

Regulatory Updates

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Agenda

1. General Landscape
2. F-Gas Regulation
3. PFAS under REACH
4. Ecodesign ENTR Lot 1
(CUs and LT/MT Chillers)



General Landscape

General Landscape

Ongoing legal negotiations

Energy Efficiency Directive (EED)

- 10.3.2023 - The Council and Parliament agreed to a gradual increase of the annual **energy savings target** for final energy consumption from 2024 to 2030. Member states will ensure new annual savings of 1.49% of final energy consumption on average during this period, gradually reaching 1.9% on 31 December 2030.
- This provisional political agreement will need to be endorsed by both institutions.

Renewable Energy Directive (RED III) (Trialogue)

- 29.3.2023 - The Council and the Parliament negotiators reached a provisional political agreement to raise the share of renewable energy in the EU's **overall energy consumption** (from 40%) to **42.5% by 2030 with an additional 2.5% indicative top up that would allow to reach 45%**. Each member state will contribute to this common target.
- This provisional political agreement will need to be endorsed by both institutions.

Energy Performance of Buildings Directive (EPBD)

- Voted in EU Parliament 14.3.2023 - Trialogue to start End of April 2023.

General Landscape - Ecodesign

Ongoing legal negotiations-

Ecodesign for Sustainable Products Regulation (ESPR)

- **Commission officer:** Matjaž Malgaj, HoU DG ENV B.4 (Sustainable Products); and Ian Hodgson, DG ENER B.3 (Energy Efficiency of Products)
- Aim to finalise the revisions and developments by end-2023, no ecodesign products in workplan

Ecodesign ENER Lot 1/2 (space heating and DHW)

- **Commission officer:** Philippe Rivi re, Cosmin Codrea, DG ENER B.3 (Buildings and Products)
- New draft version published 27.3.2023 to support additional Consultation Forum 27.4.2023

Ecodesign ENER Lot 10 (A/C <12kW)

- **Commission officer:** Philippe Rivi re, DG ENER B.3 (Buildings and Products)
- Additional Consultation Forum 7.3.2023

Ecodesign ENER Lot 21 (HT Chillers) – Study to start

- **Commission officer:** Philippe Rivi re, DG ENER B.3 (Buildings and Products) / Consultant: VHK



