

SUCCESS STORY

Potash dewatering at
Belaruskali, Belarus



SEPARATION

SEPARATE AND FILTER

A MORE PROFITABLE APPROACH
TO POTASH DEWATERING

ANDRITZ

An aerial photograph of a potash dewatering facility in Belarus. The image shows numerous large, conical piles of white potash material arranged in rows across a flat, arid landscape. In the foreground, there are industrial structures, including a large cylindrical tank and several portable toilets. The sky is clear and blue, and distant mountains are visible on the horizon.

ENGINEERED SUCCESS

The challenge

A leap forward in capacity, cost efficiency, and quality

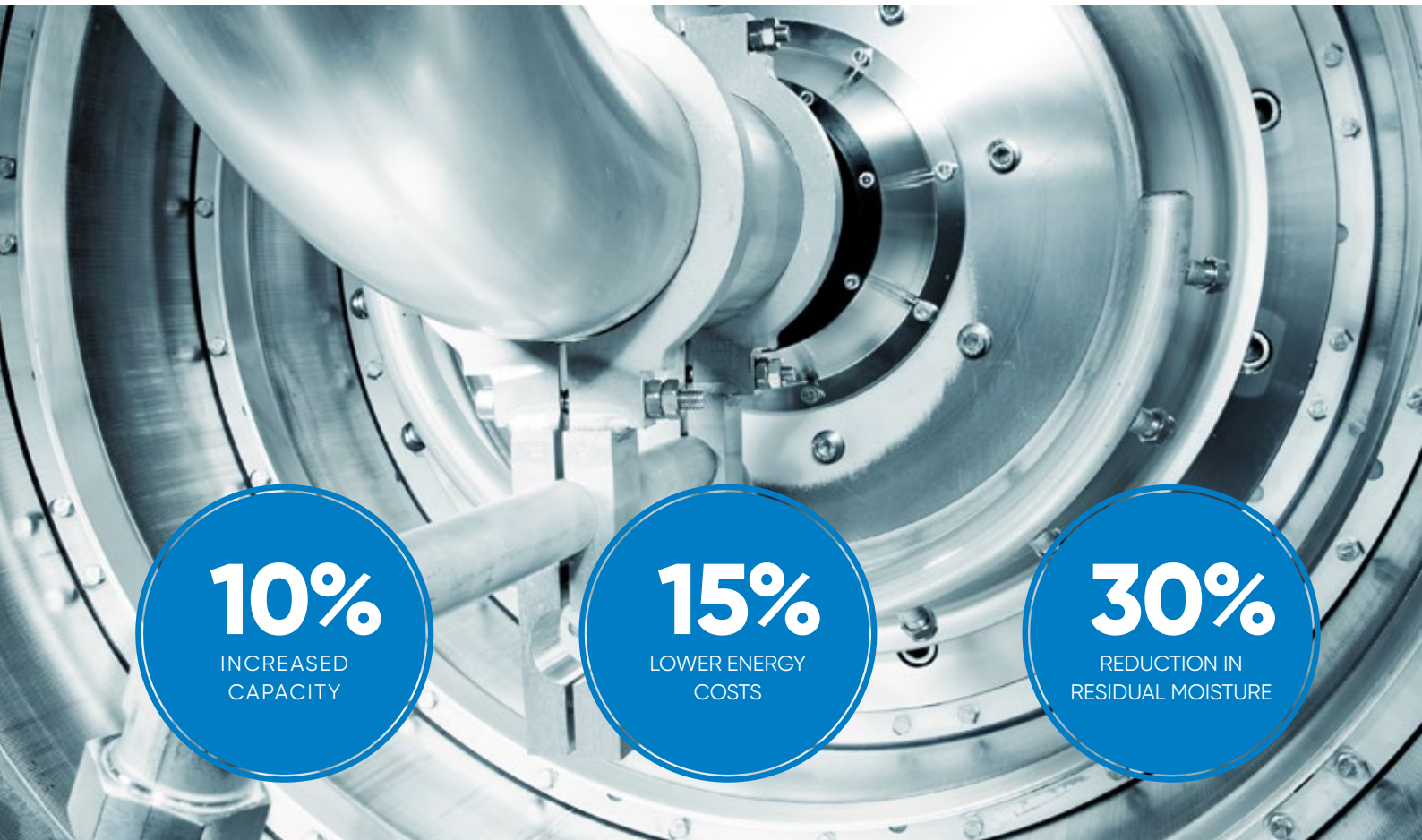
At many mining refineries, the overall aim in dewatering is simple: to profitably produce huge total volumes with easy handling and minimal maintenance. Equipped mainly with thickeners and flow-operated vacuum filters, it is a continuous process with little room for improvements that boost margins.

Belaruskali, one of the world's largest potash producers, approached us with a more ambitious goal in mind. Their objective was to replace their rotational vacuum filters with a more innovative solution.

One that would:

- Increase capacity
- Reduce energy and investment costs
- Minimize the moisture content of their filter cakes

Every process step was to be reconsidered, while maintaining the highest standards of efficiency and easy maintenance. After a thorough evaluation, we saw an opportunity to rethink the bigger picture. A way to do more with less space that would give Belaruskali a competitive edge for years to come.



ANDRITZ pusher centrifuge

Our solution

Fine and coarse dewatering for optimal process control

Rather than focus only on improved equipment, we proposed a new, more efficient approach to dewatering where the brine slurry would be separated into a fine and coarse fraction. This made it possible to handle the two products separately, each with the most efficient equipment for the job.

To minimize solid breakage in the coarse fraction, a pusher centrifuge with gentler product acceleration was installed. In addition to higher yield and filtration

rates, it enabled 25% higher capacity at the same moisture content. Fewer coarse particles also meant less wear and downtime, and lower maintenance costs.

For finer particles, an optimized high-capacity vacuum disc filter served to handle up to 200 t/h of dry solid capacity. As a result, operating costs were immediately cut by 15%. An individual piping system for each filter cell was also added, further improving capacity while reducing final moisture content.

Results

Better products and bigger margins, with one-third less footprint

Thanks to our collaboration, Belaruskali was able to improve performance well beyond initial expectations: Today the same site boasts 10% higher capacity, 15% lower energy costs, and a 30% reduction in residual moisture. Not least, the total equipment footprint is one-third smaller, providing ample space for optimized maintenance and operations, including a well-integrated direct-feed dewatering system.

Compared to traditional solutions, the payoffs include dramatically lower investment and specific annual costs, along with improved product quality and handling. All of these are the direct results of a more comprehensive approach to potash dewatering – a combination of deep process knowledge, efficient separation solutions, and a uniquely forward-thinking customer.

“As a global leader in potash production, we had incredibly tough requirements for reducing costs and boosting capacity and quality. That ANDRITZ could do all this in 1/3 less space was frankly astonishing.”

ALEXANDER GORBATCHEV

Plant Manager of Plant No. 1, Belaruskali



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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