

# REVUE TECHNIQUE LUXEMBOURGEOISE

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Epuramat is a Luxembourgish cleantech company designing and manufacturing compact and mobile water and wastewater treatment solutions for municipal and industrial applications. Since its creation in 2005, the company has aimed to provide innovative and high-end products with low energy and chemical demand.



## INNOVATIVE WASTEWATER TREATMENT\_

Julien Zaczynski



The key product of Epuramat is the ExSep®, a patented technology for solid-liquid separation. This primary treatment solution is based on gravity and fluid dynamics, and requires almost no energy as well as no chemicals in most applications. It can replace big sand and fat traps, sedimentation tanks and energy-intensive alternatives and has comparatively small footprint, high efficiency and low investment, operation and maintenance costs. The ExSep® is scalable from 0,5 m<sup>3</sup>/h to more than 200 m<sup>3</sup>/h and can be used for a wide range of municipal and industrial wastewaters with separation efficiency up to 99%. Thanks to the efficiency of the ExSep®, subsequent treatment steps are relieved and can be designed in smaller scale. Furthermore, the standard version of ExSep® can be designed in ISO shipping and CSC approved container frame to allow easier transport and implementation.

For industrial applications, ExSep® takes over the complete primary treatment and allows companies with high demand for fresh water to reuse their own purified process water and save expenses. It can be used for example for food and dairy industry, paper and plastic recycling, cement production, biogas digestate, as well as for produced water from oil and gas extraction. In the municipal field, ExSep® can be used as pre-treatment solution to relieve overloaded municipal wastewater treatment plants, allowing capacity in-

crease with low space or construction time and cost issues. Concerning this kind of municipal applications, Epuramat recently installed a new pre-treatment unit in Germany on the municipal wastewater treatment plant in Ehekirchen, in view of the future expansion of the plant. After successful preliminary tests with ExSep®, the municipality of Ehekirchen will integrate this primary treatment technology in its wastewater treatment plant expansion project. The system, allowing treating up to 40 m<sup>3</sup> per hour, is composed of two ExSep® 2000 (2-meter diameter) as pre-treatment, and a sludge dewatering unit using no chemicals fully integrated in a 20-ft standard container. Thanks to this highly efficient primary treatment system, the subsequently installed and existing biological treatment steps of the plant will be relieved, allowing capacity increase without cost and space intensive enlargement.

The ExSep® is also used as pre-treatment in the Epuramat's Box4Water containerized wastewater treatment plant. Box4Water offers a turn-key, compact and mobile solution for the decentralized treatment of wastewater at remote locations that do not have access to the public sewer system, such as small villages, working camps or construction sites. Thanks to the high efficiency and small footprint of the ExSep®, the full wastewater treatment process can be integrated into one standard container: buffer tank, pre-



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treatment, biological treatment and sludge dewatering. Furthermore, the Box4Water is equipped with a touch screen control panel with remote monitoring and control, allowing visualisation and operation of the plant without being present on site. The Box4Water, which can treat up to 120 m<sup>3</sup>/day (600 population equivalent), in most cases avoids the use of chemicals and meets international and European highest requirements for direct discharge.

The Box4Water of Epuramat has been largely implemented in North America, where it is used on remote working camps for oilfield, mining, logging and construction industries, which can count several hundreds of workers living onsite. The Box4Water eliminates the need to collect and transport daily the wastewater by truck to the nearest municipal wastewater treatment plant, which can sometimes be several hundreds of kilometers far from the camps, allowing significant cost and time savings. Epuramat also released a specific Box4Water system for the treatment of wastewater from septic tanks. The first unit has been delivered in 2013 to a French sanitation company, which can now treat its wastewater autonomously. The treated water can be reused for sanitation operations or directly discharged into the municipal sewage system. Sanitation companies can thus make significant cost savings in water withdrawing and wastewater transport and disposal. This system also allows these companies to optimize their truck fleet management, and finally to increase efficiency and flexibility in their activities.

Today, Epuramat has implemented different wastewater treatment solutions in Luxembourg, Germany, France, Canada and USA. Epuramat has in particular signed a new distribution agreement at the end of last year with a U.S. company for the sales of its wastewater treatment systems on the North American market, both for municipal and industrial applications. The company aims to continue to develop its activities on new markets and to provide high-quality products to its customers. Epuramat has always been particularly sensitive to quality, in terms of design and production of its products as well as supplier and customer relationship. This approach materializes in particular by the "Made in Luxembourg" label which has been awarded to

Epuramat both for its ExSep® and its Box4Water. In November 2013, Epuramat has also received the ISO 9001 certification. This is a significant step in the development of Epuramat which recognizes the quality management system established and operated within the company. This certification will also allow the company to strengthen its image on local and international wastewater treatment markets.

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