

8

Anthropogenic and Natural Radiative Forcing

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This chapter should be cited as:

Myhre, G., D. Shindell, F.-M. Bréon, W. Collins, J. Fuglestedt, J. Huang, D. Koch, J.-F. Lamarque, D. Lee, B. Mendoza, T. Nakajima, A. Robock, G. Stephens, T. Takemura and H. Zhang, 2013: Anthropogenic and Natural Radiative Forcing. In: *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Stocker, T.F., D. Qin, G.-K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Appendix 8.A: Lifetimes, Radiative Efficiencies and Metric Values

Table 8.A.1 | Radiative efficiencies (REs), lifetimes/adjustment times, AGWP and GWP values for 20, 50 and 100 years. Climate-carbon feedbacks are included for CO₂ while no climate feedbacks are included for the other components (see discussion in Sections 8.7.1.4 and 8.7.2.1, Supplementary Material and notes below the table; Supplementary Material Table 8.SM.16 gives analogous values including climate-carbon feedbacks for non-CO₂ emissions). For a complete list of chemical names and CAS numbers, and for accurate replications of metric values, see Supplementary Material Section 8.SM.13 and references therein.

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	AGTP 20-year (K kg ⁻¹)	GTP 20-year	AGTP 50-year (K kg ⁻¹)	GTP 50-year	AGTP 100-year (K kg ⁻¹)	GTP 100-year
Carbon dioxide	CO ₂	see*	1.37e-5	2.49e-14	1	9.17e-14	1	6.84e-16	1	6.17e-16	1	5.47e-16	1
Methane	CH ₄	12.4 [†]	3.63e-4	2.09e-12	84	2.61e-12	28	4.62e-14	67	8.69e-15	14	2.34e-15	4
Fossil methane†	CH ₄	12.4 [†]	3.63e-4	2.11e-12	85	2.73e-12	30	4.68e-14	68	9.55e-15	15	3.11e-15	6
Nitrous Oxide	N ₂ O	121 [†]	3.00e-3	6.58e-12	264	2.43e-11	265	1.89e-13	277	1.74e-13	282	1.28e-13	234
Chlorofluorocarbons													
CFC-11	CCl ₃ F	45.0	0.26	1.72e-10	6900	4.28e-10	4660	4.71e-12	6890	3.01e-12	4890	1.28e-12	2340
CFC-12	CCl ₂ F ₂	100.0	0.32	2.69e-10	10,800	9.39e-10	10,200	7.71e-12	11,300	6.75e-12	11,000	4.62e-12	8450
CFC-13	CClF ₃	640.0	0.25	2.71e-10	10,900	1.27e-09	13,900	7.99e-12	11,700	8.77e-12	14,200	8.71e-12	15,900
CFC-113	CCl ₂ FCClF ₂	85.0	0.30	1.62e-10	6490	5.34e-10	5820	4.60e-12	6730	3.85e-12	6250	2.45e-12	4470
CFC-114	CClF ₂ CClF ₂	190.0	0.31	1.92e-10	7710	7.88e-10	8590	5.60e-12	8190	5.56e-12	9020	4.68e-12	8550
CFC-115	CClF ₂ CF ₃	1,020.0	0.20	1.46e-10	5860	7.03e-10	7670	4.32e-12	6310	4.81e-12	7810	4.91e-12	8980
Hydrochlorofluorocarbons													
HCFC-21	CHCl ₂ F	1.7	0.15	1.35e-11	543	1.35e-11	148	1.31e-13	192	1.59e-14	26	1.12e-14	20
HCFC-22	CHClF ₂	11.9	0.21	1.32e-10	5280	1.62e-10	1760	2.87e-12	4200	5.13e-13	832	1.43e-13	262
HCFC-122	CHCl ₂ CF ₂ Cl	1.0	0.17	5.43e-12	218	5.43e-12	59	4.81e-14	70	6.25e-15	10	4.47e-15	8
HCFC-122a	CHFClCFCl ₂	3.4	0.21	2.36e-11	945	2.37e-11	258	2.91e-13	426	2.99e-14	48	1.96e-14	36
HCFC-123	CHCl ₂ CF ₃	1.3	0.15	7.28e-12	292	7.28e-12	79	6.71e-14	98	8.45e-15	14	6.00e-15	11
HCFC-123a	CHClFCF ₂ Cl	4.0	0.23	3.37e-11	1350	3.39e-11	370	4.51e-13	659	4.44e-14	72	2.81e-14	51
HCFC-124	CHClFCF ₃	5.9	0.20	4.67e-11	1870	4.83e-11	527	7.63e-13	1120	7.46e-14	121	4.03e-14	74
HCFC-132c	CH ₂ F ₂ CFCl ₂	4.3	0.17	3.07e-11	1230	3.10e-11	338	4.27e-13	624	4.14e-14	67	2.58e-14	47
HCFC-141b	CH ₂ CCl ₂ F	9.2	0.16	6.36e-11	2550	7.17e-11	782	1.27e-12	1850	1.67e-13	271	6.09e-14	111
HCFC-142b	CH ₂ CClF ₂	17.2	0.19	1.25e-10	5020	1.82e-10	1980	3.01e-12	4390	8.46e-13	1370	1.95e-13	356
HCFC-225ca	CHCl ₂ CF ₂ CF ₃	1.9	0.22	1.17e-11	469	1.17e-11	127	1.17e-13	170	1.38e-14	22	9.65e-15	18
HCFC-225cb	CHClF ₂ CClF ₂	5.9	0.29	4.65e-11	1860	4.81e-11	525	7.61e-13	1110	7.43e-14	120	4.01e-14	73
(E)-1-Chloro-3,3,3-trifluoroprop-1-ene	trans-CF ₃ CH=CHCl	26.0 days	0.04	1.37e-13	5	1.37e-13	1	1.09e-15	2	1.54e-16	<1	1.12e-16	<1

