

2017

Haya Water uses advanced technology for waste water treatment



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Haya Water's infallible phases of water treatment

CCE focuses on nurturing entrepreneurs

MUSCAT: Oculian College of Engineering (CCE) hosted its fourth annual Entrepreneurship Fair, 2017 recently at its Al Hail Campus under the patronage of Sultan Bin Sultan Al Farsi, CEO-AL Hail.

This event saw coming together from higher education institutions, venture capitalists, banks and government SME support agencies to show the support and services they offer for graduate start-ups.

The objectives of Entrepreneurship Fair are to provide an opportunity to students to network with the entrepreneurial community in the local market, interact with other SMEs on good practices in their graduate entrepreneurship initiatives, bring all funding partners under one roof to interact with graduate entrepreneurs, discuss potential business ideas for funding and bring the community together to enhance more startups.

MUSCAT: Haya Water has been working since its establishment, to introduce the latest technologies used in the field of wastewater treatment and to use this water to make (lean greener and healthier and to maintain public health).

The choice of treatment (Cyclic Extended Aeration System (CEAS) and Membrane and Bio-Reactors System (MBR)) as substitutes for traditional wastewater treatment systems.

The treatment using Extended Aeration and Activated Sludge systems in Wastewater Treatment Plants (STPs) is considered traditional. On the other hand, the modern technologies used by the company have many advantages compared to other technologies. The phases of wastewater treatment are as follows:

Physical treatment

This is the first phase of treatment, which aims to improve the specifications of wastewater flowing into the STP by reducing the number of contaminants materials by removal of non-organic floating materials such as wood and plastic parts by mechanical netting. Also removal of sand and surface suspended materials including fat and grease.

Biological treatment

This is the main phase of treatment where the appropriate climate is provided using necessary ventilation and the addition of oxygen to water for the reproduction

of microorganisms and bacteria which transfer wastes (organic matter and food) to non-organic materials (gases and cellular tissues) heavier than water. These materials then sink to the bottom as sediments and become easy to get rid of. This phase is divided into two stages.

Ventilation and mixing: After primary treatment, the water is transferred to the ventilation ponds and mixed with active sludge from the sedimentation ponds. The biological treatment then starts in the ventilation ponds and the oxidation of organic materials by supplying these ponds with compressed air from the compressor building.

Sedimentation ponds: From the ventilation ponds, the water flows to the collection ponds and the mixture is distributed to the circular sedimentation ponds where it is collected and transferred to the triple treatment phase. As for the sludge in this phase, the other part of the sludge is returned to the treatment phase. Organic matters, when the air is blocked or reduced, cause a decrease in the nitrite and produce nitrogen that rises to the top and pushes some foamy materials while rising which has to be avoided off the surface of the pond on daily basis.

The foam is collected in a special pond for disposal.

Triple treatment phase: This is the final phase of treatment and the aim of this phase is to sterilize water and remove any

solid or suspended parts, which increase the purity of treated wastewater. At the beginning, the water from sedimentation ponds is injected with chlorine to kill harmful bacteria and prevent it from reproduction.

After that, the water is stored in the balanced tanks. These tanks store biodegradable water at peak hours to be filtered later throughout the day. The water is then transferred, from the balanced tanks to the sand filters, which remove the remaining solid particles from the water. To prevent the blockage of these sand filters, they are washed periodically using reverse washing method. This is the final phase of treatment and the water is then pumped outside the STP to be used for irrigation. All STPs are equipped with chemical and biological laboratories to monitor the quality of treated wastewater and ensure its suitability for irrigation purposes and compliance with international environmental standards.

Sludge is transferred to the ventilation ponds, then mixed with a chemical for concentration, and then passed into separation to remove water from the sludge, which dry the sludge by 25%. The relatively dried sludge is then transferred to the compost plant where it is mixed with natural organic materials such as leaves and grass. After that, it is mixed and turned over on solid ground using open pile method where the temperature rises to more than

70 degrees Celsius. An organic processed fertilizer is produced which is safe and conforms to international standards and specifications of the Ministry of Environment and Climate Affairs for agricultural uses.

