



**THE ITALIAN HVACR
EXPERIENCE**

A CONTRIBUTION TO ACHIEVING UN'S 17
SUSTAINABLE DEVELOPMENT GOALS

Wednesday, 6 November 2019 | 18:00 - 20:00 | Austria room

AICARR activity for safety standards of flammable refrigerants

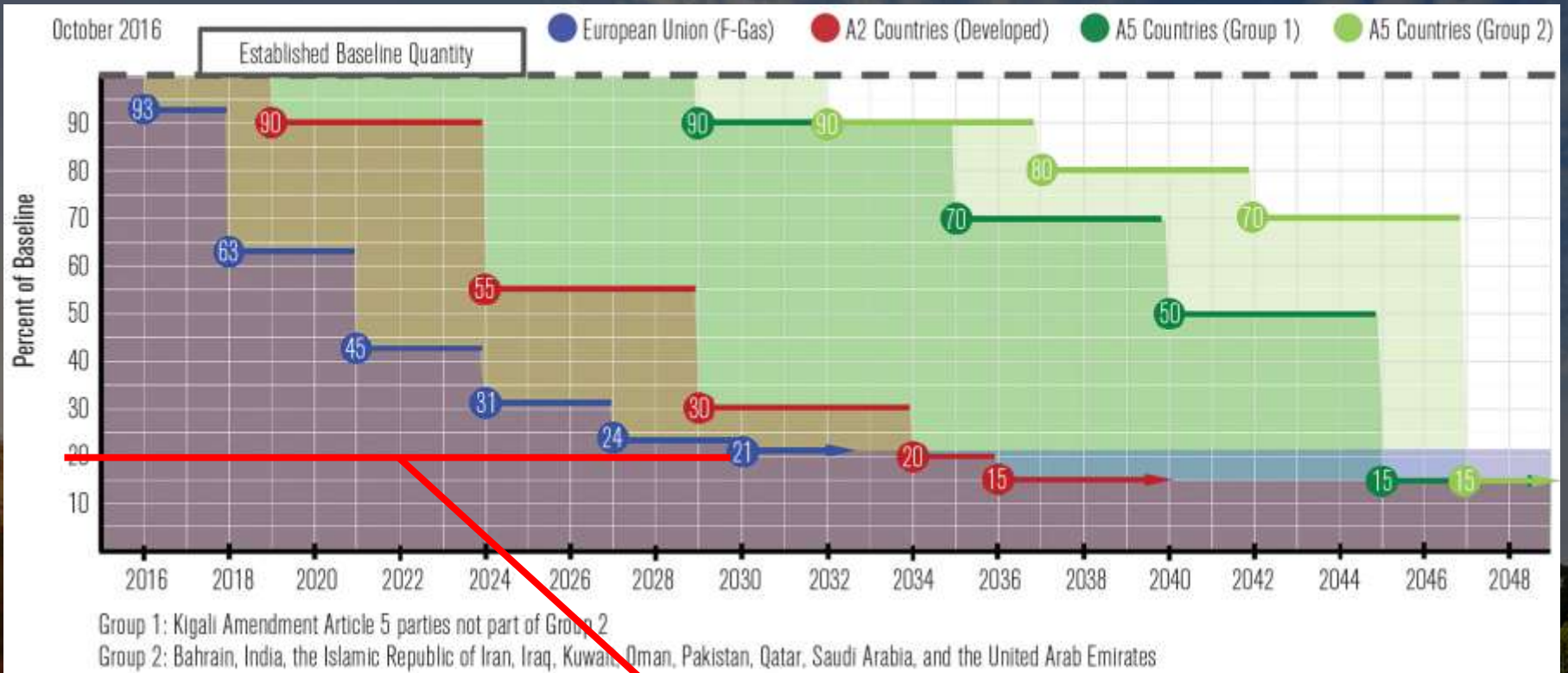
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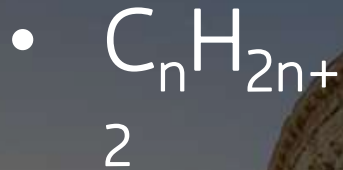
average GWP \approx 300

a) compliance with Kigali Amendment (and local regulations) requires that average refrigerants GWP be around 300, at least in the medium term;

