SOLUTIONS YOU CAN COUNT ON IN THE CHEMICALS INDUSTRY

ASK YOUR SEPARATION SPECIALIST



ENGINEERED SUCCESS



What's next for your business?

Are you looking for innovative separation solutions? New ways to reduce operating costs? Or ensure easy maintenance, full automation, and the highest availability of spare and wear parts? When it comes to separation technologies and services that help you extract maximum value from your most important resources, no one has broader capabilities than ANDRITZ Separation.

SEPARATION CHALLENGE? - CONSIDER IT SOLVED.

In terms of product purity, plant safety, and reliability, chemical manufacturers are among our most demanding customers. And market conditions can change fast. One year you are one of the largest producers worldwide running a plant at full capacity. The next year you're modernizing to meet new market demands. Whatever your separation challenge, ANDRITZ Separation is there to support you with indepth engineering expertise, a wide selection of technologies, and the most comprehensive service offering for your entire plant life cycle.



SUPPORTING THE LARGEST PRODUCERS

We have been supplying such industry leaders as BASF, Evonik, LyondellBasell, and Solvay for decades now. Together with multinationals like these and hundreds of smaller local producers, we have developed and installed everything from single centrifuges and filters to fully automated dewatering plants and high-capacity drying/cooling lines. Always with the highest certifications for chemical, pharmaceutical, petrochemical, or agricultural operations.

RESOURCES TO SUPPORT YOUR BUSINESS

Every selection of technology is based on your strict process requirements and the characteristics of the chemicals used in your processes. Our specialists, with their daily experience of machines operating in the field, help you to select the right solution from a broad technology portfolio backed by proven references and the in-depth process experience of more than 25,000 ANDRITZ GROUP employees in 40 countries. So what's next for your business?



The right solution for every separation challenge

In the chemicals industry, there is no room for compromises. Not just in terms of safety and product purity, but also when it comes to non-stop performance you can trust. As technologies and global supply chains become more complex, our aim is to provide you with the right solution to meet your daily needs and keep you at the forefront of your industry.

IT ALL STARTS WITH YOUR REQUIREMENTS

We begin with your needs and help you select the optimum solution from the world's broadest range of separation technologies, including a vacuum and pressurized drum filter, filter and belt presses, decanter centrifuges, filtering centrifuges (pusher, peeler), separators, drying/cooling systems, and more. For a tailored approach, our separation specialists can further refine and test your solution on-site or in our own state-of-the-art test centers.

SUPERIOR SERVICES AND AUTOMATION

Thanks to our global network of 550 service specialists and service centers, we are always on hand to ensure your investment provides you with the maximum value. In addition to readily available OEM parts, process optimizations, testing capabilities, and much more, we also offer a range of automation tools. These tailored solutions help to continuously reduce costs and improve performance, and all of them are scalable from single machines up to plant-wide installations.

PROVEN RESULTS AND CONTINUOUS SUPPORT

The result is a high-purity end product, manufactured with the right technologies to ensure efficient, safe, and reliable operations for decades to come. In fact, ANDRITZ Separation solutions are doing exactly this in batch-operation and continuous chemical processing plants in all major markets worldwide.



Your separation specialist

As the world's leading separation specialist, we are committed to delivering the right knowledge, services, and solutions for any separation challenge.

FEASIBILITY STUDIES

Process simulations and ROI calculations.

LOCAL SUPPORT WORLDWIDE

Strategically positioned locations with OEM replacement parts, engineered wear parts (consumables), and field service.

SERVICE LEVEL AGREEMENTS

Full-service contracts for operational safety, maintenance, and wear on parts.

UPGRADES AND PROCESS OPTIMIZATION

Improvements in performance and reliability of existing equipment to extend productive lifetime.

SUSTAINABILITY

Full raw material utilization, waste elimination processes, and environmental controls for minimal impact.

AUTOMATION

Intelligent machine and process control systems tailored for all levels of process automation, from a single-source supplier.

