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Inhaled Dissolution Apparatus IDA

Streamlines and Simplifies Dissolution Testing of Inhaled Products

The IDA addresses a critical gap in inhaled drug product development, offering a reliable, robust and discriminatory system for assessing dissolution behaviour. In an area with no industrially accepted standard, the IDA delivers reproducible, high-quality data, that helps developers accurately compare reference and generic formulations, optimise new products for dissolution and bioavailability, and generate scientifically robust evidence for regulatory submissions.

Designed for ease and flexibility, the IDA accommodates multiple device types, flow rates and inlet types, providing a versatile solution for inhaled product testing. Supplied as a complete platform together with Copley's trusted DIS 600i-ID or 800i-ID Dissolution Tester, the IDA ensures a fully integrated workflow from particle collection to dissolution testing.

With comparable data across devices and formulations, developers can confidently understand dissolution profiles, de-risk development, and provide regulator-ready evidence.

Patent Pending

3-Step Workflow for Inhaled Dissolution

The IDA is compatible with a wide range of inlets, supporting both inhaled and nasal drug product testing (see Technical Specifications on page 4 for a full list of compatible inlets). This flexibility allows users to adopt the apparatus and method most relevant to their product. For example, using the FSI allows the Fine Particle Dose (FPD) to be collected on the filter which is useful for understanding the dissolution rate of particles that penetrate into the deep lung.

1. Collect

Select the inlet appropriate for the method of interest, and capture particles uniformly on the filter. The system ensures reproducible deposition across the filter, supporting accurate and representative sampling of the aerosolised dose.

2. Transfer

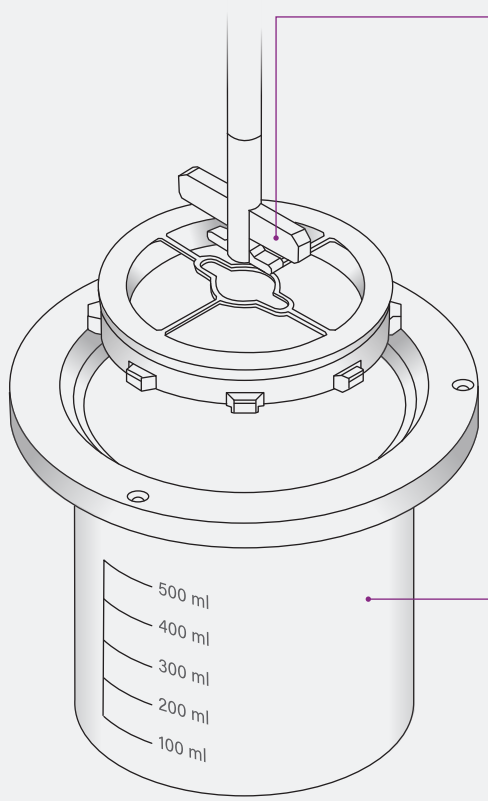
The filter holder attaches directly to the dissolution paddle, eliminating the need for manual handling of the filter. This streamlined step reduces the risk of sample loss, cross-contamination, or variability - preserving the integrity of the collected dose.

3. Dissolve

Lower the paddle/filter assembly into the flat-bottomed dissolution vessel containing pre-warmed media. The centralised filter holder ensures circulation around the filter, promoting uniform dissolution even with small drug quantities. Built-in alarms and monitoring features help ensure timely sampling and reliable results.

Purpose-Built Paddle and Vessel Design for Inhaled Product Dissolution

The paddle and vessel of the DISi-ID Dissolution Tester has been designed specifically for inhaled product testing. Together they create a harmonised system tailored to OIPs, supporting comparable, repeatable dissolution profiles across devices and formulations.



