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FLAMMABLE REFRIGERANT RESEARCH

Significance

In June 2016, the U.S. Department of Energy (DOE) invited ASHRAE and the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) into a research collaboration to establish a more robust fact base about the properties and the use of mildly flammable refrigerants. This \$5.2 million research program, with financial contributions from DOE (\$3 million), ASHRAE (\$1.2 million), and AHRI (\$1 million), is part of an ongoing global effort to phase down the use of high-global warming potential (GWP) refrigerants and identify appropriate climate-friendly alternatives.

ASHRAE Research Projects

- **RP-1806** (Flammable Refrigerants Post-Ignition Simulation and Risk Assessment Update) – the results of this project will allow for the assessment of the overall risks of using flammable refrigerants in HVAC&R products, taking into account both event Probability and Severity.
- **RP-1807** (Guidelines for Flammable Refrigerant Handling, Transporting, Storing and Equipment Servicing, Installation and Dismantling) – this project will investigate installation practices as well as servicing and handling aspects for all equipment that uses A2, A2L and A3 refrigerants. There are varied skill levels that exist within the HVAC&R industry in the U.S., and introduction of flammable refrigerants could increase the need for specialized processes, training, and/or certifications as part of risk mitigation.
- **RP-1808** (Servicing and Installing Equipment using Flammable Refrigerants: Assessment of Field-made Mechanical Joints) – this project will identify joining techniques used in the HVAC&R industry that are prone to failure if precaution is not used during equipment installation, servicing and repair, particularly when using flammable refrigerants.



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Benefits and Facts

This ongoing research program will provide the technical knowledge needed to facilitate and accelerate the safe use of these refrigerants. The results of this research will immediately be transmitted to the committees responsible for ANSI/ASHRAE Standard 15-2016, Safety Standard for Refrigeration Systems, and ANSI/ASHRAE Standard 34-2016, Designation and Safety Classification of Refrigerants, with a goal of using the results to update the standards as soon as possible, subject to full compliance with the ANSI consensus process.

The International Code Council (ICC) has also stated that these revised ASHRAE standards will be eligible to be fast-tracked into the international codes, in accordance with ICC procedures.