TECHNICAL SUPPORT

Remote diagnostics and on-site presence to troubleshoot and finetune equipment performance.

MECHANICAL AUDITS/ INSPECTIONS

Service to check mechanical integrity, wear parts, alignment, vibration, etc. and recommend improvements.

BROADEST PRODUCT PORTFOLIO

Full range of solid/liquid separation products (sedimentation, centrifugation, filtration, discontinuous drying, continuous drying, and solidification).

TEST FACILITIES

From lab-scale to pilot- and industrial-scale.

R&D PARTNERSHIP

Joint product development for tailor-made customer solutions.

CONSULTING

Providing customer-oriented process solutions.





for separation equipment

250 ANDRITZ GROUP production sites, service, and sales companies

The world's strongest network of separation specialists and service centers

ANDRITZ Separation has been serving industries ranging from petrochemicals and soda ash to agrochemicals and pharmaceuticals for more than a century. Together with the broadest portfolio of mechanical and thermal separation technologies and services, this guarantees you the resources you need to ensure decades of profitable performance.

Our separation technologies span all aspects of mechanical and thermal separation across a wide range of applications, amounting to more than 2,000 machines installed every year, including solutions for the world's largest producers of potash, soda ash, and fertilizers.

IN-DEPTH EXPERIENCE, RESPECTED BRANDS

Much of this experience is due to the growth of the ANDRITZ GROUP, which now numbers more than 25,800 employees, 250 locations in over 40 countries worldwide. This means we have the resources to develop and tailor exactly the right solution from the world's most reliable technology brands and products. To provide solutions tailored to your needs.







employees in 40 countries in the ANDRITZ GROUP





To help you optimize for real-world conditions, our unique capabilities make it possible to run full-scale production tests at our labs worldwide or carry out on-site testing and trial runs for trouble-free start-up wherever you are located. And thanks to more than 250 ANDRITZ GROUP production sites, service, and sales companies, the right upgrades, optimizations, or tailored automation solutions are never far away.

STRONG BRANDS:

- 3Sys Technologies
- Bird
- Delkor Capital Equipment (Pty) Ltd.
- Escher Wyss dryers
- Frautech
- Guinard Centrifugation
- KHD Humboldt Wedag
- Krauss-Maffei centrifuges, dryers, and filters

- Lenser
- Netzsch Filtration
- Rittershaus & Blecher
- Royal GMF Gouda
- Sprout Bauer
- Vandenbroek

We have a long history of separation in the chemical industry







Separation solutions you can count on

Starting with your exact requirements, we run comprehensive process tests for your product, application, and process condition. We then analyze these tests together with your experts to define potential improvements, select the optimum solution, and forecast the expected results based on an array of proven references you can count on.

PROVEN PERFORMANCE FOR A RANGE OF PRODUCTS

Whatever your end product, we almost certainly have the technology and process knowledge to help you produce it more profitably. Whether it is highvolume potash or bicarbonate, regulatory-approved antibiotics or pharmaceuticals, or the most energyefficient fertilizer production units. You might simply need the industry's most reliable technology, or complete process optimization including advanced automation systems and full service. From crystals and agrochemicals to pigments and plastics, our expertise is always close at hand.



MINERAL OIL

Dynamic crossflow filters, separators, decanter centrifuges as well as purification, concentration, and clarification technologies for all types of mineral oil separation.



PIGMENTS AND DYES

Filter presses, peeler centrifuges, vacuum drum filters, and fluid bed dryers for production of titanium oxide, silicium dioxide, pigments and dyes, and other related applications.



PHARMACEUTICALS AND HEALTHCARE

PUREVO pharma peeler centrifuges, helix dryers, and other efficient solutions for separation of antibiotics, vitamins, intermediates, and other pharmaceuticals.





PETROCHEMICALS AND POLYMERS

Supplying the broadest portfolio of separation equipment for the largest producers of PVC, PC, HDPE, BPA, Melamin, PET, PMMA, ABS, and more.