source: UNEP-RTOC 2018 Assessment Report

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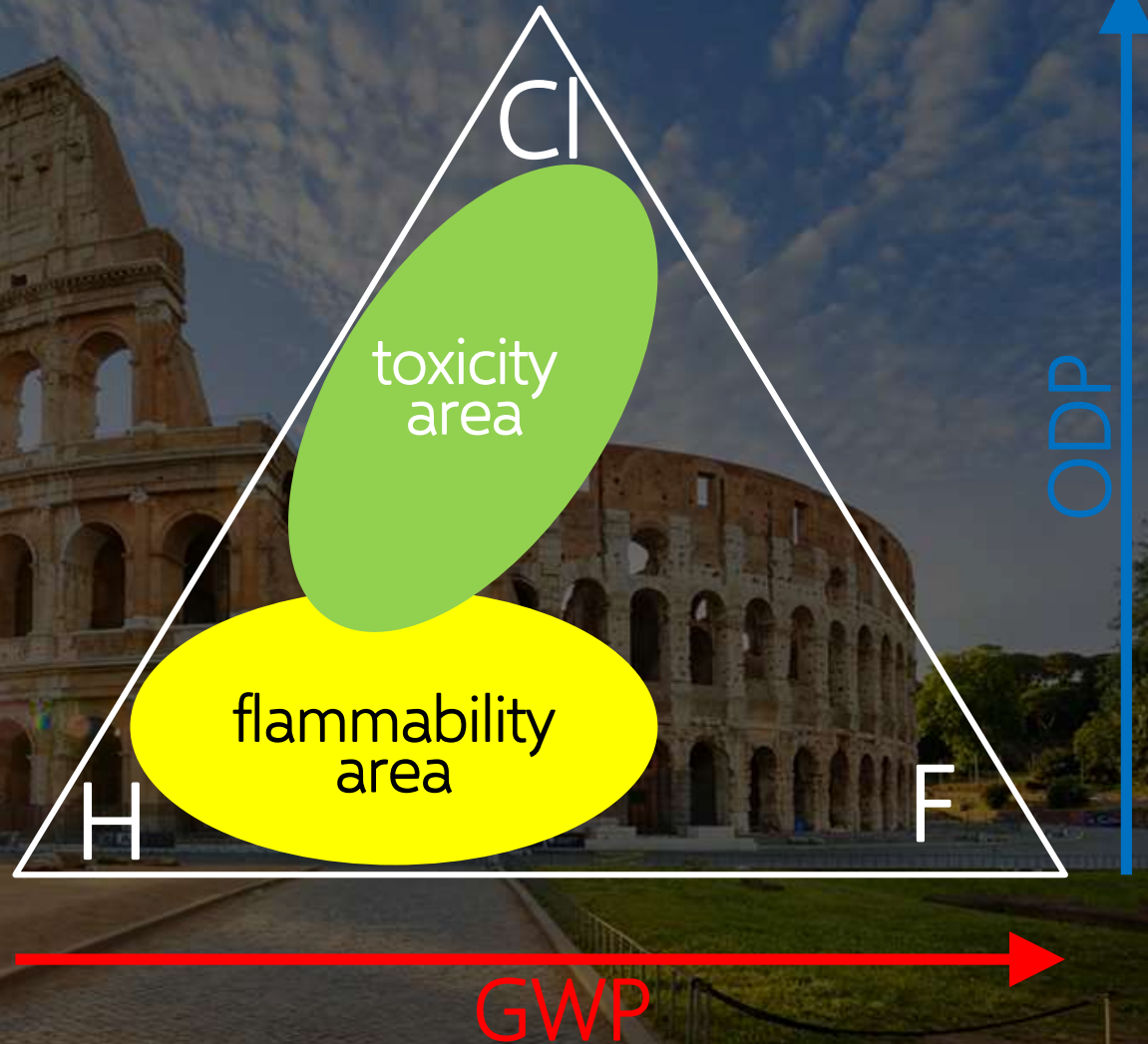
from



to

- CFC
- HCFC
- HFC
- HFO

b) to cope with environmental requisites, flammability is a feature that must be accepted;