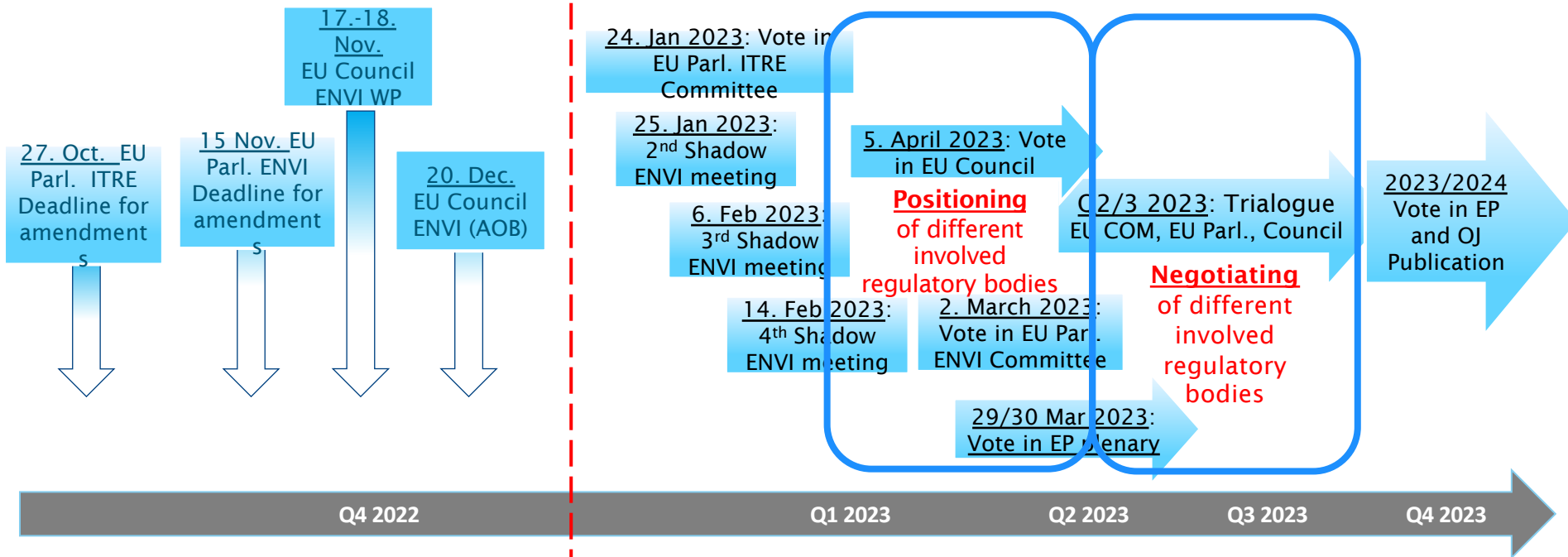
F-Gas Regulation

F-Gas Revision – Future Dates

1 July – 31 December 2022: Czech presidency

1 Jan - 30 Jun 2023: Swedish presidency

1 July 2023: Spanish presidency

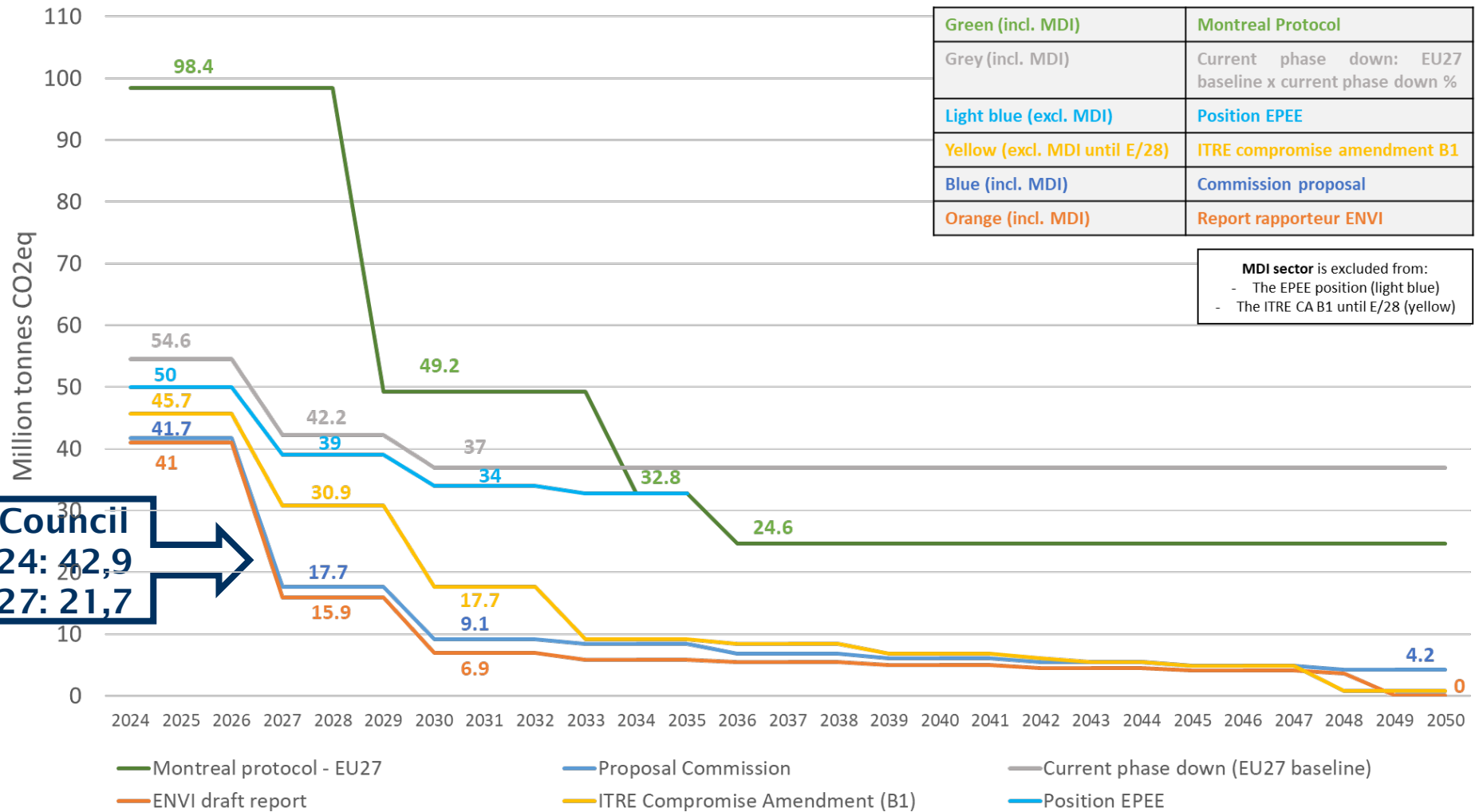


ITRE: Industry, Research and Energy
ENVI: Environment, Public Health and Food Safety

