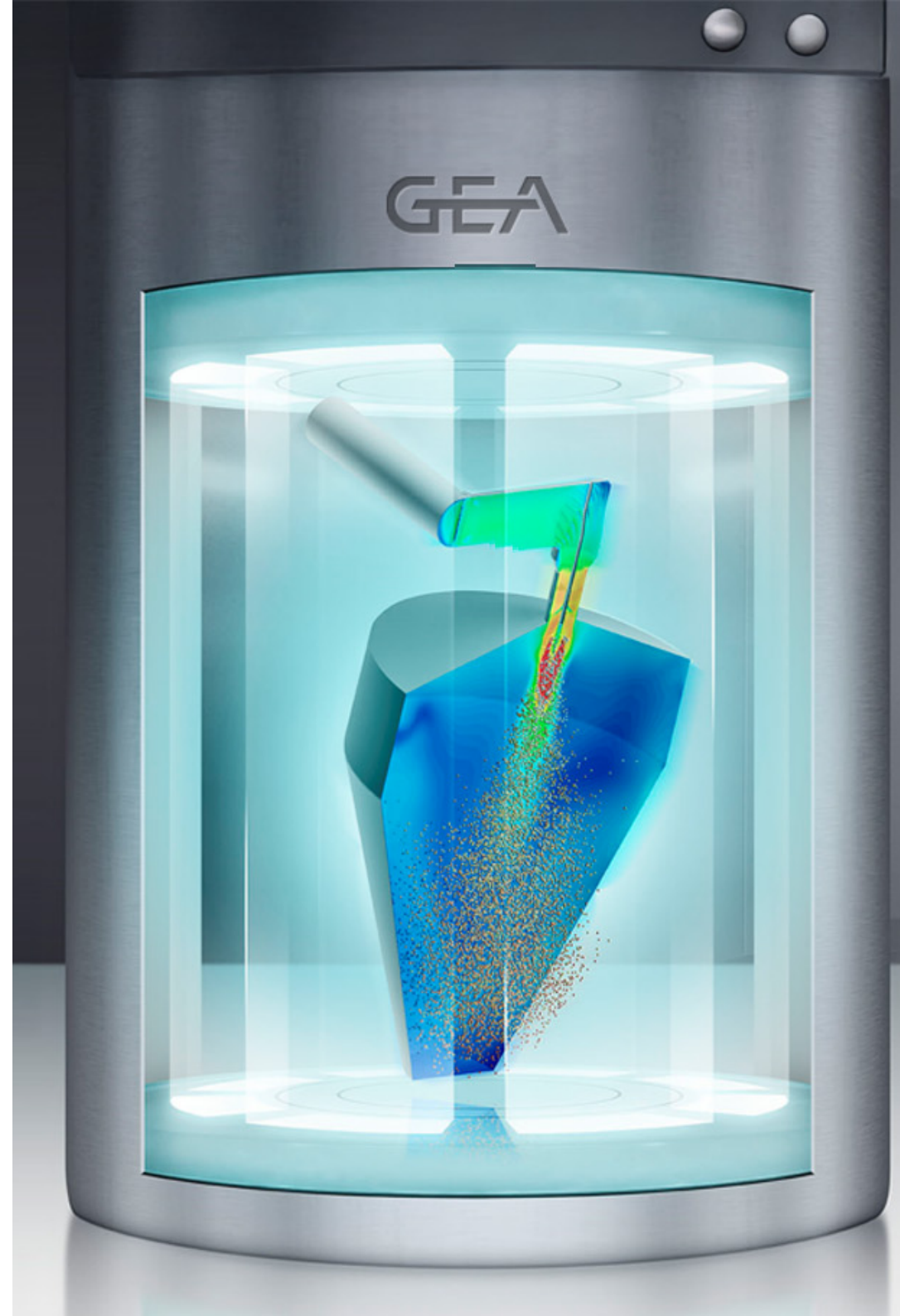


GEA VIRTUAL SPRAY DRYER TESTING

Rapid, low cost & risk-free spray dryer testing based on computational fluid dynamics (CFD) simulations.



