



## DRUG DELIVERY DEVICE CASE STUDY

# Formulating Materials to Improve Metered Dose Inhalers

Advanced coatings help increase product stability and patient safety

### The Situation

A global pharmaceutical company developed a drug formulation for a pressurized metered dose inhaler (pMDI) that was experiencing two issues:

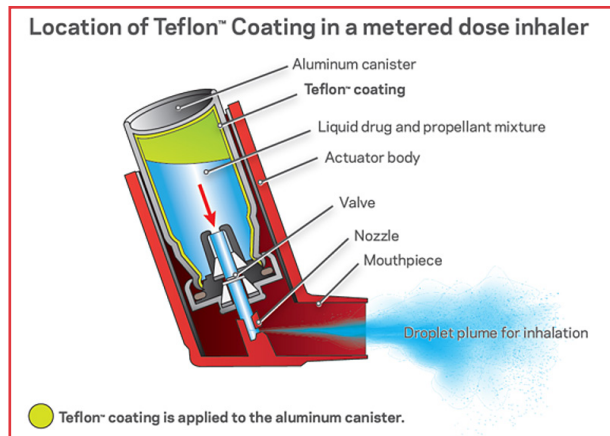
- 1) Interaction with the aluminum canister degraded the drug, reducing the shelf life of the product as the composition of the drug changed over time.
- 2) Adhesion to the aluminum walls of the canister reduced the amount of drug that could be delivered. This led to increased dose inconsistency and reduced the number of doses available for delivery.

### The Challenge

To overcome these critical issues and improve the performance of the inhaler, the pharmaceutical company needed a barrier coating that would not chemically interact with the drug formulation or adhere to the canister walls.

## The Solution

By leveraging their fundamental knowledge of chemistry and material science, the technology team at Chemours combined solvents, polyether, and fluoropolymer resins to create multiple formulations for the pharmaceutical company to test in their MDI application. This allowed the company to select the right Teflon™ coating for their drug products.



## Advantages of Teflon™ coatings in MDI applications

- Enhance stability by preventing the drug from corroding canister wall
- Ensure consistent, repeatable dosage quantities by inhibiting adhesion to canister wall
- Eliminate reactions, as fluoropolymer chemistry is inert when in contact with most drugs, propellants, and components of MDIs

## The Outcome

With the guidance of the Chemours technology team, the pharmaceutical company selected one of the formulations and applied it across three product launches. The Teflon™ coating helped the company manufacture MDIs with a higher dose count and extended the shelf life of the inhaler.

To help the company ensure compliance, the Chemours team developed an updated formula without the use of restricted solvents. The enhanced solution maintained the same performance as the original formula.

## Solving Pharmaceutical Device Challenges

Eliminating process failures is critical to reducing regulatory risk in the product development cycle and maintaining user acceptance after commercialization. Although barrier coatings may not be the driving factor in device design, proper formulations are crucial to ensure a consistent, repeatable process. The Chemours technology team can help reduce the burden on our customers' engineers through assistance in selecting and applying the right solution for specific applications. They are also available to help with training and troubleshooting as needed.

### Together, let's reconsider what's possible

Learn more about The Chemours Company and how our solutions and technical service team can position your medical devices for future success. Let's work together to solve the seemingly unsolvable.

Contact the Medical Team at Chemours:

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