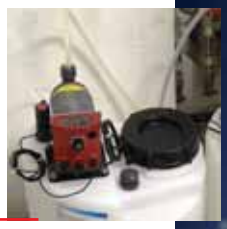
Lutz-Jesco Journal

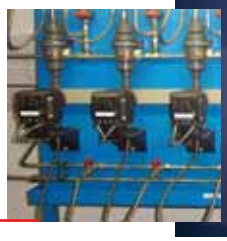
Internal Newspaper of Lutz-Jesco GmbH, Issue 1, April 2005

Simple and Good - new MAGDOS LC

Multifunctional Dosing



Corrosion Inhibition in a Warm Water Heating System



Emission Values under Control

Not only care about Industrial Customers

Dosing | *Liquids*
Conveying | *Gases*
Control | *Systems*

Multifunctional Dosing

Steadily increasing population density and growing industrialization have put a growing burden on the environment. Phosphates – originating from detergents and cleaners – carried by wastewater cause an abnormal fertilization of rivers, lakes and the sea. The resulting algea growth and oxygen binding lead not only to a visual distraction, but also to the damage of the living conditions of animals and plants.
With the revision of the German Federal Water Act and the requirements for discharging into public waters, the removal of phosphates from wastewaters has become important. Phosphate ions occur in wastewater – depending on the water's pH value – with different valences. Their concentration can be drastically reduced by the means of chemical precipitation.

Precipitation vs. Coagulation/Flocculation

Chemical precipitation is the conversion of dissolved ions into a solid, settleable form – not to be confused with coagulation/flocculation, where suspended (not dissolved) water particles form larger particles.

Positive and negative ions that are dissolved in the wastewater react with added chemicals, what makes the products become separated from the solvent (here wastewater). Such a process is called precipitation. Phosphorus removal is most commonly done with iron or aluminum compounds, such as ferric chloride or alum (aluminum sulfate):

$PO_4^{3-} + Fe^{3+} \rightarrow FePO_4$

The solids that are produced can settle along with other sludges and are discharged. Iron phosphate enriched wastewater sludge has a positive impact on the process in the digester of a wastewater treatment plant: i.e. the sludge thickens better and the digester gas is free of hydrogen sulfide. This simplifies the usage of the digester gas as fuel in heating applications to follow.

Coagulation and flocculation are applied in order to remove smallest, suspended particals and colloidal material.Those water particles are generally negative in charge, what prevents them from approaching each other and sticking together. Larger, filterable particles can not develop.

By adding coagulants such as alum, ferric and cationic polymers, these charges are neutralized and flocs are established. Further added flocculants increase the size and stabilize these flocs, an important requirement for an efficient filtration process. I.e. poly aluminates are applied as process stabilizers.

Wastewater Treatment Plant Fürstenfeldbruck

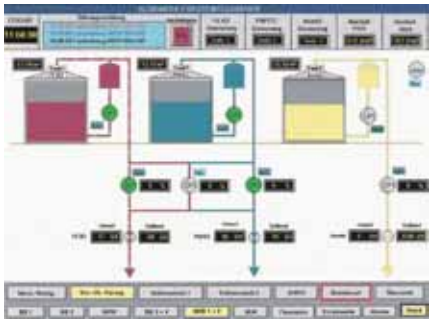
The wastewater treatment plant Fürstenfeldbruck has been sized for a population of 100,000 people. For the improvement of the precipitant feeding system a multifunction dosing station has been planned that can apply various chemicals. Seasonality affecting operation and the option to react fast to unforeseen changes in volume and composition of wastewater, require that several tanks and dosing pumps are networked.

The improvement of the plant was designed by Megatec GmbH of Möhrendorf. This engineer specializes in the planning and modernization of system and process technology, especially related to the wastewater industry.

The engineering consultant H. Wilhelm Dosiertechnik GmbH from Günzburg was awarded to equip the dosing station with metering technology from Lutz-Jesco GmbH. This long-term Lutz-Jesco service partner was a reliable and quality support to the project.

The dosing station (with MEMDOS E) at Fürstenfeldbruck WWTP began operation at the beginning of 2005.