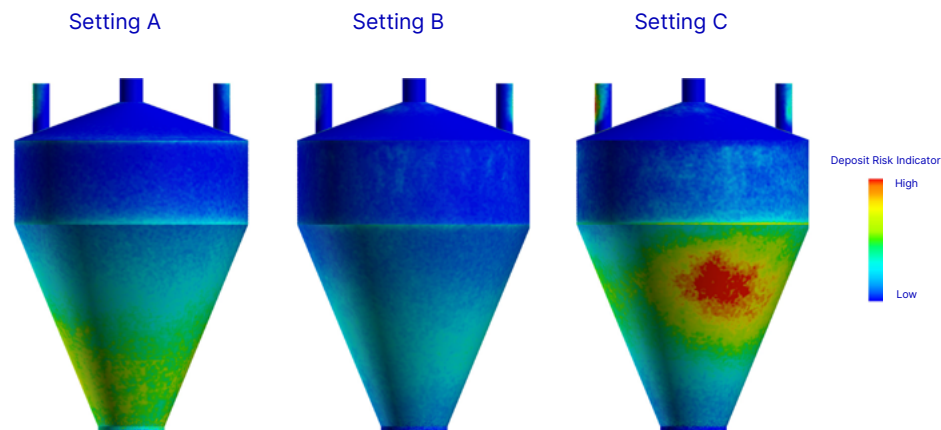
GEA VIRTUAL SPRAY DRYER TESTING.

Benefits at a glance:

GEA Virtual Spray Dryer Testing helps to lower risk, save time and reduce cost. It represents an ideal option if you want to experiment with new products or processes without interfering with your day-to-day production.

GEA Virtual Spray Dryer Testing gives customers the ability to:

- **Quickly assess the consequences of rebuilding or changing settings** in the spray dryer to optimize its performance, without impacting on day-to-day operation.
- **Get early insights into the optimization** and functionality of a spray drying process, even before a new plant is built.



Test parameters:**Dryer configuration:**

- Gas disperser
- Chamber
- Outlets

Operating conditions:

