



# *The Rush to Recover R-22*

The Environmental Protection Agency's proposed allocation rule includes provisions for increased use of recovered/reclaimed R-22. With the first Montreal Protocol deadline nine months away, the industry is sure to see a greater push to recover refrigerant.

**BY JIM LAVELLE**

**W**ith the first deadline date relating to the Montreal Protocol and the phaseout of hydrochlorofluorocarbons (HCFCs) just around the corner—and the corresponding reduced availability of R-22—the HVACR industry is showing a renewed interest in R-22 recovery and reclamation. In preparation for the next step-down in the HCFC cap, the U.S. Environmental Protection Agency

(EPA) has proposed an Allocation Rule that limits the total production and import of R-22 to about 80% of the estimated service demand. The EPA has indicated that recovered/reclaimed R-22 will be necessary to meet continued demand. In order for the industry to accomplish this level of recovery, some significant changes are necessary relating to recovery practices and policies.

**New proposed regulations mean that a significant amount of recovered refrigerant will be necessary to meet HVACR industry demands. Filling this void—and these cylinders—may well be based on the return on investment technicians and contractors receive as the price of hydrofluorocarbon-based refrigerants rises.**



Historical data collected by the EPA on the reclaim of R-22 has shown that a relatively small amount of product has been returned to the supply chain compared to virgin refrigerant introduced into the marketplace. This can be explained in part by considering the economics of reclaim over the last 15 years; with the price of virgin refrigerant relatively low, there was no incentive to pay for recovered refrigerant, clean it and repackage it. Most reclaim was done as a service to the industry, often for a fee. The expected rise in R-22 pricing in conjunction with the reduction in refrigerant availability after Jan. 1, 2010 will impact the economics of the reclamation business.

### **Kickstarting recovery**

Once the new regulations kick in, activity related to the recovery and reclamation of R-22 will be influenced by several factors.

**It is still the law**—The Clean Air Act mandates that R-22 cannot be intentionally vented during service or dispos-

al of equipment. Recovered refrigerant can be put back into the same system, or a system owned by the same entity (recycling); or the refrigerant can be cleaned to Air-Conditioning and Refrigeration Institute (ARI) 700-1993 Standard of purity specification by an EPA-certified reclaimer and sold in the market (reclaiming). Either option will reduce the need for newly manufactured refrigerant for service. Refrigerant that is not recovered—or simply left sitting in recovery cylinders somewhere to avoid the cost of returning it—does not help meet the need for refrigerant for servicing equipment. Although the law does not explicitly state that recovered refrigerant must be reused or reclaimed, ultimately this is the goal of the regulation.

**Reclamation of R-22 is becoming an economically viable business**—During the chlorofluorocarbon (CFC) phaseout, more reclamation companies were in operation because the resale value of reclaimed CFCs made it profitable. Many of these companies stopped performing reclamation services when the product offering was reduced to R-134a, R-22 and blends under patent. If reclaim-service companies find that reclaiming R-22 is profitable once

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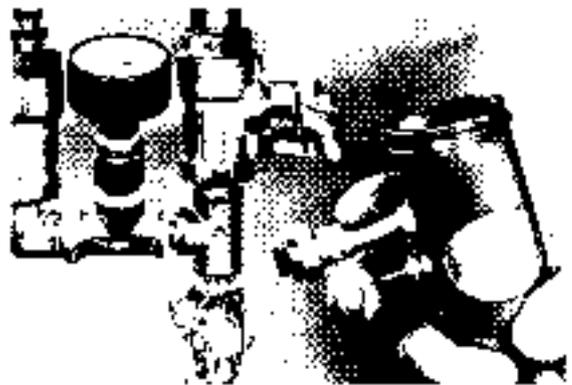
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**Customers that collect large amounts of refrigerant and send it to a reclaim facility (shown at left) also can take advantage of banking that refrigerant—eliminating the need to store it but having it on hand when a customer requires it.**

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again, the entire industry will benefit from increased options and levels of service. Contractors who previously saw

recovery of R-22 as a financial disadvantage may now realize a financial benefit.

**Banking programs offer another refrigerant management option**—Instead of just sending refrigerant back to a reclaimer, customers with larger amounts of recovered refrigerant can use a banking program to retain ownership for future needs. Typically, a banking program works in the same manner as a standard financial bank does: a large batch of refrigerant is reclaimed for a fee; and then it is stored for the customer who will eventually withdraw it to meet servicing needs. The customer benefits from banking their refrigerants because they can stabilize their cost as well as their supply of refrigerant needed for servicing.

**Contractors need to maintain the quality of recovered refrigerant**—It is important to follow good recovery practices and not mix refrigerants that are returned for reclamation. Contractors can keep their refrigerant-recovery costs down by not mixing recovered refrigerants. Remember that mixed or recovered refrigerants containing high amounts of oil, water or acid require special handling. Mixed refrigerants are more difficult and costly to reclaim properly, and not all reclaimers have the technology to separate mixtures.

## Review of good recovery practices

The following is a partial list of things to remember when performing refrigerant recovery:

- Use dedicated recovery equipment, hoses, driers and tanks. Refrigerant that is recovered from contaminated systems will likely contaminate the tools and hoses used in the recovery process. To make sure these contaminants are not transferred to other systems, keep dedicated recovery equipment separate from non-recovery service equipment.

- Pull a full vacuum on each recovery cylinder prior to use. This will help in the recovery process as well as provide an indication if the recovery cylinder is leak-free and suitable for use.

- Use a filter-drier on the inlet of a recovery machine

to protect the equipment and keep particles and water from getting into the recovery cylinder. Use new driers as needed.

- Cylinders should be clearly labeled with the type of refrigerant being recovered, and different refrigerants should not be mixed on purpose. If it is unclear what is in the system, then the refrigerant should be analyzed to properly identify it—workers should not handle cylinders when the contents are unknown. The Occupational Safety and Health Administration (OSHA) requires that all containers containing hazardous materials be identified with a label indicating the chemical name of the product; and U.S. Department of Transportation (DOT) requires that cylinders be properly marked for transportation purposes.

- Use recovery cylinders with the proper pressure rating. R-22 can be recovered into cylinders with a 260 psi or greater pressure rating. However, refrigerants with vapor pressures higher than R-22 require higher-rated cylinders. In particular, R-410A requires recovery cylinders with a pressure rating of 400 psi. Before recovering any refrigerants, the cylinder pressure rating should be checked. (*Author's Note: Pressure ratings are not the same as maximum required pressure. Burst pressure, pressure relief settings and other factors are calculated from the base rating value.*)

- Do not use recovery cylinders that are out of test date. The DOT regulates cylinders and specifically prohibits filling and transporting cylinders that are out of test date. Check the top/neck of the cylinder to verify that the last cylinder-test date is within five years of the date it is to be used.

A rush to recover R-22 will be necessary if the HVACR industry is going to make a smooth transition beyond the phaseout beginning in 2010. Increasing the amount of R-22 that is recovered and reclaimed will help conserve the supply of refrigerant available to service equipment. Technicians need to remember to work safely, use the proper tools and cylinders, comply with regulatory requirements, and make sure that recovered refrigerant gets reclaimed and put back into use.

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