Product Bans for Refrigeration & Comfort



			F-GAS Initial		Industry Voice (Amendments)		F-GAS 2022 – EU Parliament Vote		
	Ban	Products	GWP	YEAR	GWP	YEAR	GWP	YEAR	(notes EU Council)
Refrigeration	12	Self-contained refrigeration	GWP 150	2025	GWP 150	2028	No F-Gases	2025	
	14	Stationary refrigeration	GWP 2 500	2024	GWP 150	2028	No F-Gases	2025 (<-50°C in 2027)	2024: GWP 2 500
	15	Stationary Multipack centralized rack >40kW	GWP 150 (1500 in primary)	2022	GWP 150 (except process chillers)	2028	GWP 150 (1500 in primary)	2022	
		LCV, Trucks, Trailers, Ships Refrigeration	-	-	-	-	No F-Gases	2027	
Comfort	17	Self-contained comfort	GWP 150	2025	GWP 150	2025	GWP 150	2025	
		Outdoor Hydronic HP <12 kW	-	-	GWP 150	2029			2027: Monobloc <50 kW GWP 150
		Outdoor Hydronic HP >12 kW			GWP 750	2030			2030: unless safety requirements: GWP 750
	18	Single Split AC and HP (<3 kg) – in Force already	GWP 750	2025	GWP 750	2025	No F-Gases	2028	
		Split System <12 kW	GWP 150	2027	< 6 kW GWP 150	2030	No F-Gases	2028	GWP 150: A/W 2027; A/A 2029
		Split System >12 kW	GWP 750	2027	GWP 750	2029	12-200 kW GWP 750 >200 kW No F-Gases	2028	GWP 750 2029, GWP 150 2033



Excerpt for participants:

Monitoring of refrigerant prices against the background of Regulation (EU) No 517/2014

Q4/2022

In Q4/2022, 66 companies from 10 EU Member States (main respondents from Germany, France, Italy and Poland) and all supply chain levels (3 gas producers, 13 gas distributors, 30 OEMs, 15 respondents from the service sector, 4 end-users and 1 other) reported purchase and/or selling prices for HFCs and lower GWP alternatives either in absolute terms (€/kg) or as price index (with 2014 as baseline year). Please note that companies do not report prices for all refrigerants but only for the ones relevant to them.

Producer level

Figure 1 shows the development of average relative HFC selling prices reported by all gas producers that participated in the survey. At the producer level, prices increased by 26% on average from last quarter. Two out of three producers that participated in the survey have stopped offering R404A, hence a price update on this refrigerant is unavailable.

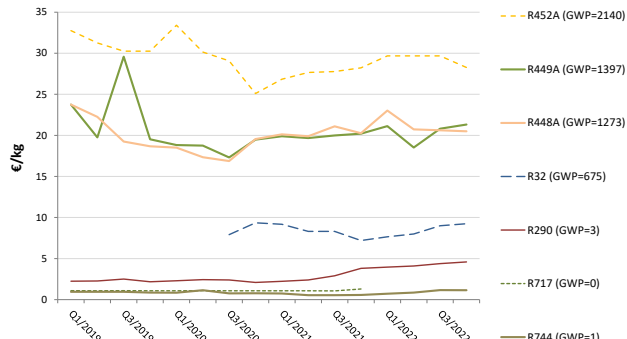


Findings for Q4/2022:

- Prices for high GWP gases/mixtures R134a and R410A are on an upwards trend since Q4/2020.
- Compared to Q3/2022, in Q4/2022 the price of R410A has risen by 15%, while the price of R134a has increased by 8% on average, throughout the supply chain.
- Compared to the baseline in 2014, R134a and R410A prices are 1-5 to 5, and R404A prices are 2.5 to 13 times higher depending on the supply chain level. Compared to Chinese producer prices, selling prices of European producers are almost four times higher for R134a.
- In general, the EU refrigerant market appears to be quite stable in terms of supply. There were a few indications of limited regional availability, mostly related to R1234ze.
- For prices of quota authorisations, increases have been indicated with prices ranging from 14,5 to almost 16 €/t CO₂e. Average authorisation prices (ca. 15 €/t CO₂e) have increased by 16 % compared to last quarter.

