

Chillventa Specialist Forums 2024

Chillventa Fachforen 2024

**CONNECTING
EXPERTS.**



PRACTICAL TOOLS TO FACE F-GAS III

9 oktober 2024 – Delphine Martin / Pierre-Emmanuel Danet

The logo for Climalife, featuring the word "climalife" in a bold, lowercase, sans-serif font. A registered trademark symbol (®) is positioned at the top right of the letter "e". The logo is centered on a blue background that features a large, faint, light-blue graphic element resembling a stylized "C" or a partial circle on the left, and a grid of five squares on the right.

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SUMMARY

Practical tools to face F-Gas III

- Quotas
- GWP
- Leak checks
- Placing on the market bans for products and equipments
- Very low GWP refrigerants
- Refrigerant Pathway & Climalife Connect 24

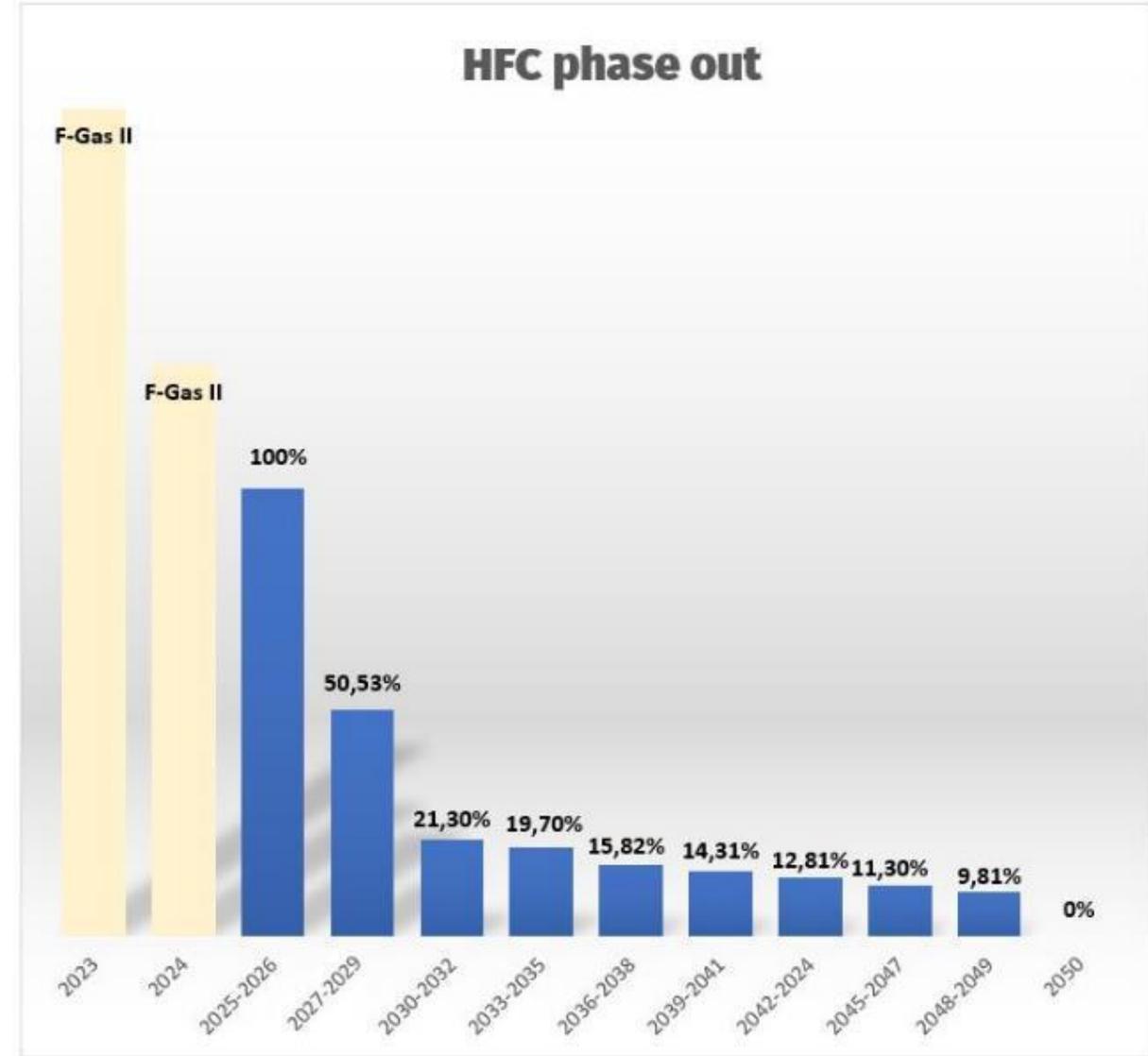


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QUOTAS : PHASE OUT OF HFC

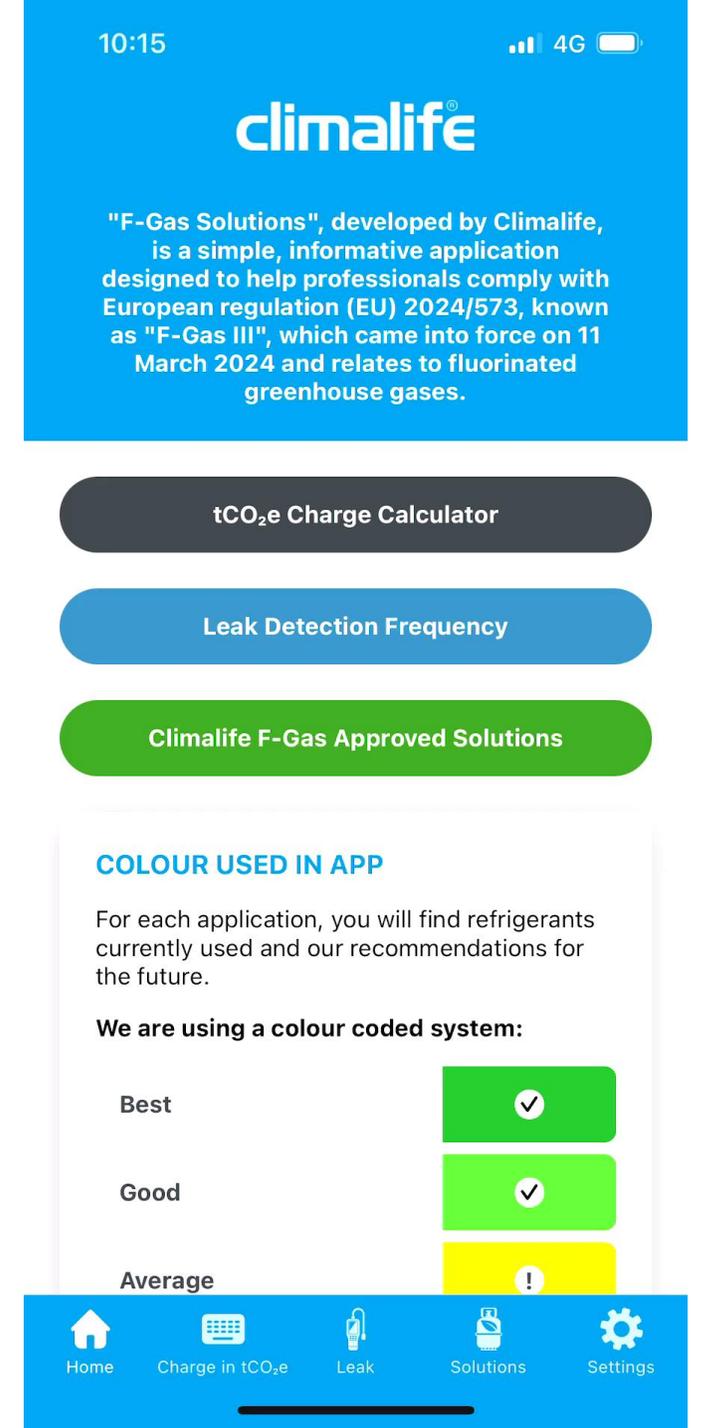
F-Gas III: The text accelerates the HFC quota restriction until a phase-out in 2050

- The quotas allocated by the Commission for HFCs have been drastically reduced:
 - In 2024, quotas have been cut by more than 40% vs 2023
 - From 2025, a new cut of more than 20% vs 2024
- Shortage risk of HFCs
- HFOs are not included in quotas
- Reclaimed products not included in quotas



