NTE PROCESS

CASE STUDY
Rubber & Tire Industry

How to increase the capacity of your system while limiting fines production and saving costs?

BACKGROUND

A world leader in off-highway tire industry turned to NTE Process to revamp the existing plant in India. The Company faced the typical problems of **fines production** during the conveying of carbon black which not only led to a reduction in product quality but also to carcinogenic emissions to humans.

CUSTOMER REQUEST

The Customer wanted to **increase the capacity of the plant** thus containing costs while ensuring a high quality of the final product.
NTE Process has successfully solved these issues by providing a solution that allows both to drastically **limit the phenomena of degradation** of the product and to **optimize the costs**, ensuring an increasing in the system rate capacity as well as an effective saving in air consumption.

THE SOLUTION

Eco Dense-Tronic® is a NTE Process' new generation solution based on dense phase pneumatic conveying combined with the patented **Artificial Intelligence Air Assist® M533**.
The **great innovation** is that the Air Assists® M533, which are strategically positioned along the transport pipes to inject compressed air (or nitrogen), reduce the percentage of breakage of the material during transport, thanks to the **direct control over the optimal pressure and volume of the amount of air injected in each single injection point**. The material is thus gently pushed creating regular caps of product which reduce the resistance and pressure required for handling, working with a full pipe. The reduction of the conveying speed and the consequent absence of impact and friction in the conveying

STORAGE SILOS & DENSE PHASE PNEUMATIC CONVEYING

TRANSPORTERS M201

FLEX WALL BATCH SCALE M524

line limit the degradation phenomena. Indeed, thanks to **Eco Dense-Tronic®** only 1 to 3% of fines are generated while most of alternative technologies increase fines between 5-7% as well as in all medium-pressure range or vacuum the percentage can increase between 20-40%, because of the high conveying speed. The system provided consisted of storage silos, pneumatic transporters, transport pipes with Air Assists®, receiving hoppers and control systems with PLC.

BENEFITS

- Average carbon black system capacity increasing:
  - **Efficiency: up to 40%***
  - **Rate: +20%*.**
- **Air Saving: up to 70%***.
- **Fines content: up to <1%*** with negligible damages to carbon black granules.
- **Remote commissioning and monitoring**: the injection flow rate at each point and the optimal gas pressure profile (air, nitrogen, etc.) for the specific conveyor are precisely controlled electronically and even remotely.

TYPICAL ECO DENSE-TRONIC® INSTALLATION

CONCLUSIONS

Delicate materials are subject to degradation which increases the higher the speed of the pneumatic conveying system. That is why to adequately handle this type of material it is necessary to minimize the conveying speed using dense phase pneumatic conveying with Air AssistS®. In this field, contacting a partner who has specific experience with a certain type of material and in a specific application is essential.

At the **NTE Scientific Hub**, equipped with a **Research and Innovation Center and Pilot Plant**, it is possible to carry out tests on a 1:1 scale to experience NTE Process technologies first hand, obtain reliable data on the advantages deriving from each solution and prevent any critical issues of each process.

ABOUT NTE PROCESS

NTE Process is the **Single Source Provider** of process solutions for the industry ranging from dense phase pneumatic conveying to mixing, but also liquid injection, drying, spray drying and in-line formulation, up to packing. The headquarters is in Gorgonzola (MI), while in Pessano con Bornago (MI) there are both the second site which includes the assembly and testing area and the NTE Scientific Hub, where a team of specialized engineers deals with R&D and carries out full scale and scientific test.

*Note: results achieved on specific plant configurations.

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