



A New Standard for A/C Recycling Equipment

The following article was prepared by RTI in an effort to explain the reasons for new enhanced recycling equipment. It presents the reasons why new recycling equipment is required to protect our environment for future generations. Finally it clarifies how this new initiative will affect the technology and sale of refrigerant recycling equipment.

The Greenhouse Effect

Increases in the earth's temperature can occur naturally as a result of climatic fluctuations caused, for example, by solar cycles and changes in the sun's radiation. Human activity such as burning of fossil fuels (coal, oil and natural gas) and land clearing, however, are increasing the concentration of greenhouse gases in the atmosphere. These additional gases are like additional blankets around the earth. They allow the sun's energy to reach the earth's surface, but they prevent more heat escaping. This means that the earth slowly heats up. This is called the enhanced greenhouse effect - it causes global warming and it is changing our climate.

Refrigerant Contributes to the Greenhouse Effect

Refrigerants, such as R134a used in mobile air-conditioning systems, when released to the atmosphere, add to the enhanced greenhouse effect. The Environmental Protection Agency (EPA) is in the process writing and implementing new legislation to control global warming in the future.

One focus area is the release of refrigerants such as R134a into the atmosphere. SAE (Society of Automotive Engineers) works closely with EPA to investigate issues which impact the environment and write standards for equipment necessary to minimize this impact. Following are some of the things discovered which today are causing high levels of R134a in the mobile A/C sector to be released into the atmosphere:

- 1) A/C systems leak excessively. Hoses leak. Gaskets leak. Compressors leak at the shaft seal.
- 2) Large A/C systems consume more horsepower from the engine thus increasing emissions.
- 3) Recycling equipment may not remove all the refrigerant from the A/C system.
- 4) Virgin cylinders are not being emptied prior to disposal where they are punctured and release residual refrigerant.
- 5) Charging equipment may not be accurate which causes A/C systems to be overfilled, resulting in high pressure leaks.

Solutions to Reduce Refrigerant Impact on the Greenhouse Effect

A new SAE standard was published in December of 2006 for recycling and charging equipment. This new standard calls for A/C refrigerant management equipment with enhanced capabilities:

- 1) The machines must remove 95 percent of the refrigerant within 30 minutes with no heat being applied to the A/C system.
- 2) The machines must charge with an accuracy of ± 0.5 ounce. This is required due to improved A/C systems with very small refrigerant capacities.
- 3) The machines must remove 98 percent of the refrigerant from a virgin cylinder.

- 4) Filters **must** be changed in recycling equipment. When the filter is at 75 percent of its life, a warning is displayed that filters will soon need to be replaced. When the filter reaches 100 percent of its life, the machine will shut down until new filters are installed. Filters will have serial numbers which must be input into the machine to re-activate it.
- 5) Means must be provided for the technician to check the accuracy of the scale to determine if re-calibration is required.
- 6) Lab tests will verify that the load cell will not go out of calibration when subjected to moderate vibration – as caused when a machine is rolled around the work shop.

These new requirements will result in technologically advanced equipment. Anyone doing A/C service for a profit is required by Federal Law to have equipment listed by the EPA which has been certified by a laboratory (ETL or UL). The lab certification results after an extensive battery of tests to validate that the equipment complies to the SAE standard.

How the New SAE Standard Affects Recycling Equipment

The new standard for refrigerant recycling and charging equipment published by SAE is J-2788. There is much confusion about the impact of this standard.

Following are the **facts**:

Equipment **manufactured after** December 2007 must be lab certified to the new SAE standard (J2788).

Equipment **manufactured before** December 2007 will not be obsolete – it will still be legal.

Equipment **manufactured before** December 2007 to the old standard can still be sold **after December** 2007.

EPA states they will not establish a date after which equipment manufactured to the old standard can no longer be sold.

Conclusion

All present recycling equipment in the RTI catalog is still great equipment and can be sold well into the future. All models are lab certified and EPA approved. They all purify refrigerant and do not vent excessive amounts of refrigerant into the atmosphere. RTI equipment remains the best choice for the upcoming A/C season and years of continuous service!

Tom Crandall, VP of Technology at RTI, has been a member of SAE for over 15 years and is a voting member of the committee which wrote the new standard. If you have any questions, please feel free to contact Tom.