Super Absorbent Polymers.

Thermal processing technologies for the production of SAP.
Thermal Processing for SAP.

**Process control**
- Advance control system ensures moisture uniformity and consistent product characteristics
- Maximizes production while accommodating flexibility in formula, inlet moisture content and throughput
- Prevents energy waste and overall drying

**Energy Efficiency**
- Advanced energy recovery management systems (optimized management of air streams)
- Integrated air-to-air heat exchangers for pre-heating of inlet air from dryer exhaust
- Optional flash steam recovery system utilizes spent high-pressure steam and low pressure coils to pre-heat make-up air

**Robust Construction**
- Capable of withstanding elevated temperatures while providing the necessary tolerances for thermal expansion
- Walk-on roof platform provides structure, as well as a thermal barrier
- Box truss construction of conveyor ensures heavy loading capability, even at the widest conveyor widths
- Pinless bed plates and heavy-duty rollers provide long conveyor life

Bühler’s SAP process knowledge, advanced dryer design, and ongoing local support are why more than 35% of the SAP produced in the world is processed on an AeroDry dryer.

**Experience**
With more than 40 years of manufacturing and production experience, and installations with every major global producer, Bühler has a long and successful history in SAP production. Today, Bühler provides the industry with advanced thermal processing systems for reliably and consistently producing the highest quality super absorbent polymers.

**High capacity designs**
Bühler has supplied the largest SAP dyers in the world, with systems producing more than 80,000 tons/year on a single line, and remains the only manufacture to supply multiple 4.4 meter-wide systems. Size is not the only measure though, AeroDry’s advanced air management offers the highest productivity per square meter available on the market today.

**Faster install and start up**
AeroDry’s full and semi-modular construction technique provides for pre-assembly of critical components in our factory. This modular approach simplifies shipping and onsite logistics, as well as reduces install time. Onsite, the modules are joined together, providing a smooth interior surface, and eliminating many of the product hold-up points.

Modular construction results in a much stronger structure for critical SAP handling devices in the discharge end, and precise conveyor alignment over the entire length of the dryer, reducing chain wear and maintenance down time, as well as increasing equipment life.
Heavy-duty construction

AeroDry’s reinforced, walk-on roof platform serves as a structural element, as well as a thermal barrier, while the heavy-gauge doors provide an air tight seal around the dryer, preventing air leakage and thermal loss.

Manufactured from reinforced perforated metal plates, the AeroDry proprietary pinless slip hinge apron provides for the most reliable SAP conveyor in the world. A deep truss arrangement ensures heavy loading capability, eliminating distortion, cracking and failure of the bedplates. Overlapping traveling material guards provide superior air and product sealing throughout the drying process.

Bühler’s knowledge of the SAP production process is evident in all aspects of the dryer design, including how cleanly the system operates, and the care given to ensuring the dryer that can be quickly and effectively cleaned.

AeroDry’s easy-to-clean design features include access to both sides of the floor, conveyor and fan spaces, ensuring ease of cleaning; easily accessible sliding filters provide protection from fines fouling the coils; a smooth interior discharge end ensures maximum access to rotating equipment like doffers and breakers; and a scraper for the conveyor allows for continuous cleaning during operation. These features and many more combine to maximize process uptime.

Efficient energy and process management

A heavy duty, reinforced dual drive system drives the conveyor from both sides, ensuring precise and uniform chain loading on even the longest dryers. The conveyor’s reinforced roller chain rides on a self-cleaning rail, ensuring clean, positive conveyor travel and tracking down the entire length of dryer. A controllable chain lubrication system enables precise lubricant application without the fear of product contamination resulting from over oiling.

An advanced energy management system provides for maximum utilization of heated air; a balanced cooler adjusts for changes in ambient temperature; and minimization of both steam use and total exhaust, resulting in decreased volume to pollution control equipment.

An optional advanced control system manages production changes and accommodates flexibility in grade, inlet moisture content, and throughput. The system also increases uniformity at discharge, and reduces product and energy waste.
Efficient and innovative peripherals. Optimizing the process.

**Advanced material handling**
The AeroDry SAP thermal processing systems can be fitted with a heavy-duty oscillating belt feeder to load the dryer downstream of gel reactors and cutters. A precision control system ensures uniform conveyor loading and maximizes the overall consistency of the polymer's final moisture content.

At the discharge end of the conveyor, optional doffers ensure positive removal of material from the conveyor, eliminating cross contamination and thermal degradation by subsequent reheating of product.

Specially designed rotating pickers or breaker guides can be added to loosen the product on the conveyor, ensuring an even flow of product to the breaker system. Constructed of stainless steel, the picker system can be mounted in varying locations to optimize its effectiveness.

A heavy duty, reinforced rotating blade and tine breaker system is incorporated into the modular discharge end. The breaker system reduces particulate to a consistent size and breaks up clumps, allowing effective downstream conveying and grinding. An add-on cut flight discharge screw can provide additional uniform size reduction, if needed.
Support for the complete product lifecycle. Anywhere in the world.

**Process knowledge and support**
More than seven decades of experience has resulted in unequalled process knowledge in the area of thermal processing in rubber applications. Bühler’s advanced pilot testing facilities and expert process engineer support are available to manage dryer profiles and ensure systems are designed to exact specifications. An experienced field engineering staff can provide an overall process survey and recommendations for debottlenecking.

**Global presence, local support**
Bühler has sales and service stations in more than 140 countries around the world. This extensive network provides our customers with the quick and professional support that only a global technology partner like Bühler can provide. The full breadth of customer service is available to Bühler customers no matter where they are - technical support, spare parts, and emergency services, along with process evaluations, energy audits, and training.

**Additional Services**
- 24 hour support for customers with Bühler Aeroglide equipment
- Dryer performance evaluations and mechanical inspections
- On-site product testing
- Spare parts, retrofits and expansions for most dryer brands
- Seminars on drying theory and maintenance
- Test facilities for product and process development in the North America, Europe and Asia

For more information on Bühler’s thermal processing equipment, or to contact a Bühler representative, visit us online at [www.buhlergroup.com/drying](http://www.buhlergroup.com/drying).