References

Improving patient adherence through long prime retention

Good patient adherence plays a significant role in pulmonary treatments. Rates of nonadherence for asthma patients range between 30% and 70%\(^1\) and adherence rates for regular preventive treatments are as low as 28% in developed countries\(^2,3\).

By removing the need for a priming actuation after extended periods of non-usage, a good prime retention drives better patient compliance. With a prime retention of 14 days, the Inhalia\(^\text{®}\) platform decreases the requirement for a priming shot and delivers complete and consistent shots between uses, every time.

Reproducible doses thanks to low leakage, low moisture ingress and water levels

Equally, moisture ingress into the device may negatively impact drug stability and performance and is therefore a critical measure for pMDIs. Especially ethanol which is often used as a co-solvent can increase moisture uptake and hydrofluoroalkane (HFA) propellants, used for the majority of marketed pMDIs today, have a high sensitivity to moisture\(^4,5\).

The Inhalia\(^\text{®}\) platform has been designed to operate with a range of plastic resins for optimal control of moisture levels. With its absorbent polyamide ring, the valve ensures low water content. An optimised valve design combined with the chlorobutyl material of the gaskets limits moisture ingress over the life of the product.

The Inhalia\(^\text{®}\) platform has been tested according to the Karl Fischer method and results show very low moisture ingress over a 6 months period at accelerated ageing.

A consistent dose every time

The Inhalia\(^\text{®}\) platform shows very consistent dosage performance through life, initially and after ageing. Individual dose and average dose dispersion on shotweight is less than 3% and dose content uniformity results are excellent and well within regulatory requirements.

All Inhalia\(^\text{®}\) platform configurations have gone through comprehensive testing and validation in line with international regulatory requirements. Inhalia\(^\text{®}\) valves in doses 40μl, 50 μl and 63μl are offered as standard and are available for sampling.

A comprehensive datapack of tests performed is available upon request.

Key reasons to choose Inhalia\(^\text{®}\) for your pMDI solution

- Excellent tightness minimizes leakage and moisture ingress
- Shot weights are consistent with a sharp tail off
- Prime retention guarantees dose consistency through extended periods of non-usage and through life of the device
- The platform is designed for optimised drug path flow for better formulation restitution
- Inhalia\(^\text{®}\) is compatible with existing filling lines and designed for fast filling and low sensitivity to variations in crimping
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Reproducible doses thanks to low leakage, low moisture ingress and water levels

Throughout the life of the product, the pMDI device must remain a closed system to avoid leakage of the formulation and to minimise any potential moisture ingress, both of which could negatively affect the performance of the product and therefore prevent the effective delivery of the dose to the patient.

Especially with smaller doses, the prevention of leakage is crucial as any leakage of HFA gas could impact the concentration and stability of the delivered dose.

As can be seen from the tests results in figure 2, the Inhalia® platform has a very low leak rate, far below regulatory requirements.

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References


Contact

Nemera
inga.meyer@nemera.net

Authors:
Inga Meyer,
Jérôme Dodard,
Olivier Joly and Alain Regard

Designed to deliver a consistent dose, every time!

Nemera’s precision metering valve platform for pressurized metered dose inhalers (pMDIs) Inhalia® meets a wide range of requirements and is ideal for all patients, even with infrequent treatment needs, due to its long prime retention, very low leakage and moisture ingress.

Treatment for pulmonary diseases such as Asthma and COPD can be delivered via a number of different routes. Due to the direct and immediate action onto the bronchi, the reduction of side-effects as well as patient convenience and relatively low cost per dose, inhaled treatments remain the preferred treatment route.

Nemera’s platform of proprietary metering valves for pressurized metered-dose inhalers Inhalia® is targeted at pulmonary treatments and is available in a variety of configurations to address a wide range of market requirements.
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