Extended Aeration System

In this modern technology, the ventilation and sedimentation processes are basically carried out in the same tank, while in the traditional method of wastewater treatment using the activated sludge system, it is carried out in two separate tanks. In the course of time, Extended Aeration System technology has been developed and a modified version of this system, called Intermittent Cyclic Extended Aeration System (IC-EAS) has been launched.

In this technology, the wastewater is constantly supplied to the treatment tanks and an induction well is used to reduce the continuous flow of water. The Extended Aeration System is different from other technologies since that the water produced is of high quality, the error rate is almost non-existent and has flexibility in the operation, and it saves effort and money.

Membrane and Biological Reactors System

The wastewater treatment system using Membrane Bioreactors is a developed version of wastewater treatment technology using Extended Aeration and Activated Sludge. This system simplifies

the secondary and triple phases of the conventional system. The Membrane Bioreactors technology separate water from solid materials. This system produces high quality treated wastewater due to the tiny pores, which are only 0.1 microns. The solids particles are then returned to the active bacteria to be mixed with the sewage to revive the bacteria and facilitate the work of treatment in the ventilation ponds. Moreover, part of the solids are disposed where they are processed in the sludge treatment system and partially dried for the production of organic fertilizer.

The advantages of this system compared to other systems is the high-quality treated water that can be used for all irrigation and agriculture purposes. On the contrary, the disadvantages of the system are the high costs of operation and maintenance, and the need to control the contaminants in the wastewater such as oil, grease, sand, stones and chemical substances that adversely affect the operation of membrane reactors and cause blockage of the pores.

Operations and Maintenance Division is responsible for managing the networks, pumping stations and STPs and monitoring all the processes and phases of wastewater treatment, starting from the house connections to the wastewater network, into the STPs and finally pumping the treated wastewater into the distribution networks for irrigation of parks and parks.



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AVAILABLE AT ALL LEADING STORES IN OMAN

Haya uses advanced technology for waste water treatment

STAFF REPORTER
MUSCAT, OMAH

Wastewater treatment and its reuse contribute to reducing the spread of epidemics and diseases and help create a healthy environment.

Haya Hajar has been working since its establishment to introduce the latest technologies in the field of wastewater treatment and to use this water to make Omani green and healthier and to maintain public health.

It uses the International Cycle Extended Aeration System (ICEAS) and Membrane and Aeration System (MAS) as substitutes for traditional wastewater treatment systems.

The treatment using Extended Aeration and Activated Sludge systems as "Wastewater Treatment Plant (WWTP)" is considered traditional.

On the other hand, the companies use the modern technologies it uses offer several advantages compared with the other technologies.

These technologies include Extended Aeration System (EAS), a process in which oxidation and sedimentation processes are carried



out in the same tank, in the traditional method, the two processes are carried out in separate tanks.

EAS technology has been modified and now called International Cycle Extended Aeration System (ICEAS). Here, wastewater is constantly supplied into the treatment tanks and an aeration tank is used to reduce the continuous flow of water.

Advantages and Disadvantages of Extended

System (EAS) is an advanced technology; this uses Extended Aeration and Activated Sludge. It separates water from solid materials and produces high quality treated wastewater due to the long process that can reach 1000 minutes.

The advantage is the high quality treated water which can be used for irrigation purposes.

The disadvantages are high costs

of operation and maintenance, and the need to control concentrations of wastewater such as oils, grease, sand, stones and chemical substances that adversely affect the operation of membrane reactions and block the fine pores.

The Operations & Maintenance Division is responsible for managing the networks, pumping stations and STPs and monitoring all the processes and phases of wastewater treatment, starting from the house connections to the wastewater network, into the sewage treatment plants (STPs) and finally pumping the treated wastewater into the distribution networks for irrigation of gardens and parks.

OMSI Division also transfers the partially dried sludge to the organic compost plant in Al Khaima and then blends it with organic materials such as leaves and branches to produce organic compost.

This project aims to protect the environment from pollution and contribute to controlling the emission of harmful carbon into the atmosphere and environment by saving solid waste as an environmentally friendly product called Kala compost.

