



Natural Refrigerants and UL Standards

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Some History

- Pre 1990, most refrigerants were non-flammable
- Environmental concerns drove change
- In 2000 UL published natural refrigerant requirements for household refrigerators in UL 250
- In 2008 UL published natural refrigerant requirements for commercial refrigerators in UL 471
- In 2011 UL hosted the first meeting of the “Flammable Refrigerant Joint Task Group (JTG)” in Las Vegas, NV



What is the JTG Doing?

JTG Task – Create a “Recommendation Report” outlining requirements applicable to HVAC & R equipment using ASHRAE Class A2 & A3 natural refrigerants

- The JTG created 3 Working Groups (WG’s): 1, 2 & 3

Once each working group completes its work, the JTG will draft and then issue the “Recommendations Report” based on the information provided by the Working Groups.

Staff from the EPA are part of the JTG. EPA Significant New Alternatives Policy (SNAP) updates are expected to align with the JTG “Recommendations Report”.



Working Group No. 1 (WG#1)

- UL 474 Dehumidifiers – No requirements planned (being superseded by UL 60335-2-40)
- UL 484 Room air conditioners – Requirements presently based on room size
- UL 60335-2-40 - Heat pumps, air conditioners & dehumidifiers – Requirements similar to IEC 60335-2-40 and based on room size



Working Group No. 2 (WG#2)

- UL 250 Household Refrigerators/Freezers – 225 & 57 gm
 - UL 60335-2-24 Refrigerating Appliances, Ice Cream Appliances & Ice-Makers – 225 & 50 gm
 - UL 399 Drinking Water Coolers – 270 & 60 gm
 - UL 427 Refrigerating Units – 500 & 150-300+ gm
 - UL 471 Commercial Refrigerators/Freezers – 500 & 150
 - UL 541 Refrigerated Vending Machines – 500 & 150 gm
 - UL 563 Ice Makers – 500 & 150 gm
- + - For a charge limit not over 300 grams but greater than 150 grams, leak detection means and use of Class 1, Division 2 (HAZ LOC) components are required.



Working Group No. 3 (WG#3)

- UL 2182 – Refrigerants
- ASHRAE 34 – Designation and Safety Classification of Refrigerants

Changes are being proposed for Flammability Limit, Fractionation Analysis.

Burning Velocity test developed for Class A2L refrigerants.



Carbon Dioxide Systems

- UL 207 – Refrigerant Containing Components
- UL 412 – Refrigeration Unit Coolers
- UL 471 – Commercial Refrigerators/Freezers
- UL 1995 – Heating and Cooling Equipment
- UL 60335-2-34 Refrigerant Motor-Compressors

These Standards presently include requirements applicable to equipment using carbon dioxide (transcritical and/or subcritical).



Thank You



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Questions?



business case

natural refrigerants

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Thank you very much!

