

Shortened Expiration Dates for Inhalation and Nebulizer Devices

Certain inhalation devices once opened or assembled and in use, must be used within a specified timeframe to avoid reduced stability and sterility, which can impact efficacy of treatment. Medications with shortened expiration dates, as specified by the manufacturer in the product's package insert, should be labeled once in use to avoid administration beyond the recommended expiration or 'beyond-use date.' Many inhalation devices also contain dose counters, and should be discarded when the counter reads '0.'



MDI's (Metered-Dose Inhalers) - Releases a softer warmer aerosol spray with hydrofluoroalkane (HFA), that is best delivered with a closed-mouth technique.

Metered Dose Inhalers (MDI)	Expiration Date
Advair HFA * fluticasone/salmeterol	Manufacturer's expiration date on the packaging
Airsupra albuterol / budesonide	12 months after removal from foil pouch
Alvesco ciclesonide	Manufacturer's expiration date on the packaging
Asmanex HFA mometasone	Manufacturer's expiration date on the packaging
Atrovent HFA ipratropium	Manufacturer's expiration date on the packaging
Bevespi Aerosphere glycopyrrolate/formoterol	Three months after removal from foil pouch (three weeks for the 28-inhalation canister)
Breyna budesonide/formoterol	3 months after removal from foil pouch
Breztri Aerosphere glycopyrrolate/formoterol/budesonide	Three months after removal from foil pouch (three weeks for the 28-inhalation cannister)
Dulera mometasone/formoterol	Manufacturer's expiration date on the packaging
Flovent HFA * fluticasone propionate	Manufacturer's expiration date on the packaging
ProAir HFA * albuterol	Manufacturer's expiration date on the packaging
Proventil HFA albuterol	Manufacturer's expiration date on the packaging
Qvar RediHaler beclomethasone dipropionate	Manufacturer's expiration date on the packaging
Symbicort HFA * budesonide/formoterol	Three months (90 days) after removal from foil pouch
Ventolin HFA albuterol	12 months after removal from foil pouch
Xopenex HFA * levalbuterol	Manufacturer's expiration date on the packaging



Soft-Mist Inhaler - Releases a slow soft mist of medication that last longer in the air than aerosols from MDIs.

Soft-Mist Inhaler: Respimat	Expiration Date
Combivent Respimat albuterol/ipratropium	Three months (90 days) after assembly of device
Spiriva Respimat tiotropium	Three months (90 days) after assembly of device
Stiolto Respimat tiotropium/olodaterol	Three months (90 days) after assembly of device
Striverdi Respimat olodaterol	Three months (90 days) after assembly of device



Dry-Powder Inhaler - Delivers a fine powder, that requires a forceful inhale. DPIs may NOT be ideal for elderly or those with weak nerve or muscle strength.

Dry-Powder Inhaler (DPI)	Expiration Date
Advair Diskus * fluticasone/salmeterol	30 days after opening the foil pouch
AirDuo RespiClick * fluticasone/salmeterol	30 days after opening the foil pouch
Anoro Ellipta * umeclidinium/vilanterol	Six weeks (42 days) after opening foil tray
Arnuity Ellipta * fluticasone	Six weeks (42 days) after opening foil tray
Asmanex Twisthaler mometasone	45 days after opening foil pouch
Breo Ellipta * fluticasone/vilanterol	Six weeks (42 days) after opening foil tray
Duaklir Pressair aclidinium bromide/formoterol fumarate	Two months (60 days) after opening sealed pouch
Flovent Diskus * fluticasone	Six weeks (42 days) after opening foil pouch (50 mcg strength) and two months (60 days) after opening foil pouch (100 mcg and 250 mcg strength)
Incruse Ellipta umeclidinium	Six weeks (42 days) after opening foil tray
ProAir RespiClick albuterol	13 months after opening foil pouch
Pulmicort Flexhaler budesonide	Manufacturer's expiration date on the packaging
Serevent Diskus salmeterol	Six week (42 days) after opening foil pouch

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Dry-Powder Inhaler (DPI)	Expiration Date
Spiriva HandiHaler * tiotropium	Manufacturer’s expiration date on the packaging
Trelegy Ellipta fluticasone/umeclidinium/vilanterol	Six weeks (42 days) after opening foil tray
Tudorza Pressair aclidinium bromide	45 days after opening sealed pouch
Wixela Inhub fluticasone/salmeterol	1 month after removal from foil pouch

