

EU Standardization Request M/555 on flammable refrigerants – an update

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EU Standardization Request on Flammable Refrigerants

Standardization Request M/555

- **Issued by the European Commission on 2017-11-14**
- Consist of two parts:
 - Assessment of existing standards and regulations with focus on development of the State of the Art and latest results arising from research and development activities
 - Drafting of Technical Specifications for the installation (and also operation) of Refrigeration, Air Conditioning and Heat Pump Equipment (Ref/AC/HP)
- **Intention: to enable a wider use of flammable refrigerants with special attention to refrigerants of safety class A3**

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- **Addressed to: CEN and Cenelec (CLC)**
- Decision by CEN/CLC Management Centre:
 - The work is allocated to **CEN TC 182**.
 - CLC TC 61 is invited “to maintain close liaison with CEN TC 182”.
- For the purpose of the work arising from M/555, the new WG12 was established.
- Decision to establish 6 Ad-Hoc Groups (AHG) for splitting work into smaller work packages, each “Ad-Hoc Group” to consider a dedicated segment of the industry & general topics in AHG 1
 - Commercial Ref -- Transp. Ref / Mobile AirCon -- Industrial Ref -- AirCon / Heat Pumps -- Chillers

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Standardization Request M/555 – Time Outline

- **Issued by the European Commission** **2017-11-14**
- 1st joint annual report 2018-12-17
- **Draft of European Standardization deliverable** **2019-07 (tbc)**
- 2nd joint annual report 2019-12-30
- **Deadline for adoption of European Standardization deliverable:** **2020-11-15**
- Joint final report 2021-02-15

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Standardization Request M/555 – Technical Content

- **Task #1: Assessment study**
- Existing standards at European Level:
- General “horizontal” standard: EN 378 (-1, -2, -3, -4)
→ covers (nearly) all types of refrigerating systems & heat pumps
- Product (specific) standards, mainly EN 60335 series, e.g.
EN 60335-2-40: AirCon & Heat Pumps
EN 60335-2-89: Commercial refrigerated appliances
but also standards for other applications (e.g. Laboratory equipment)
→ usually set clear limits for the application of the standard

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Standardization Request M/555 – Technical Content

- **Task #1: Assessment study**
- Existing rules for European Single Market (“**Manufacturing**”):
 - Low Voltage Directive (LVD) 2014/35/EU (only equipment for domestic use)
 - Machinery Directive (MD) 2006/42/EC (equipment for commercial & industrial use)
 - Pressure Equipment Directive (PED) 2014/68/EU
- Existing regulations for “**Operation**” in Europe
- Operation is ruled by national law → different rules in the different member states
- Some member states have stringent rules for the application of flammable refrigerants in force → progress to changes in national regulations cannot be handled in standardization, but a technical specification can be the basis for it.

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Standardization Request M/555 – Technical Content

- **Task #2: European Standardization Deliverable**
- Expectations posed by the Commission:
- Technical Specifications for the safe installation of equipment using flammable refrigerants (in particular of safety class A3)
 - in view of ensuring safety during installation and operation (operation includes servicing and decommissioning)
 - extending charge size limits and describing associated risk mitigation measures (considering the “whole lifetime”)
 - specifications for rooms/places in which equipment is installed

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Standardization Request M/555 – Technical Content

- **Latest developments**
- Draft of standardization deliverable (mainly task #1) is discussed in WG12
- However, this document already includes some technical details on proposals for a further set of additional measures to be undertaken if refrigerating systems with higher charges of flammable refrigerants are installed and operated.
- Special attention to: Procedures for Risk Analysis & Risk Assessment
 - typical way: Risk Assessment is used as one method during standardization
 - not fully implemented:
individual assessment of risks to be executed by the manufacturer

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Standardization Request M/555 – Technical Content

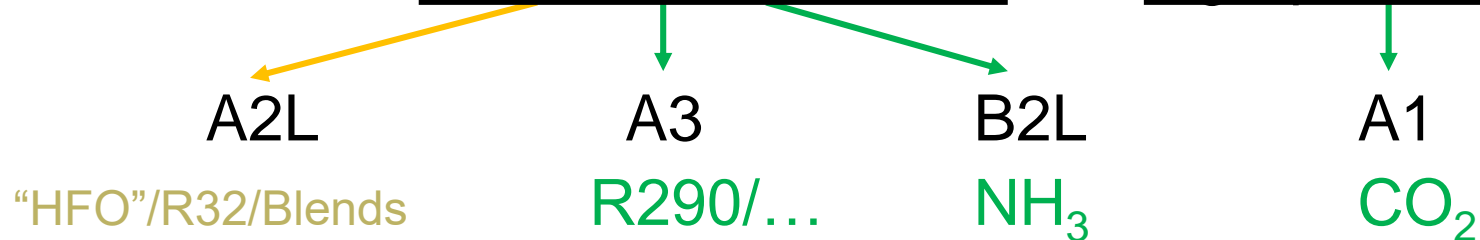
- **Latest developments**
- Time outline is “very challenging”
- Next meeting CEN / TC 182 WG 12: Brussels, 2019-07-02 / -03
- The “major part” of the work is NOT done in WG 12, but in other committees & working group (those being responsible for the standards to be amended):
 - CEN TC 182 WG 4 + 6 + 7
 - CENELEC TC 61 (duly considering work in IEC SC 61C and 61D)
 - one major topic:
 - implementation of IEC standards by CENELEC is pending
 - (for some standard for years!)

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Standardization Request M/555 – Consequences

- **Remarks from a technical point of view**
- Current changes “under discussion” do not fully reflect the needs originating from the fundamental change of availability of refrigerants commonly used in the past.
- The interest of all participants shall consider that the high level of safety reached for refrigerating systems remains “as is”.
[→ This is also the intention of the Commission and explicitly described in M/555.](#)

- The future will be “somehow flammable” or “high-pressurized”



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Standardization Request M/555 – Consequences

- **Remarks from a technical point of view**
- A key role is the question of “tightness” and “durability”.
- The aim should be: the refrigerant circuit remains tight throughout the whole lifetime of the system. **Result: a leakage is not expected to happen.**
 - Question: which requirements shall be fulfilled that this “quality” will become reality?
 - This concept is not yet “state of the art” – the discussion has just started.
- **Summary:**
 - We need to consider all practicable concepts for the future.
 - The “real challenge” is the still limited knowledge about flammable refrigerants.

Thank you for your attention!

→ **QUESTIONS?**

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refrigerants delivered by mother nature