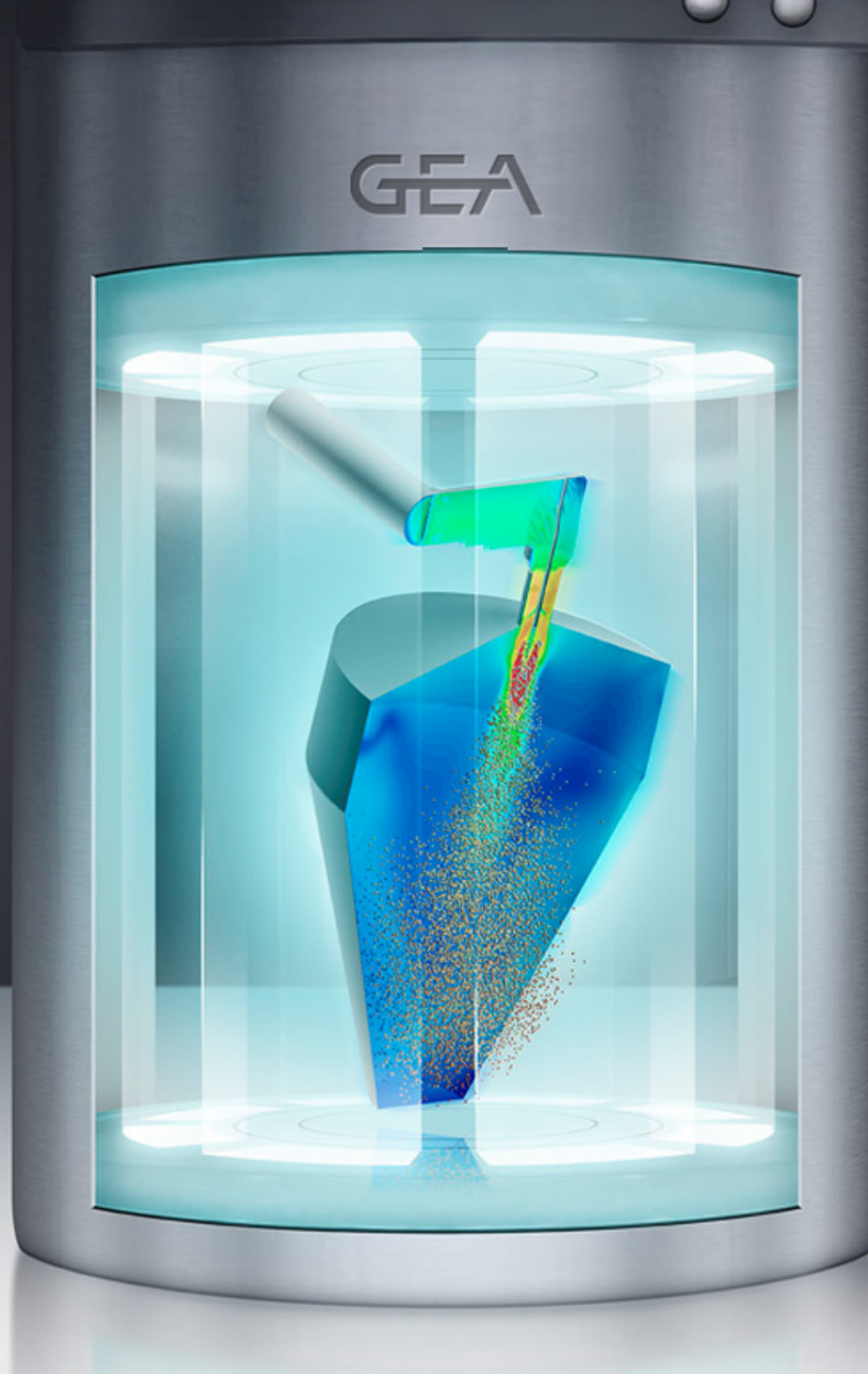
- Flow rates
- Temperatures

Atomization:

- Spray position
- Droplet sizes

Feed characteristics:

- Drying speed
- Stickiness

**Results:****Performance indicators:**

- Deposit risk
- Heat exposure
- Exhaust loading
- Pressure loss

Process insight:

- Gas flow, temperature
- Humidity & evaporation
- Particle trajectories
- Residual moisture