Monitor/screen display of the process guiding system (PLS)



Alcohol as i.e. acetol (in the third tank) serve as carbon carriers. If the wastewater doesn't contain enough nutritions for the bacteries, it is important to keep these alive, thus the biology is available when high-loaded wastewater arrives at the plant.

Established Lutz-Jesco technology

For several decades Lutz-Jesco technololgy has been applied for precipitant and coagulant/flocculant feeding tasks, thus specific product lines can be provided for any of those applications. Most suitable for these kind of projects are motor driven diaphragm dosing pumps installed with pulsation dampeners of the PDS series.

For the provision of complete chemical feed systems that ensure safe and accurate operation further accessories are to be applied. On the suction side a suction control device SDR prevents chemical from siphoning in case of a pipe failure and ensures consistant dosing while chemical levels change in supply tanks. On the discharge side there are components like back pressure valves, pressure relief and safety valves, in-line filters as well as check valves that provide for safe operation. Durable and reliable Lutz-Jesco technology has been proven in many wastewater treatment plants.

Tank 1 of wastewater treatment plant Fürstenfeldbruck.

MAGDOS LC - the inexpensive alternative

MAGDOS LC - also available with accessory kit.

The new solenoid diaphragm dosing pump MAGDOS LC is the inexpensive alternative for simple, continuous metering tasks. MAGDOS LC suits particularly the water treatment and process industry – at ambient temperatures of up to 45°C (113°F).

This dosing pump is equipped with a new solenoid drive that operates with 120 strokes per minute at fixed pace. The MAGDOS LC is activated with the connection of the power supply.

The dosing pump is available in three performance ranges. The capacity is infinitely adjustable from 20 to 100% via stroke length. That makes dosing as simple as the twist of your hand.

The tubing connections are integrated in the check valves. Also, dosing pump, tubing, injection nozzle, and suction line are available as complete kits.

In short

- Suitable for toxic and aggressive media
- Applicable at ambient temperatures of up to 113 °F/45 °C
- Infinitely adjustable from 20 to 100%
- Connections are integrated with check valves
- Simplest operation by applying or removing the power supply

Corrosion Inhibition in a Warm Water Heating System

... with two Lutz-Jesco Dosing Stations

With any filling and re-filling of a warm water heating system, oxygen enters the system, too. Even if the system is vented, air bubbles and air pockets remain in a complex pipe system. Corrosion may be the result, which leads to leakage, reduction of the system efficiency, and finally to a complete failure of the system. With the introduction of the regulation VDI* 2035 – Sheet 2, warm water heating systems have to be protected from corrosion.

In order to obey this regulation a multi-unit apartment building has been equipped with two Lutz-Jesco dosing stations. They have been installed in the warm water return, where good mixing is guaranteed. A special injection nozzle has to withstand temperatures up to 110°C (230°F).

When filling or re-filling the heating system (larger than 100 kWatt), the dosing stations feed Trisodium Phosphate and Sodium Sulfide into the circuit.

The adding of Trisodium Phosphate leads to an increase of the pH value and a reduction of the water hardness. A pH value of 8.2 to 9.5 is required. If a heating system is made from aluminum or aluminum parts, pH values must be in the range of 7.5 to 8.2 .

Whereas Sodium Sulfide is fed as an oxygen scavenger. A Sulfide residual of 5 to 20 mg/l has to be maintained. The generated buffer is sufficient to bind the oxygen released by the aging water. The lower the temperature of the heating water, the larger is the amount of Sodium Sulfide to be added (i.e. at a water temperature of 100°C (212°F), no oxygen is dissolved in water). It is recommended to check the pH value, the concentration of Phosphate and of Sodium Sulfide as well as the total water hardness and the conductivity of the water regularly. The recommended monitoring schedule is immediately after the filling process, after one week and after six weeks. At a minimum, testing should be done once a year.

If the heating water doesn't meet the standards, the feeding of the chemicals can be increased manually at the Lutz-Jesco Dosing Stations. At a high water hardness or if frequent make-up of the heating water is expected, softened or completely desalinated water must be used. For warranty reasons furnace manufacturers require the compliance with the regulations in order to avoid damage from corrosion and lime scale. With Lutz-Jesco chemical feed systems, pH value adjustments and oxygen binding can be handled without problems.

