

THE SHOP OWNERS' GUIDE TO

# GETTING STARTED WITH R-1234yf

How to efficiently service automotive A/C systems with R-1234yf

 **Opteon™ YF**  
Automotive Refrigerant  
R-1234yf

## Introduction

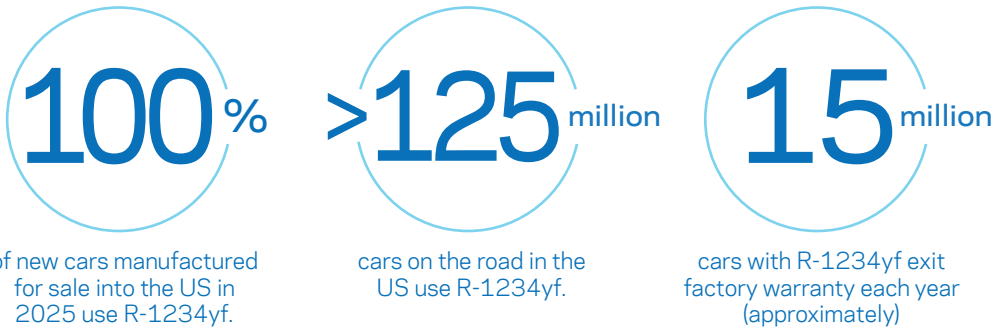
The transition from R-134a to R-1234yf is the most significant change to hit the mobile air conditioning industry since R-12 was replaced in the 1990s.

This guide will walk you through everything you need to know about getting started with Opteon™ YF, including how to make a profit servicing multiple vehicles.



## What is Opteon™ YF?

In 2006, the Mobile Air Conditioning, or **MAC Directive** was introduced in Europe that required the use of refrigerants with a global warming potential (GWP) of less than 150. With a GWP of 1,430 (IPCC AR4), R-134a was on the list of products to be phased down. In response, a new generation refrigerant named Opteon™ YF (R-1234yf) was developed. With a GWP of 4 (IPCC AR4), Opteon™ YF exceeds the requirements mandated by the MAC Directive with no compromise in cooling performance.



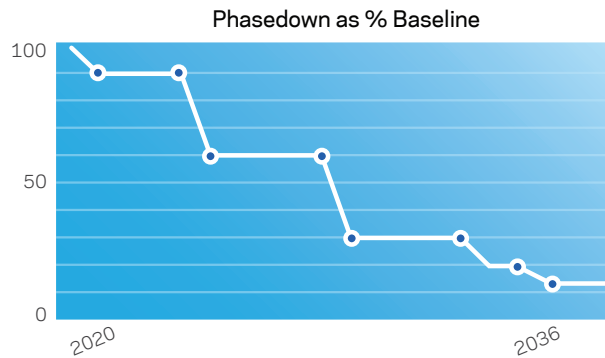
Opteon™ YF is now the preferred refrigerant of several global car manufacturers. 100% of vehicles manufactured for sale into the US in 2025 use R-1234yf. Over 125 million cars on the road in the US use R-1234yf. And, approximately 15 million cars using R-1234yf exit factory warranty each year. Considering that cars factory-filled with Opteon™ YF started rolling off assembly lines as early as 2013, more of them become out-of-warranty and rely on garages for A/C service every year.

## How Legislation Impacts Shop Owners

### The AIM Act

R-134a will continue to be produced and sold to service older vehicles, however, the [American Innovation and Manufacturing \(AIM\) Act](#) signed in 2020 has given the EPA authority to phase down HFCs, including R-134a. AIM specifies a phasedown schedule which starts with a 10% reduction in 2022, and increases to 85% by 2036.

The AIM Act will phase down the production and use of hydrofluorocarbons (HFCs), including R-134a, by 85% by the year 2036.



### The Clean Air Act

R-1234yf vehicles cannot be filled with R-134a because it's against the law. Cars filled with R-1234yf fall under the US EPA [Clean Air Act](#), so they cannot be filled with any refrigerant other than R-1234yf. Violators are subject to civil [penalties](#) up to \$45,268 per non-compliant vehicle or engine. You can tell if a car uses R-1234yf by checking the label under the hood indicating which type of refrigerant the vehicle uses. You can also find this information in the owner's manual.

### Usage that Requires Certification

If you are buying less than 2 lbs. of Opteon YF (12 oz. or 28 oz. cans), you are not required to be certified under EPA 609A. If you want to buy a 10 lb. cylinder or 25 lb. cylinder, you will need to complete your [609 certification](#), which can be done online for \$20. Section 609 Certification allows the purchase of any refrigerant in any size container from an auto supply house for cabin cooling applications. Considering that the EPA requires anyone who maintains, services, or repairs motor vehicle air conditioners for compensation must be Section 609 certified, you probably are already good to go.

