

SPRAY CHARACTERISATION TESTING

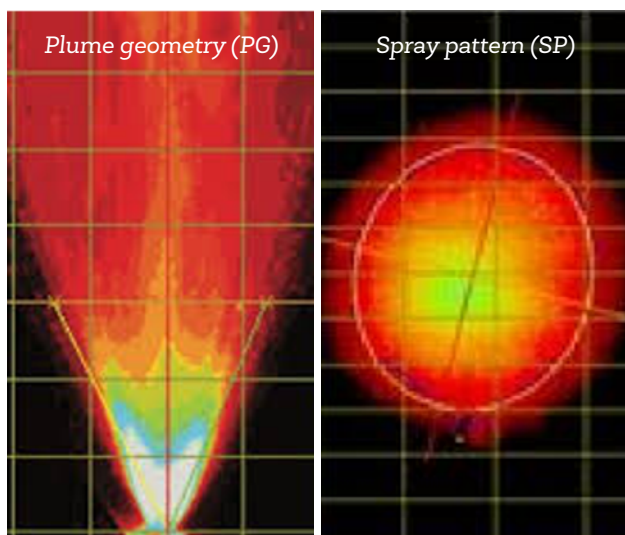


SprayVIEW® measuring systems by Proveris*

At Recipharm, we have the expertise and specialised equipment to provide analytical support for the development of inhaled products, specifically nasal sprays, oral sprays and pMDIs. This includes the use of SprayVIEW® measurement system and automated actuation stations by our expert development team.

Inhalation products are extremely complex to develop and manufacture and it is important to understand all potential interactions between the formulation and the delivery device throughout the development stages.

Spray pattern and plume geometry are critical attributes when characterising nasal sprays, oral sprays and metered dose inhaler aerosols.



Images acquired through real time, high speed camera footage of aerosols or sprays emitted from a device allow for subsequent data analysis of spray pattern and plume geometry to determine the shape and size of the aerosol or spray.

The automated actuation stations allow for consistent actuation using parameters such as actuation velocity and acceleration, minimising intra- and inter-device variability.

Actuation graphs are collected during spray pattern and plume geometry measurements displaying the actuation profile which can be used to determine the force-to-actuate of the device.

SprayVIEW® measurement systems are not only valuable tools to guide drug product development but can also be used to support quality control for container closure components (i.e. valves, pumps) and finished drug products.

For spray pattern and plume geometry test services at Recipharm, we offer:

- ▶ Inhalation and nasal spray product development from initial formulation/process development to registration, commercial batch release and product characterisation
- ▶ IVBE studies in generic inhalation and nasal spray product development
- ▶ Expertise in developing and validating SprayVIEW® based methods for aerosol and nasal spray testing
- ▶ Support with device, formulation, or process related changes during product life cycle



Why choose Recipharm Inhalation Solutions™

- ▶ **Comprehensive offering:** our end-to-end service manages complexity and reduces risk for our customers
- ▶ **Experience and track record:** Recipharm is a leading CDMO in the inhalation space with a long history in inhalation drug product and device development and manufacturing
- ▶ **We understand your challenges:** Our depth of knowledge means we can overcome the challenges associated with inhalation drug products and devices. By developing inhalation products with the device and commercial manufacture in mind we eliminate hurdles and reduce time to market
- ▶ **Our global network:** We have facilities in the US and EU dedicated to inhalation development and manufacturing, including a large pilot plant for clinical manufacture and small-scale manufacture. In addition, our services are supported by strong corporate health, safety and environment (HSE) and cGMP quality systems to ensure the highest levels of compliance across worldwide markets

* SprayVIEW® is a registered trademark of Proveris Scientific Corporation.

About Recipharm: Recipharm is a leading contract development and manufacturing organisation (CDMO) headquartered in Stockholm, Sweden. We operate development and manufacturing facilities in France, Germany, India, Israel, Italy, Portugal, Spain, Sweden, the UK and the US and are continuing to grow and expand our offering for our customers. Employing around 9,000 people, we are focused on supporting pharmaceutical companies with our full service offering, taking products from early development through to commercial production. For over 25 years we have been there for our clients throughout the entire product lifecycle, providing pharmaceutical expertise and managing complexity, time and time again. Despite our growing global footprint, we conduct our business as we always have and continue to deliver value for money with each customer's needs firmly at the heart of all that we do. That's the Recipharm way.