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INTERNATIONAL ELECTROTECHNICAL COMMISSION STANDARD 60335-2-40 Progress and Main Issues
Scope of Subcommittee 61 D

To prepare international safety standards dealing with electrical equipment used in residential, commercial or light industrial applications primarily for the purpose of conditioning air and which contain a refrigeration or heating cycle using a motor compressor or based on the absorption principle
## Membership in IEC/SC61D

### 23 P-members = Participating Members
- Australia
- Austria
- Belgium
- China
- Czech Republic
- Denmark
- France
- Germany
- India
- Iraq
- Italy
- Japan
- Korea, Rep. of
- Malaysia
- Netherlands
- Philippines
- Serbia
- South Africa
- Spain
- Sweden
- Turkey
- United Kingdom
- United States

### 26 O-members = Observer Members
- Belarus
- Brazil
- Bulgaria
- Canada
- Egypt
- Finland
- Greece
- Hungary
- Indonesia
- Iran
- Ireland
- Israel
- Kuwait
- Mexico
- New Zealand
- Norway
- Poland
- Portugal
- Romania
- Russian Fed.
- Singapore
- Slovakia
- Slovenia
- Switzerland
- Thailand
- Ukraine

Countries not listed are not a member of IEC/SC61D
Product groups in the scope

- Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers

- This standard deals with the safety of electric heat pumps, including sanitary hot water heat pumps, air-conditioners, and dehumidifiers incorporating motor-compressors and hydronic fan coils
Examples of products covered

Portables

Ducted units

Chillers

Multisplit systems

Split systems

10 July 2017
Matthias Meier Technical Consulting
Since 2005 IEC 60335-2-40 allowed the use of flammable refrigerants. The standard introduced requirements which were validated by tests.

In 2011, SC61D decided to develop requirements for the new refrigerant types with lower burning velocity.

- Not allowed to use flammable refrigerants
- Flammable refrigerants (HCs) are allowed
- Additional requirements for A2L refrigerants
Examples of refrigerants included

<table>
<thead>
<tr>
<th>Refrigerant class</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>R410A, R744…</td>
</tr>
<tr>
<td>A2L</td>
<td>R1234yf, R32…</td>
</tr>
<tr>
<td>A2</td>
<td>R152a</td>
</tr>
<tr>
<td>A3</td>
<td>R290, R600</td>
</tr>
</tbody>
</table>

Charge limits covered by ISO 5149

Charge limits covered by IEC 60335-2-40
Correlation between standards

Requirements in product standards prevail over requirements in generic standards
Revision of standards

- Requirements for the A2L, A2 and A3 categories are reviewed regularly
- Participation of experts as nominated by National Committees
- Revision based on a sound scientific approach
Current revision - Comments received

Abstain/ liaison

voted YES

voted NO
Current revision - Votes with no comments

- **Positive votes:**
  - Austria, Belarus, Croatia, Finland, India, Iraq, Ireland, Republic of Korea, Netherlands, Republic of the Philippines, Poland, Portugal, Qatar, Russian Federation, Serbia, Slovenia, Spain, Switzerland, Turkey, Ukraine

- **Abstentions:**
  - Greece, Iran, South Africa
• Majority of the comments have been accepted.

• Issues such as altitude corrections, convergence with IEC 60079 series, alignment with ISO 5149, details on of shut off valves have been deferred to next revision.

SC61D established working groups for
• Altitude correction,
• IEC60079 convergence.
Status and outlook for IEC 60335-2-40

- **WG09**: additional requirements for A2L refrigerants
- **WG16**: review of requirements for A2 and A3 refrigerants
Conclusion

- Since 2005, IEC 60335-2-40 has already provided for charge limits relevant to all flammable refrigerants.
- Additional requirements for A2L refrigerants and requirements for CO2 were approved at a first vote.
- Publication of the next edition is expected end of 2017/early 2018.
THANK YOU