

// CHLORINATORS
FOR LEBANON

// DISINFECTING WA-
TER WITH CHLORINE
DIOXIDE

// TRAINEES ON
TOUR

A CAREFREE BATHING EXPERIENCE IN THE RIVER ISAR

MEMDOS GMR PROVIDES A HYGIENIC QUALITY OF WATER

Each purification plant's off-flow water releases a plethora of bacteria into the wide world as it travels. The majority of these bacteria are made up of the natural "gut dwellers" of *Escherichia coli* and their relatives, all of whom are admittedly "disgusting" but largely harmless. However, potential pathogens such as salmonellae can also swim along in the wake of this majority. The number of dangerous bacteria is

usually very low and therefore it is complicated and difficult to obtain evidence of it. For this reason the number of coliform bacteria is used to indicate the level of contamination. Off-flows from purification plants mainly flow into neighbouring waters and the bacteria are quickly destroyed there by natural means (as food for microorganisms). However, if the off-flow water enters bathing waters or their proximity, it should



be ensured that the risk of a dangerous contamination is minimised. The Isar, as one of Munich's landmarks, is one such body of water. Every year thousands of city dwellers, sun-seekers and those looking to cool down splash around in the Isar water meadows as well as in the water. The government of Upper Bavaria has busied itself already for many years in water pollution control (first ring-canalisation around Lake Starnberg in the 70s). The mayor of Munich and Munich's drainage work companies, together with other municipalities of Isar and specialist authorities, have been lobbying for years for the improvement of the hygienic quality of the Isar's water.

HIGH QUALITY OF WATER WITH THE SINCERUS® PROCEDUR

Purification plant owners neighbouring the Isar to the south have been disinfecting their off-flow water since 2003. That is why it is possible to experience carefree bathing again in the Isar. A research project started in 2004 at the Moosburg purification plant with the new SINCERUS® procedure. The source materials, water and salt, temporarily react in an anode and cathode chamber that is divided by diaphragma on the basis of electrolytic processes.

"Free Chlorine" will be formed, that very quickly kills and destroys bacteria and germs, but that also very quickly break down again into its elements – hence the production on site. The great advantage of this procedure lies in the high reactivity of the product (Oxidat) and its good environmental compatibility. By using the SINCERUS® procedure the hygienic quality of the water in flows and other discharge

areas is clearly improved.

LUTZ-JESCO DOUBLE DIAPHRAGM DOSING PUMP

A Lutz-Jesco dosing pump, the MEMDOS GMR model, is used to dose the disinfection product, Oxidat. These pumps belong to the group of double membrane dosing pumps and can be run with one or two dosing heads. They are used to dose large quantities with relatively low counter pressures. They are often used to dose pH regulating chemicals or flocculants in wastewater treatment. The dosing pumps are available in three sizes as single-dosing pumps for 2000 to 4000 l/h. It is possible to use different dosing heads with the dual-dosing pumps. The dosing heads always run in the push-pull mode. The double membrane is a characteristic feature of the dosing head. The membrane is driven by the eccentric cam approximately sinusoidal, via the constant stroke. As the membrane is respectively carried in the end position of the stroke completely laminar by the large supporting discs, a piston-like displacement effect is created.

This results in a greater dosing accuracy and it is less dependent on the counter-pressure. The front supporting disc for the intake stroke must not come into contact with the medium for reasons of chemical resistance and the possible abrasion.

Therefore a second membrane is provided, which functions purely as a dividing membrane and is therefore neutral regarding its force. The dividing membrane made from EPDM is provided with a PTFE coating for the medium side. A precisely measured glycerine filling works as a hydraulic connecting rod and keeps both membranes at a constant distance from each other. The rear membrane chamber is also

partially filled with glycerine for lubrication.

THE CHOICE OF THE SUITABLE PUMP

The choice of dosing pump during the planning of a plant as well as the installation and the operation has to respect the current local regulations.