New F-Gas III: specific GWP calculation for HFC / HFO mixtures

- GWP of HFC's based on IPCC AR4
- IPCC AR6 for other gases (e.g. pure HFOs)
- The GWP of mixtures depends on each substance



LEAK CHECKS

Type of gaz	Equipement charge	Leak check frequency	
		Without fixed leak detection system	With fixed leak detection system
HFC HFC/HFO blends	$5 \text{ t eq.CO}_2 \leq \text{charge} < 50 \text{ t eq.CO}_2^{(1)}$	12 months	24 months
	$50 \text{ t eq.CO}_2 \leq \text{charge} < 500 \text{ t eq.CO}_2$	6 months	12 months
	$\text{charge} \geq 500 \text{ t eq.CO}_2$	3 months ⁽²⁾	6 months
HFO	$1 \text{ kg} \leq \text{charge} < 10 \text{ kg}^{(1)}$	12 months	24 months
	$10 \text{ kg} \leq \text{charge} < 100 \text{ kg}$	6 months	12 months
	$\text{charge} \geq 100 \text{ kg}$	3 months ⁽²⁾	6 months



10:47 4G

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"F-Gas Solutions", developed by Climalife, is a simple, informative application designed to help professionals comply with European regulation (EU) 2024/573, known as "F-Gas III", which came into force on 11 March 2024 and relates to fluorinated greenhouse gases.

tCO₂e Charge Calculator

Leak Detection Frequency

Climalife F-Gas Approved Solutions

COLOUR USED IN APP

For each application, you will find refrigerants currently used and our recommendations for the future.