## Required Equipment

### Basic Tools Needed

R-1234yf requires left-hand threaded fittings vs. R-134a which uses all right hand threads for fittings. You will also notice the differences in service cylinders (DACs/cans) and Recover/Recycle/Recharge (R/R/R) machines.



### Self-Seal Cans

Self-seal cans are a cost effective option for multiple-use charges and single-use charges, and do not require an R/R/R machine. If the refrigerant is not used completely, the remaining content can be stored for later use. Opteon™ YF has a long shelf life stability, however it is good practice to store cans in a cool, dry place (temp <125F) and use the remaining amount of refrigerant within three years.



### Equipment Required for Cans

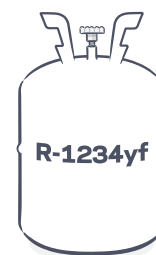
The lowest initial cost to service a car with R-1234yf would be to utilize Opteon™ YF self-seal cans. In addition to the refrigerant, the following equipment will be needed:

- ✓ R-1234yf Manifold Gauge
- ✓ R-1234yf rated vacuum pump
- ✓ Recovery cylinder
- ✓ Scale
- ✓ Lubricant for vehicle

**See Chemours mobile aftermarket product offering on page 9.**

### Cylinders

The use of cylinders is ideal for shops that perform a high volume of A/C work. Using cylinders will require an R/R/R machine that meets SAE J2843, J2851, and J3030 standards (EPA 609).






**UTILIZING CYLINDERS AND AN R/R/R MACHINE IS RECOMMENDED IF YOU PLAN ON PERFORMING A HIGH VOLUME OF A/C WORK**

### Equipment Required for Cylinders

In addition to the refrigerant, the following equipment will be needed:

- ✓ R/R/R/ machine
- ✓ Ultrasonic leak detector

## The Do's and Don'ts of R-1234yf Servicing

Do 	Don't 
 Only use R-1234yf in vehicles with systems designed for R-1234yf.	 Don't use R-134a to service a vehicle designed for R-1234yf. It is illegal to use R-134a in a vehicle designed for R-1234yf, and could potentially damage the system.
 Only use R-134a in vehicles with systems designed for R-134a.	 Don't use R-1234yf in a system designed for R-134a. Currently, in the U.S. there is no approved retrofit for R-134a.
 When servicing A/C systems, only use the refrigerant that was originally in the system.	 Don't mix refrigerants. Mixing refrigerants will negatively impact the performance and safety of a vehicle's system.
 Use R-1234yf rated equipment, including: manifold gauge, vacuum pump, recovery cylinder scale, and lubricant oil. 10lb and 25lb R-1234yf cylinders will also require use of an R/R/R machine.	 Don't use recovery machines or other tools or equipment not rated for R-1234yf when servicing systems designed for R-1234yf.
 Complete EPA 609 certification if using 10lb or 25lb R-1234yf cylinders. EPA 609 certification is not required if you are purchasing R-1234yf cans < 2lbs.	 Don't use R-1234yf without proper training and certification.
 Only use oils designated by the compressor manufacturer. This can be found on the SAE sticker under the vehicle hood.	 Don't use oils that aren't designated by the compressor manufacturer. Not every oil has been tested for R-1234yf compatibility.
 Follow local guidelines for cylinder or can disposal. Always be sure containers are empty before disposal, and taps and hoses are removed.	 Don't dispose of refrigerant cans or cylinders that still contain refrigerant. Unused refrigerant can potentially be expelled into the atmosphere.

## Get Ahead of the Game

Not many independent service shops are up to speed on servicing R-1234yf vehicles efficiently. If you're one of the shops that's prepared, you're in a great spot to earn a larger share of the local business from customers in need of AC service on their R-1234yf vehicles. And if you're not up to speed yet, now's the time to do it so your shop doesn't fall behind.

## Consider Investing in an R/R/R Machine

The cost to repair an air conditioning system can vary greatly. Your problem may be as minor as a failing o-ring or as major as a blown compressor.

As a general estimate, a typical shop can recoup the initial cost of the R-1234yf R/R/R machine by servicing roughly 15-20 vehicles. Based on the growing number of R-1234yf vehicles on the road today, this could take as little as 12 months depending on the types of vehicles coming into your shop. Investing in an R-1234yf R/R/R machine now gives you the opportunity to service these vehicles and gain new customers who will potentially come back for future auto repair needs.

## 5 Tips for a Successful Transition to R-1234yf

### 1 Decide how much of the total R-1234yf business you want.

The goal in being R-1234yf ready is twofold:

- Keep your customers from going to the competition.
- Provide a solution for customers whose “preferred shop” can’t service their vehicles.