Optimised Paddle for Small Volumes

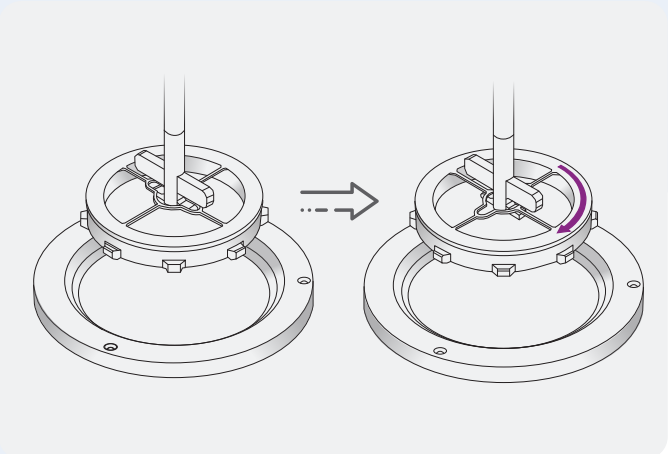
Adapted from the USP design, the reduced diameter paddle supports dissolution studies with the lower media volumes used for OIP dose collections, while its geometry preserves predictable flow behaviour.

Vessel Designed to Complement the Paddle

The dedicated vessel, with a flat bottom and working volume up to 500 mL, provides a stable and consistent position for the filter holder. It's shape promotes uniform media circulation around the filter, helping maintain reproducible dissolution conditions.

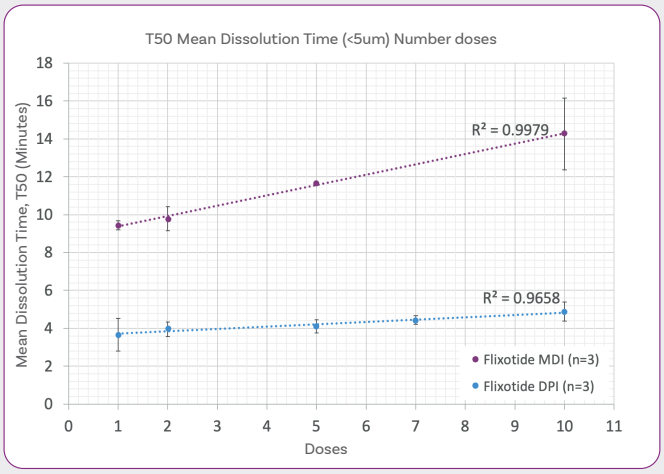
Direct Transfer from Collection to Dissolution

The filter holder from the IDA attaches directly to the paddle assembly, removing the need to manually handle or reposition the collected dose. This step minimises disturbance of the particle layer and provides consistent positioning between tests.



Scientifically Supported

A critical requirement for inhaled product dissolution testing is the ability to detect meaningful differences between formulations.



In a comparative study, the dissolution behaviour of fluticasone propionate delivered via MDI (Evohaler, GSK) and DPI (Accuhaler, GSK) was assessed using the IDA.

The dissolution rate, quantified by T50, clearly distinguished the two formulations and demonstrate the IDA's suitability for this purpose:

- The IDA provides repeatable measurements across multiple tests.
- It can clearly differentiate products with distinct dissolution profiles.
- This discriminatory capability is maintained across different dose levels.

Data presented at DDL 2025

Technical Specifications

Inhaled Dissolution Apparatus - Dose Collector	
Flow Rate Range	5 - 100 L/min
Compatible Inlets	NGI Induction Port | NGI Preseparator | Fast Screening Impactor | Alberta Throat (Child & Adult) | Mixing Inlet for NGI & FSI | Alberta Idealised Nasal Inlet AINI | Glass Expansion Chamber (all sizes)
Filter Type and Size	Glass fibre, 76 mm (diameter)

Inhaled Dissolution Apparatus - Dissolution Tester	
Speed Range	20 - 220 rpm ± 2%
Number of Testing Stations	6 (DIS 600i-ID) | 8 (DIS 800i-ID)
Vessel Volume	200 – 500 mL
Heater	DIS 600i: Low vibration integrated digital heater/circulator DIS 800i: Low vibration independent external digital heater/circulator
Heater Accuracy	± 0.1°C
Test Run Time	Up to 100 hours
Data Output	RS 232 (for connection with the Label Printer) USB A (for connection with a USB printer) USB B (for connection with a PC)

Cat No.	Description
1369	Inhaled Dissolution Apparatus - 6 Station System - 230V/50Hz
1369-120/60	Inhaled Dissolution Apparatus - 6 Station System - 120V/60Hz
1389	Inhaled Dissolution Apparatus - 8 Station System
9769	IDA Interface Plate for Vertus III
9765	Label Printer

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