The same applies to the choice of suitable materials for the pump, the handling of chemicals and the electrical installation. Likewise, the dosing pump's technical data has to be respected and the plant's layout has to be brought in line with this (e.g. pressure loss during the design of the plant's layout with a view to the nominal width and length). Attention has to be paid to the dimensioning of the line, especially for these large oscillating displacement pumps. With dosing positions, as in this case, that lie below the fluid level of the main collection tank, precautions have to be taken without fail against the "through-siphoning". As the ball check valves always exhibit a certain leakage under a specific closure pressure, the best choice is a membrane pressure control valve. But on the intake side a few rules have to be considered. If there is, for example, a large collection tank or a hydrostatic primary pressure in the inflow, then a stronger pressure affects the membrane on every intake stroke. This is then centrifuged to the stopper on every stroke creating greater wear overall or even the destruction of the mechanical drive component. The principle also applies here that every dosing does not only depend on the choice of pump, but rather on the total concept. In particular, it is true, the larger the dosing quantity, then the greater the care during planning. //



AID ORGANIZATION ORDERS 78 CHLORINATORS

RESTORING THE SUPPLY OF DRINKING WATER IN LEBANON

The 33 day war in Lebanon (July/August 2006) greatly affected the infrastructure of mainly southern Lebanon and in places it also destroyed it. In particular the facilities for securing the people's supply of drinking water no longer exist. One of the most urgent tasks since the ceasefire agreement on the 14th of August 2006 has been to restore the water supply in order to prevent the breakout of epidemics and diseases. The aid organization has decided upon the provision and installation of 78 chlorine gas dosing plants over the entire country as an emergency relief effort.

The contract for the dosing units required was tendered out world-wide in September 2007 to all renowned manufacturers of chlorine gas dosing plants. Lutz-Jesco GmbH took this task on board with a special commitment and put forward an attractive price for the complete plants with all the necessary equipment and accessories. The management and the project

manager, Andreas Kaspischak, agreed that the price had to be determined not only by economic criteria, but also humanitarian reasons. The good technical features, the total concept and finally the favourable price convinced the purchasers responsible in November Lutz-Jesco GmbH prevailed against the other 4 competitors and won the contract to supply the plants.

These plants respectively consist of 2 chlorine gas bottles with directly installed, heated chlorine gas vacuum control systems as per the full vacuum principle – according to DIN 19606. An automatic changeover switch ensures that when one chlorine gas bottle is empty, the changeover to the other chlorine gas bottle is done without interruption. Booster pumps and injectors, as well as all of the controls and instruments necessary for the installation, were all included in the scope of supply. As is customary with Lutz-Jesco, the



project, from the enquiry to the dispatch, was overseen by a project manager who is familiar with all the details. Project manager, Andreas Kaspischak: "It was a particularly motivating and satisfying task to work for a humanitarian purpose. All of the suppliers and colleagues involved themselves with great commitment to attain the best possible result!" The delivery was made on time in a 20-foot container, filled to the brim. The good feeling remains that the stipulated quality of water can be supplied again to many people. //

SHORT PROCESS FOR BACTERIA

DISINFECTING WATER WITH CHLORINE DIOXIDE

When searching for an effective, recognized and proven procedure for disinfecting water, it soon becomes clear that disinfecting with chlorine dioxide satisfies all of the criteria. In comparison with other disinfection procedures, chlorine dioxide is the first choice, as the advantages are overwhelmingly convincing. The disinfection result is higher versus chlorine and is therefore quicker and more effective. In addition, chlorine dioxide is clearly more stable than chlorine and has a higher disinfection capacity. Apart from removing unwanted odours, colours and flavour additives in drinking water, chlorine dioxide also ensures that any legionella in the water is killed. To cover this broad performance spectrum, Lutz-Jesco offers the „EASYZON“ equipment system for the onsite production and dosing of a chlorine dioxide solution. The EASYZON 5 procedure developed by Lutz-Jesco has the following advantages over other chlorine dioxide procedures:

- + A clear excess of hydrochloric acid in the reactor causes an almost complete conversion of sodium chlorite to chlorine dioxide. The excess acid makes for a low pH value of the product, whereby it attains a shelf-life of up to 24 hours.
- + Since an assured disinfection is no longer possible after the shelf-life has expired, a service life control was implemented. The control warns of using a chlorine dioxide solution that is too old and the dosing can be automatically interrupted.
- + Hardly any by-products form during the

production as the yield of ClO_2 amounts to almost 100%.

- + The plant has a high standard of safety with its self-monitoring systems.
- + The process is stopped during a power failure, whereby no explosive mixtures can develop.
- + No additional gas warning devices are required in the area as this is already a feature of the plant control system. Only a ClO_2 ambient air sensor has to be installed.



Chlorine dioxide systems EASYZON 5 and EASYZON D

For further information we cordially invite you to our stand at the IFAT fair in Munich – Hall A5, Booth 216.