We are using a colour coded system:

- Best ✓
- Good ✓
- Average !



PLACING ON THE MARKET BANS FOR PRODUCTS AND EQUIPMENTS

F-Gas certified Climalife solutions

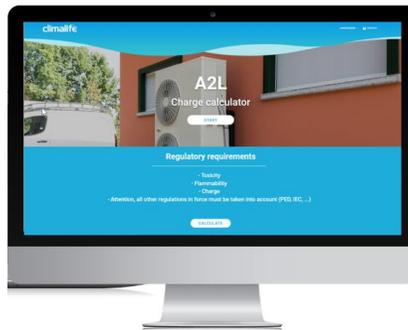
Find the right solution for your needs, depending on the application and the equipment selected, whether new or existing.



LOW GWP REFRIGERANTS

Very low GWP solutions to face F-Gas III

A2L Charge Calculator



a2l.climalife.com



R-1234yf
(Solstice® yf)
GWP = 0,5

Froid commercial
(vitrine, chambre froide)

Pompe à chaleur

Climatisation
(Auto, train, bus)

R-1234ze
(Solstice® ze)
GWP = 1,37

Froid Industriel
(Agroalimentaire)

Climatisation
(Chiller)

Data center

Réseaux de froid /
chaleur urbains

R-1233zd
(Solstice® zd)
GWP = 3,88

Climatisation
(Chiller basse pression)

Pompe à chaleur
Industrielle

Energie (ORC)

Réseaux de froid /
chaleur urbains

R-455A
(Solstice® L40X)
GWP = 146

Froid commercial
(vitrine, chambre froide,
cuisine professionnelle,
chambre de pousse, ...)

Froid Industriel
(Entrepôt, agroalimentaire)