SODA ASH AND TECHNICAL SALTS

Unmatched expertise in soda ash production, supplying all major separation equipment to the world's largest soda ash producers, as well as to producers of dense ash, crude and refined bicarbonate, ammonium chloride, calcium chloride, carbonate sludge, NaCl, sodium sulfate, potassium sulfate, ammonium sulfate, and other crystalline products.



AGROCHEMICALS AND FERTILIZERS

Providing leading separation services and solutions to major producers of pesticides, NPK products, ammonium sulfate, urea, phosphoric acid, DCP, and other agrochemicals and fertilizers.

A complete range for all your chemical separation needs



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SERVICE & AUTOM

Pressure drum filter





The world's broadest range of petrochemical and polymer separation solutions

Are you looking for a partner with comprehensive expertise in drying, dewatering, service, and automation? One that can tailor the most reliable technology brands in the business to your specific requirements? As a longtime provider of separation solutions to the world's most successful multinational producers, we have the knowledge and equipment it takes to ensure non-stop, reliable performance for any type of application.

THE RIGHT SOLUTION - OPTIMIZED FOR YOU

For major customers like BASF, Reliance, and SABIC, as well as local refineries, contractors, and plastics processors (PTA, BPA, etc.), ANDRITZ Separation provides the most comprehensive offering covering both dewatering and drying. This means we can recommend and optimize the right solution for each process step – from solvent recovery to solidification, cooling, and more – to reduce costs, improve efficiency, and ensure continuous performance for the lifetime of every investment.

COMPACT, EFFICIENT FLUID BED DRYERS

Petrochemical and polymer producers have installed more than 1,000 of our machines to date, many of them still running 24/7 after over 40 years in operation. One example is our fluid bed drying technology with immersed heat exchangers, which ensures highly energy-efficient drying at low temperatures, thus preventing product degradation. This ideal combination of convective and contact drying in the same equipment leads to the smallest possible plant footprint. The technology also enables a gas-tight and pressure-resistant design, which the parameters of some polymer products simply demand. Our reliable solid bowl decanters have been serving this challenging application for decades. ANDRITZ has the capability to offer mechanical separation and drying as one package.

SERVING YOUR NEEDS IN THE FIELD

This is why our separation specialists maintain close collaboration with customers in the field to continuously optimize moisture content, particle size, and mechanical reliability. Our on-site experience gives you a complete life cycle of reliable results.

KEY PROCESS STEPS

- Solidification
- Dewatering
- Drying
- Cooling

EXAMPLES OF PETROCHEMICALS CUSTOMERS

- BASF
- Reliance
- SABIC

MAIN APPLICATIONS

- ABS
- BPA
- HDPE
- Melamin
- PC
- PET
- PMMA
- PTA/CTA
- PVC
- PX
- and many others



Fluid bed dryer for petrochemicals and polymers (high-density polyethylene)



>1,000

, machines installed for petrochemicals and polymers

>60% / of ce

, of centrifuges in North America are ANDRITZ machines

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PETRO-CHEMICALS AND POLYMERS

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Recycling redefined.



Feeding system blockage. In the world of post-consumer and post-industrial plastics recycling, this is a problem that's all too familiar. And the only solution is to stop, flush out, and clean – with significant productivity losses.

To prevent clogging more effectively, we have designed and field-tested an entirely new decanter screw conveyor. Thanks to the improved scroll design with new flight configuration and the optimized feeding system, it can handle substantially higher feed rates while reducing downtime and mechanical wear. In fact, field tests show that the new design can achieve up to 80% higher production capacity with 20% lower repair costs per ton of recycled plastic and year. Now available as a retrofit to existing CENSOR ACZ decanter centrifuges, it's almost equivalent to having an extra decanter in operation - at just a fraction of the upfront investment cost.

This is just one recent example of how our R&D experts are working together with our customers to help redefine productivity for countless recyclers worldwide.



