

for this end-use had been reviewed since the final rule, and therefore were added to the August 26, 1994 Notice. Please refer to the final SNAP rule (59 FR 13044) for a detailed description of end-uses other than these. EPA may continue to add other end-uses in future SNAP updates.

#### a. Heat Transfer

As discussed above, this end-use includes all cooling systems that rely on a fluid to remove heat from a heat source to a cooler area, rather than relying on mechanical refrigeration to move heat from a cool area to a warm one. Generally, there are two types of systems: systems with fluid pumps, referred to as recirculating coolers, and those that rely on natural convection currents, known as thermosyphons.

#### b. Very Low Temperature Refrigeration

Medical freezers, freeze-dryers, and other small appliances require extremely reliable refrigeration cycles. These systems must meet stringent technical standards that do not normally apply to refrigeration systems. They usually have very small charges. Because they operate at very high vapor pressures, and because performance is critically affected by any charge loss, standard maintenance for these systems tends to reduce leakage to a level considerably below that for other types of refrigeration and air conditioning equipment.

#### c. CFC-13, R-13B1, and R-503 Industrial Process Refrigeration

This end-use differs from other types of industrial refrigeration only in that extremely low temperature regimes are required. Although some substitutes may work in both these extremely low temperatures and in systems designed to use R-502, they may be acceptable only for this end-use because of global warming and atmospheric concerns. These concerns are discussed more fully below.

### 2. Response to Comments

a. Use conditions for automotive refrigerants. Two commenters requested changes in the information proposed for labels to be placed on automobiles retrofitted to use alternative refrigerants. They explained that label space is constrained and requested that the statements related to the ozone-depleting nature of automotive refrigerants be deleted. EPA agrees that the proposed statements were too cumbersome. This FRM shortens the relevant phrase for ozone-depleting refrigerants and eliminates the phrase for non-ozone-depleting refrigerants.

One commenter stated that EPA does not have the authority to require unique fittings and labels for automotive retrofits. In fact, EPA believes its broad mandate under SNAP does provide the authority. One important goal of the SNAP program is to ease the transition away from ozone-depleting substances. As the number of acceptable alternatives increases, the likelihood of contaminating the supply of recycled CFC-12 increases. EPA believes the fitting and label requirements will help protect consumers and the environment by preserving the purity of recycled CFC-12. The requirements will also help ensure that clear information exists about the contents of motor vehicle air conditioning systems. In addition, EPA has received a petition requesting a requirement for fittings and labels. Several commenters strongly supported EPA's efforts to reduce the risks of cross-contamination of various alternatives. Therefore, this FRM retains the fitting and label provisions from the NPRM.

Several commenters expressed concern that listing a refrigerant acceptable or acceptable subject to use conditions implies that it is effective in all systems, that it is compatible with existing equipment, and that it will not affect system life. EPA believes the purpose of the SNAP program is to review the human health and environmental implications of alternatives and not to ensure the effectiveness of new refrigerants or the long-term viability of equipment. Certainly the SNAP lists should serve as a useful reference to the user community. However, one of the guiding principles of the SNAP program is to let the market decide whether there exists a "best" alternative.

Several commenters asked EPA to require a label for flammable non-automotive refrigerants. EPA will consider this idea when reviewing future submissions.

b. HCFC Blend Beta and R-401C. Several commenters expressed concern that these blends contain flammable substances. As discussed in the NPRM, testing has shown that HCFC Blend Beta and R-401C are not flammable and do not become flammable through fractionation. Several other acceptable refrigerants contain hydrocarbons and other flammable components, which can add to a blend's effectiveness. If these components are present in small enough amounts, the blends are nonflammable.

Several commenters raised the issue of selective absorption of flammable components by the lubricant. They are concerned that over time, the oil will

concentrate the flammable hydrocarbon, possibly yielding a flammable mixture in the system. EPA is not aware of any data validating this claim. However, should information become available, EPA invites a petition to review its decision on HCFC Blend Beta.

Several commenters expressed concern that HCFC Blend Beta and R-401C contain class II compounds, HCFC-22 and HCFC-124, respectively. While these compounds do contribute to ozone depletion, EPA controls their production under the accelerated phaseout. As in the stationary end-uses, EPA believes the HCFCs have a role as transitional refrigerants. Until the end of production, HCFCs can help ease the switch away from the CFCs by providing additional alternatives.

Several commenters suggest that using blend refrigerants will not reduce the cost of retrofitting existing cars to use HFC-134a. Using other refrigerants may help reduce these costs for some range of models. However, even if it were possible to devise a reliable measure of cost reductions for individual cars, EPA's primary interest is the human health and environmental issues associated with a refrigerant. The market will determine any substitute's success based on cost.

c. R-403B and R-405A. Several commenters requested that EPA consider other factors besides global warming potential (GWP) and lifetime and approve R-403B and R-405A, which contain high concentrations of perfluorocarbons (PFCs), as substitutes for R-502 and CFC-12, respectively. EPA considers energy savings, flammability, and toxicity, in addition to ozone depletion potential and global warming potential, in its SNAP review. The PFCs as a class have extremely long lifetimes and very high GWPs. In addition to potential global warming caused by PFCs, their lifetimes mean that any unanticipated effects would be irreversible. These factors are significantly higher than those of any other class of refrigerants. Although the average GWP of a blend may be lower than that of the individual components, when released to the atmosphere the components act independently. Thus, the PFCs' high GWP and long lifetime will have the same impact as if they had been released as pure substances. In accordance with the SNAP guiding principles, EPA does not intend to make fine distinctions. However, the lifetime and GWP of PFCs pose higher overall risk than the other available substitutes.

Several commenters point out that because R-403B contains HCFC-22, intentional venting is already prohibited under section 608, and therefore