RS-90: Q & A

1.Q: What is RS-90?

A: RS-90 is a non ozone is used to extend the life of RS-45 (R434A) to replace R22 in many applications & especially in systems with flooded evaporators.

2 Q: Yes, but what does RS-90 contain?

A: RS-90 is a blend of R143a, R125, R134a and isobutane.

3.Q: Is RS-90 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-90 is subject to a phase out schedule under the Montreal protocol or any regulations.

4 Q: Can RS-90 be used with mineral and alkylbenzene lubricants?

A: Yes. There is no need to change to a synthetic polyol ester (POE) oil with RS-90 which operates satisfactorily with traditional lubricants.

5.Q: Is RS-90 non flammable and non toxic?

A: RS-90 is both non flammable and non toxic. RS-90 is non flammable under all conditions of fractionation under ASTM 681-98.

6 Q: Is RS-90 approved by compressor manufacturers?

A: The individual components which comprise RS-90 are widely used in compressors produced by major manufacturers.

7 Q: What is the compression ratio of RS-45?

8 Q: Can RS-90 be used to top up a system containing RS-45 (R434A)?

A: RS-90 contains the same components as RS-45 (R434A) and, therefore, can be used satisfactorily to extend the use of RS-45 (R434A

9 Q: Does RS-90 need to be charged in the liquid or gaseous form?

A: Because RS-90 is a blend, the recommendation is to charge it into the system in the liquid form. However, if the entire contents of the cylinder are being charged, then vapour charging is acceptable.

10 Q: Does the RS-90 disposable cylinder have a dip tube?

A: No. The disposable should be inverted to discharge RS-90 in the liquid form.
11 Q: Does RS-90 have an ASHRAE number & what is its classification?

A: Not as yet. Like RS-45 (R434A), RS-90 is non flammable and low toxicity.

12 Q: How does the pressure rating of RS-90 compare with R22?

A: The discharge pressure of RS-90 is similar to R22.

13 Q: How does the temperature rating of RS-90 compare to R22?

A: The discharge temperatures of RS-90 are considerably lower than R22.

14 Q: What are the flammability characteristics of RS-90?

A: RS-90 is non flammable at room temperature and atmospheric pressure, and has the same classification as R12, R134a, R404A, R409A (FX56), R507 (AZ-50) etc.

15 Q: What are the decomposition products resulting from the combustion of RS-90?

A: The decomposition products resulting from subjecting RS-90 to a high temperature source are similar to those when R22 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.

16 Q: Are there any special precautions with RS-90?

A: There are no specific precautions which must be taken with RS-90. As with all refrigerants, common sense and good housekeeping is always recommended. Because the use of hygroscopic synthetic POE lubricants are avoided with RS-90, scrupulous attention to preventing moisture contamination is not necessary, although the ingress of moisture should be avoided at all times.

17 Q: Is RS-90 compatible with refrigeration and air conditioning systems designed for R22?

A: Yes. RS-90 is compatible with all materials commonly used in systems that were designed and charged with R22. As in the case of R22, magnesium and zinc alloys should be avoided.

18 Q: Can RS-90 be recovered and recycled?

A: Yes. RS-90 can be recovered and re-used after a cleaning process such as reclamation.

19 Q: How does RS-90 compare in price with RS-45 (R434A) and R407C and other alternatives?

A: RS-90 is competitive in price with other R22 alternatives.

20 Q: What is the main advantage of RS-90?

A: RS-90 can be used with RS-45 (R434A) to extend the life of RS-45 (R434A) when the maximum Global Warming Potential of HFCs is mandated at 2,500 under the F Gas regulation in the EU.

21 Q: Is RS-90 compatible with hoses, seals, gaskets and O-rings commonly used with RS-45 (R434A) and R22?

A: RS-90 is compatible with materials commonly used in refrigeration systems previously charged with R22. In general, materials which are compatible with RS-45 (R4343A) and R22 can be used with RS-90.

22 Q: What is the specification for RS-90?

A: RS-90 complies with the refrigerant specification ARI 700 for fluorocarbon refrigerants.

23 Q: What is the effect of high exposure by inhalation of RS-90?

A: As is the case with all CFC, HCFC and HFC based refrigerants, high exposure to RS-90 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.

24 Q: What is the flash point, flammability explosion limits and auto-ignition temperature for RS-90?

A: RS-90 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-90 has not been determined but is expected to be greater than 750^{o}C.

25: What types of leak detectors should be used with RS-90?

A: Leak detectors used with HFCs are suitable for use with RS-90.

26: What would be the effect of a large release of RS-90?

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.

27 Q: Is RS-90 available in both returnable and disposable cylinders?

A: Yes.