Distributor level

Figure 2 shows average purchase prices of alternative refrigerants from Q1/2019 to Q4/2022. Price levels of synthetic refrigerants are higher compared to natural refrigerants. For example, current R448A and R449A prices are ca. 24 times higher compared with R744. Prices of R290 and R744 have increased by 105% and 21%, respectively since Q1/2019, while R449A, R448A and R452A prices have decreased by 10%, 14% and 14%.



NEW updated guideline

GUIDELINE

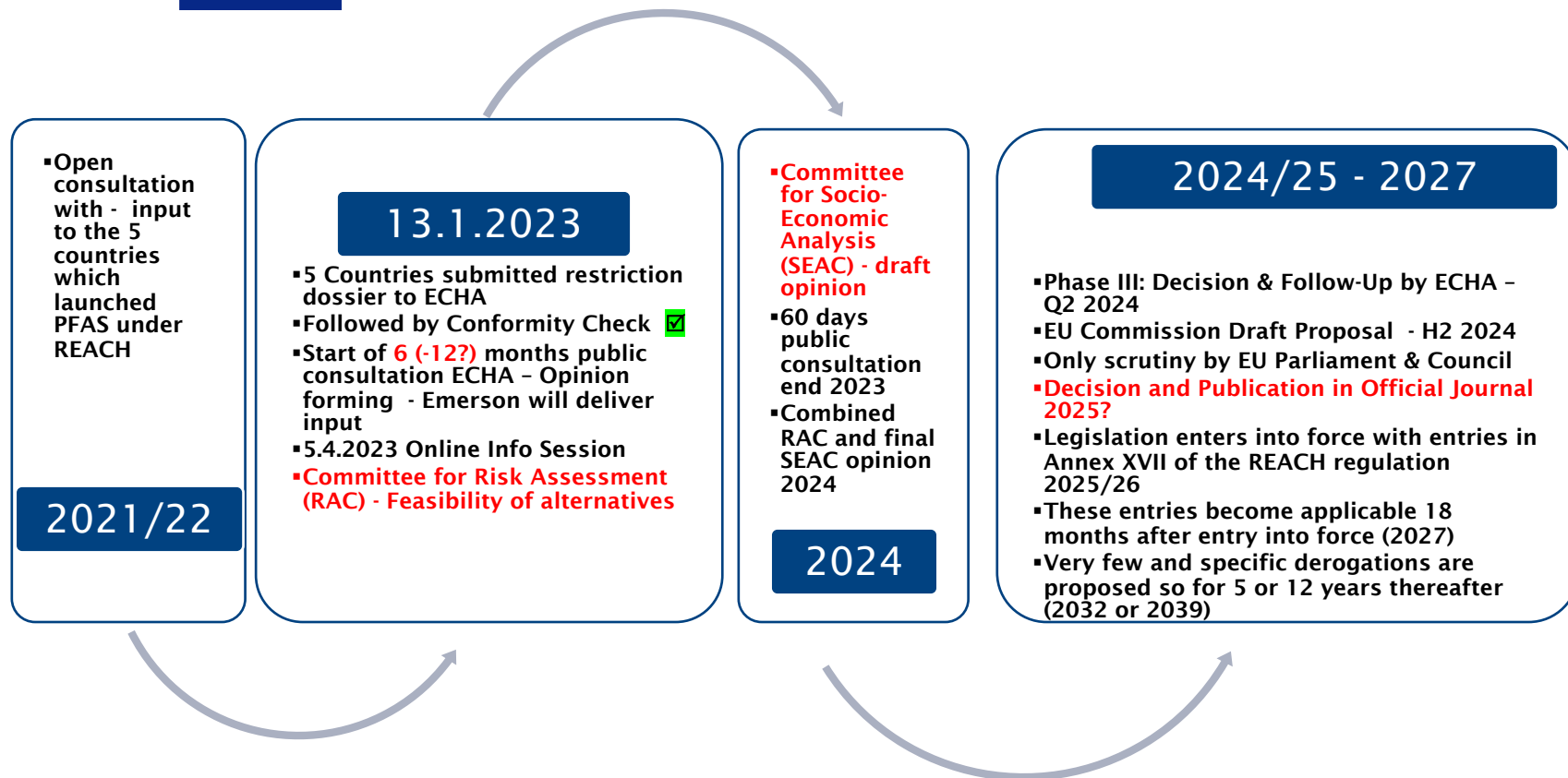
Last update: April 2023

Safety Standards and Components for flammable refrigerants

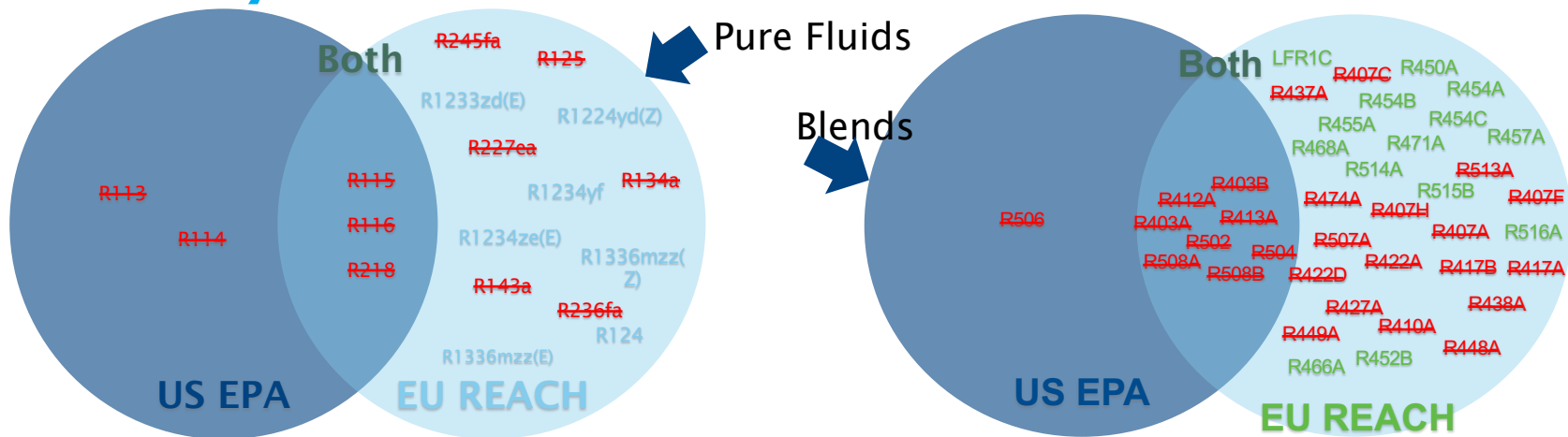
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PFAS under REACH

Process / Timeline for PFAS under REACH



Refrigerants - Classification as a PFAS by the EU & EPA



~~GWP > 750 GWP~~

Pure Fluids outside PFAS Definition

- All Naturals
- R32 – A2L: 675 GWP
- R13I1 – A1: <1 GWP
- R152a – A2: 124 GWP
- R1132a – A2: <1 GWP (AR6)
- R1132(E) - (B2): <1 GWP (AR6)

Blends outside PFAS Definition

- R429A – 16 GWP – A3: R-E170/152a/600a ($60 \pm 1 / 10 \pm 1 / 30 \pm 1$)
- R430A – 110 GWP – A3: R-152a/600a ($76 \pm 1 / 24 \pm 1$)
- R431A - 44 GWP – A3: R-290/152a ($71 \pm 1 / 29 \pm 1$)
- R435A - 30 GWP – A3: R-E170/152a ($80 \pm 1 / 20 \pm 1$)
- LFR3B – 140 GWP – A1