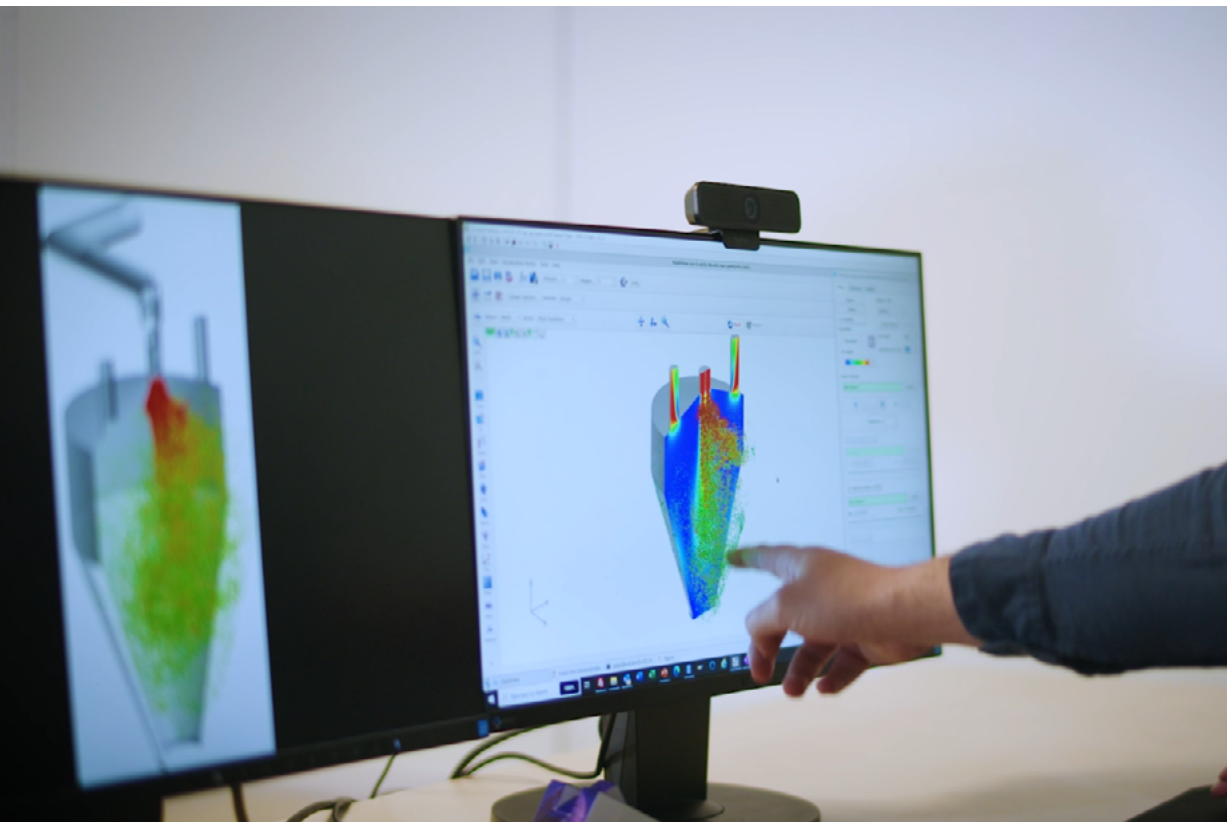
Challenging physical tests

Plants may be operated under conditions that are different from those for which they were designed. Because physical tests on a commercial spray drying plant on site are risky, and may lead to substantial production losses, the initial plant settings, implemented during commissioning, are often left untouched.

Years later, many plants have not been adjusted for optimal performance, and some are even suffering from chamber wall deposits. Similarly, the inherent complexity of the spray drying process means that when designing new plants with completely new products, it is difficult to foresee and mitigate all the problems that might arise.

When relying on physical testing to evaluate a new drying application or plant design on a one-to-one scale, such risks can only be addressed once the plant is built, and any required changes to the plant design could be very expensive.





Virtual test capabilities and process knowledge

GEA has developed a computer simulation tool, known as Virtual Spray Dryer Testing, which can provide valuable insight as an addition to that generated through physical testing. The virtual technology is based on the most advanced 3D computational fluid dynamics (CFD) simulations in the industry, and offers a low cost, risk-free approach to testing, with the added benefit of a fast turn-around time.

Experts here at GEA have harnessed more than 20 years of combined experience in simulating the complex physics of the spray drying process to develop the Virtual Spray Dryer Testing, so that our customers can test many different spray drying concepts and evaluate the performance of each design.

The Virtual Spray Dryer Testing uses advanced models that can generate deep insights into the spray drying processes and provide a detailed understanding of how dryer is designed and changes to operating parameters impacts on the process as a whole.

Using the Virtual Spray Dryer Testing, it's possible to test and evaluate process configurations and operating parameters that can't be tested using physical, on-site measurements.



Push boundaries to optimize performance with no risk.

Due to the low-cost, risk free nature of virtual spray dryer testing, it is a great way of pushing the boundaries of spray drying technology to optimize plant economy without sacrificing process safety and product quality. Ultimately this might give you that all-important commercial edge in today's fast paced, competitive markets.



Use technology to apply GEA expertise.

The GEA Virtual Spray Dryer Testing has been developed with the benefit of decades of our process design and operational know-how. We don't just offer state-of-the-art simulations, we combine it with expert knowledge, data and experience, to help support your goals, and optimize your spray drying operation and product quality.



Convert data into a study for proper decision making.

Computer simulations generate huge amounts of data, but the Virtual Spray Dryer Testing will provide a study, with representation and translation of the data, to make them real and relevant for your process conditions and support your decision making. GEA expertise helps to interpret the data, and fine-tune simulations, so that you can get answers to your key questions or address specific concerns.



