

## Wonderbatch®

Wonderbatch® is the revolutionary NTE Process technology for in-line formulation which provides a complete solution for handling recipes, batching and, material in mobile containers (IBCs) or big bags.

This solution allows you to formulate a wide range of recipes directly in the IBCs. This is an activity usually performed offline or directly connected to a pneumatic conveying system which is instead performed inline.

Tests carried out at the NTE Scientific Hub have shown a time saving of 40% compared to the use of traditional systems. This makes Wonderbatch® a unique technology for flexible formulation.

### Benefits:

- reduction of downtime concerning the formulation of powder recipes to process the batch
- dosing directly from big bag
- automatic monitoring of the entire process
- elimination of contamination
- traceability through weighing and control systems
- reduction of cleaning times
- possibility of mixing the batch directly in the mobile container.

## Automation & Service

Software and Hardware Systems designed to keep under control your plants in a simple, reliable, flexible, expandable way and at low cost.

Functions: • Traceability • Batch management • Production management • Maintenance • Efficiency graphics • Quality management.

NTE Process is a unique source for process handling and control, and provides also a completely customized service to customers.

Benefits: • Continuity of production • Reduction of maintenance costs • Respect of quality procedures • Operator safety.

The system is based on the Wonderbatch® Station M510-513 and guarantees maximum flexibility to the batch processing flow according to production needs and avoids the risk of contamination, optimizes space and increases production. In particular, the use of the cone valve M501 guarantees the effective unloading of raw materials and the loading of bagging machines without segregation in the case of mixed products.



Wonderbatch®

## NTE Scientific Hub

We offer our customers the opportunity to test our technologies directly on our 1:1 scale Test Plant.

Scientific tests (fluidity, aeration, consolidation, etc.) as well as full scale tests (spray drying, drying, solid-liquid mixing, parallel processing, pneumatic conveying, etc.) are performed to better simulate the output of each technology in real conditions. A detailed report with the most relevant information for the predictive analysis of the performance, energy consumption and all the details necessary for the correct design of industrial plants.



Industry 4.0



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# Shaping the future of chemical manufacturing

CONVEYING IDEAS,  
INSPIRING SOLUTIONS,  
BUILDING SUCCESS!





NTE Process supplies complete solutions for the chemical industry which are characterized by extreme delicacy in the handling of easily degradable materials, as well as patented, versatile and economical technologies also for the formulation of recipes and the loading of reactors with and without the presence of solvents.

The company goal is to preserve the high quality standards of the treated products through high containment solutions that guarantee protection from toxic, explosive and carcinogenic materials.

## PNEUMATIC CONVEYING

The **dense phase pneumatic conveying with Air Assist®** technology uses very low conveying speeds. The Air Assists® inject air being strategically positioned along the transport pipe, resulting in product slugs moving compactly along the line.

The patented Eco Dense-Tronic® uses Artificial Intelligence to control the injection flow rate of each single point and the optimal pressure profile of the gas for the specific product conveyed. This occurs in a precise way, electronically and even remotely.



Typical dense phase conveying system with TransporterS M201

## AIR MIXING

Through the use of state-of-the-art pneumatic blenders (**Air Mixer M244 - Silo Mixer M277 & Jetmixer® M531/M537**), the product is mixed through gentle pulses of compressed air or other inert gases (e.g., nitrogen). There are no functioning mechanical parts inside the body of the mixer therefore no contact with the product.

The NTE Process air mixers not only blend very abrasive and brittle products, but they also allow:

- temperature conditioning (heating or cooling)
- moisture control
- coloring and perfuming during mixing by adding powders and liquids
- vacuum degassing.

By using only the “force” of air, the NTE Process pneumatic blenders allow you to quickly and efficiently mix products with different bulk density and particle size.

They also ensure a specific control of each process need as well as the possibility of mixing both small and large batches (200 litres hopper, mixing up to 200 m³ silos) by simply modifying the parameters of pressure, ON/OFF, valve stroke adjustment, etc. through the PLC.

