

EDITORIAL

CENTRALISSUE

About the benefit of research

One central issue is that of the benefit of research and development. Whereas some are sure that research and development serves exclusively the business world, the others place the benefit to the public in the forefront. In the end the truth lies somewhere in the middle.

When a good job is done, both sides profit. The business world because it can open up new fields and markets thanks to new technologies and therefore earn back its investments. The public because new jobs are created and often the burden on the environment is reduced as well.

Hydro-Elektrik has also done excellent groundwork here. Enormous investments in the last years have formed the basis for excellent growth. With the establishment of ozone bio filtration as well as with the development of stainless-steel reservoir systems for water storage. In both fields Hydro-Elektrik has a large technological advantage.

In this year this advantage was the basis for approximately 10 new jobs. This has brought Hydro-Elektrik closer to its target of being the market leader. In technological respects this has already been reached - at least partially.

Manfred Brugger

TECH TALK

HYDRO-ELEKTRIK AS

Hydro-Elektrik founds a subsidiary in Norway

Optimal service and closeness to customers were the decisive factors for founding the subsidiary Hydro-Elektrik AS in Bergen. This was Hydro-Elektrik's reaction to the high degree of interest in the ozone bio filtration – a natural method of treating drinking water. All the activities in the Scandinavian area are to be bundled at Hydro-Elektrik AS.

The establishment of ozone bio filtration for drinking water treatment in Norway was forced decisively by Hydro-Elektrik. The basis was provided by the successful two-year test phase with a full-scale pilot plant in Trondheim under the scientific assistance of the Sintef (Prof. Bjørnar Eikebrokk and Dr. Esa Melin) as well as Prof. Dr. Hallvard Ødegaard of the NTFU (refer to the Edition 01/2001 and 04/2003).



Sør-Fron kommune, Gålå vassverk

As a consequence, Hydro-Elektrik managed to awaken interest in the new technology, and to obtain and realize first plants. Two plants are already in operation and have been producing highest-quality drinking water since being commissioned. Commissioning of two



Hydro-Elektrik AS, Office in Bergen

further plants is scheduled for Spring 2005.

With the company founding (located in Bergen) Hydro-Elektrik is reacting to the enormous rise in interest in the new technology and is also extending its consulting and service fields. The independent subsidiary is called **Hydro-Elektrik AS** and is managed by Peter Paskert. Hydro-Elektrik were able to gain an excellent and committed expert in the person of Peter Paskert. Peter is a native German who has been living in Norway for 23 years. Thanks to his previous jobs in the water industry he is well acquainted with the topic, speaks German, Norwegian and English fluently and therefore ensures excellent communication between custo-

mers, subsidiary and parent company.

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NEWS & TRENDS

SØR-FRON KOMMUNE

The new treatment plant TWK-S 20/13 in the Gålå vassverk has been connected to the network since May 2004. The plant produces 13 to 20 m³ of high-quality drinking water per hour by natural means from ground water and lake water. The waterworks lies at the Peer Gynt open air stage at the lake.



Filter unit in the Gålå Vassverk

GRANVIN HERAD

Groundwater, with low pH and high iron and manganese content, is drawn from two wells in 10 m depth and transported for treatment to the Eide vassverk. The TWK-S 40/23 plant has been in operation since July 2004. The treatment output amounts to 23 m³/h.



Closing the building roof in Granvin

SWIMMING POOL TECHNOLOGY

On the way to "feel-well" water

The water quality in swimming pools and baths is a fundamental factor for the degree of acceptance of a pool by the users. The HYDROZON® process technology which does not use chlorine is pathbreaking.

Everyone emits unwanted substances into the water when bathing. Thorough showering and washing cannot prevent this. These emissions include micro-organisms, viruses, causes of contagious diseases, excretions, skin particles, fungi, skin care products, etc. When bathing in the bath tub, this does not represent a problem, since the bath water is generally only used by one person.



"Feel-well" water

However, in public baths several hundred persons often share the same water at the same time, thus causing the water pollution mentioned above. Bath water must therefore be treated and

disinfected continuously through corresponding measures for hygienic reasons and in order to avoid epidemics. If one tried to solve the problem of water treatment simply by "diluting" it, enormous amounts of fresh water and energy would be required.

Therefore the water in swimming pools and baths is usually circulated via a water treatment system. An important step in water treatment is the formation of a disinfectant depot in the pool water. Its task is in particular the immediate degerming of the water in order to prevent the direct transfer of disease-causing agents to other bathers. In the field of swimming pool technology, disinfection processes on the basis of ozone, chlorine and/or bromine are used. However, this chemical process requires good water mixing and intensive pool flow. This also involves a good and even surface discharge in order to remove floating matter such as hairs and slime from the pool.

Problems with the water quality are often due to a bad pool hydraulics. On the other hand, the use of unsuitable and instable materials can cause follow-up problems. Foil linings, bonding agents and joint materials are highly problematic. Draining of the pool perimeter is also an

important factor. If designed incorrectly, detergents can influence the water quality negatively. Expert and exact planning of all the details is therefore essential.

Permanent excellent water quality with "feel-well" water can be ensured by the application of the chlorine-free HYDROZON® process technology. A highly efficient oxidation and disinfection is achieved through the integrated ozone stage. The disinfectant hypobromous acid is generated in the process. The plants operate fully automatically and generate a pleasant almost odorless bathing water to make you feel well.



HYDROZON® unit, type P10

DISINFECTION

Importance of the pH value

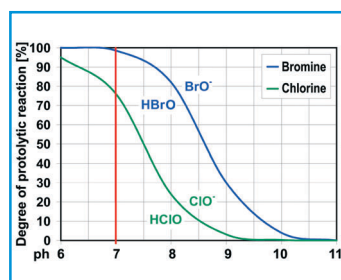
The term disinfection means the reduction of germs on objects or in liquids. Disinfection should therefore not be confused with sterilization (= absence of germs).

Disinfectants containing chlorine or bromine are used to disinfect water. The pH value is often disregarded when considering water disinfection.

The disinfection can be incomplete in particular at high pH values - even if the disinfectant is assumed to be sufficient. This is due to the dissociation of the matter in water.

This process - also called protolytic reaction - is a balance

reaction depending on the pH value. As the graphic shows, the share of acids that disinfect effectively drops as the pH value increases. An excellent degree of disinfection is attained in the neutral range around pH=7.



Protolytic reaction of bromine and chlorine

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