



What You Need to Know about Metered Dose Inhalers and the HFA Propellant

What propellants are in metered dose inhalers?

The metered dose inhaler (MDI) was developed in the 1950's. The propellant used in MDIs used to contain CFCs (Chlorofluorocarbons). The propellant in most of the MDIs now is an HFA (hydrofluoroalkane) propellant.

Why is there a different propellant in metered dose inhalers?

CFCs were found to deplete the ozone layer high above the earth. The Montreal Protocol was enacted worldwide to reduce the amount of CFCs used, to decrease the ozone depletion. CFC's have been used in many products, including MDIs. Alternative devices have been developed to replace the CFC propellant in MDIs. Dry powder devices and the HFA propellant in MDIs are replacements for the CFC propellant.



Does the HFA inhaler feel and taste different?

The HFA inhaler looks the same as the CFC inhaler. There is a metal canister inside a plastic case. You may notice a difference when you use the HFA inhaler. The HFA inhaler has a "softer, warmer" spray than the CFC inhaler. It also may taste a little different. You may not feel the spray as much at the back of your throat. Remember to use correct technique when you take the medicine. You will still inhale the medicine into your lungs with correct technique, even though you don't feel the spray as much.



What metered dose inhalers contain the HFA propellant?

Most of the metered dose inhalers have changed to the HFA propellant in the past several years. The table on the next page is a current list of metered dose inhalers with the HFA propellant.

How do I clean my HFA inhaler?

The HFA propellant is stickier than the CFC propellant. The HFA propellant may build up where the metal canister meets the plastic case of the MDI. Cleaning your MDI is different depending on the medicine in the MDI. The following table describes how to clean the plastic case for each medicine with an HFA propellant.

How do I prime my HFA inhaler?

Priming is spraying the medicine into the air before you use the MDI. This allows for an accurate dose when you inhale the medicine. MDIs need to be primed before the first dose and when not used for a period of time. Priming your MDI is different depending on the medicine in the MDI. The table below describes how to prime the MDI with each medicine containing an HFA propellant.

HFA Inhalers				
Medicine Name Brand (Generic)	Number of puffs (actuations) of medicine in canister	Cleaning	Priming	Other
Bronchodilator Medicine				
Atrovent® HFA (ipatropium)	200	<ol style="list-style-type: none"> 1. Take the metal canister out of the plastic case. 2. Wash the plastic case weekly, running water through the case. 3. Shake off excess water. 4. Air dry. 5. Put the plastic case and metal canister together when completely dry. 	Before first dose: 2 sprays After 3 days of non-use: 2 sprays	

Medicine Name Brand (Generic)	Number of puffs (actuations) of medicine in canister	Cleaning	Priming	Other
ProAir HFA (albuterol)	200 Dose counter on MDI.	<ol style="list-style-type: none"> 1. Take the metal canister out of the plastic case. 2. Wash the plastic case weekly, running water through the case. 3. Shake off excess water. 4. Air dry. 5. Put the plastic case and metal canister together when completely dry. 	<p>Before first dose: 3 sprays After 2 weeks of non-use: 3 sprays</p>	
Proventil® HFA (albuterol)	200	<ol style="list-style-type: none"> 1. Take the metal canister out of the plastic case. 2. Wash the plastic case weekly, running water through the case. 3. Shake off excess water. 4. Air dry. 5. Put the plastic case and metal canister together when completely dry. 	<p>Before first dose: 4 sprays After 2 weeks of non-use: 4 sprays</p>	

Medicine Name Brand (Generic)	Number of puffs (actuations) of medicine in canister	Cleaning	Priming	Other
Ventolin® HFA (albuterol)	200 Dose counter on MDI. Replace when counter gets to 000 or 6 months after opening package, whichever comes first	<ol style="list-style-type: none"> 1. Take the metal canister out of the plastic case. 2. Wash the plastic case weekly, running water through the case. 3. Shake off excess water. 4. Air dry. 5. Put the plastic case and metal canister together when completely dry. 	<p>Before first dose: 4 sprays After 2 weeks of non-use: 4 sprays When dropped: 4 sprays After washing: 1 spray</p>	
Xopenex HFA (levalbuterol)	200	<ol style="list-style-type: none"> 1. Take the metal canister out of the plastic case. 2. Wash the plastic case weekly, running water through the case. 3. Shake off excess water. 4. Air dry. 5. Put the plastic case and metal canister together when completely dry 	<p>Before first dose: 4 sprays After 3 days of non-use: 4 sprays</p>	

Medicine Name Brand (Generic)	Number of puffs (actuations) of medicine in canister	Cleaning	Priming	Other
Anti-Inflammatory Medicine				
Alvesco® (ciclesonide)	60 Dose counter on MDI Replace when counter gets to 0. If MDI dropped dose counter may not be accurate. Use another form of counting doses.	1. Avoid placing the MDI in water.	Before first dose: 3 sprays After 10 days of non-use: 3 spray	Two doses available (80, 160) Rinse mouth with water, gargle and spit out the water after using the medicine.
Flovent® HFA (fluticasone)	120 Dose counter on MDI Replace when counter gets to 000.	1. Remove the cap. Keep the canister in the case. 2. Wet a cotton swab. Wipe the opening where the metal canister meets the plastic case.	Before first dose: 4 sprays After 1 week of non-use: 1 spray When dropped: 1 spray	Three doses available (44, 110, 220) Rinse mouth with water, gargle and spit out the water after using the medicine. Store the MDI with the mouthpiece down.
QVAR® (beclomethasone)	120	1. Clean the mouthpiece weekly by wiping with a dry tissue or cloth. Do not	Before first dose: 2 sprays After 10 days of non-use: 2 sprays	Two doses available (40, 80) Rinse mouth with water, gargle and

