IEC/TC61/SC61D/WG16

Working group to: Address A2 and A3 refrigerants for IEC 60335-2-40

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The mandate of IEC/SC61D/WG16

The working group is to develop additional requirements for A2 and A3 refrigerants:

- Charge limits
- Dilution, circulation, ventilation requirements
- Additional mitigation measures

Examples of A2/A3 refrigerants:
HFC-152a and Hydrocarbons (like propane, iso-butane)
Motivation - Example

Hydrocarbons have very low GWP and good efficiency, but are also highly flammable (A3).

Example Residential A/C:
- For propane (a hydrocarbon) the refrigerant charge is a little too low in -2-40 to produce high capacity high efficiency units.
- Added mitigation measures could keep the current risk level, while allowing for larger refrigerant charges.
Mitigation means considered

1. Limiting how much refrigerant can leak
   - By system design it is possible to limit the amount which will enter the room if there is a leak
   - It is only the leaked refrigerant which is dangerous
   - WG16 has proposed a test method for releasable charge

2. Air flow
   - Mixing a leak will increase the amount which can safely leak into a room
   - WG16 is considering air-flow requirements

3. Robust design
   - Current charge limit assumes the complete charge of refrigerant can leak in 4 minutes.
   - Proving the quality and avoiding "high risk" designs brings down the foreseeable leak rates.
   - WG16 is considering what to require from a robust design, and what charges can be
# WG 16 Activity

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27 Experts: AU, BE, CN, DE, DK, GB, IN, IT, JP, KR, SE, US

- **Meets every 3 months**
- **1 Document for Comments released**
- **8 Meetings held**
- **3 More Meetings planned**

**Locations:***
- 2015 September, London, UK
- 2015 December, Frankfurt, Germany
- 2016 March, Chenzhen, China
- 2016 June, Copenhagen, Denmark
- 2016 September, London
- 2016 December Hangzhou, China
- 2017 March, Copenhagen, Denmark
- 2017 June, Wilmington, Delaware, US
- 2017 September, Aachen, Germany
- 2018 January, Chengdu, China
- 2018 April, Stratford upon Avon, UK
Time scale

Optimistic


WG16 started working Sep 2015

Document for Comments (DC) circulated, more than one will be needed

Committee Draft for Vote (CDV) circulated, more than one may be needed

Passing from CDV to publication takes at least a year, but is more likely to take two years

Adoption in national standards normally takes several years

Less optimistic


Notes: Standardisation work is based on consensus, and timing is very difficult to predict, and worst case is much longer than the above.
Who makes this possible...

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