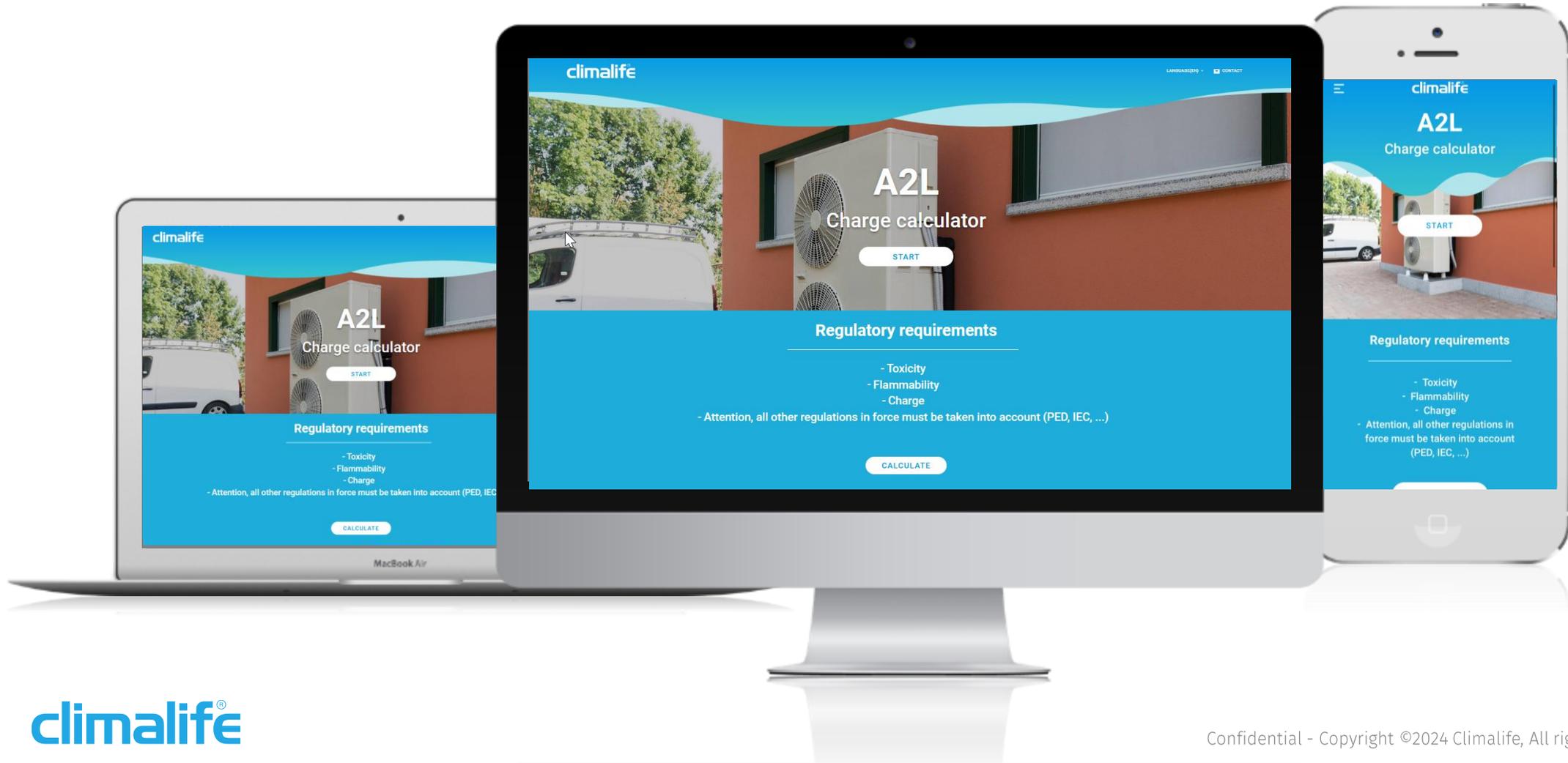
R-454C
(Solstice® 454C)
GWP = 146

Pompe à chaleur
Résidentielle
(Air / Air - Air/ Eau
Géothermie)

Eau chaude sanitaire

A2L CHARGE CALCULATOR

Based on EN 378-1 regulation



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Climalife Connect 24



Refrigerant Pathway

F-Gas III approved refrigerant replacement solutions

Application	Current Refrigerant	New equipment	
		Low GWP (<750) Interim Solution	Very Low GWP (<150) Long Term Solution
AIR CONDITIONING 	Packaged Chiller	<ul style="list-style-type: none"> R-134a (1430 - A1) 	<ul style="list-style-type: none"> R-1234ze (1.37 - A2L) R-1234yf (0.5 - A2L)
	Packaged Chiller Single split or VRF	<ul style="list-style-type: none"> R-410A (2088 - A1) 	<ul style="list-style-type: none"> R-1234ze (1.37 - A2L)
HEAT PUMPS 	Monobloc (outdoors)	<ul style="list-style-type: none"> R-410A (2088 - A1) 	<ul style="list-style-type: none"> Propane® (R-290) (0.02 - A3) R-1234yf (0.5 - A2L) R-454C (146 - A2L) R-455A (146 - A2L)
	Split systems	<ul style="list-style-type: none"> R-410A (2088 - A1) 	<ul style="list-style-type: none"> R-1234yf (0.5 - A2L) R-454C (146 - A2L) R-455A (146 - A2L)
COMMERCIAL REFRIGERATION (Retail) 	Multi-compressor >40kW	<ul style="list-style-type: none"> R-448A (1386 - A1) R-449A (1396 - A1) 	<ul style="list-style-type: none"> CO₂ (R-744) (1 - A1) R-454C (146 - A2L) R-455A (146 - A2L)
	Single compressor or <40kW	<ul style="list-style-type: none"> R-448A (1386 - A1) R-449A (1396 - A1) 	<ul style="list-style-type: none"> R-454A (237 - A2L) R-454C (146 - A2L) R-455A (146 - A2L)
	MT Condensing Unit	<ul style="list-style-type: none"> R-134a (1430 - A1) 	<ul style="list-style-type: none"> R-513A (629 - A1) R-515B (288 - A1)
COMMERCIAL REFRIGERATION (Non-retail) & LIGHT INDUSTRIAL 	LT Condensing Unit	<ul style="list-style-type: none"> R-448A (1386 - A1) R-449A (1396 - A1) R-450A (2139 - A1) R-403F (1825 - A1) 	<ul style="list-style-type: none"> R-454A (237 - A2L) R-454C (146 - A2L) R-455A (146 - A2L)
	Blow Chiller	<ul style="list-style-type: none"> R-448A (1386 - A1) R-449A (1396 - A1) 	<ul style="list-style-type: none"> R-454A (237 - A2L) R-454C (146 - A2L) R-455A (146 - A2L)
	Blow Freezer	<ul style="list-style-type: none"> R-448A (1386 - A1) R-449A (1396 - A1) 	<ul style="list-style-type: none"> R-454A (237 - A2L) R-454C (146 - A2L) R-455A (146 - A2L)

THANK YOU FOR YOUR ATTENTION

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The expert in eco-efficient solutions to service the industry

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