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## AIR CONDITIONING SERVICE ISSUES

TO: ALL WAREHOUSE DISTRIBUTORS

Subject: A/C Service Issues

Models  
Affected: All Passenger Car and Light Truck Models with R-12 or R-134a Air Conditioning Systems

As you know, the production of R-12 refrigerant ended December 31, 1995. Although new material will not be manufactured there is a significant reserve of R-12 and along with proper refrigerant recycling procedures it will continue to be available to meet consumers needs well into the future.

R-12 can and should continue to be used to service vehicles built with R-12 as long as it is available. If R-12 is no longer available or affordable, a system retrofit utilizing R-134a is recommended. R-134a is the only approved substitute refrigerant which GM recommends. All new vehicle manufacturers have taken a similar position in order to protect the service industry and the consumer from the high cost of servicing multiple refrigerants and the threat of refrigerant contamination. Use of other than R-12 and R-134a refrigerants will void General Motors Warranties.

GM currently offers a simple, low cost R-12 to R-134a retrofit on many of its late models, front wheel drive passenger cars. Installers should discuss this capability with owners of vehicles covered by General Motors retrofit bulletin 43-12-07D or ACDelco brochure "Guidelines For Retrofitting GM Vehicles To R-134A (MS-3644) when an A/C refrigerant system repair is required. Installers should become acquainted with the proper procedures for performing a retrofit.

Remember R-12 and R-134a refrigerant are not interchangeable! They cannot be mixed together. In fact, regardless of any manufacturers claims no proposed R-12 refrigerant substitutes can be added to, topped off or mixed with R-12. Under provisions covering the service of refrigerants, mixing dissimilar refrigerant products during service is prohibited. All substitute refrigerant used in service must be properly labeled and installed using unique service fittings. These unique fittings mandate additional dedicated service equipment. Recent industry sources have reported that some automotive refrigerant substitutes could cause serious vehicle damage and pose a harmful threat to the technician.

It should be noted that although the EPA has listed alternative refrigerants under the Significant New Alternative Policy (SNAP) program, it does not mean these refrigerants were tested for performance, operation or durability in mobile air conditioning systems.

## R- 12 Service Recommendations:

1. Service **R-12** vehicles with good quality new or recycled **R-12** as long as available.
2. Carefully test recovered **R-12** using some type of refrigerant identifier. (On recovery equipment not protected by a refrigerant identifier, regularly test the recovery cylinder prior to recharging a **vehicle**.)
3. Discuss retrofit option with owners of vehicles covered by General Motors Retrofit bulletin **43-12-07D** or ACDelco brochure "Guidelines For Retrofitting GM Vehicles to **R134A** (MS-3644).
4. Become **familiar** with retrofit procedures and exercise care in the handling dissimilar refrigerants to prevent contamination.
5. The use of refrigerants and oils other than **R-12** and R-1 34A and Mineral and Pag oils as recommended by the vehicle manufacturer will void any ACDelco Parts warranty on A/C components.

As **R-12** prices rise, retrofitting GM and other **manufacturer's** vehicles to R-1 34A will become more desirable. It is very important that as retrofitting becomes a common practice that all **R-12** is removed from the system prior to the retrofit. Failure to do so could contaminate the R-134A equipment and recovery tanks when subsequent service is **performed**.

If you **have** any questions, please contact your ACDelco sales representative.

