

FOCUS

WET GRANULATION: TRANSFORMATION OF POWDER INTO GRANULES



IWF GROUP COMPANY

Granulation is a reliable process and appreciated by many manufacturers. Used as a **manufacturing process**, it also meets the objectives of **reducing emissions** or **recovering dust**. Various granulation technologies have been developed and achieve a wide variety of results, hence meeting the varied constraints of the operators. However, despite widespread use in the industrial world, this technique sometimes remains unknown to some market players. Discover the main characteristics of granulation and its many advantages!



1 - GRANULATION PRINCIPLE

Granulation consists of **setting in motion** and **agitating** a granular and homogeneous powder. This powder is thereafter **sprayed with a liquid binder** which will subsequently facilitate the particles to agglomerate with each other due to a “snowball” effect. The binding agent, which can simply be water, plays a major role in this phase. Indeed, its composition can strengthen certain characteristics of your granules. An analysis performed by specialised laboratories can therefore enable you to determine the appropriate composition of your binding agent as well as the proportion to spray in order to obtain the expected results. The **required functionalities** can, for example, be:

REINFORCEMENT OF GRANULES

**IMPROVED REACTIVITY BY
INCORPORATING A CATALYST**

ADAPTATION OF SOLUBILITY

IMPROVED DISPERSION...



2 - DIFFERENT TYPES OF GRANULATION DEVELOPED BY GRELBEX

PELLETIZING DISK

The pelletizing disk consists of an inclined pan with small edges, rotating around a central axis, and a spraying ramp enabling the binding agent to come into contact of the falling powders. Adjustments are key to an adapted granulation. Actually, you can decide to adjust the inclination and the rotation speed of the disk in order to have better control of the dispersion of the powder in the pan. You can also play on the various inlet flowrates (powder and binding agent) to define the shape of the granules.

A classification by centrifugal segregation of the granules is possible with a pelletizing disk. Indeed, due to the continuous operation of this equipment, the inlet material will progressively «expel» the overflowing granules.



2 - DIFFERENT TYPES OF GRANULATION DEVELOPED BY GRELBEX

GRANULATING DRUM

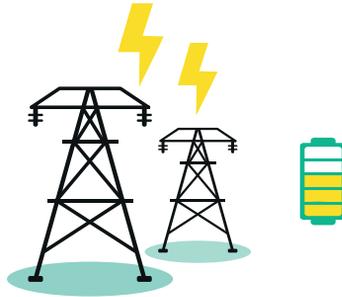
The granulating drum consists of a cylindrical shell rotating on rollers, slightly inclined in order to facilitate product flow inside the drum. As for the pelletizing disk, this equipment is crossed by a spraying ramp. The drum's internal elements allow lifting of the product thus ensuring its agitation in order to facilitate particles agglomeration with one another. With this equipment it is also possible to play on different parameters, such as: the speed of rotation, the angle of inclination and the flow in order to adjust the characteristics of the finished products.



3 - ADVANTAGES OF WET GRANULATION

Low energy consumption

In effect, installed capacities required to operate these industrial tools are low and therefore **consume little energy** compared to roller press (almost **10 times less**)



3 - ADVANTAGES OF WET GRANULATION

Reasonable maintenance

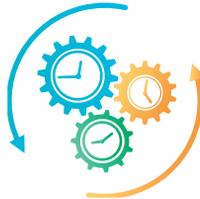
The components of this equipment do **not generate high maintenance costs**. Regular monitoring of the major elements is required in order to assess wear and tear



3 - ADVANTAGES OF WET GRANULATION

Simple and continuous operation

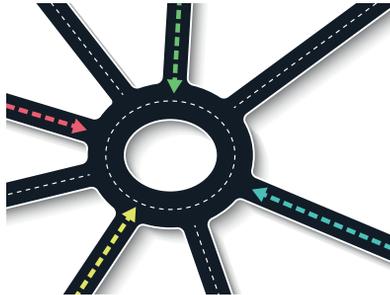
Once the **production parameters** have been determined, operation of a pelletizing disk is extremely simple since monitoring is sufficient to prevent unexpected elements from disturbing production



3 - ADVANTAGES OF WET GRANULATION

Diverse use

With either pelletizing disk or granulating drums, operators are able to treat **various products**. These continuous processes permit production runs as and when required.



3 - ADVANTAGES OF WET GRANULATION

Dust/waste recovery

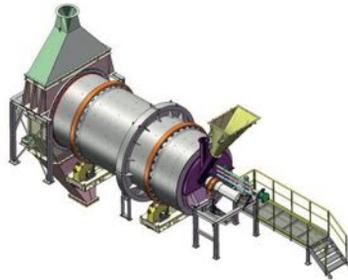
Today, many manufacturers face management challenges regarding **dust emissions**. In order to minimise material losses it is therefore possible to **recover** and **granulate** them with the purpose of reintegrating them into an industrial process. Thereby manufacturers can envisage dust recovery at the level of the various filters before storing them using various means (big-bag, silo...) and once the volume of this dust is sufficient, start a granulation run of this dust to be **reintegrated** into the main production circuit.



LA GRANULATION HUMIDE

Despite these numerous advantages mentioned, it should, however, be noted that wet granulation generally involves a **drying stage** afterwards with the aim of removing excess moisture from the granules in order to handle them without risk of disturbing their physical characteristics.

Whether for **mineral** or **organic** matter, wet granulation therefore meets many **industrial challenges**.



A WET GRANULATION PROJECT ?

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