Refrigerant Derogations from PFAS Dossier published 7.2.2023

- *f. refrigerants in low temp. refrigeration below -50°C until 6.5 years after Entry into Force (EiF);*
- *g. refrigerants in laboratory test and measurement equipment until 13.5 years after EiF;*
- *h. refrigerants in refrigerated centrifuges until 13.5 years after EiF;*
- *i. maintenance and refilling of existing HVACR equipment put on the market before [18 months after EiF] and for which no drop-in alternative exist until 13.5 years after EiF;*
- *j. refrigerants in HVACR-equipment in buildings where national safety standards and building codes prohibit the use of alternatives;*
- *p. refrigerants in mobile air conditioning-systems in combustion engine vehicles with mechanical compressors until 6.5 years after EiF;*
- *q. refrigerants in transport refrigeration other than in marine applications until 6.5 years after EiF;*
- *r. insulating gases in high-voltage switchgear (above 145 kV) until 6.5 years after EIF*

The following potential derogations are marked for reconsideration after the Annex XV report consultation:

- *dd. [use as refrigerants and for mobile air conditioning in vehicles in military applications until 13.5 years after EiF];*
- *ee. [the semiconductor manufacturing process until 13.5 year after EiF].*

(EiF): Entry into Force

Fluoropolymers Derogations from PFAS Dossier published 7.2.2023

- *a. food contact materials for the purpose of industrial and professional food and feed production until 6.5 years after EiF;*
- *f. fluoropolymer applications in petroleum and mining industry until 13.5 years after EiF.*

The following potential derogations are marked for reconsideration after the Annex XV report consultation:

- *g. [non-stick coatings in industrial and professional bakeware until 6.5 years after EiF];*
- *o. [applications affecting the proper functioning related to the safety of transport vehicles, and affecting the safety of operators, passengers or goods until 13.5 years after EiF].*

(EIF): Entry into Force

Summary of F-gas review and PFAS under REACH

Regu-lation	Timing	Potential Impact
F-gas Revision	EU Parliament vote 30.3.2023, followed by Council vote 05.04.2023 – leading to <u>Triadogue</u> (all 3 legislative bodies negotiate together – fast track procedure) → Entry into force late 2023, applicable 1.1.2024	→ Phase down and product bans require move to as low GWP as possible (including natural refrigerants as much and as fast as possible) → High price and low availability of synthetic refrigerants (even <150GWP) to be expected
PFAS under REACH	Dossier proposed by 5 countries, public consultation for risk assessment & socio-economic analysis 2024 → Entry into force 2025? → Applicable 18 months thereafter → Specific derogations up to + 5 or + 12 years)	Most synthetic refrigerants fall under the PFAS definition → Complete ban possible → Service and maintenance limited to 13,5 years → Physical components severely impacted

Ecodesign ENTR Lot 1 (CUs and LT/MT Chillers)

Ecodesign ENTR Lot 1 (CUs)

ASERCOM/EPEE JIEG



Market analysis update done

*manufacturers delivered technical data,
anonymized by consultant N. Kämmer*

New data for an agreed MEPS proposal

*New Input to EU Commission and Consultant
focusing on major points:*

Ecodesign ENTR Lot 1 (CUs)

ASERCOM/EPEE JIEG

*A proposal must **reflect enough granularity in the analysis to tackle the legal and economic uncertainty of other EU legislations such as F-gas and PFAS under REACH** since the choice of refrigerant has a major impact on system design, life cycle cost and energy efficiency.*

