

R22 Phase Out

Helping you to make the right decision



GEA Refrigeration

Banning R22

As you know, the European Union has banned R22 and other HCFC's. According to EU regulation 2037/2000, virgin R22 can not be used after January 1, 2010. Reclaimed R22 can be used until the end of 2014.

Alternative refrigerants such as HFC's cost significantly more than R22. They are subject to the EU F-gas regulation 842/2006, which imposes extra costs. This regulation may become more stringent after 2011. Prices of synthetic refrigerants containing chlorine are already rising. In addition, R22 manufacturers announced a total production stop for R22 before the end of 2009.

If your facility uses a refrigerant that will be banned, you need to act soon. GEA Refrigeration can help you review your options.

Issues to consider

- Before replacing R22 with another synthetic refrigerant, determine the compatibility of your compressor, oil type, sealing materials, pipe work strength and controls.
- Consider that another synthetic refrigerant can significantly reduce your refrigeration capacity.
- In addition to technical issues, consider total cost of ownership, depreciation, health & safety and public relations issues.

Natural refrigerants

Based on your cooling requirements, GEA Refrigeration can recommend an alternative solution that limits the harmful effects to the environment.

Plentiful in supply and moderately priced, ammonia and carbon dioxide are natural alternatives to synthetic refrigerants. Ammonia and carbon dioxide have been successfully used in food production and storage for several decades.

With ammonia, there are no harmful emissions, no greenhouse gases and no depletion of the ozone layer.

GEA Refrigeration can help you analyse your options and provide tailored solutions. Our companies are specialized in manufacturing, installation, maintenance and service. All are committed to engineering and service excellence. They are ready to help.

For more information, contact your GEA Refrigeration representative or visit: www.gearefrigeration.com

Important dates

- **January 1st, 2010**
Virgin R22 can no longer be used. Reclaimed R22 refrigerant can still be used
- **January 1st, 2015**
A complete ban for all R22 including reclaimed and recycled R22

Total solutions in industrial refrigeration



The chart below outlines your alternatives.

Action	Advantages	Disadvantages
Do nothing and rely on availability of recycled R22	Virtually no investments required	Substantial risk of too little R22 (recycled and reclaimed) being available on the market in the coming years
Replace the R22 charge with an "F-Gas" compliant refrigerant	<ul style="list-style-type: none"> - Limited investment costs - Planned equipment down time and reduced impact on the site operation - No ozone depletion 	<ul style="list-style-type: none"> - Probable reduction in efficiency - May require system modifications - Contributes to global warming - Additional costs associated with F-Gas regulations
Replace the R22 charge with a natural refrigerant	<ul style="list-style-type: none"> - Zero global warming impact (NH₃) - More energy efficient than R22 	<ul style="list-style-type: none"> - Significant system modifications may be required - Special regulations for the use of NH₃ are applicable that may vary from country to country
Replace individual systems by a central installation using natural refrigerants	<ul style="list-style-type: none"> - Long term solution. - Planned equipment down time reduces the impact on operations - Modern energy efficient design, saving energy and maintenance costs - Zero global warming impact (NH₃) - Customers see you as environmentally friendly 	<ul style="list-style-type: none"> - Significant investment costs may be required - Possible site alterations to accommodate new plant



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