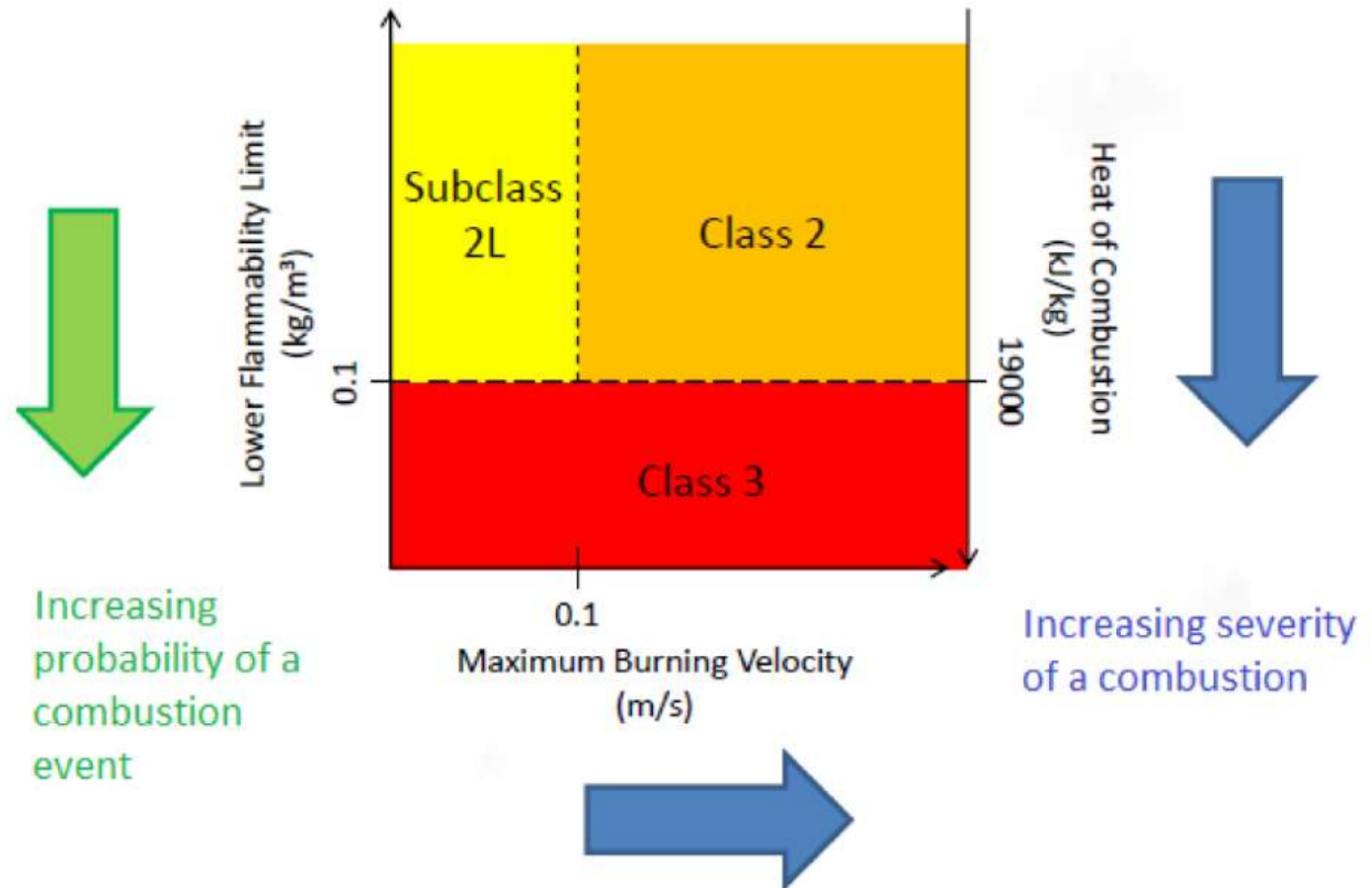
ASHRAE/ISO 817 Safety Classifications

ASHRAE Classification

Highly Flammable (3)	A3	B3	Examples: Propane	A3
Flammable (2)	A2	B2	R-152a	A2
Mildly Flammable (2L)	A2L	B2L	HFO-1234yf	A2L
Practically Non-Flammable (1)	A1	B1	R-134a	A1
	Lower Toxicity (A)	Higher Toxicity (B)		

c) the use of A2, A2L and A3 refrigerants may become necessary for specific applications;

ASHRAE/ISO 817 Safety Classifications



d) Class 2L refrigerants have a lower probability of a combustion event and a lower severity of a combustion if compared to Class 2 refrigerants

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current Italian laws on fire protection:

- DM (Ministerial Decree) 26/8/1992 ...schools...
- DM 9/9/1992 ...hotels...
- DM 9/8/1996 ...entertainment venues...
- DM 18/9/2002 ...hospitals...
- DM 22/2/2006 ...offices...
- DM 27/7/2010 ...shops...

prohibit in HVAC systems the use of:
«flammable or flammable and toxic refrigerant fluids»

a quick update of such standards is required in order to cope with environmental requisites of alternative refrigerants

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AICARR is working with VV.F. (Italian Fire Protection Department) and HVAC industry to propose an update of current laws.

The Working Group recognized that current laws on fire protection have been outdated by technological innovation and therefore are proposing a new DM where:

- HVAC plants under fire protection control are allowed the use of refrigerants classified A1 and A2L according to ISO 817
- such plants have to be equipped with a proper «Use and maintenance manual»

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Thank you
for your attention

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