D. L. Thompson  
Marketing Manager  
Heating & Cooling

C. G. Maciag  
Manager  
Service Training

**Motor Vehicle Air Conditioning Substitutes for CFC-12  
Reviewed Under EPA's SNAP Program as of June 3, 1997**

Name(1)	Status(2)	Date	Manufacturer	Components /Reason Unacceptable						
				HCFC-22	HCFC- 124	HCFC-142b	HFC- 134a	Butand (R-600)	Iso-butane	HFC-227ea
HFC-134a	ASU	3/18/94	Several				100			
FRIGC FR-12	ASU	6/13/95	Intefmagnetics General 800-555-1442		39		59	2		
Free Zone/ RB-276 (4)	ASU	5/22/96	Freezone 888-373-3066			19	79			
Ikon-12	ASU	5/22/96	Ikon Corp. 800-382-9006	Composition claimed as confidential business information						
R-406A/ GHG/ McCool (5)	ASU	10/16/96	People's Welding 800-382-9006	55		41			4	
GHG-X4/ Autofrost/ Chill-It (5)	ASU	10/16/96	People's Welding 800-382-9006	51	28.5	16.5			4	
Hot Shot/ Kar Kool (5)	ASU	10/16/96	ICOR 800-357-4062	50	39	9.5			1.5	
GHG-HP (5)	ASU	10/16/96	People's Welding 800-382-9006	65		31			4	
FREEZE 12	ASU	10/16/96	Technical Chemical 800-527-0885			20	80			
GHG-X5(5)	ASU	6/3/97	People's Welding 800-382-9006	41		15			4	40

oz-12	UNA	3/18/94	o z Technology	Flammable blend of hydrocarbons; insufficient data to demonstrate safety						
R-176	UNA	3/18/94	Arctic Chill	Contains CFC-12, which is inappropriate in a CFC-12 substitute						
HC-12a	UNA	6/13/95	o z Technology	Flammable blend of hydrocarbons; insufficient data to demonstrate safety						
Duracool 12a	UNA	6/13/95	Duracool Limited	This blend is identical to HC-12a@						
R-405A	UNA	6/13/95	Greencool	Perfluorocarbon component; extremely high global warming potential and lifetime						

1) R-401A (made by DuPont), R-401B (DuPont), R-409A (Elf Atochem), Care 30 (Calor Gas), Adak-29/Adak-12 (TACIP Int'l), MT-3 I (Millenia Tech), and ES-12R (Intervest) have not been submitted for review in motor vehicle air conditioning, and it is therefore illegal to use these refrigerants in such systems.

2) See text for details on legality of use according to status.

ASU = acceptable subject to fittings, labeling, no drop-in, and compressor shutoff switch USC conditions

UNA = unacceptable; illegal for use as a CFC-12 substitute in motor vehicle air conditioners

3) Although some blends contain hydrocarbons, all blends that are ASU are nonflammable as blended.

4) Freezone contains 2% of a lubricant.

5) HCFC-22 content results in an additional use condition; must be used with barrier hoses.

From the USEPA: Legal Status of HC-12a, Duracool 12a, and OZ-12

Ozone Protection Hotline toll-free (800) 296-1996 direct dial (301) 614-3396

Detailed Questions About HC-12a, OZ-12, and Other Flammable Refrigerants

1. What are HC-12a and OZ-12?

HC-12a and OZ-12 brand hydrocarbon refrigerant blends are flammable refrigerants. Their primary components are hydrocarbons, which are flammable substances like propane and butane. HC-12a and OZ-12 are registered trademarks of OZ Technology, Inc. HC-12a has been marketed since 1994. OZ-12 was a similar blend marketed until the introduction of HC-12a. Both products have been reviewed by EPA under the Significant New Alternatives Policy (SNAP) program. More information about the SNAP program is available from the hotline listed at the top of this page.

2. What is Duracool 12a?

Duracool Ltd., a Canadian company, licenses the HC-12a formula from OZ Technology and sells it under the name Duracool 12a. Duracool 12a and HC-12a have exactly the same composition; since SNAP determinations apply to a given composition, the legal status of Duracool 12a is identical to that of HC-12a. Therefore, all discussion below related to HC-12a also applies to Duracool 12a.

3. What is the legal status of HC-12a and OZ-12?

Since July 13, 1995, it has been illegal to replace CFC-12 with HC-12a in any end-use other than industrial process refrigeration. This includes motor vehicle air conditioners. The rule was published on June 13, 1995 and HC-12a was listed as Hydrocarbon Blend B. The same prohibition for OZ-12 took effect on April 18, 1994. The rule was published on March 18, 1994 and OZ-12 was listed as Hydrocarbon Blend A. EPA is concerned about potential risks posed by the flammability of these refrigerants.

4. May HC-12a be used to replace CFC-12, commonly referred to as "Freon," in cars?

No. It is illegal to use HC-12a as a substitute for CFC-12 in automobile or truck air conditioning under any circumstances. The manufacturer, OZ Technology, has not adequately responded to EPA's concerns about the safety of using a flammable refrigerant in a system not designed for it.