Unlike traditional mixers that require significant power input to motors, NTE Process’ air mixers offer potential **energy savings**. Reduced moving parts and polished internal surfaces make **cleaning easy**. Relative quick clean down times are beneficial where batching and formulation plants require frequent recipe changes.

The **Jetmixer® Unit M537** is a process solution made by NTE Process for laboratories and small production runs. It is designed to homogenize materials with different bulk density and particle sizes in hoppers from 20l to 500l. It is a 5-in-1 system for raw material blending, pneumatic vacuum conveying, liquid injection, cooling (or degassing) and powder conditioning in a single stand-alone process machine.



Typical air mixing plant



Jetmixer® Unit M537

## Products Handled

- Calcium carbonate
- Calcium hydroxide
- Calcium oxide
- Cellulose
- Detergents & Soaps
- Fertilizers
- Glass microspheres
- Pigments
- Polymers
- Resins & Glues
- Sodium carbonate
- Starches
- Thickeners
- Titanium Dioxide
- Toner
- Urea

## SPRAY DRYING

Spray drying is a rapid and efficient technology to atomize solid/liquid or slurry solutions with different viscosity, resulting in engineered powders with very precise particle size thanks to the use of patented nozzles.

The main advantages derived from this technology are:

- high purity end product
- engineered powders with very precise particle size (up to <10µ)
- and characterized by high flowability, solubility and dispersibility, enabling handling and storage
- process repeatability.

NTE Process provides varied solutions: complete plants or retrofitting of existing plants, pilot scale and laboratory Spray Dryers. Standard machines are complemented by a range of closed-cycle nitrogen Spray Dryers that are suitable for working with highly explosive powders and solvents.

NTE Process have an innovative range of **Spray Bag Dryers**, these machines have a fabric drying chamber which eliminates metal contamination for specialist material applications.

Chambers are machine washable and quick to change, this SMED type changeover is advantageous for chemical applications. Products can have dedicated bag chambers.



Spray Dryer

## MILLING powered by

### Precision grinding for quality ingredients

NTE Process’ solutions for dry grinding, micronisation and dosing are capable of reaching micrometer-level fineness goals, preserving the organoleptic qualities of the processed raw materials. Depending on the material being processed, the most suitable technological solution is applied for achieving a fine and high-quality final product.

### ZERO LINE: 5 technologies in 1 machine

A highly innovative multi-function pilot plant suitable for the production of small batches. It allows for various grinding and selection tools to be used in one location, with a high level of flexibility. The machine is equipped with a specially designed bench that integrates a high-performance multi-tool mill with a touch screen interface, allowing for the use of equipment for both room temperature and cryogenic/inertized processes as needed.

### Multi-tools Mills

Suitable for processing dry and low-hardness materials, such as sodium bicarbonate. These mills produce a final particle size ranging from 0.1 to 10 micrometers. Grinding occurs through impact between the tools installed on the rotor and the fixed part of the chamber, which is constructed with a net or partially with special design liners. The net also allows product selection, as the maximum granulometry is determined by the hole size. The particle size of the finished product is thus determined by the type of net and the rotor’s rotation speed. Compliant with ATEX regulations.

### Cryogenic phase Mills

Ideal for various, typically hard and fragile materials such as glass fibre, magnesium sulphate, phosphate and urea. These mills produce fine to medium-fine granulometries (30 microns to 1 mm), ensuring gentle grinding that preserves the characteristics of the ingredients.

### Classifier Mills

High-performance grinding mills, whether used in cryogenic, temperature-controlled, or room temperature processing, can be equipped with a granulometric result regulation system by installing an online or offline dynamic classifier. The selector is highly wear-resistant and is generally suitable for classifying rapidly flowing materials. Ideal processes for this machine are those where mechanical sieving is inefficient or inconsistent. With the classifier, it is possible to obtain powders with a high degree of separation between fine and coarse grain, with an extraction rate greater than 70%. This includes substances that are often difficult to flow or become clumpy, such as aramid fibre, carbon fibre and potassium sulphate.



Cryogenic plant