

Austrian company which invented osmotic water treatment membrane processes for water plants is looking for technical distribution partners and offers its process technology as subcontractor for pilot projects

Summary

Profile type	Company's country	POD reference
Business Offer	Austria	BOAT20220801004
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement	• World
Contact Person	Term of validity	Last update
Lisa-Maria Katholnig	1/8/2022 1/8/2023	08/01/2022

General Information

Short summary

An Austrian company invented an osmotic process for water treatment & energy production. The company is now offering itself as a subcontractor for international industrial and municipal applications of water separation and -treatment pilot projects.

The company is also looking for skilled distribution partners within the field of international water treatment plant installations with maintenance service.

Full description

The Austrian company develops water treatment processes and plants based on forward osmosis. With its first innovative process, the Austrian company has established a continuously operating, extremely robust membrane process for the separation of clean water from any aqueous source. Unlike any other membrane or filter process, this technology can be used to produce clean drinking water or process water from feed water of almost any composition, i.e. dissolved components (e.g. salts, carbohydrates, pharmaceutical ingredients, other ions) and undissolved components (e.g. oil, organics, suspended solids) are almost completely separated.

Fouling and scaling - the two major problems of membrane separation technology - play no role, which enables extremely long membrane service lives. The range of applications extends from water extraction through seawater

desalination to wastewater treatment and the concentration of valuable substances. High COD (Chemical oxygen demand), oil in water or high lime content are no problem anymore.

According to the current state of knowledge, the industrial and municipal fields of application can be subdivided into:

- water as a product (seawater desalination / water recycling / dischargeability of waste water)
- concentrate as a product (substitution / relief of thermal, chemical or pressure driven separation steps)
- energy as a product (balancing energy).

Potential applications in the field of industrial waste water include:

- the dewatering of waste water that was previously considered untreatable from an economic point of view,
- the possibility of membrane emulsion splitting and oil recovery
- the energy-saving relief of vacuum evaporators in ZLD processes (zero liquid discharge) and
- the dewatering of hazardous waste before it is incinerated
- the recovery of clean water ready for re-use.

The second technology enables the clean separation of oil and salt water. Main applications will probably be:

- treatment of oil&gas produced waters,
- treatment of leachate or condensate contaminated with oil and aromatics,
- clean-up of contaminated seawater following tanker accidents, shipwrecks and borehole disasters and
- treatment of bilge water from ships.

Currently, the company focuses on oil & gas, mining and seawater desalination and leads international research consortia dealing with these topics.

After decades of research, these two described technologies open up the possibility of broad technical application of forward osmosis.

The Austrian company is now looking for cooperation partners in all kinds of application fields to act as subcontractor for pilot projects.

Furthermore, the company is looking for skilled distribution partners of international plant installations with maintenance services.

Advantages and innovations

The Austrian company develops processes and plants based on forward osmosis. Here, the naturally existing osmotic pressure is used as the driving force. In contrast to reverse osmosis, the feed water flows past the membrane without pressure in forward osmosis. On the other side of the membrane is a draw solution that pulls the water molecules from the feed water through the membrane.

The previously unsolved problem of the technical application of forward osmosis was that the absorbed water must be removed again from the draw solution in order to enable a continuous process, because this is the only way to make the principle economically viable. The Austrian company has combined forward osmosis with other process steps for this purpose, resulting in two innovative processes so far.

Advantages over pressure-driven membrane processes are the long membrane service life, robustness, low energy requirements and the fact that chemical pre-treatment stages such as flocculation, coagulation or emulsion splitting can be completely eliminated. With the help of the first innovative process the energy requirement can be reduced to a maximum of 50 % of the energy requirement of reverse osmosis. Compared to vacuum evaporation it is only 10% energy requirement.

Main advantages at a glance:

- half the energy consumption
- excellent retention
- excellent robustness
- hardly any fouling and scaling
- very high reliability
- consistent treatment quality
- very simple operation
- very low maintenance
- resistant against most chemicals
- ph-tolerant over a wide scale
- ideal for rough applications

Stage of development

Already on the market

IPR Status

No IPR applied

Sustainable Development goals

- **Goal 6: Clean Water and Sanitation**
- **Goal 7: Affordable and Clean Energy**

Partner Sought

Expected role of the partner

The Austrian company is looking for international distribution partners with substantial technical knowledge in the field of water treatment plants and the capacity to offer maintenance services for it. This partner should be able to demonstrate the treatability of customers feed water on a tonne scale with the help of their testing plants. Sufficient coaching and information material will be provided by the company.

International partners in the field of subcontracting should be interested in acting as industrial and municipal pilot project partners for this new technology.

Type of partnership

Commercial agreement

Type and size of the partner

- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **01004003 - Applications for Transport and Logistics**
- **03002 - Process Plant Engineering**
- **01004004 - ASP Application Service Providing**
- **01004002 - Applications for Tourism**
- **01004001 - Applications for Health**

Targeted countries

- **World**

Market keywords

- **08004003 - Water treatment equipment and waste disposal systems**

Sector groups involved