

# COMET THINK

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**DIFFERENCES BETWEEN SPRAY  
DRYING AND FLUID BED  
GRANULATION**



Answers for a more sustainable and environmentally friendly industrial production

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## PHARMALINE TECHNICAL TEAM OF ICT FILTRATION

**Spray drying and fluid bed granulation are two distinct processes used in the pharmaceutical, food, and chemical industries for the production of powders, granules, or particles. They serve different purposes and involve different mechanisms. Here are the key differences between these two processes.**

### About ICT FILTRACIÓN

ICT FILTRACIÓN, based in Montgat, Barcelona, is one of Europe leading manufacturers of sleeves, fabrics and high-tech eco-efficient solutions for industrial filtration of dust, air, liquids and fluids.

ICT FILTRACIÓN designs, manufactures and markets high quality standard or customized products and services for industrial applications with risk of particle emissions into the atmosphere in sectors such as aluminum, chemicals, pharmaceuticals, cement and food, among others.

ICT FILTRACIÓN products and services are exported to countries on five continents and aim to help industries to be more competitive and responsible by promoting, guaranteeing and facilitating the balance between maximum industrial development and minimum environmental impact. The ICT FILTRACIÓN team is the key to its specialization and potential in areas of knowledge such as research with new materials, the development of new manufacturing technologies and the design of innovative construction and finishing techniques.

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ICT FILTRACIÓN, manufacturer of industrial filtration solutions and exclusive distributor for Spain and Portugal of:



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## SPRAY DRYING

## FLUID BED GRANULATION

### PURPOSE

Spray drying is primarily used to convert a liquid or slurry into a dry powder or granular form. It is commonly employed to create powders from solutions, emulsions, or suspensions. The process is particularly useful for heat-sensitive materials or when rapid drying is required.

Fluid bed granulation is a process primarily used to agglomerate and granulate solid particles or powders. It involves wetting and binding fine particles together to form larger granules. This process is often used to improve the flowability, compressibility, and bulk density of powders, making them easier to handle and process.

### MECHANISM

In spray drying, a liquid feed is atomized into small droplets and then introduced into a heated chamber. Hot air is simultaneously blown into the chamber, causing the liquid droplets to evaporate rapidly. The result is the formation of dry particles or granules, which are collected from the bottom of the chamber.

In fluid bed granulation, fine particles or powders are suspended in a fluidized bed of air or gas. A liquid binder or solution is sprayed onto the particles, causing them to stick together and form larger granules. The granules are then dried within the fluidized bed using hot air until they reach the desired moisture content.

### PRODUCT CHARACTERISTICS

The product of spray drying is typically fine powders with a relatively narrow particle size distribution. It is suitable for materials that need to be dried quickly without extensive agglomeration.

Fluid bed granulation results in granules or agglomerates with a broader particle size distribution. The process is used to enhance properties such as flowability, compressibility, and uniformity in size and composition.

### APPLICATION

Common applications of spray drying include the production of powdered milk, coffee, instant soup, pharmaceuticals, and various food and chemical products.

Fluid bed granulation is frequently used in the pharmaceutical industry to manufacture tablets and granulated drug formulations. It is also employed in the production of detergents, fertilizers, and certain food products.

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In summary, spray drying is a process for converting liquids into dry powders, while fluid bed granulation is used to agglomerate and granulate fine particles into larger, more manageable granules. The choice between these processes depends on the specific requirements of the final product and the characteristics of the starting materials.



## OUR FLUID-BED FILTERS

ICT Filtración PharmaLine fluid bed filters use raw materials that comply with GMP, FDA, ATEX, EU10/2011 and 1935/2004 regulations and are intended for use in the processes of:

- Granulation
- Drying
- Pelletisation
- Coating
- Spray encapsulation



## Custom-made and suitable for all major brands:

- Ensures mixtures with low variation rate
- Final product free of impurities and contamination
- Reduced equipment immission time
- Optimum ratio of airflow to particle retention
- Full traceability



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