IEC 60079 and ISO/IEC 80079 series standards on flammable gases.

IEC TC31, IEC SC31J, ISO/IEC SC31M

Neil Dennis

Chair IEC SC31J

AECOM

IEC TC31 Scope

To prepare and maintain international **standards relating to equipment for** use where there is a hazard due to **the possible presence of explosive atmospheres of gases**, vapours, mists or combustible dusts

1957	2003	2005	2017
1st Std 'flameproof'	IECEx commences	Joint ISO/IEC work	40+3 standards

IEC 60079 and **ISO/IEC 80079** series

IEC TC31 and IECEx certification scheme:- UNECE endorsed as best global practice for management of flammable gas explosion hazards

AECOM

IEC TC31 - Application

Domestic

Basic principles are still valid for domestic situations

Commercial

Applied to a vast array of industrial and commercial applications **including A2L gases**

Industrial

AECOM

TC 31 Program

Electrical equipment (12 standards)

Electrical installations and maintenance (3 standards)

Ventilation systems (2 standards)

Classification and characterisation of explosion risks (2 standards)

Gas detector design and use (4 standards)

QA, competency, assemblies and others

Flammable properties of materials gas/vapour/dusts (2 standards)

Mechanical equipment (4 standards)

→ Possible migration?

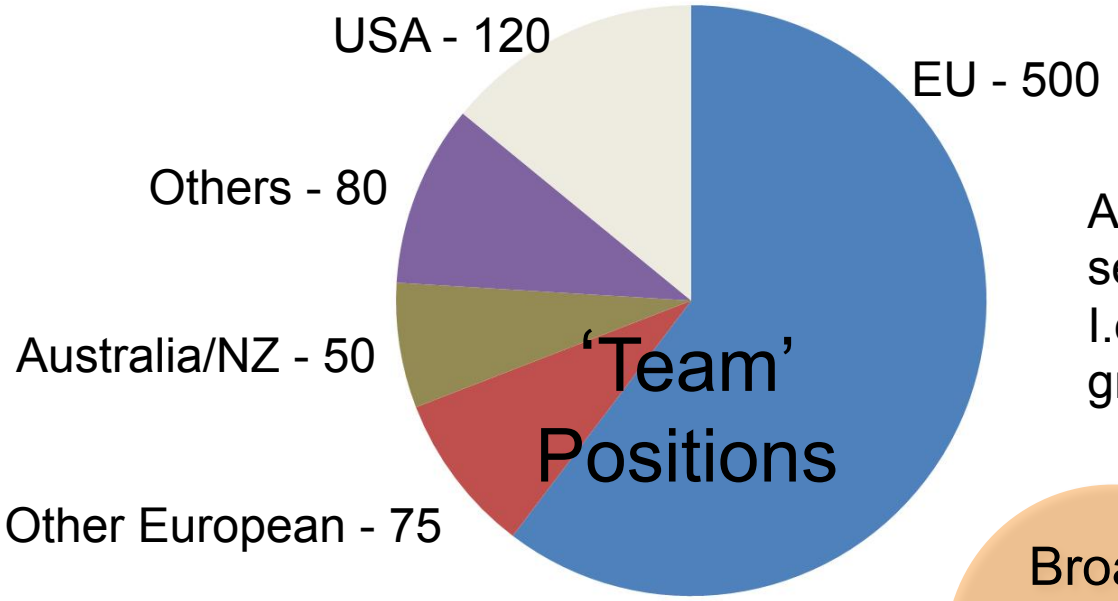
Time to consider changes to 'accommodate' refrigerant gas needs is NOW.

Several key standards beginning revision cycles .

Rolling program, standards revised 5-7 year cycle

AECOM

TC31 – Experts – Nominal numbers



An individual may occupy several 'team positions' I.e. be a member of several groups

Nominated by national committees
Interest groups (in descending order)

- Test/Certification bodies
- Equipment Manufacturers
- End users/Consultants

Broad ranging experience in flammable gas safety. However, none have 'refrigeration' background. Liaison is needed to other committees/experts.