In-depth process expertise in soda ash and technical salts

Need to scale up your throughput for a growing global market? Or reduce energy consumption to an absolute minimum? At ANDRITZ Separation, we combine unmatched process knowledge with the broadest range of highperformance technologies and services to tailor just the right separation solution for your requirements.

ALL THE SODA ASH EXPERTISE YOU NEED

Starting with the first centrifuge shipped to a soda ash producer in 1928, we have been deeply involved in the industry from the very beginning. Since then, we have broadened our capabilities and installed more than one hundred solutions for all of the world's largest soda ash producers. In fact, the engineers of one of the largest soda ash plants ever built just recently chose ANDRITZ for their complete dewatering and drying line.

The Krauss-Maffei pusher centrifuge, capable of achieving the industry's lowest residual moisture, is the marketleading solution for centrifugal dewatering in soda ash production. Our advanced engineering expertise and in-depth knowledge of process technologies allow us to support your production in the best possible way – whether you are manufacturing dense ash, bicarbonate, sodium sulfate, or calcium chloride.

CONTINUOUS DEVELOPMENT AND SUPPORT

In the test center equipped with lab-scale centrifuges and full-size equipment, our leading team of mechanical and process engineers works closely with customers all the time to push the boundaries of innovation. From the world's highest-capacity centrifuges to the first energy-efficient fluidized bed dryers, we have long been committed to providing new, value-added solutions to support ambitious customers. And as the OEM for reliable brands like Bird, Krauss-Maffei centrifuges, dryers, and filters, KHD Humboldt Wedag, and Escher Wyss dryers, we have the service and automation solutions to help keep you ahead of your competitors for the entire lifetime of your plant.

KEY PROCESS STEPS

- Solidification
- Thickening
- Dewatering
- Drying
- Calcination
- Cooling

MAIN APPLICATIONS

- Ammonium chloride
- Ammonium sulfate
- Calcium chloride
- Carbonate sludge
- Crude and refined sodium bicarbonate
- Dense soda ash
- Ferrous sulfate
- Potassium sulfate
- Sodium chloride
- Sodium sulfate
- and many others



Krauss-Maffei pusher centrifuges are known worldwide for ensuring decades of reliable soda ash production





Provider / of combined drying anddewatering technologies

Pioneer / for fluidized beds with submerged heat exchangers

"...due to the size of the installation, we were looking for an experienced and skilled supplier who could provide us with dryers and centrifuges from a single source. ANDRITZ convinced us in particular with their highly skilled process engineers, who sized and optimized the machine precisely to our needs."

WANG JIGANG

Project Director, China Tianchen Engineering Corporation

SODA ASH AND TECHNICAL SALTS

Pure medical-grade bicarbonate? Or 100,000 tonnes for food production? What if you could do both with one efficient solution?



The market for refined sodium bicarbonate is steadily expanding, forcing many producers to increase throughput and purity at the same time. This is exactly the type of challenge our specialists have the expertise to solve.

Our latest solution? The world's largest production unit for sodium bicarbonate with a capacity of 100,000 tons per year. Using a specially developed fluid bed dryer with in-bed heat exchangers, it dries and cools with just one-third of the footprint and 15% less energy consumption compared to conventional technologies. Best of all, it can be customized to dry in a carbon dioxide atmosphere that reverses and prevents thermal degradation into soda ash in order, to maintain even the highest levels of pharmaceutical-grade purity.

As new applications like haemodialysis continue to emerge, our separation specialists are always there to help your business grow to become bigger – and better – than ever before.



Comprehensive separation solutions for agrochemicals and fertilizers

The need to serve growing global populations while meeting stringent environmental requirements is more pressing than ever before. To meet these conflicting challenges, most of the world's leading agrochemical and fertilizer producers rely on ANDRITZ Separation to ensure reliable uptime and efficiency in mechanical and thermal separation processes.

