



National Refrigerants, Inc.



California Regulations Small Containers of Refrigerant

R-134a Refrigerant Cans

Advice to Identify and Repair Leaks in the MVAC System

Refrigerant 134a is primarily used in automotive air conditioning/motor vehicle air conditioning (MVAC). As with any chemical, too much exposure can be dangerous to your health (Refer to Safety Data Sheet). MVAC system issues can vary from simple to complex. The following are some basic ways to help identify and potentially resolve your cooling issue.

Safety

Remember that your safety comes first, especially when working with refrigerant, oils and chemicals. Always wear safety glasses to protect your eyes and rubber gloves to protect your skin. Do not wear any loose clothing or jewelry. If at any point you're not comfortable continuing the job, then **STOP!** Contact a professional service technician for help or additional guidance.

Ways to Find Leaks in a MVAC System

The use of a sophisticated tool such as electronic leak detector (certified under the Society of Automotive Engineers J1627 standard) can help technicians identify most refrigerant leaks.

Do-It-Yourself (DIY)

1. Ultraviolet Dye Test

A way to look for constant and intermediate leaks is by performing an ultraviolet (UV) dye test. Lubricants are mixed with UV dye then added to the MVAC system. The system is then checked with a blue/black light to see if any of the UV dye leaks out.

2. The Bubble Test

The bubble testing is a technique used when mixing soap bubbles. The soap mixture is applied along the joint components of the refrigerant system; the presence of bubbles indicates a leak.

Locate the leak using one of the above techniques and tighten the joint. If you cannot stop the leak by tightening the joint, then **STOP** and contact a professional service technician for assistance. They will have more experience, better techniques and tools to identify and repair the leak.

Ways to Repair Leaks in a MVAC System

1. Wear protective safety gear, to protect against contact with skin, eye and clothing.
 - Rubber gloves
 - Safety goggles/glasses
2. All of the proper tools and safety gear **MUST** be accessible at all times
 - SDS available

3. Read the entire refrigerant product label and safety instructions before stating the job
 - Keep vehicle doors open at all times
 - R-134a is not flammable; however this material will become combustible when mixed with certain air pressures and ambient temperatures
 - Refrigerant should not be in contact WITH open flames or glowing surfaces
 - Avoid breathing refrigerant vapors or mist
4. Before recharging, check, diagnose and repair any leaks before adding refrigerant
 - Adding refrigerant to an already leaking system is not only unlawful in the state of California, but it is also harmful to the environment.
5. Attach the charging hose to the refrigerant can.
6. The system charge amount is listed on the nameplate (specification decal). Locate the nameplate in the engine compartment or MVAC system. For optimal cooling, NEVER exceed the amount presented on the nameplate.
7. Find the low side A/C port on the A/C system, then remove the protective cap. The quick connector on the charging hose will only fit on the low side port.
8. Start the engine, turn on air conditioner to the coolest possible temperature and the make sure to set the fan on the maximum setting.
9. Add additional refrigerant by removing the protective cap then opening the valve.
10. Hold the refrigerant can upright while charging. Then rotate and shake the can from a 12 o'clock position to the 3 o'clock position. This whole process can take up to 15 minutes to dispense the small can of refrigerant.
11. The MVAC system will be charged properly when the same approximate cooled temperature exits all interior vents.
 - * **DO NOT OVERCHARGE** or **UNDERCHARGE** for optimal cooling
 - Overfilling will raise system pressures; which can result in compressor or component damage.
 - Under filling will result in poor cooling performance.
12. Remove quick connect from low-side port and replace low side port's protective cap.
13. Return all used cans/containers to origin of purchase (retailers, wholesaler or manufacturer).
 - Refund of the \$10.00 deposit
 - Can will be recycled or disposed of properly

Proper Techniques to Minimize Can Heel and Servicing Loss While Transferring Refrigerant from the Container to the MVAC System

Self-sealing Valve

The self-sealing valve is designed to retain leftover R-134a for storage and/or recycling. The self-sealing valve was developed to reduce environmental hazards and minimize refrigerant emissions from the do-it-yourself servicing of motor vehicle air conditioners. This valve eliminates any accidental leakage into the atmosphere during an installation. Any small container of automotive R-134a must be disposed or destroyed in accordance with this regulation (Section 95360 et seq. of California Code of Regulations).

Hose and Hose Connection

It is recommended to use a clean flexible hose with a quick connector to the low side to minimize losses during the transfer of the R-134a from the 12 oz. can to the A/C system.

Environmental Hazards Associated with Refrigerant

The State of California has determined that the release of HFC refrigerant 134a, a greenhouse gas, contributes to global warming.

R-134a is a HFC (hydrofluorocarbon) refrigerant and therefore, doesn't deplete the ozone layer like chlorofluorocarbon (CFC), halons, and hydrochlorofluorocarbon (HCFC) refrigerants.

R-134a, however, is considered a high global warming potential gas (GWP) with a GWP rating of 1,430. Compared to Carbon Dioxide (CO₂) which has a GWP rating of 1. A high GWP rating indicates an increased potential to warm the earth's atmosphere thereby having a greater environmental impact. California Air Resource Board (CARB) law requires that all small containers must have self-sealing valves, improved labeling of the deposit/return program & how-to instructions, as well as an educational program for do-it-yourselfers.

Venting Prohibition

Section 608 of the Clean Air Act prohibits the intentional release (venting) of any refrigerant when maintaining, servicing, repairing, or disposing of air conditioning or refrigeration equipment, including MVAC systems.

Consequences and Risks of Overcharging and Undercharging the MVAC

Due to Lack of Professional Diagnostic Techniques

- **Overcharging the system**
Overfilling will raise system pressures; which, can result in compressor or component damage.
- **Undercharging the system**
Under filling will result in poor cooling performance.

The Basic Steps for Recharging R-134a MVAC

1. Check for any leaks (refer to leak check). If needed, repair before recharging.
2. Fill using a pressure gauge to ensure that the proper charge level is reached. (<http://refrigerants.com/pdf/NRI-PTCHART.pdf>)
3. DO NOT overcharge or undercharge the system (note: consequences are listed above).
4. Check vent temperatures while charging the system.
5. If you still are not getting cold air you will then have to seek additional help. STOP and contact a professional service technician for additional guidance. There may be mechanical issues or additional leaks within the MVAC system.
6. Retain any unused refrigerant that remains in the can for future use. Store in a cool dry place or return for deposit.
Note: the 90 day return limit from purchase date (refer to Container Deposit and Return Program).

Components of the Container Deposit and Return Program



Effective on January 1, 2010, California State Law requires that all small refrigerant container purchasers must pay a \$10.00 deposit per container. Small R-134a container/can is any packaging that is able to hold more than 2 ounces and less than 2 pounds of refrigerant gas.

Deposit Refund Requirements:

Consumers will only receive the \$10.00 refundable deposit when all three requirements are met.

1. Consumers must submit a receipt or valid proof of purchase.
2. Container must be returned within 90 days of purchase date.
3. Container must not have been breached, opened other than self-sealing valve.

It is illegal to and NO person shall dispose or destroy any small container of automotive R-134a unless performed in accordance with Section 95360 et seq. of California Code of Regulations.



National Refrigerants, Inc.

11401 Roosevelt Boulevard
Philadelphia, PA 19154
800.262.0012
fax: 215.698.7466
web: www.refrigerants.com
e-mail: info@refrigerants.com