

RS-25: Q & A



1.Q: What is RS-25

A: RS-25 is a non ozone depleting Drop-in replacement for R12 in centrifugal compressors.

2 Q: What does RS-25 contain?

A: RS-25 is a blend of HFC 227ea, HFC 134a, R125 and a blend of hydrocarbons to facilitate oil return.

3.Q: Is RS-25 subject to a phase out programme under any regulations as is the case with CFCs and HCFCs?

A: No. None of the components of RS-25 is subject to a phase out schedule under the Montreal protocol or any regulations.

4 Q: Can RS-25 be used with mineral and alkylbenzene lubricants?

A: Yes. There is no need to change to a synthetic polyol ester (POE) oil with RS-25 which operates satisfactorily with traditional lubricants.

5 Q: What is the temperature glide of RS-25?

A: RS-25 has a temperature glide of less than 1.5°C.

6 Q: Is RS-25 as efficient as R12?

A: RS-25 has a similar Coefficient of Performance to R12.

7 Q: How does the discharge temperature of RS-25 compare to R12?

A: RS-25 has a considerably lower discharge temperature than R12.

8 Q: How does the discharge pressure of RS-25 compare to R12?

A: RS-25 has a similar discharge pressure to R12.

9 Q: is the capacity of RS-25 the same as R12?

A: The capacity of RS-25 is similar to R12.

10.Q: Is RS-25 non flammable and non toxic?

A; RS-25 is both non flammable and non toxic. RS-25 is non flammable as defined by the ASHRAE EN 681-98 test.

11 Q: Is RS-25 approved by compressor manufacturers?

A: The individual components which comprise RS-25 are widely used in compressors produced by major manufacturers.

12 Q: Why has RS-25 not got an ASHRAE number?

A: This is a lengthy process and an application for an ASHRAE number will be made in due course.

13 Q: What are the flammability characteristics of RS-25?

A: RS-25 is non flammable at room temperature and atmospheric pressure, and has the same classification as R12, R134a, R404A, R409A (FX56), R507 (AZ-50) etc.

14 Q: What are the decomposition products resulting from the combustion of RS-25?

A: The decomposition products resulting from subjecting RS-25 to a high temperature source are similar to those when R12 is exposed to fire conditions. The decomposition products in each case are irritating and toxic, and breathing apparatus should be worn where a possibility to exposure exists.

15 Q: Are there any special precautions with RS-25?

A: There are no specific precautions which must be taken with RS-25. As with all refrigerants, common sense and good housekeeping is always recommended. Because the use of hygroscopic synthetic POE lubricants are avoided with RS-25, scrupulous attention to preventing moisture contamination is not necessary, although the ingress of moisture should be avoided at all times.

16 Q: Is RS-25 compatible with centrifugal compressor systems designed for R12?

A: Yes. RS-25 is compatible with all materials commonly used in systems that were designed and charged with R12. As in the case of R12, magnesium and zinc alloys should be avoided.

17 Q: What is the main advantage of RS-25?

A: RS-25 has been specifically formulated to replace R12 in systems with a centrifugal compressor without the need to change the lubricant or parts of the system. RS-25 has a similar molecular weight and speed of sound to R12 so that it is a straight replacement for R12 and, with its non ozone depleting ability, a long term option. Replacing R12 with RS-25 can save significant costs of retrofitting to R134a or replacing the system

18 Q: Is RS-25 compatible with hoses, seals, gaskets and O-rings commonly used with R12?

A: Yes. Because the original mineral oil is being used and not a synthetic lubricant, elastomers and plastics used with R12 are compatible with RS-25.

19 Q: What is the specification for RS-25?

A: RS-25 complies with the refrigerant specification ARI 700 – 95 for fluorocarbon refrigerants.

20 Q: What is the effect of high exposure by inhalation of RS-25?

A: As is the case with all CFC, HCFC and HFC based refrigerants, high exposure to RS-25 may produce anaesthetic 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.

21 Q: What is the flash point, flammability explosion limits and auto-ignition temperature for RS-25?

A: RS-25 is non flammable as defined in the ASHRAE EN 681-98 test, and hence does not have a flash point or explosion limits. The auto-ignition temperature of RS-25 has not been determined but is expected to be greater than 750°C.

22: What types of leak detectors should be used with RS-25?

A: Leak detectors used with HFCs are suitable for use with RS-25.

23: What would be the effect of a large release of RS-25?

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