PROVEN RELIABILITY AND EXPERTISE

Every day, ANDRITZ Separation installations are ensuring the highest levels of safety and control for customers like BASF. In agrochemicals, many already depend on the industry's largest batch-operation machines, developed by us to achieve the highest throughput at the lowest cost of ownership. For urea, potash, and ammonium sulfate, our high-capacity drying lines operated by some of the largest producers worldwide help to achieve the right moisture content with the maximum possible productivity. And our screen bowl decanters, pusher centrifuges, and vacuum disc filters are the key to reliable operations.

PROFITABLE HIGH-VOLUME PRODUCTION

In the world of phosphoric acid, production volumes can be staggering. And since our tilting pan filters treat more than 80% of all phosphoric acid in the USA, we know exactly how quickly your savings can add up. Energy efficiency is always critical, and downtime is unacceptable. Our tilting pan filter's flood-washing capabilities are designed to ensure maximum extraction of water-soluble P_2O_5 with the lowest possible operating costs. Even smaller plants can achieve significant efficiency gains with our horizontal belt filter. Thanks to in-depth process expertise gained by close collaboration with the world's largest producers, ANDRITZ Separation ensures the most profitable and sustainable separation processes.

KEY PROCESS STEPS

- Dewatering
- Drying
- Cooling

MAIN APPLICATIONS

- Ammonium sulfate
- DAP
- DCP
- MAP
- NPK
- Pesticides
- Phosphoric acid
- Potassium chloride
- Potassium nitrate
- Urea
- and many others



Tilting pan filter for high-volume phosphoric acid production



80% of phosphoric acid produced in North America uses ANDRITZ technologies

>600 machines installed for ammonium sulfate

90 years of experience serving the potash industry

"Thanks to its robust construction, unsurpassed reliability, and exceptional P₂O₅ extraction recovery, the **ANDRITZ tilting** pan filter is the equipment of choice for the largest producers of phosphoric acid in North America when filtering phosphoric acid."

FAROOQ ELLAHI Product Manager Tilting Pan Filters ANDRITZ Separation

AGRO-CHEMICALS AND FERTILIZERS

Can a chemical filtering technology really help feed a nation of 252 million people?



Fertilizer is crucial to meeting the daily needs of more than a quarter billion Indonesians. So when the country's state fertilizer producer approached us with their ambitious goal of making the nation self-sufficient, we responded.

Thanks to two 30 squaremeter tilting pan filters, the upgraded plant made dramatic improvements in output and energy efficiency. It is now on target to produce 200,000 tons of phosphoric acid per year – enough to support the country's entire agricultural sector.



Let's be brilliant - together

No one knows your product better than you do. And no one devotes more resources to advancing the science of mechanical and thermal separation than ANDRITZ Separation. Together, we can discover new ways to bring your product to market more efficiently, affordably, and reliably than ever before.

We believe that investing in R&D on solid/liquid separation is critical to meeting the demands of tomorrow's chemical industry. Which is why we continuously collaborate with customers and leading universities to go beyond the limits of current technologies. Whether you are producing PVC pipes or a new type of fertilizer, you can find ways to do it better. How do we know? Because we do this every day for our customers, many of whom are keen to optimize their processes and improve the purity, flexibility, and strength of their products.

Many of our customers work in remote locations all over the world. Sometimes minutes can make a difference, and shipping of samples to our labs is not always possible. This is why we provide accessible mobile test equipment so that you can test your end product on-site and be assured of an easy transition to industrial scale.

Our brain power is your strength

REGIONAL CHEMICAL LABORATORIES

- Europe: Vierkirchen, Germany, and Waddinxveen, Netherlands
- China: Foshan
- Southeast Asia: Singapore
- North America: Florence, KY and Arlington, TX
- South America: Pomerode, Brazil

MOBILE TEST UNIT HUBS

- Europe: Netherlands, Italy, Germany, and Russia
- North America: Florence, KY and Arlington, TX
- Sub-Saharan Africa: Johannesburg







Intelligence for machine and process control

Metris addlQ control systems

With Metris addIQ, you get a well-proven, intelligent control solution for industrial processes and machines. Our solid/liquid separation specialists use their in-depth expertise to provide scalable solutions that are individually tailored to regional and application requirements. Whether you're automating new equipment or upgrading to extend the lifecycle of existing systems, we find the ideal solution for you.