		wash or put any part of the inhaler in water.		spit out the water after using the medicine.
Combination Medicine				
Symbicort® (budesonide and formoterol)	120 Dose counter on MDI Replace when counter gets to 0 (red zone) or 3 months after opening the package whichever comes first.	1. Wipe the mouthpiece of the plastic case with a dry cloth weekly. Do not wash or put any part of the inhaler in water.	Before first dose: 2 sprays After 7 days of non-use: 2 sprays When dropped: 2 sprays	Two doses available (80, 160) Rinse mouth with water, gargle and spit out the water after using the medicine. Do not take the unit apart. Store the MDI with the mouthpiece down.
Advair® (fluticasone and salmeterol)	120 Dose counter on MDI Replace when counter gets to 000.	1. Remove the cap. Keep the canister in the case. 2. Wet a cotton swab. Wipe the opening where the metal canister meets the plastic case.	Before first dose: 4 sprays After 4 weeks of non-use: 2 sprays When dropped: 2 sprays	Three doses available (45, 115, 230) Rinse mouth with water, gargle and spit out the water after using the medicine.
Dulera® (mometasone and formoterol)	120 Dose counter on MDI Replace when counter gets to 000	1. Wipe the mouthpiece with a dry, lint-free cloth every 7 days of use.	Before first dose: 4 sprays After 5 days of non-use: 4 sprays	Two doses available (100, 200) Rinse mouth with water, gargle and spit out the water after using the medicine.

How do I use an HFA inhaler?

Correct technique is important when inhaling your medicine with any device. Take your inhaled medicine with you when you visit the doctor. Your doctor or nurse can watch your technique to make sure you are getting the medicine.

Remember to follow these steps when you use your MDI:

1. Remove the cap from the inhaler.
2. Hold the inhaler with the mouthpiece at the bottom.
3. Shake the inhaler. This mixes the medication properly.
4. Gently breathe out.
5. Check the box with the technique your health care provider recommends and follow the step:
 - Use a spacer/holding chamber – Place the MDI in the spacer holding chamber. Seal your lips around the spacer/holding chamber mouthpiece.
 - Use open mouth technique - Hold the mouthpiece 1½ - 2 inches (2 - 3 finger widths) in front of your mouth.
 - Use closed mouth technique – Place the mouthpiece in your mouth with your lips sealed tightly around the mouthpiece.
6. Tilt your head back slightly and open your mouth wide.
7. Press the inhaler and at the same time begin a slow, deep breath.
8. Continue to breathe in slowly and deeply over 3 - 5 seconds. Breathing slowly delivers the medication deeply into the airways.
9. Hold your breath for up to 10 seconds. This allows the medication time to deposit in the airways.
10. Resume normal breathing.
11. Repeat steps 3 - 10 when more than one puff is prescribed.

Can I still use a spacer/holding chamber with my HFA MDI?

A spacer/holding chamber is a device that is placed between the MDI and your mouth. A spacer/holding chamber can improve your MDI technique. The spacer/holding chamber helps you coordinate the timing of activating the MDI and breathing in. Children and older adults may find it difficult to coordinate the timing and may find a spacer/holding chamber helpful. Anybody may find it difficult to coordinate the timing when having trouble breathing and may find a spacer/holding chamber helpful.

A spacer/holding chamber can also trap larger particles in the spacer. These particles are more likely to stay in the mouth and cause more side effects.

When using a spacer/holding chamber with the HFA propellant the spacer/holding chamber should be anti-static. The spacer/holding chamber should also have a one-way valve to help you coordinate the timing of activating the MDI and breathing in. The space in the spacer/holding chamber should be large enough. The AeroChamber® is a common spacer/holding chamber.



How can I tell if the MDI is empty?

The canister of your MDI is marked with the number of puffs (actuations) in the canister. There are more puffs of propellant in the MDI than medicine. The MDI may feel as if there a number of puffs left when you shake the inhaler, but

the medicine is gone and only propellant is left. It is a good idea to figure out how long the medicine will last. Then plan ahead so that you get a new inhaler before the old one is used up.

Some inhalers have a built in counter to show how long the medicine will last. The numbers count down when a dose is sprayed. When you get to 000 stop using the inhaler and start using a new inhaler. If your inhaler does not have a counter, write the date you start using each inhaler on the inhaler. Place a piece of tape on the plastic case and write the date on the tape.

Date & Estimate

If you use your MDI every day you can keep track of how much medicine you use by Date & Estimate:

_____ The number of puffs in your inhaler
÷ _____ Divided by the number of puffs you take each day
= _____ Equals the number of days the inhaler will last

Example:

200 puffs in your inhaler
÷ 4 puffs a day
50 days your inhaler will last

Once you know the number of days your inhaler will last, add the number of days to the day you start using the medicine. Along with the date you start using the inhaler, write the date you need to stop using the inhaler on the plastic case.

Date & Tally

If you use your MDI when you have trouble breathing you can keep track of how much medicine you use by Date & Tally: Place a large piece of tape on the MDI. Remember to write the date you start using the MDI on the tape. Each time you use the MDI place a tally mark on the MDI (one tally mark can equal 2 puffs). You can count the tally marks to see when all the medicine has been used. You can also place tally marks on a calendar or paper near the inhaler.

Whichever technique you use, remember to figure out how long the medicine will last. Then plan ahead so that you get a new inhaler before the old one is used up.

Whichever device you use, make sure you know:

- How to use the device
- How to tell when the device is empty
- How to clean the device

Also check the package insert that comes with the medicine for more information.

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