ALWAYS IN THE RIGHT PROPORTION

PROPORTIONAL DOSING SYSTEM MAGDOMAT

Proportional dosing via a contact water meter represents a regulated form of dosing control. It is used as a chemical feed in the water supply pipes of simple industrial processes and private applications.

The MAGDOMAT product range connects pumps and accessories to a successful and fully automatic dosing system. Its compact construction facilitates a straightforward assembly with only a wall mount and permits a versatile application in different piping systems.

The consistency of the material offers a high chemical resistance and facilitates its versatile use with the most varied of dosing

media. A broad selection of connections to the piping system and to the dosing medium's container rounds off the MAGDOMAT product range.

With the DVGW certified MAGDOMAT model it is possible to use the dosing unit in public drinking water supply piping systems without further ado.

The MAGDOMAT is installed in the existing piping as a self-contained element. In addition to the injection point required for the supply of chemicals and the contact water meter required for proportional dosing, the dosing unit has a high quality solenoid membrane dosing pump. Another ac-



cessory is available as optional for transporting dosing liquids. An external control can be offered for monitoring the parameters, but it is not imperatively required, as the water meter is firmly connected both mechanically and with the pulse receiver of the dosing pump. //

A REPORT FROM OUR TRAINEES

TRAINEES ON TOUR

As we were invited on an outing, we met on the 31st of August 2008 a meeting, in which Mr. Koehler (Technical Sale) explained to us how purification plants and water works function. The next day we met at the Bissendorf purification plant where we were greeted by the plant manager, Rudi Ringe.

WASTEWATER PURIFICATION

In the preliminary stage of wastewater purification there is the so-called mechanical cleaning, i.e. the solids are removed by two rotating filter drums. What now remains are the screenings, e.g. leftovers, cigarette filters, sanitary items and pieces of clothing. The filtered wastewater is pumped into the aeration basins, which are loaded with bacteria. As bacteria require oxygen to survive, oxygen is mixed into the basins through microbubble aeration. Thus, released pollutants can be decomposed by the micro-organisms. Iron salts are added at the same time, dosed by our MINIDOS pumps, to reduce the level of phosphates. Now the pre-treated water is pumped into the final clarification basins where the acti-

ivated sludge flocculants deposit on the basin floor and the sludge is transferred back to the aeration basins so as to maintain the biological decomposition processes there. The clean water flows over into the basins surrounding channel and is transferred to the filtration unit. Here the remaining flocculants are filtered out and the water is transferred into a natural body of water.

FUHRBERG WATERWORKS

After the guided tour of the purification plant we drove together to the Fuhrberg waterworks. There Mr. Faflik, who was conducting the tour, started off with a theoretical briefing on how the water works function. The first station of the water is the "Accelerator Hall". Here the groundwater, which is pumped out of the mixing tower, is loaded with flocculating agents. With the help of these agents, iron and manganese, as well as the humic materials are released from the water and bound into the flocculants. These flocculants are skimmed off at regular intervals and transferred into a drying basin. After the "Accelerator Hall" the



MEMDOS pumps for chemical substances

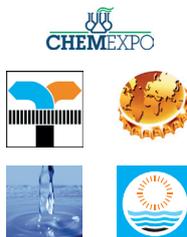
water is transferred and filtered in a gravel filter basin. The last remaining metals and other materials are hereby extracted from the water. These materials are then also transferred on into a drying basin.

Afterwards, Mr. Faflik led us into a building where the Accelerator dosed in the flocculating agent and where sodium hydroxide, phosphate and other chemical substances were added to the already clean water. These materials were added to the water, which is stored in pure water tanks, with the help of our MEMDOS and MAGDOS dosing pumps. The water is pumped from here into the machine- and/or pumping house.

Three centrifugal pumps with a delivery rate of up to 2,400 m³ per hour at 8.5 bar carry the pure water to Hannover and the surrounding communities. //

DATES

- + IFAT 2008, 05.05. – 09.05.08, Munich, Hall A5, Booth 216
- + CHEMEXPO 2008, 27.05. – 30.05.08, Budapest/Hungary
- + AQUATECH 2008, 30.09. – 03.10.08, Amsterdam/Holland
- + INTERBAD 2008, 15.10. – 18.10.08, Stuttgart
- + BRAU BEVIALE 2008, 12.11. – 14.11.08, Nuremberg



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