Chemical Feed Systems consisting of Solenoid-driven Diaphragm Dosing Pumps MAGDOS LT and MAGDOS DE, supply tank, level relais, hand mixer, multi-function valve PENTABLOC
Figure: www.beste-wasser.de

** VDI – Verein Deutscher Ingenieure (www.vdi.de) - Association German Engineers*

Emission Values under Control

A boiler plant equipped with six fuel oil furnaces has been equipped with a customized solution for maximum reduction of emissions. Real-time emmission readings determine the exact amount of additives that are fed to each furnace, necessary to keep the emissions within the legal limits.

Two storage tanks containing correction chemicals were installed. From here transfer pumps draw chemical and feed it into a pipe loop. By applying a pipe loop solenoid driven MAGDOS dosing pumps face consistant suction conditions at all times. The capacity of the two dosing pumps that are designated to each furnace is adjusted infinitely via a 4 – 20 mA signal. Dosing pumps, pulsation dampeners and safety valves are made from 1.4571 stainless steel to avoid corrosion. Pulsation dampeners guarantee a pulseless, continuous chemical feed process – required in this very precise metering application.

Not only care about Industrial Customers

Lutz-Jesco GmbH is not only engaged in the industrial sector and water and wastewater treatment, they are also involved in pool water! Quite frequently Lutz-Jesco do attend trainings for operation & maintenance personnel of pools. Their involvement has varied from organizer, exhibitor, trainer and student.

Swimming Pool Technology Seminar in Mecklenburg-Vorpommern

For the second time Lutz-Jesco GmbH in cooperation with its service partner DWT Wassertechnik GmbH have joined efforts to present a seminar regarding swimming pool technology with its many different topics. The seminar was attended by more than 70 participants from different fields of swimming pool technology. The participants included operators of pools in hotels, hospitals, and public facilities: representatives from departments of public health and safety; from instituts for education of swimming pool operators, as well as specialists from the field of swimming pool technology.

The participants were welcomed by Mrs. Haupthoff-Lau, Director of Sales and Marketing, and Mr. Beutel, Sales Manager East, (both Lutz-Jesco GmbH). The first presentation by Mr. Worschech, President of DWT Wassertechnik GmbH, focussed on the complex subject of pool water treatment as well as pool operation and maintenance. He discussed common problems from the field and refered to regulations of DIN 19643 “Preparation of pool and swimming pool water“. In his lecture, Mr. Koehler, Technical Sales Manager with Lutz-Jesco GmbH stressed the necessity of an orderly conducted measurement of pool water. Accurate measurement is the base for the maintenance of quality water. He discussed the selection of the appropriate disinfection process and the correction of the water’s pH value.

Further guest speakers discussed specific solutions in the field of swimming pool technology. Mr. Schütte with Dr. Nüsken Chemie talked about the appropriate cleaning and disinfection of an entire pool facility. Mr. Dreher, Director of Sales with Technopool Schwimmbadtechnologie GmbH, explained the harmless disinfection of pool water with the application of the flow-through-electrolysis SALT WATER LIGHT®.

On the second day of the seminar the participants visited two pools at the Kempinski Grandhotel in Heiligendamm. The pool system was explained in theory and practise. Water quality is provided by the process combination of flocculation–ozonation–multi-layer-filtration and chlorination – as installed by DWT.

The seminar was a great opportunity for all participants to discuss specific problems from their experiences with the experts.

Take advantage of upcoming opportunities ...

... to meet and exchange your experience with experts from your field.

In 2005 Lutz-Jesco will offer the following seminars:

- "Pumps in the Industry“ (Würzburg, Sept. 15, 2005)
- "Swimming Pool Technology“ (Mainz, Nov. 02, 2005)
- "Metering Technology that works for you“ (Wedemark, Nov. 29 through Dec. 01, 2005)

Lutz-Jesco GmbH
Marketing Dep.
Am Bostelberge 19
30900 Wedemark
Germany
Phone:+49(0)5130/58020
Fax:+49(0)5130/580268
E-Mail:info@jesco.de
Internet:www.jesco.de
24h-Hotline:
+49(0)5130/580 280

Printed in Germany 4.000 / 04.05