

different temperatures] as time passes.” This commenter stated that EPA might now attempt to issue requirements for testing at colder temperatures and could ultimately require testing at “two-degree increments over a range of 200 degrees.” The commenter further stated that before the regulations ever required certification, that the commenter was capable of successfully manufacturing its own recycling/recovery equipment. Finally, the commenter concluded that “EPA is being trapped into specifying ever-greater detail, where no detail is really needed.”

EPA disagrees with this conclusion. First, both the physics of refrigerant recovery and the results of UL’s testing show that useful new information about equipment performance is gained through high-temperature testing. While some manufacturers may have caught and corrected performance problems at high temperatures without testing by third parties, others clearly have not. Thus, this “detail” is indeed “needed.” Second, EPA does not believe that it has been “trapped into specifying ever-greater detail” in its equipment certification program. In general, EPA considers both the costs and the benefits of potential changes to its equipment certification standards. In some cases, the additional information that could be gained justifies the cost of additional testing; in others, it does not. For instance, the Agency believes that the additional information that could be gained through requiring a more representative measure of the vapor recovery rate justifies its cost; however, as discussed below, EPA has concluded that the additional information that could be gained through durability testing does not justify the additional cost. Thus, while certification requirements will clearly need to be amended as the industry changes and acquires more experience with recovery technologies, EPA does not anticipate that these amendments will be overly burdensome or unwieldy.

In this case, the high-temperature testing requirement is part of the only set of amendments to the test procedure for recycling and recovery equipment made so far, and reflects a change to this procedure that has already been made by industry. At one time, EPA had contemplated a requirement for low-temperature testing, but the Agency decided not to propose this because (1) performance problems at low temperatures were not as serious as those at high temperatures, and (2) recovery at low temperatures takes place less frequently than recovery at high temperatures, and hence venting of refrigerants is more likely to occur at

higher temperatures. Of course, if new information arose indicating widespread equipment failure at low temperatures and subsequent venting of refrigerants, EPA might reconsider imposing a requirement for low-temperature testing. However, since equipment performance can be interpolated reasonably well between measurements at temperature means and extremes, it is very unlikely that EPA would require measurements of equipment performance at two-degree intervals.

### 3. Use of Representative Recovery Cylinders

As proposed, EPA is adopting the ARI Standard 740–1995 into appendix B2. To further ensure that equipment testing is representative of likely performance in the field, appendix B2 specifies that recovery cylinders used in testing (1) be the same size as those sold with the equipment and (2) be held at the saturation pressure of the refrigerant when testing begins. Use of oversize or evacuated cylinders can yield artificially high recovery rates and artificially deep recovery vacuums, because the recovery compressor does not have to work as hard to move refrigerant into oversize or evacuated cylinders as it does to move refrigerant into normal size cylinders at the saturation pressure of the refrigerant. Both of these requirements codify procedures that are being followed voluntarily by both of the EPA-approved equipment testing organizations.

One commenter expressed concern that this requirement would be inappropriately applied to equipment that is not sold with recovery cylinders, such as equipment that is designed to recover large charges into rail cars or tank trucks. According to ARI and UL, the two approved equipment testing organizations, most manufacturers whose equipment they have certified offer recovery cylinders with their equipment. UL actually requires manufacturers to provide recovery cylinders with the equipment. When equipment is not offered with recovery cylinders, ARI tests the equipment with the size cylinder specified in the manufacturer’s instructions. EPA considers the latter approach as reasonable and is modifying appendix B2 (based on ARI Standard 740–1995) to add the phrase “or specified in the instructions” to the relevant requirement in section 7.4.1 to clarify that it is permissible. The modified requirement reads, “Recovery cylinder shall be the same size as normally furnished or specified in the instructions by the equipment manufacturer.”

The same commenter argued that EPA should not object to the use of oversize recovery cylinders in testing, but only to the use of undersize cylinders, because oversized cylinders do not affect the results of certification testing. As described both in the proposal and above, oversize recovery cylinders can distort the results of certification testing. Therefore, EPA is promulgating the requirement that cylinders used in testing be the same size as those sold or specified for use with the equipment.

### 4. Limiting Emissions from Condenser Clearing, Oil Draining, Purging, and External Hoses

ARI Standard 740–1995 addresses three potential sources of refrigerant emissions that ARI 740–1993 did not address: condenser clearing, oil draining, and emissions from external hoses. As discussed in the NPRM substantial quantities of refrigerant may remain in the condensers of recycling and recovery equipment after refrigerant has been transferred to a recovery tank or back into an appliance. Unless this refrigerant is properly removed, it will either contaminate subsequent batches of refrigerant, a serious concern when switching refrigerants (e.g., from R–12 to R–22), or be released to the atmosphere. There are a number of methods to remove this refrigerant properly; however, some of these methods are more complicated and time-consuming than others. One of the most important factors in the speed and effectiveness of the refrigerant clearing process is the design of the recovery or recycling equipment itself.

To help ensure that the design of recovery equipment minimizes the amount of residual refrigerant that either escapes to the atmosphere or contaminates subsequent batches, ARI Standard 740–1995 includes measurements both of the mass of refrigerant that is released during clearing and of the mass of refrigerant that remains in the equipment after clearing is complete. The mass of refrigerant released during clearing is added to the masses released during the purging of noncondensables and oil draining (see below); this total cannot exceed 3% of the total mass of refrigerant processed through the equipment. The mass of refrigerant that remains in the equipment is not limited, but is reported in the equipment ratings so that prospective buyers can use the information in their purchasing decisions.

To help ensure that the clearing procedure is not excessively complicated or time-consuming, the ARI Standard 740–1995 also requires that