

ANNEX III

Fluorinated greenhouse gases referred to in Article 2, point (a) ⁽¹⁾ – fluorinated ethers, ketones and alcohols and other fluorinated compounds

Substance		GWP (¹)	20 years-GWP (¹) for information purposes only
Common name/industrial designation	Chemical formula		
Section 1: Fluorinated ethers, ketones and alcohols			
HFE-125	CHF₂OCF₃	14 300	13 500
HFE-134 (HG-00)	CHF₂OCHF₂	6 630	12 700
HFE-143a	CH₃OCF₃	616	2 170
HFE-245cb2	CH₃OCF₂CF₃	747	2 630
HFE-245fa2	CHF₂OCH₂CF₃	878	3 060
HFE-254cb2	CH₃OCF₂CHF₂	328	1 180
HFE-347 mcc3 (HFE-7000)	CH₃OCF₂CF₂CF₃	576	2 020
HFE-347pcf2	CHF₂CF₂OCH₂CF₃	980	3 370
HFE-356pcc3	CH₃OCF₂CF₂CHF₂	277	995
HFE-449s1 (HFE-7100)	C₄F₉OCH₃	460	1 620
HFE-569sf2 (HFE-7200)	C₄F₉OC₂H₅	60,7	219
HFE-7300	(CF₃)₂CFCFOC₂H₅CF₂CF₂CF₃	405	1 420
n-HFE-7100	CF₃CF₂CF₂CF₂OCH₃	544	1 920
i-HFE-7100	(CF3)₂CFCF₂OCH₃	437	1 540
i-HFE-7200	(CF₃)₂CFCF₂OCH₂CH₃	34,3	124
HFE-43-10pcccl24 (H-Galden 1040x) HG-11	CHF₂OCF₂OC₂F₄OCHF₂	3 220	8 720
HFE-236cal2 (HG-10)	CHF₂OCF₂OCHF₂	6 060	11 700
HFE-338pcc13 (HG-01)	CHF₂OCF₂CF₂OCHF₂	3 320	9 180
HFE-347mmyl	(CF₃)₂CFOCH₃	392	1 400
2,2,3,3,3-pentafluoropropan-1-ol	CF₃CF₂CH₂OH	34,3	123
1,1,1,3,3,3-Hexafluoropropan-2-ol	(CF₃)₂CHOH	206	742
HFE-227ea	CF₃CHFOCF₃	7 520	9 800
HFE-236fa	CF₃CH₂OCF₃	1 100	3 670
HFE-245fal	CHF₂CH₂OCF₃	934	3 170
HFE 263mf	CF₃CH₂OCH₃	2,06	7,43
HFE-329 mcc2	CHF₂CF₂OCF₂CF₃	3 770	7 550
HFE-338 mcf2	CF₃CH₂OCF₂CF₃	1 040	3 460
HFE-338mmzl	(CF₃)₂CHOCHF₂	3 040	6 500

⁽¹⁾ As per Article 2, point (a), mixtures containing the substances listed in this Annex are considered as fluorinated greenhouse gases covered by this Regulation.

Substance		GWP ⁽¹⁾	20 years-GWP ⁽¹⁾ for information purposes only
Common name/industrial designation	Chemical formula		
HFE-347 mcf2	$\text{CHF}_2\text{CH}_2\text{OCF}_2\text{CF}_3$	963	3 270
HFE-356 mec3	$\text{CH}_3\text{OCF}_2\text{CHF}\text{CF}_3$	264	949
HFE-356mmz1	$(\text{CF}_3)_2\text{CHOCH}_3$	8,13	29,3
HFE-356pcf2	$\text{CHF}_2\text{CH}_2\text{OCF}_2\text{CHF}_2$	831	2 870
HFE-356pcf3	$\text{CHF}_2\text{OCH}_2\text{CF}_2\text{CHF}_2$	484	1 730
HFE 365 mcf3	$\text{CF}_3\text{CF}_2\text{CH}_2\text{OCH}_3$	1,6	5,77
HFE-374pc2	$\text{CHF}_2\text{CF}_2\text{OCH}_2\text{CH}_3$	12,5	45
2,2,3,3,4,4,5,5-octafluorocyclopentan-1-ol	- $(\text{CF}_2)_4\text{CH}(\text{OH})$ -	13,6	49,1
1,1,1,3,4,4,4-Heptafluoro-3-(trifluoromethyl)butan-2-one	$\text{CF}_3\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$	0,29 ⁽²⁾	(*)
perfluoropolymethylisopropyl-ether (PFPMIE)	$\text{CF}_3\text{OCF}(\text{CF}_3)\text{CF}_2\text{OCF}_2\text{OCF}_3$	10 300	7 750
Perfluoro(2-methyl-3-pentanone) (1,1,1,2,2,4,5,5,5-nonafluoro-4-(trifluoromethyl)pentan-3-one)	$\text{CF}_3\text{CF}_2\text{C}(\text{O})\text{CF}(\text{CF}_3)_2$	0,114	0,441

Section 2: Other fluorinated compounds

trifluoromethylsulphurpentafluoride	SF_5CF_3	18 500	13 900
Perfluorocyclopropane	$\text{c-C}_3\text{F}_6$	9 200 ⁽³⁾	6 850 ⁽³⁾
perfluorotributylamine (PFTBA, FC43)	$\text{C}_{12}\text{F}_{27}\text{N}$	8 490	6 340
perfluoro-N-methylmorpholine	$\text{C}_5\text{F}_{11}\text{NO}$	8 800 ⁽⁴⁾	(*)
Perfluorotripropylamine	$\text{C}_9\text{F}_{21}\text{N}$	9 030	6 750

⁽¹⁾ Based on the Sixth Assessment Report adopted by the Intergovernmental Panel on Climate Change, unless otherwise indicated.

⁽²⁾ Ren et al. (2019). Atmospheric Fate and Impact of Perfluorinated Butanone and Pentanone. Environ. Sci. Technol. 2019, 53, 15, 8862–8871

(*) Not yet available.

⁽³⁾ WMO et al. (2018). Scientific Assessment of Ozone Depletion.

⁽⁴⁾ REACH registration dossier. <https://echa.europa.eu/registration-dossier/-/registered-dossier/10075/5/1>.