Our tailored turnkey systems from a single supplier can improve entire plants or individual machines. By providing state-of-theart automation technologies and digitalization, we ensure bestin-class performance. Automating machine and plant equipment measurably reduces gaps in many different production process steps. By using automation from ANDRITZ, you can reduce downtime thanks to features such as predictive analysis that allow you to optimize productivity.

Metris addlQ covers all levels of automation, starting at basic automation (machine, process, and plant control), to upgrades, and add-ons for process optimization. Together, you get a full range of optimized solutions that help reduce maintenance efforts and ensure preventive service for your machines and plants. These are all delivered from a single source and always individually tailored to your business demands. Metris addlQ control systems are part of the ANDRITZ brand for Digital IIoT (Industrial Internet of Things) Solutions.





Put our 150 years of OEM experience to work for you

Need to optimize your process? Boost availability? Ensure non-stop productivity? When you work with ANDRITZ, you gain access to one of the world's largest OEM manufacturers for solid/liquid separation. Put our in-depth knowledge of separation equipment and processing to work for you.

VAST EXPERIENCE THROUGH LARGE INSTALLED BASE

With an installed global base of more than 55,000 solid/liquid separation machines and systems, you can imagine that we take service seriously. Wherever these customers are located, we work very closely with them to maximize uptime and boost efficiency.

WELL-KNOWN OEM BRANDS

Some customers know us as the people with ANDRITZ on our overalls. Others have come to understand that we are the OEM behind former brand names like 3Sys Technologies, Bird, Delkor Capital Equipment (Pty) Ltd., Escher Wyss dryers, Frautech, Guinard Centrifugation, KHD Humboldt Wedag, Krauss-Maffei centrifuges, dryers, and filters, Lenser, Netzsch Filtration, Rittershaus & Blecher, Royal GMF Gouda, Sprout Bauer, and Vandenbroek – all companies that have been acquired by ANDRITZ. But frankly, we are capable of servicing and supplying spare parts for nearly all brands of solid/liquid separation equipment on the market.

LOCAL SUPPORT BACKED BY GLOBAL EXPERTISE

Our service philosophy is simple: One phone call, one contact person, one dedicated team that speaks your language and knows your equipment and process. This is not an empty promise. It is backed by a network of 550 service specialists for separation equipment and systems as well as service centers all around the world.

A TRUE FULL-SERVICE PROVIDER

Whether you need spare parts, rentals, local service, repairs, upgrades, or modernization of your equipment, ANDRITZ is your service specialist in all aspects of separation. From initial consulting through to service agreements, process optimization, and training programs, we are always looking for ways to minimize downtime and increase predictability in operations while raising your overall production efficiency. In short, we've got you covered.

LOCAL SUPPORT Responsive local service centers and field service technicians



OEM SPARE PARTS Filter cloths, spare and wear parts from OEMs or with OEM level quality, all readily available



REPAIRS & UPGRADES Optimization of machine and process performance, repair work, retrofitting, and modernization



Preventive maintenance, contracts for spare parts, maintenance, inspections, repairs, upgrades, operation, and equipment monitoring 45

SECOND-HAND & RENTALS Certified second-hand and rental machines

PROCESS OPTIMIZATION

Automation tools and

process expertise to boost

vour profit



Operator training and tailored seminars for operating and maintenance personnel

LAB AND ON-SITE TESTS Lab and testing capabilities for process optimization and machine upgrades



What's your biggest separation challenge?



Ask your separation specialist.

Now you've seen how ANDRITZ Separation is striving to bring you the world's broadest range of separation solutions that you can count on. With proven reliability, knowledgeable local service specialists, and state-of-theart automation systems.

Let's sit down and see how we could take your operations to the next level. Contact us today.

ANDRITZ.COM/SEPARATION





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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