		التاريخ: 15/1/2018	
13-Polyethylene Tank		Capacity: 750 Gallon, Made: Watanl-Kuwait		نائب المهندس المشرف	
DR -102				تعهد صاحب الاعلاء	
WS -103				التاريخ: 24/1/2018	
جدول الكميات		المواصفات العامة		المهندس المشرف	
DIV-15.46.3		15/1/2018		مدير المشروع	
توقيع المهندس المشرف		التاريخ: 15/1/2018		اعتماد نهائي	
				استلام الوزارة	
				التاريخ: 15/1/2018	
				استلام المقاول	
				التاريخ: 15/1/2018	



OUR TECHNOLOGY PARTNERS

Al-Madadd Purification

WE ARE DEALING WITH THE BEST TECHNOLOGY PROVIDERS



PARTNER

 SANGWON ENG CO., LTD.



TECHNOLOGY

SANGWON

Manufactures water tanks using the SMC-Hot Press Molding process to the highest specification and hygiene standards. It offers tanks with sizes ranging from 260 USG (1 m³) to 2,500,000 USG (10,000 m³) and more, for various applications such as residential, commercial, industrial, municipal and irrigation projects around the world. Every unit is supplied to the same standard of design and specification to the size and shape best suited for every need of the customer .

wilo



WILO

Produce pumps and pump systems for water supply, sewage disposal and sewage treatment in municipal buildings and flood control such as :

Mixer/ Re-Circulation Pump Stationary flexible installation via lowering device ,can be swivelled horizontally for installation with lowering device installation with stand allows free placement in basin & Single-stage planetary gear with Material of Construction of Engineering Plastic or Grey Cast Iron.

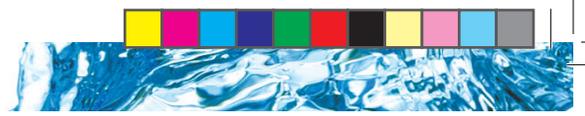
Drypit Nonclog Sewage/ Wastewater Pump Delivery Size: DN 50 - DN 800 with Qmax: 8000 m/hr & Hmaxo: 70 m, Temperature: up to 70°C , Mounting: Vertical, Delivery flange orientation, change possible & Bush bearing.

Material of Construction Cast Iron, Bronze, Ductile Iron, , Cast Steel, Ni Resist, Stainless Steel, Duplex Stainless Steel & special alloys

Submersible Sewage Pump Delivery Size: DN 32 - DN 600

Qmax: 8000 m/hr Hmax: 100 m Temperature: up to 60°C

Stationary / portable installation à Dry/ wet pit installation, With/ without macerator, Mixer head for agitation & With/without ceram coating for aggressive liquids, Material of Construction Casing - Cast Iron/ Engineering Plastic , Impeller - Cast Iron / SS / Engineering Plastic & Other materials on request



PARTNER	TECHNOLOGY
 	<p>ERIE WATER TREATMENT</p> <p><i>Manufacture of automatic control valves and brine tanks assemblies for complete water treatment systems and solutions, such as water sand filters, iron filters & water softeners for use in a wide range of applications, like residential, commercial hospitality.</i></p>
 	<p>HELIROMA</p> <p><i>produce thermoplastic pipe systems for cold and hot water, PP-R pipe and fittings, offers the widest range from 20-400mm.</i></p>

PARTNER

TECHNOLOGY

BLUEWATER BIO



BLUEWATER BIO

Specialist in technologies for cost-effective water & wastewater treatment with a capabilities that includes:

HYBACS® (enhanced activated sludge process),

FilterClear™ (high throughput multi-media filtration),

GHG-Tox® (nitrification & greenhouse gas monitoring),

NeoTech™ (highly efficient UV disinfection),

CFIC® (next-generation moving bed bioreactor (MBBR) technology) &

Operational & Maintenance services

(supporting a population equivalent of c. 1 million)

