

## Anhydro Triple-A<sup>®</sup> Spray Dryer



SPX Flow Technology Danmark A/S is an international engineering company with a consistent goal to provide our customers with the optimal processing technology and the highest plant performance standards. We have specialized in supplying the optimal design and engineering with respect to production performance, flexibility, energy efficiency and environmental protection.

SPX FLOW offers a wide range of Anhydro Triple-A® spray dryer technologies for handling numerous applications that give high-quality end products in the most efficient and economical way.

SPX FLOW, Inc. (NYSE:FLOW) is a leading manufacturer of innovative flow technologies, many of which help define the industry standard in the market segments they serve. From its headquarters in Charlotte, North Carolina, it operates a sales and support network, centers of manufacturing excellence, and advanced engineering facilities, throughout the world. Its cutting-edge flow components and process equipment portfolio includes a wide range of pumps, valves, heat exchangers, mixers, homogenizers, separators, filters, UHT, and drying technology that meet many application needs. Its expert engineering capability also makes it a premium supplier of customized solutions and complete, turn-key packages to meet the most exacting of installation demands.

Incorporating many leading brands, SPX FLOW has a long history of serving the food and beverage, power and energy, and industrial market sectors. Its designs and engineered solutions help customers drive efficiency and productivity, increase quality and reliability, and meet the latest regulatory demands. In-depth understanding of applications and processes, state-of-the-art Innovation Centers, and advanced pilot/testing technology further assist in optimizing processes and reducing timescales to reliably meet production targets.

To learn more about SPX FLOW capabilities, its latest technology innovations and complete service offerings, please visit [www.spxflow.com](http://www.spxflow.com).

## Customised Drying for Individual Needs

The Anhydro Triple-A® spray dryer enables SPX FLOW to dimension and customize a complete drying solution for the production of free-flowing dustless powders and agglomerates according to customer specifications.

Based on a platform of innovative and advanced technologies, the Anhydro Triple-A® spray dryer combines a new spray dryer design with an integrated fluid bed and an external fluid bed to give our customers total control over product quality and process economy.



**A Triple-A® spray dryer with a sifter**

## FOCUS ON END-PRODUCT QUALITY

Powder manufacturers are facing increasingly rigid quality demands requiring full control over powder structures and functional properties.

The Anhydro Triple-A® spray dryer enables you to customize a plant which ensures competitive and consistent end-product quality, while providing complete control over your production run-time, yield, and operating costs:

- Innovative drying chamber design for efficient drying and long production time between CIP (Cleaning-In-Place)
- Nozzle atomization for optimum spray of feed material
- Selection of integrated second-stage fluid bed drying
- Third-stage external fluid bed option for final drying and/or cooling
- Selection of exhaust systems and fines recirculation options to ensure maximum product quality and yield



Anhydro external fluid bed

## Typical Product Applications

The Anhydro Triple-A® spray dryer offers plant customisation options enabling you to take full control of particle size and structure in your production of free-flowing dustless powders and agglomerates, for example:

### Whole Milk and Instant Skim-Milk Powders



### High-Fat Dairy Blends



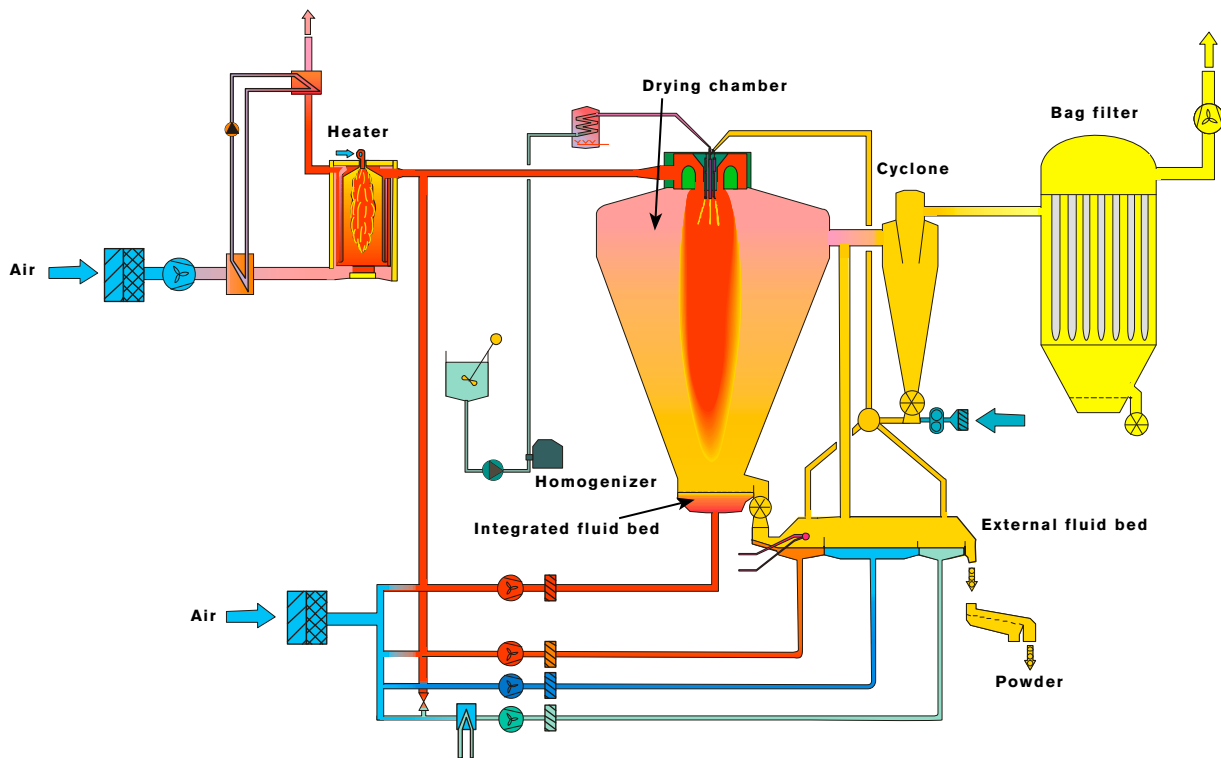
### Infant Formulas



### Non-Dairy Creamer



# The Anhydro Triple-A<sup>®</sup> Spray Dryer



An Anhydro fluid bed in combination with a spray drying plant

## TRIPLE-A® - CUSTOMISATION OPTI

### A. Air distribution and nozzle atomization systems

- Air flow at controlled conditions into the spray dryer, integrated fluid bed, and optional external fluid bed
- Nozzle atomization
- Total control over air distribution within the drying chamber
- Precise control of powder particle, agglomerate, and granule sizes

### B. Innovative drying chamber design

- Drying of a wide range of dustless products from low-fat to hygroscopic and “sticky”
- Minimum of product residue in the chamber
- Significantly longer production time between CIP
- Low exit temperature to conserve energy

### C. Exhaust and fines recirculation systems

- Cyclones or bag filters, or a combination of both
- Recirculation of fines to the spray drying chamber, the integrated fluid bed, or the external fluid bed

### D. Second-stage integrated fluid bed

- Integrated, second-stage fluid bed for final, low-impact drying
- Configuration based on required capacity, residence time, temperature constraints, etc.

### E. Third-stage external fluid bed options

- External third-stage fluid bed, including vibratory options, connected to the integrated fluid bed outlet for additional drying and/or cooling



Chamber with an Anhydro integrated fluid bed



Inside view of an Anhydro external fluid bed

## Triple-A<sup>®</sup> - Synonymous with Sound Business Sense

Synonymous with solidity, reliability and performance, the Anhydro Triple-A<sup>®</sup> spray dryer combines the best of SPX FLOW Advanced Applications engineering and expertise to offer you a long line of compelling business benefits.

### PROCESS

- Individually customized plant delivers the optimum solution for specific process and production requirements.
- Complete process control together with uncompromising technology and engineering ensures production of consistent end-product in accordance with predefined customer specifications.

### PRODUCTION

- Equipment options are available for all capacity requirements from small-scale plant to full industrial production.
- Innovative drying system design together with straightforward service and maintenance access ensures maximum production run-time.

### PROFITABILITY

- Consistently high yield, energy-efficiency, and low operating costs mean rapid payback and low total cost of ownership.
- Components and equipment designed and engineered for reliability and performance ensure long service life with modest service and maintenance requirements.



Make powder from liquid

## Global Services for Individual Needs

Our aim is to help you find the best solution for your long-term needs. We offer a close partnership based on personal commitment and documented Best Practice from the initial needs analysis and planning stage until the end of the service life of your Anhydro Triple-A® spray dryer many years later.

Together with you we analyse the available options based on your product and throughput requirements. If necessary, we can run a pilot test at our test facility to ensure that the process will meet your expectations on a production scale.

### INNOVATION CENTRE

SPX FLOW Anhydro offers an advanced test centre for testing new products and evaluation of process conditions to secure precise synergy between optimization of the plant concept and reproducible product quality.

Alternatively, we can install small scale test plants at your site for a limited period for demonstration purposes or pilot-scale production.

### ENGINEERING STANDARDS

Environment protection is incorporated in accordance with local rules and regulation and is a key point in the plant design. We are ISO 9001:2008 certified. All our plants meet the CE marking and ATEX requirements where applicable.

### LIFELONG SERVICE AND SUPPORT

SPX FLOW worldwide service organization is ready, at all times, to provide any necessary spare parts at short notice. We can also dispatch service technicians to help you rectify any problems, thus reducing unscheduled downtime to a minimum.

SPX FLOW offers a number of service agreement options, depending on your individual needs, and our service engineers are always available to provide applications and development support.



SPX FLOW innovation centre in Soeborg, Denmark

# Anhydro Triple-A<sup>®</sup> Spray Dryer

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ANH-119-GB VERSION 02/2017 ISSUED 1/2018

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