### 2 Estimate how much R-1234yf business you’ll be doing.

- Estimate that 30% to 40% of your current air-conditioning service business may come in as R-1234yf vehicles.
- Analyze the types of vehicles you service. Remember that vehicles with greater charge sizes, such as trucks, SUVs, and crossovers, typically require more refrigerant for servicing.

### 3 Choose the right R-1234yf products for your anticipated volume.

Here are good guidelines to follow:

- Ideal for a high volume of A/C work; requires an appropriate R/R/R machine.
- Self-seal cans – cost effective option for multiple-use charges and single-use charges, and do not require an R/R/R machine.

### 4 Find a trusted supplier for all your R-1234yf needs.

- Suppliers should do more than bring refrigerant to your door. They should bring value that helps your business thrive.
- Look for a supplier who has longevity in the industry, offers a ready and reliable supply, has a reputation for strong customer support, and provides training to ensure safe and proper use.

### 5 Get your crew and shop ready.

- Make sure your technicians have the proper training for R-1234yf, which is a mildly flammable A2L refrigerant.
- In addition, to prevent R-1234yf from being mixed with R-134a, the equipment has built-in safety guards, like left-hand (reverse) threading.
- You will also want to make sure your shop has the right equipment and tools.

# Chemours Mobile Aftermarket Product Offering

 <p><b>Opteon™ YF (R-1234yf) 12oz Can</b> Provides a convenient, cost-effective package size for single-use charges.</p>	 <p><b>Opteon™ YF (R-1234yf) 12oz Can w/Hose</b> Includes a flexible, reusable recharge hose with quick connect coupler for easy low-side port connection.</p>
 <p><b>Opteon™ YF (R-1234yf) 16oz Can</b> Saves you time and money with 200% more per can compared to typical R-1234yf cans.</p>	 <p><b>Opteon™ YF (R-1234yf) 28oz Can</b> Provides cost-effective package size for multiple-use charges, without the need to invest in an RRR machine.</p>
 <p><b>Opteon™ YF (R-1234yf) 10lb Cylinder</b> Ideal for shops that perform a high volume of A/C work.</p>	 <p><b>Opteon™ YF (R-1234yf) 25lb Cylinder</b> Ideal for shops that perform a high volume of A/C work.</p>
 <p><b>Opteon™ YF (R-1234yf) 12 oz Can with UV Leak Detect</b> Single-use charge that utilizes fluorescent additives to pinpoint leaks in systems quickly, efficiently verify repairs, and minimize repair time.</p>	 <p><b>Opteon™ YF (R-1234yf) 25 lb Cylinder with UV Leak Detect</b> Ideal for shops performing a high volume of A/C work. It utilizes fluorescent additives to pinpoint leaks in systems quickly, improving the efficiency of repairs.</p>
 <p><b>Opteon™ YF (R-1234yf) 10 lb Cylinder with UV Leak Detect</b> Ideal for shops performing a high volume of A/C work. It utilizes fluorescent additives to pinpoint leaks in systems quickly and improve the efficiency of repairs.</p>	 <p><b>Freon™ 134a (R-134a) 12 oz Can with UV Leak Detect</b> A single-use charge that utilizes fluorescent additives to pinpoint leaks in systems quickly, efficiently verify repairs, and minimize repair time.</p>
 <p><b>Freon™ 134a (R-134a) 30 lb Cylinder</b> Ideal for shops that perform a high volume of A/C work.</p>	 <p><b>Freon™ 134a (R-134a) 12oz Can</b> Provides a convenient, cost-effective package size for single-use charges.</p>
 <p><b>Freon™ 134a (R-134a) 30 lb cylinder with UV Leak Detect</b> Ideal for shops performing a high volume of A/C work. It utilizes fluorescent additives to pinpoint leaks in systems quickly, improving the efficiency of repairs.</p>	

## Flammability

R-1234yf has an A2L ASHRAE classification. A2L refrigerants are described as low or mildly flammable in simplistic terms; however, they are difficult to ignite. Assessment of properties, such as minimum ignition energy, heat of combustion, and burning velocity, indicates that a typical status discharge will not have sufficient energy to ignite R-1234yf.

## Conclusion

Currently, there are over 125 million R-1234yf vehicles on the road. Your shop is sure to see some of them come in for A/C service soon, if you haven't already. Working with R-1234yf is not very different from working with R-134a, but it's imperative for shops to understand how to use it safely. And there's a great opportunity to be profitable working with R-1234yf for those willing to invest in some additional equipment now.

## Opteon™ R-1234yf is Available in Cans or Cylinders to Meet the Needs of Shops, Big and Small

Trying Opteon™ YF for the first time? Great. Upgrading from cans to cylinders so you can service more vehicles? No problem. Whether you're servicing one vehicle or multiple, Opteon™ YF is available in sizes that make sense for the job.



FROM THE MAKERS OF  Freon™

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