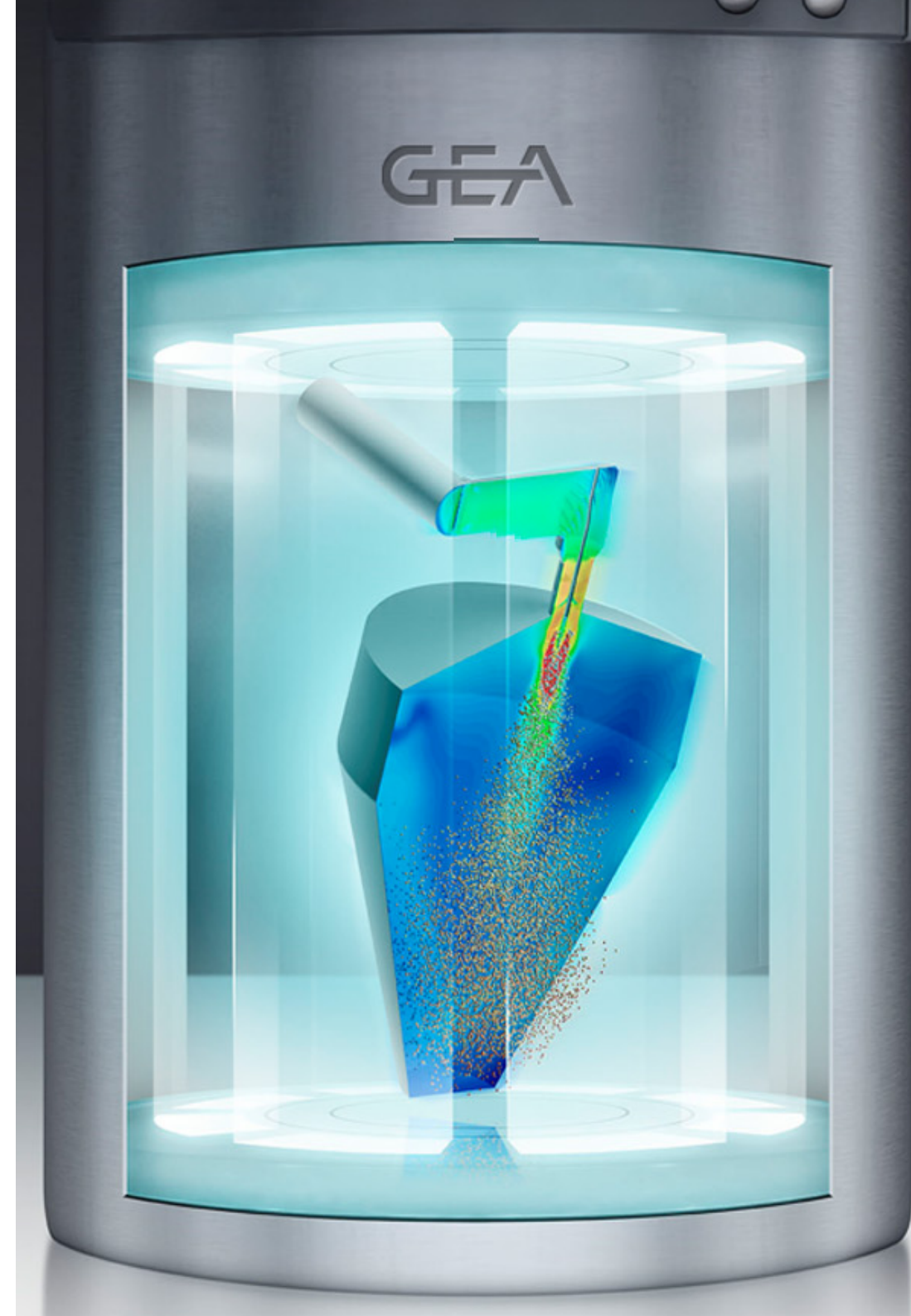
Virtual testing based on real-world measurements.

Conventional simulation programs assume when it comes to drying that all feeds are essentially alike. In reality they aren't. Therefore, without empirical data it is difficult to predict whether a given feed will lead to problems or where deposits might form. GEA provides the solution by incorporating real-world measurements into the virtual test either from production scale plants or from the GEA drying test center. Experiments can be conducted on feeds to determine its actual drying properties in the scale deemed relevant for you.

The results are then transferred to the virtual test making it possible to simulate the drying process with unprecedented accuracy. The combination of virtual and physical testing opens a new door to process improvements and product innovation. Airflows can be better distributed for optimal performance and dryer size and energy requirements can potentially be reduced.

**Interested?**

If you like the sound of Virtual Spray Dryer Testing and want to find out more, just contact your local GEA representative. They will put you in touch with the right GEA process and simulation experts, who will be able to help you find out more about using the Virtual Spray Dryer Testing , and how we can support you.

[**Contact GEA**](#)

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