

Subject: Countdown started on HCFC (R 22) Substitution in China

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1. **Compendium**
2. **Expanded Information**

1. Compendium

The Foreign Economic Cooperation Office of the China State Environmental Protection Administration announced recently that China has phased out CFCs and Halons 2 ½ years earlier than the schedule mandated in the Montreal Protocol. After receiving US\$ 800 million in foreign investment and finishing more than 400 projects over 17 years, China has successfully curtailed 90% of its consumption of 12 types of ozone depleting substances (ODS) in five categories. In addition, the Chinese government has also established a set of policies and regulations in this area.

China is currently the largest producer and consumer of HCFCs in the world. The Chinese government has made a promise to “phase out HCFCs by 2030”. The phasing out CFCs and Halons lays a solid foundation for the Chinese government to fulfil this promise.

According to the China State Environmental Protection Administration, a detailed schedule of the HCFC Phase-Out Management Plan (HPMP) is as follow:

- **from January to June 2009** → data on HCFC applications in industry will be surveyed;
- **from January 2009 to March 2010** → alternative refrigerants will be determined;
- **in November 2009** → the phase-out strategy will be decide, data analysis will be done by end of 2009;
- **in March 2010** → the phase-out plan for the first phase will be drawn up as well as a draft of the national HPMPs;
- **in May 2010** → all eight HPMPs will be finalized and submitted to the 2010 Executive Committee for the Multilateral Fund under the Montreal Protocol.

With the survey undertaken in January 2009, HCFC substitution in China is formally on the countdown.

2. Expanded Information

R 22 accounts for 70 % of all HCFCs used in China. According to industry insiders, most AC manufacturers are well prepared for R 22 substitution. However, although almost all of these manufactures have planned R 22 substation for 2030, most of them are still very cautious about the substitution at a time when the global economy is still in crisis.

R 410A is the most widely used refrigerant AC export from China, and R 407C is also used in some products. At present, Chinese manufacturers can produce large volumes of R410A and R407C products, meaning there are no technical problems in substituting R 22 with either R 410A or R 407C.

Chinese compressor manufactures have also mastered technology related to production of R 410A compressors. Most compressors manufacturers hope that R 22 substation would happen sooner in order to potentially create new business opportunities.

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Although most companies have selected R 410A as the alternative refrigerant, the high global warming potential (GWP) of R 410A may result in it being phase out in the future. Therefore, the China Household Electrical Appliances Association has been discussing other alternatives for a long time. Some leading AC manufacturers have also begun to develop products using natural refrigerants such as R 290 (Propane) and CO₂.

While there are no technical issues preventing use of R 410A as an alternative to HCFC, the higher prices of R 410A and the products that use it is still an issue that needs to be resolved. The price of R 410A has decreased somewhat in the last 2 years; nevertheless, it is still 2 to 3 times higher than R 22. For R 290 and CO₂, the higher price and limited market are still 2 big problems in addition to some technical issues.

Although there are some difficulties in substituting HCFCs, they are challenges both the Chinese government and the AC Industry must face. China is the largest AC manufacturing base in the world. The AC industry in China uses 70,000 to 80,000 metric tons of R22 each year. As companies with a strong sense of responsibility, many of the Chinese room AC manufacturers would like to become pioneers in substituting R 22. However, some key issues first need to be solved before the substitution can take place, including what the manufactures should do, how to get financial support from foreign capital, and how to optimally combine the substitution and the long-term development strategy of the whole Chinese AC industry.