AECOM

TC31 – Regulations and drivers

Referenced in electrical and safety regulations in many parts of the world

ATEX

EU ‘ATEX’ regulations have been a major driver in the last 15 years

Parallel vote in CENELEC to meet EU regulations

- Market demand for new services
- Extension to new environments
- Lesson’s learnt and closing gaps
- New Technologies

Invoked through regulations since A2L gases are classified as flammable Gases under the UNECE GHS for the Classification of chemicals.

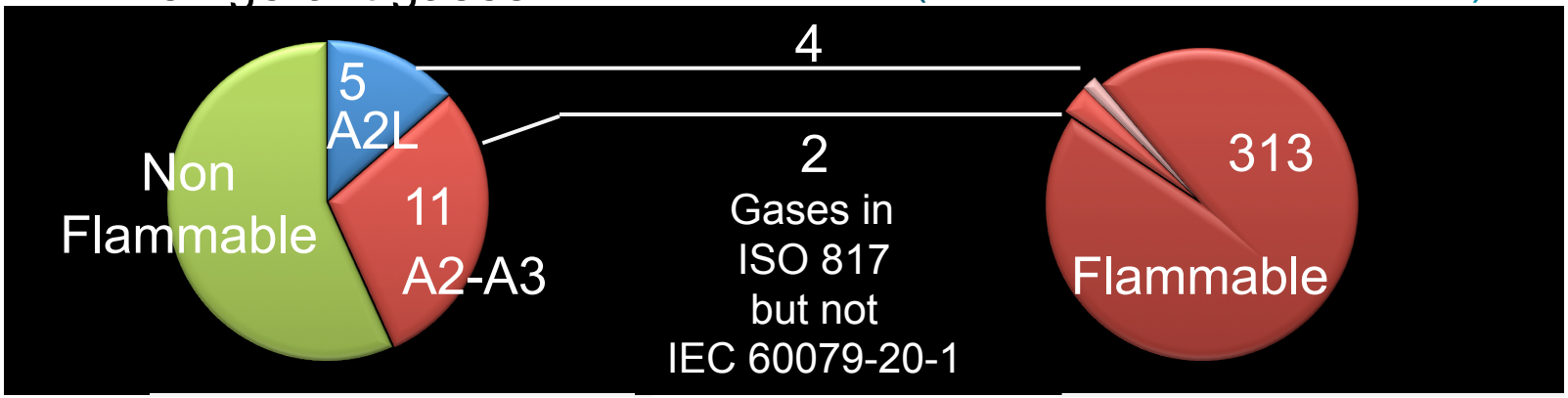
Responding to issues and developments

AECOM

Properties of flammable gases
Relationship example - gas standards

ISO 817
Refrigerant gases

IEC 60079-20-1
(ISO/IEC 80079-20-1:2017)



- Flammable range
- Boiling point
- Toxicity
- Molar mass

≠

- Flammable range
- Boiling point
- Flash point
- Relative density (to air)
- Ignition temperature
- Minimum igniting current
- Safe explosion gap

Currently no clear responsibility, agreement or resolution process with overlap in committee scope

AECOM

Flammable refrigerant standards

TC31 Liaisons

ISO TC86/SC8: ISO 817 Properties of Refrigerant gases	Emerging liaison	ISO/IEC SC31M
ISO TC86/SC1: ISO 5149 series Refrigerating systems and heat pumps – Safety and environmental requirements	No liaison	IEC TC31 IEC SC31J
IEC SC61C: IEC 60335-2-24 Household and commercial safety Refrigeration appliances	No liaison	
IEC SC61D: IEC 60335-2-40 Household appliance safety Heat pumps and air conditioners	Liaison 9 months	IEC SC31J

Currently - no formal proposal to modify IEC TC31 standards to consider refrigeration issues (but conceived as possible).

Liaison ≠ agreement

AECOM

Thank You
IEC TC31

neil.dennis@aecom.com

2017-07-10

AECOM