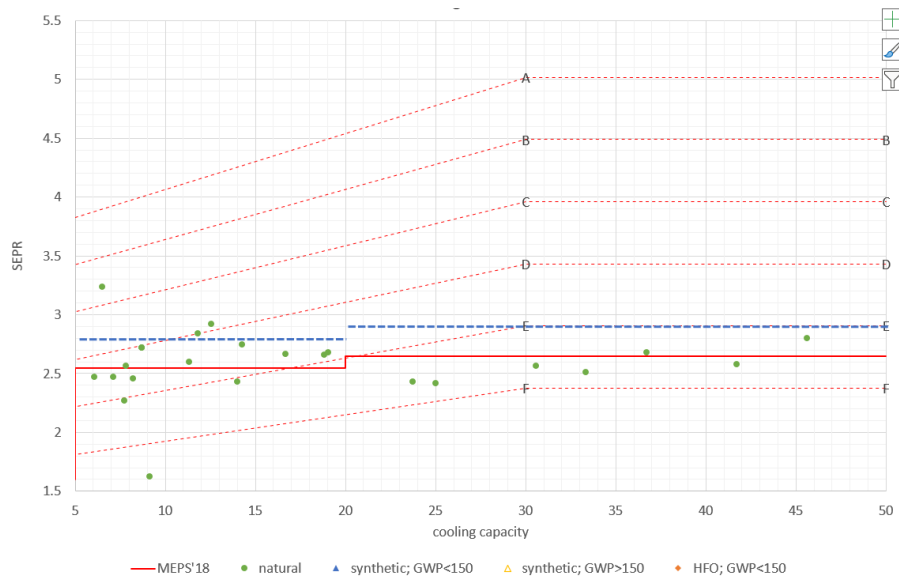
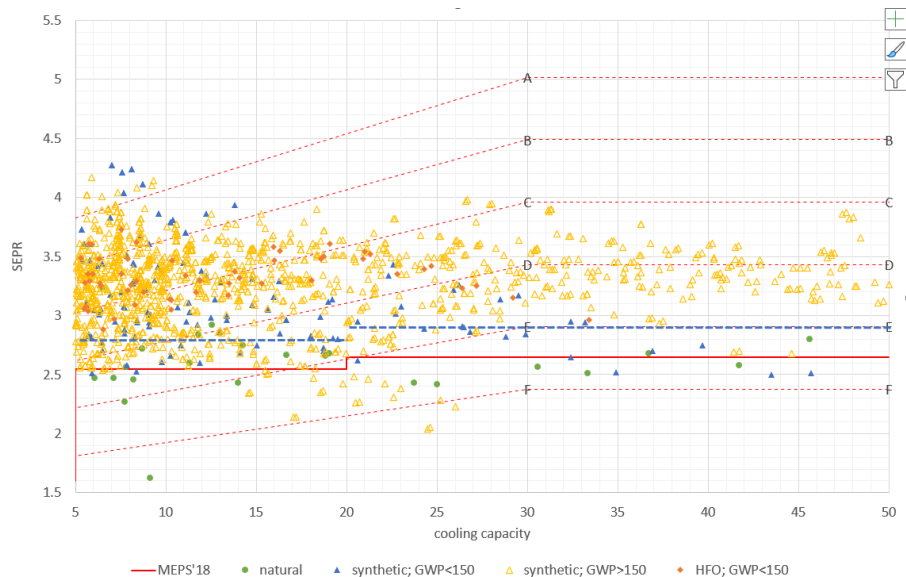
*The researched product population must be representative in the view of the future population (low GWP and natural refrigerants) as basis for drafting a new regulation. **MEPS proposal and improvement options need to be benchmarked against only GWP<150 and natural refrigerants units going forward.***

*The current application of SEPR and COP should be maintained with one tier increase of MEPS with **an optional application of SEPR for 1-2kW LT units and 3-5kW MT units.***

*Industry Proposal : **retain single tier MEPS and not apply it before 2028 at the earliest.***

Example CU for MT SEPR 5-50 kW

All refrigerants / natural refrigerants



≈ 3400 units, conversion from COP to SEPR where possible

And Process Chillers

ASERCOM/EPEE JIEG

- *ASERCOM / EPEE question whether sufficient data has been incorporated in the calculations of VHK.*
- *The consultants propose very ambitious MEPS (column: SEPRmin).*
- *ASERCOM / EPEE recognise the benefits of heat recovery and propose to start a standardization task.*
- *ASERCOM / EPEE recommend limiting the scope of spare parts supply.*

ENTR Lot 1- *ASERCOM*/EPEE JIEG proposal MEPS Process Chillers

	Process chillers	CAPACITY range		Current SEPR _{min}	SEPR _{min} EPEE proposal	UE consultants first proposal
Medium operating temperature	Air / Water	0	≤ 300 kW	2,32		
	Air / Water	0	≤ 100 kW	2,32	2,8	
	Air / Water	100 kW	< 300 kW	2,32	3,25	3,5
	Air / Water	> 300 kW	≤ 2000 kW	2,90	3,5	3,8
Low operating temperature	Air / Water	0	≤ 200 kW	1,53	1,69	
	Air / Water	> 200 kW	≤ 2000 kW	1,66	1,82	
Medium operating temperature	Water- Brine / Water	0	≤ 300 kW	2,96	3,7	4,0
	Water- Brine / Water	> 300 kW	≤ 2000 kW	3,93	4,5	5,0
Low operating temperature	Water- Brine / Water	0	≤ 200 kW	1,88		2,5
	Water- Brine / Water	> 200 kW	≤ 2000 kW	2,18		2,9

Transition time needed for industry

