

Re-Imagining Inhaled Drug Delivery Protection

Proven Active Material Science Solutions for Protecting Nasal & Oral Dry Powder Inhaler Drug Delivery Systems



Your product, actively protected™

Aptar
CSP Technologies

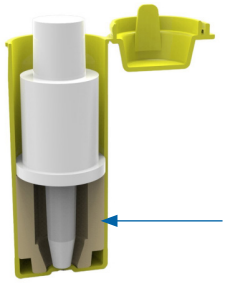
Integrated Protection for Nasal and Oral Dry Powder Inhaler Drug Delivery Systems

Nasal and oral dry powder inhalation systems face unique stability challenges that need to be managed to meet label claims, maintain potency, and improve patient adherence. From keeping powder formulations dry within a delivery system, to controlling the build-up of powder in the delivery channel, to maintaining the integrity of APIs within dry powder inhalers, Aptar CSP Technologies can custom-design a solution to meet your drug product's needs so you can deliver an optimal patient and consumer experience.

Our proprietary 3-Phase Activ-Polymer™ platform technology can be integrated into virtually any reservoir, capsule, or blister-based dry powder inhaler (DPI) to adsorb moisture, oxygen, or volatile organic compounds and mitigate failure of product integrity and/or stability.

Our solutions include:

- Customized active molded components integrated into the drug delivery system
- Activ-Blister™ technology that incorporates our active material science solutions into each individual blister cavity for capsule based DPIs
- Active packaging with 3-Phase Activ-Polymer™ material inside or Activ-Film™ technology heat staked to foil to protect the entire device



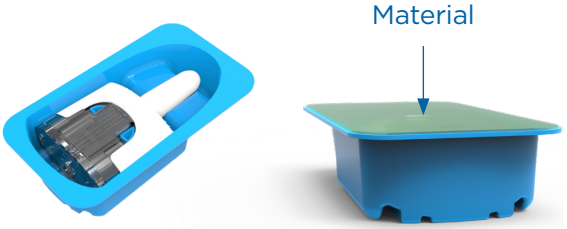
3-Phase Activ-Polymer™ Material



Activ-Blister™ Solutions



Active Packaging



Activ-Film™ Material

Benefits

- Custom-engineered solutions can be seamlessly integrated into current or new designs
- Active protection without impacting device design
- Heat-staking process for film is adhesive-free and eliminates residual solvents that can off-gas and interact with drug product
- Improved delivered dose reproducibility
- Reduced package complexity
- Enhanced stability and efficacy
- Extended shelf life over traditional packaging
- Built-in features to prevent premature actuation
- Adapted to stringent inhaler manufacturing specificities
- Expand market access to ICH zones 3 and 4 – one solution to fulfill global needs
- Combo formulations to protect against multiple degradants

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