



## RS-20 (R480A) Q&A

1. Q: What is RS-20?

A: RS-20 is a non-ozone-depleting, low-GWP replacement for R134a.

2. Q: Yes, but what does RS-20 contain?

A: RS-20 is a blend of carbon dioxide, R1234ze, & R227ea.

3. Q: Can RS-20 be used with the same lubricant when replacing R134a?

A: Yes. RS-20 is fully compatible with synthetic lubricants such as polyol ester (POE) and Polyalkylene Glycol (PAG). PAG oil is commonly used in mobile air conditioning.

4. Q: Is RS-20 non-flammable and non-toxic?

A: RS-20 is both non-flammable and non-toxic.

5. Q: Is RS-20 approved by compressor manufacturers?

A: The individual components that comprise RS-20 are widely used in compressors produced by major manufacturers.

6. Q: Does RS-20 need to be charged in the liquid or gaseous form?

A: Because RS-20 is a blend, the recommendation is to charge it into the system in liquid form. However, if the entire contents of the cylinder are being charged, then vapor charging is acceptable.

7. Q: Is RS-20 on the SNAP (Significant New Alternative Policy program) list in the USA?

A: RS-20 is EPA SNAP approved for both new equipment and for retrofit in positive displacement chillers, refrigerated transport, water coolers, commercial ice machines and cold storage warehouses, and as a retrofit in automotive.

8. Q: Does RS-20 have an ASHRAE number & what is its classification?

A: RS-20 has been given an ASHRAE number of R480A and awarded a safety classification of A1, i.e., low toxicity & non-flammable under all conditions of fractionation.

9. Q: How does the pressure rating of RS-20 compare with R134a?

A: The discharge pressure of RS-20 is similar to R134a.

10. Q: How does the capacity of RS-20 compare to R134a?

A: The capacity of RS-20 is similar to R134a.



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11. Q: How does the discharge temperature of RS-20 compare to R134a?

A: The discharge temperature of RS-20 is similar to R134a.

12. Q: What are the flammability characteristics of RS-20?

A: RS-20 is non-flammable as defined in the ASHRAE EN 681-09 test and hence does not have a flash point or explosion limits.

13. Q: What are the decomposition products resulting from the combustion of RS-20?

A: The decomposition products resulting from subjecting RS-20 to a high-temperature source are similar to those when R134a are exposed to fire. The decomposition products in each case are irritating and toxic, and breathing apparatus should be worn where a possibility to exposure exists.

14. Q: Are there any special precautions with RS-20?

A: There are no specific precautions which must be taken with RS-20. As with all refrigerants, common sense and good housekeeping is always recommended.

15. Q: Is RS-20 compatible with refrigeration and air conditioning systems designed for R134a?

A: Yes. RS-20 is compatible with all materials commonly used in systems that were designed and charged with R134a. Magnesium and zinc alloys should be avoided.

16. Q: Can RS-20 be recovered and recycled?

A: Yes. RS-20 can be recovered and re-used after a cleaning process.

17. Q: What technical guidance do you advise when changing from R134a to RS-20?

A: Use the same type of lubricant which will be polyester, replace the filter/drier. Charge the system with similar amount as for R134a.

18. Q: In systems operating with R134a, what if any adjustments need to be made to electronic expansion valves when using RS-20?

A: There is no need to make any adjustment to the electronic expansive device operating with R134a.



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19. Q: How does RS-20 compare in price with R134a?

A: RS-20 is competitive in price with R134a.

20. Q: What is the main advantage of RS-20?

A: RS-20 has a substantially lower Global Warming Potential which is 80% less than that of R134a while providing a similar thermodynamic performance & is simple & straightforward to retrofit.

21 Q: Is RS-20 compatible with hoses, seals, gaskets and O-rings commonly used with R134a?

A: Yes, there is no necessity to change any seals, hoses etc, when replacing R134a and with RS-20.

22. Q: What is the specification for RS-20?

A: RS-20 complies with the refrigerant specification AHRI 700 for fluorocarbon refrigerants.

23. Q: What is the effect of high exposure by inhalation of RS-20?

A: As is the case with all CFC, HCFC and HFC based refrigerants, high exposure to RS-20 may produce anesthetic effects. Very high exposures may cause an abnormal heart rhythm and prove suddenly fatal as is the case with all CFC, HCFC and HFC based refrigerants.

24. Q: What types of leak detectors should be used with RS-20?

A: Leak detectors used with HFCs are suitable for use with RS-20.

25. Q: What would be the effect of a large release of RS-20?

A: In common with other refrigerants of this type, the area should be immediately evacuated. The vapor may concentrate at floor level and in poorly ventilated areas may be slow to disperse. Forced ventilation should be provided before entering such areas.