

# Challenges of the design of salt separation plants using membrane filters

*Ivo Rochner, Benjamin Sachse*

*Company Andreas Junghans GmbH & Co. KG, Frankenberg, Germany*

The demand on process plants for the separation or concentration of salts in aqueous process streams is continuously increasing, e.g. in order to recycle such streams or to (re)obtain salts as a valuable resource. Hereby increased salt concentrations have a significant interference potential that must be ruled by process plant engineering.

The interference potentials can be found mainly in pitting corrosion or abrasion effects (in oversaturated solutions). This results beside remarkable expenses for repairing in hazards for safety of humans or plant operability.

Within the range of plant types provided by company Andreas Junghans the following plants are confronted with these issues:

- nano filtration / reverse osmosis plants
- membrane extraction plants
- membrane distillation plants.

Those processes differ with respect to the requirements on the equipment in:

- salt species
- salt concentration
- operating pressure
- operating temperature.

Interference or damage of the equipment by salts can be prevented by adapted strategies for

- selection of materials of the equipment
- process design
- maintenance.

With the presentation company Andreas Junghans will give more detailed insight in its strategies to rule the interference potential of salts cost efficiently.