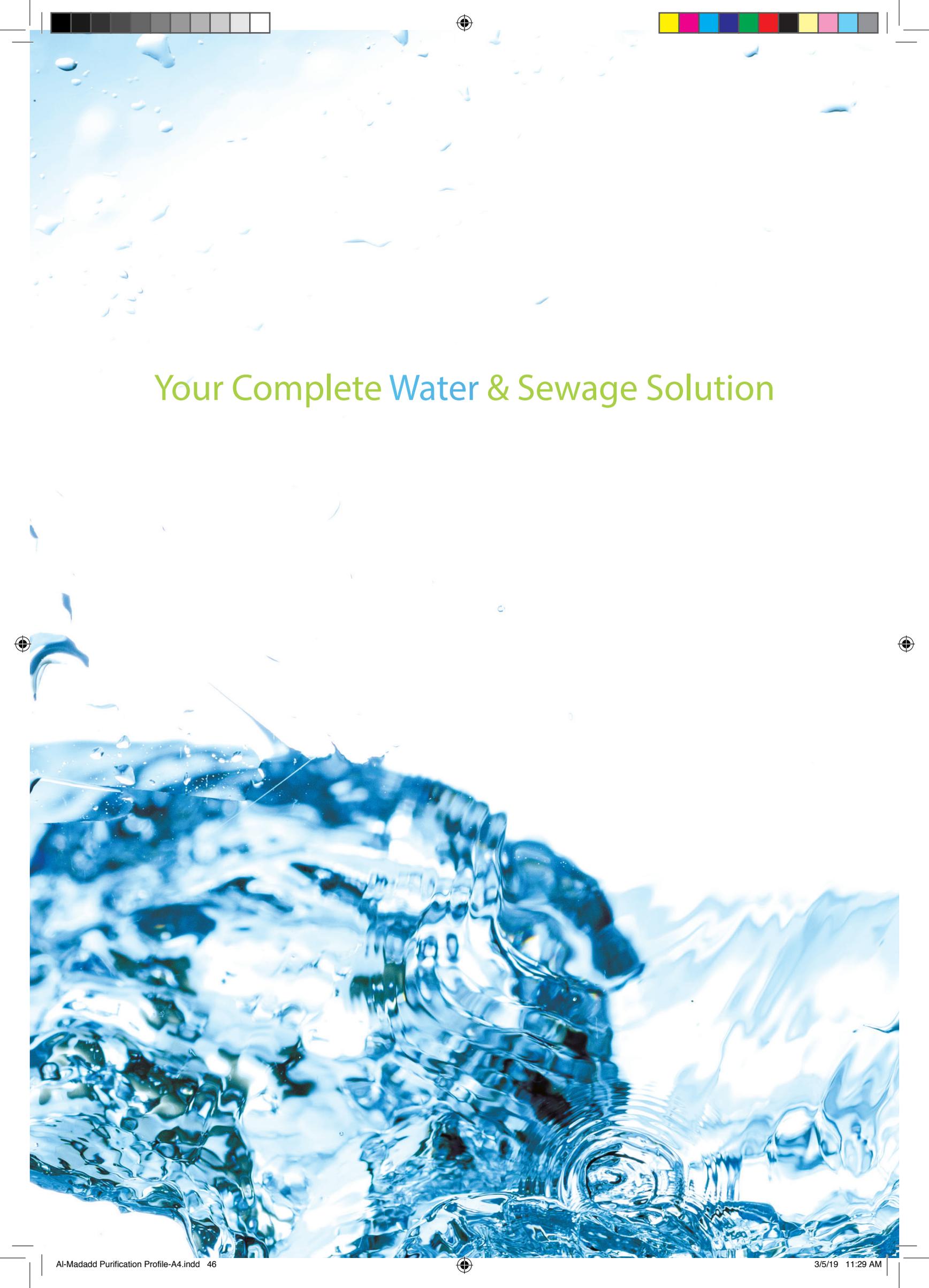


WATER

Provides technical solutions for treating primary sea water, brackish water, well water, surface water and waste water utilizing membrane separation technologies – microfiltration, ultrafiltration, Nano filtration, reverse osmosis – together with chemical conditioning and mechanical filtration producing high quality drinking water and desalinated pure water for industrial and agricultural purposes.



PARTNER	TECHNOLOGY
 	<p>LAN SHAN</p> <p><i>A manufacturer of various RO System, water purifier, water fountain, commercial and industrial reverse osmosis equipment and parts/accessories.</i></p>
 	<p>COES COMPANY</p> <p><i>Manufactural of sewage systems made of polyethylene pipes and fittings with diam. from 32 to 315 mm and includes a wide range of connection fittings and service connections to sanitary and sewage systems with a high resistance to operating temperatures between -40° and + 70°C, with the ability to manage peak loads at 95°C. Coestilen® pipes and fittings are compliant with standard UNI EN 1519.</i></p>

A high-speed photograph of water splashing, creating a dynamic and energetic scene. The water is captured in various stages of motion, from a sharp splash at the bottom to a misty spray at the top. The color palette is dominated by various shades of blue, from deep cerulean to bright, almost white highlights where the water catches the light. The overall effect is one of purity and movement.

Your Complete Water & Sewage Solution





Your Complete Water & Sewage Solution

Al-Madadd Purification

One of Enertech Group of Companies fully owned by NTEC

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