

SUCCESS STORY

Decanter centrifuge A4-3
for dewatering salt slurry
at a power plant in
Baotou City, China



SEPARATION

ZERO LIQUID DISCHARGE: ENSURING THAT ZERO MEANS ZERO

NON-STOP SALT SLURRY DEWATERING
IN SCORCHING TEMPERATURES

ANDRITZ

ENGINEERED SUCCESS

The challenge

Ensure that zero means zero in a new power plant

Baotou, China, is the largest city in Inner Mongolia and has a total population of well over two million who have been benefiting from a new, greener power station since mid-2018. To reduce this plant's environmental footprint by eliminating wastewater discharge, increasing water reuse, and facilitating the recovery of valuable by-products, the plant operators wanted to apply a zero liquid discharge (ZLD) approach their salt slurry dewatering – a crucial stage in the process.

The ZLD process cleans the exhaust gas before sending it to a crystallizer. After this, some kind of solid/liquid separation technology, like a centrifuge or a press, is

needed to dewater and recover the salt from the brine. No matter how efficient the previous steps were, the overall efficiency is decided here. For each milligram of solids remaining in the water and each percentage of water remaining in the solids, a price has to be paid, either by the plant operator or the environment.

The overall goal for this plant was to generate power with minimum environmental impact and maximum operating efficiency. And the main separation challenge was created by the high process temperatures required by the crystallizing technology.

10%

MAXIMUM
SALT MOISTURE
IN CAKE

20 t/d

OF DRIED SALT

0

LIQUID DISCHARGE

ANDRITZ decanter centrifuge A for industrial applications



Our solution

Special decanter centrifuge and automation package

ANDRITZ's expertise in ZLD processes goes back to the first systems introduced in 1990 and therefore the ANDRITZ experts know that the best choice here is a decanter centrifuge made from a high-grade alloy capable of withstanding temperatures of up to 135 °C. The special A4 design is able to cope with the scorching temperatures while ensuring the solids emerge as dry as possible, with salt moisture not exceeding 10%. In addition, the design includes lubrication and seals to minimize maintenance interaction

and ensure the maximum possible availability of our product. The Metris addIQ package for smart automation optimizes performance to minimize maintenance and downtime. In addition, the Chinese version of the Human-Machine Interface (HMI) makes the system very operator-friendly. Despite the short, nine-month delivery period, ANDRITZ adapted the order to include a scraper system when the customer mentioned the potential problem of salt being difficult to discharge from the bowl outlet.

Results

Zero liquid discharge, non-stop operations

The temperature-resistant materials, closed design, and automation features have made the equipment practically maintenance-free while increasing production efficiency to up to 20 tonnes of dried salt per day. Our automation solution has enabled operation with maximum efficiency as well as helping the maintenance team to plan and optimize the work needed.

ANDRITZ experts in Germany, China, and Slovakia all contributed towards delivering the sophisticated equipment that rapidly overcame any teething problems and adds high value to the customer: uninterrupted operations with zero liquid discharge. The decanter has been running continuously for over 2,000 hours and counting.

"We are very satisfied with the decanter centrifuge supplied by ANDRITZ for our Hexi Crystallizer ZLD project and appreciate the excellent support and services. We have one A4-3 centrifuge in operation configured for high feed temperatures. The process performance and operational reliability meet our requirements in full. Furthermore, the reliability is excellent, with minimal maintenance since the unit was installed."

YAO YUANCHUN

Suez Water Technologies & Solutions
Huadian Hexi Power plant project



WHAT'S YOUR SEPARATION CHALLENGE?

ANDRITZ Separation is the world's leading separation specialist with the broadest technology portfolio and more than 2,000 specialists in 40 countries. For more than 150 years, we have been a driving force in the evolution of separation solutions and services for industries ranging from environment to food, chemicals, and mining & minerals. As the OEM for many of the world's leading brands, we have the solutions and services to transform your business to meet tomorrow's changing demands – wherever you are and whatever your separation challenge. **Ask your separation specialist!**

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