* Indicates generic products available, follows same expiration date guidance

Nebulizer Storage Comparison Chart (by Medication Name & Manufacturer)

Medication Name	Manufacturer	Refrigeration (Y or N)	Expiration date once foil pouch is opened	Specific Storage Recommendations	Source
Albuterol Sulfate Inhalation Solution	Nephron Mylan	N	7 days	Store unit-dose vials in protective foil pouch at all times. Once removed from the foil pouch, use vial within one week. Discard the vial if the solution is not colorless.	DailyMed
Albuterol Sulfate Inhalation Solution	RiteDose	N	30 days	Once the foil pouch is opened, the vials can be used for up to 30 days. Vials must be stored in foil pouch as product is light-sensitive.	Manufacturer
Ipratropium Bromide Inhalation Solution	Nephron	N	7 days	Protect from light. Store in pouch until time of use. One week after opening 5 pack vial from foil pouch, 2 weeks after opening 30 pack vials from foil pouch.	DailyMed
Ipratropium Bromide/Albuterol Sulfate	Nephron	N	7 days	Store in protective foil pouch at all times. Once removed from foil pouch, the vials should be used within one week.	DailyMed
Ipratropium Bromide/Albuterol Sulfate	RiteDose	N	14 days	Store in protective foil pouch at all times. Once removed from foil pouch, the vials should be used within 14 days.	DailyMed

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Medication Name	Manufacturer	Refrigeration (Y or N)	Expiration date once foil pouch is opened	Specific Storage Recommendations	Source
Levalbuterol Inhalation Solution	Amneal Teva	N	2 weeks once pouch is opened If vials are removed from the pouch, they must be protected from light and used within 1 week.	Protect from light and excessive heat. Keep unopened vials in the foil pouch. Once the foil pouch is opened, the vials should be used within 2 weeks. Vials removed from the pouch, if not used immediately, should be protected from light and used within 1 week.	DailyMed
Levalbuterol Inhalation Solution 1.25mg/0.5ml	Teva	N	Use Immediately.	These are single unit dose vials, use immediately once foil pouch opened.	DailyMed
Budesonide Inhalation Suspension 0.25mg/2ml	Cipla	N	2 weeks.	When an envelope has been opened, the shelf life of the unused ampules is 2 weeks when protected. After opening the aluminum foil envelope, the unused ampules should be returned to the aluminum foil envelope to protect them from light. Any opened ampule must be used promptly.	DailyMed
Aformoterol Tartrate (Brovana) Inhalation Solution 15mcg/2ml	Cipla (generic) Sunovion (brand)	Y	Unit dose vials. Use immediately upon opening foil pouch.	Store arformoterol tartrate inhalation solution in the protective foil pouch under refrigeration at 36°-46°F (2°-8°C). Protect from light and excessive heat. After opening the pouch, unused unit-dose vials should be returned to, and stored in, the pouch. An opened unit-dose vial should be used right away. Discard any unit-dose vial if the solution is not colorless. Unopened foil pouches of arformoterol tartrate inhalation solution can also be stored at room temperature 68°-77°F (20°-25°C) for up to 6 weeks. If stored at room temperature, discard if not used after 6 weeks or if past the expiration date, whichever is sooner.	DailyMed

Did You Know?

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Formoterol Fumerate (Perforomist) Inhalation Solution 20mcg/2ml	Teva (Generic) Mylan (Brand)	Y	Individually wrapped vials	Vial should always be stored in the foil pouch, and only removed IMMEDIATELY before use. Store in a refrigerator at 2°C to 8°C (36°F to 46°F) and discard when drug expires or store at room temperature, 20°C to 25°C (68°F to 77°F) and discard if not used after 3 months. Protect pouch from light and heat.	DailyMed

References:

1. Pharmacist's Letter. Correct Use of Inhalers. Updated Feb 2021. Available from: <https://pharmacist.therapeuticresearch.com/content/Segments/PRL/2017/Jan/Correct-Use-of-Inhalers-10561>
2. Product insert, various. Available from: <https://dailymed.nlm.nih.gov/dailymed/>



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