Sultanate to host finals of MIT Arab Startup contest in April



MUSCAT: MIT Corporate Forum Pan Arab announced that the Sultanate will host the closing ceremony of the MIT Arab Startup Competition in its 13th edition on April 19, 2018.

This year, during a pre-conference held at Oman Convention and Exhibition Centre on the sidelines of the "Global Omani 5" exhibition, which opened on Tuesday with the participation of 200 small and medium enterprises spread across all sectors of the economy, service and crafts and continue for 5 days.

This year's forum competition comes in partnership with Community Fund, the social institution that has many initiatives to bring about positive change in society and advance economic

sustainability.

The current edition of 5 welcomed the application of other partners from the Sultanate as a strategic path MIT Forum, the Public for the Development of Small Medium Enterprises, the Oman Technology for Services, an incubator for startups and innovation the IT sector in the Sultanate region.

The MIT Arab Competition in its 13th edition is open to applicants from 13 to December 3 through with the reason of the site being announced in the first January 2018, who will be judged on up to 100,000.

«حيا للمياه» تواصل تطوير قطاع الصرف الصحي بأحدث التقنيات



مواصفات مياه الصرف الصحي المتدفقة إلى محطة المعالجة وذلك نظراً لكمية المواد التي يتولدها معاً مما يساعد على منع كثافة المعالجة لمياه الصرف الصحي في المراحل الأولى. وهناك مراحل المعالجة الثانوية «المعالجة البيولوجية» وهي المرحلة الأساسية في المعالجة حيث توفر المناخ المناسب من طريق التهوية الآتية وإزالة الأوكسجين للمياه لتكسر الكائنات الدقيقة والتي تقوم بتحويل المواد العضوية والبروتينية

المعدنية والبروتينية المركبة بدلاً من الألبنة اللبنة والتي يصعب معالجتها بنظام التهوية المتعددة والهدوء للشفط في محطات معالجة الصرف الصحي من الألبنة المتكثفة التي من شأنها التلوث الهيكلي التي تستخدما الشركة فهي تعمل العديد من الإجهادات مقارنة بالتقنيات الأخرى والتي توفر مزايا أعلى للصرف الصحي في مراحل معالجة مياه الصرف الصحي والتي تتم من المعالجة الأولية «المعالجة الفيزيائية» وهي أولى مراحل المعالجة والهدف إلى تحسين

مسقط - الرؤية

تعمل شركة حيا للمياه منذ تأسيسها على إنجاز أحدث التقنيات الحديثة المستخدمة في مجال الصرف الصحي وطرق معالجة المياه الشائعة من حيث الكفاءات وكيفية استخدام تلك المياه لاجل عدم إهدارها وحرصاً بالحفاظ على الصحة العامة. وقد اختار نظام معالجة البيولوجية للتلوثات ذات الكفاءة العالية، وأجهزة الترشيح



احتفلت مجموعة اللولو العالمية بالعيد الوطني السابع والأربعين المجيد بحضور قيادات المجموعة في السلطنة وعدد كبير من العاملين.

«المدينة تكافل» تجدد دعمها التأميني لـ «أصدقاء المسنين»



مسقط - الرؤية

جسدت المدينة تكافل، أول شركة تأمين تكافلي في السلطنة التزامها من خلال دعمها المستمر لتجربة جمعية أصدقاء المسنين وذلك بالتعاون مع مرسوم التأمين الاجتماعي الجمعية المسنة التي تأسست على التوالي منذ ذلك الحين والتي لها دور المساهمة الاجتماعية للشركاء. وقد بدأت المدينة تكافل بهذه المبادرة لرفع الوعي بهدف تقديم الدعم لهذه الجمعية القوية لتسهيل الخدمات وتقديم أفضل رعاية لها. قامت الشركة بدورها بتجديد وثيقة التأمين هذه لخدمة تقديم الدعم اللازم وأصبحت الجمعية المعنية بالأمم المتحدة عام ٢٠١٢ لتتسيب احتياجات لمرحلة المسنين من رعاية طبية واجتماعية من خلال مبادراتها الخيرية.

13