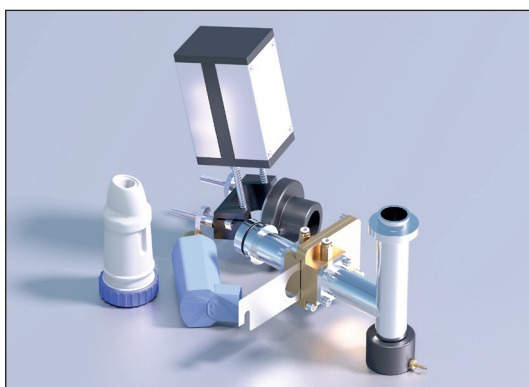




Applications

The inhaler actuation device is coupled to the PreciseInhale in order to produce respirable aerosols and precisely dose each exposure object from any inhaler. Suitable for DPIs as well as pMDIs.

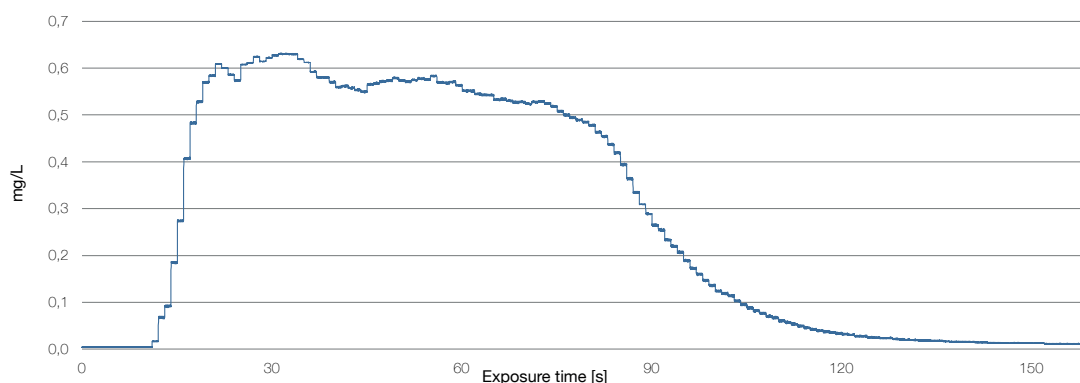


Features

- Precise repeatable dosing of exposure object
- Allows coupling of any inhaler to the PreciseInhale (DPIs and MDIs/pMDIs)
- Automatic actuation
- Adjustable inhalation flow rate
- Registration of pressure drop (DPIs)
- USP (United States Pharmacopoeia) design

Benefits

- Enables comparison of formulations in different inhalers vs. commercial reference inhaler
- Repetitive and controlled emitted dose
- Actuate any type of inhaler
- In line with development regulation demands



Aerosol concentration over time during a DPI exposure.



Technical specifications

Components	pMDI Trigger (PIINHpt1)
	pMDI inductor adapter (PIINHpia1)
	Inhaler Inductor Tube (PIINHt1)
	Inhaler Flow Generator (PIINHfg1)
	Critical Orifice (PIINHco1)
	Inhaler Flow Pneumotach (PIINHfpne1)
	Syringe (PIINHs1)
Measurements:	
Additional PreciseInhale width including inductor tube and pMDI trigger	25 cm (left) + 15 cm (right) 1.5 kg
Critical orifice	26 x 15 x 19 cm (W x D x H) (3.2kg)
Inhaler flow generator	41 x 20 x 50 cm (W x D x H) (7.3 kg)
Verified exposure modules	Aerosol characterization (DPI and pMDI)
	DissolvIt (DPI and pMDI)
	Isolated perfused rat lung (IPL) (pMDI)
Suitable materials	Dry powder inhalers (DPIs)
	Pressurized metered dose inhalers (pMDIs/MDIs)
	> 50 different inhalers have been tested
Inhaler flow range	0 - 116 L/min
Actuation time range	50 - 1 000 ms
Pre-pressurization	Yes, for DPIs
Pressure drop measurement	Yes, for DPIs in order to verify 4 kPa pressure drop
Exposure flow rate	50 - 500 mL/ min
Automatic trigger	Yes, for pMDIs
Pressure drop reproducibility	< 10 % standard deviation (n = 180 actuations) Spiriva 18 µg, inhaler flow rate 38 L/ min, pressure drop 3.9 ± 0.37 kPa, 300 mL aerosol holding chamber, actuation time 300 ms (verified through intra inhaler aerosol generator testing) (IS224)