5. Why is it legal to use HC-12a as a CFC-12 substitute in industrial process refrigeration, but not elsewhere?

The industrial process refrigeration end-use does not include any air conditioning system, so the direct risk to human health is reduced. Access to areas near these systems is restricted. In addition, other regulations protect the safety of industrial workers. Finally, several large petrochemical companies have long experience using hydrocarbon refrigerants, and EPA believes they may continue to do safely.

Flammability risk depends a great deal on the type of system. Therefore, despite the acceptability of hydrocarbon refrigerants (like HC-12a) in this end-use, it remains illegal to replace CFC-12 with hydrocarbon refrigerants in other types of refrigeration and air conditioning systems.

**6. Is sale of either OZ-12<sup>®</sup> or HC-12a<sup>®</sup> legal?**

Sale is not regulated under EPA's SNAP program. However, statutes and regulations issued by other federal, state, or local agencies may control the sale of these products, including illegal advertising.

**7. May HC-12a<sup>®</sup> be vented?**

No. Since November 15, 1995, the Clean Air Act has prohibited the venting of any refrigerant during the service, maintenance, repair, or disposal of air conditioning and refrigeration systems. When working on a system containing HC-12a<sup>®</sup>, the technician must recover the refrigerant into a suitable container and safely dispose of it.

**8. What other regulations restrict the use and handling of HC-12a<sup>®</sup>?**

In addition to the prohibition on use described above, and the federal law banning the venting of HC-12a<sup>®</sup>, there are also state and local statutes and regulations that relate to certain uses of hydrocarbons. As of the printing date of this fact sheet, EPA is aware that the following states prohibit the use of flammable refrigerants like HC-12a<sup>®</sup> in automobile air conditioners: Arkansas, Arizona, Connecticut, Florida, Idaho, Iowa, Indiana, Kansas, Louisiana, Maryland, North Dakota, Oklahoma, Texas, Utah, Virginia, Washington, Wisconsin, and the District of Columbia.

Local tire codes also often restrict the storage of flammable materials. In addition, other federal, state, and local regulatory agencies may have regulations related to flammable refrigerants like HC-12a<sup>®</sup>. Check with these authorities for more information.

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(to this post: #2442)  Post your response  Email your response

The Subject: **Nightmares on the horizon?**

At 13:00:34 on 08/21/97, Tim Matthews ([timsgarage@msn.com](mailto:timsgarage@msn.com)) wrote:

Well, on my way home last nite, I stopped by a buddy's place. He owns a small local used car lot, and in the course of my visit, I happened to spot a couple cases of "Duracool" in his backroom. I proceeded to question him at great length about the stuff, and will relay some of his comments here.

"Yeah, this is the new stuff. The EPA loves it and is recommending it highly. Now, I know you guys don't like it because you are all making so much changing over systems and gouging people on freon. But everybody is using it, the new car dealers and all. Look, it is completely environmentally friendly, and totally safe. They must have sold a few hundred cases at the auction. All we have to do is have all the old stuff sucked out, and when we bring the car back here, we just juice it up. See, the valve and hose screws right onto the top of the can, like so" as he demonstrates, "and then ya just screw the other end to the service fitting. Here, I have the paper on it here somewhere" he says, rummaging through the contents of his desk. "Well, I can't find it right now, but this stuff is the best. Even colder than freon. I've gone through a few cases already this summer. Here, you try some of it and let me know what you think"

I proceeded to inform him that what he was doing was totally illegal, and he should desist immediately. And if he ever sent a car to my shop with this stuff in it, he'd better be kind enough to tell me **upfront**. But I am very concerned that he says "It's what all the car dealers are using **now**". If you are in NC, SC, or VA, LOOKOUT. No retrofittings, no signs, only lost time and money await you if you don't have and use an identifier. Think I will go in business building reclaimers on the side, and universal hookup kits, so we can start sucking the junk out at a BIG profit.

I will also post this to the AC forum. Please be careful- this stuff is EXTREMELY FLAMMABLE. Says so right on the can. **Hatin'** it for any who run across the stuff. Just wanted to let y'all know.

Tim Matthews

*Technician/Manager*

**Automotion**

**Carrboro**, North Carolina, USA

Respond (to **this post: #2442**)