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency ($W m^{-2} ppb^{-1}$)	AGWP 20-year ($W m^{-2} yr kg^{-1}$)	GWP 20-year	AGWP 100-year ($W m^{-2} yr kg^{-1}$)	GWP 100-year	AGTP 20-year ($K kg^{-1}$)	GTP 20-year	AGTP 50-year ($K kg^{-1}$)	GTP 50-year	AGTP 100-year ($K kg^{-1}$)	GTP 100-year
Hydrofluorocarbons													
HFC-23	CHF_3	222.0	0.18	2.70e-10	10,800	1.14e-09	12,400	7.88e-12	11,500	7.99e-12	13,000	6.95e-12	12,700
HFC-32	CH_2F_2	5.2	0.11	6.07e-11	2430	6.21e-11	677	9.32e-13	1360	8.93e-14	145	5.17e-14	94
HFC-41	CH_3F	2.8	0.02	1.07e-11	427	1.07e-11	116	1.21e-13	177	1.31e-14	21	8.82e-15	16
HFC-125	CHF_2CF_3	28.2	0.23	1.52e-10	6090	2.91e-10	3170	3.97e-12	5800	1.84e-12	2980	5.29e-13	967
HFC-134	CHF_2CHF_2	9.7	0.19	8.93e-11	3580	1.02e-10	1120	1.82e-12	2660	2.54e-13	412	8.73e-14	160
HFC-134a	CH_2FCF_3	13.4	0.16	9.26e-11	3710	1.19e-10	1300	2.09e-12	3050	4.33e-13	703	1.10e-13	201
HFC-143	CH_2FCHF_2	3.5	0.13	3.00e-11	1200	3.01e-11	328	3.76e-13	549	3.82e-14	62	2.49e-14	46
HFC-143a	CH_3CF_3	47.1	0.16	1.73e-10	6940	4.41e-10	4800	4.76e-12	6960	3.12e-12	5060	1.37e-12	2500
HFC-152	CHF_2CHF_2F	0.4	0.04	1.51e-12	60	1.51e-12	16	1.25e-14	18	1.71e-15	3	1.24e-15	2
HFC-152a	CH_3CHF_2	1.5	0.10	1.26e-11	506	1.26e-11	138	1.19e-13	174	1.47e-14	24	1.04e-14	19
HFC-161	CH_3CH_2F	66.0 days	0.02	3.33e-13	13	3.33e-13	4	2.70e-15	4	3.76e-16	<1	2.74e-16	<1
HFC-227ca	$CF_3CF_2CHF_2$	28.2	0.27	1.27e-10	5080	2.42e-10	2640	3.31e-12	4830	1.53e-12	2480	4.41e-13	806
HFC-227ea	$CF_3CHF_2CF_3$	38.9	0.26	1.34e-10	5360	3.07e-10	3350	3.61e-12	5280	2.12e-12	3440	7.98e-13	1460
HFC-236cb	$CH_2FCF_2CF_3$	13.1	0.23	8.67e-11	3480	1.11e-10	1210	1.94e-12	2840	3.92e-13	636	1.01e-13	185
HFC-236ea	$CHF_2CHF_2CF_3$	11.0	0.30 ^a	1.03e-10	4110	1.22e-10	1330	2.18e-12	3190	3.53e-13	573	1.06e-13	195
HFC-236fa	$CF_3CH_2CF_3$	242.0	0.24	1.73e-10	6940	7.39e-10	8060	5.06e-12	7400	5.18e-12	8400	4.58e-12	8380
HFC-245ca	$CH_2FCF_2CHF_2$	6.5	0.24 ^b	6.26e-11	2510	6.56e-11	716	1.07e-12	1570	1.09e-13	176	5.49e-14	100
HFC-245cb	$CF_3CF_2CH_3$	47.1	0.24	1.67e-10	6680	4.24e-10	4620	4.58e-12	6690	3.00e-12	4870	1.32e-12	2410
HFC-245ea	$CHF_2CHF_2CHF_2$	3.2	0.16 ^c	2.15e-11	863	2.16e-11	235	2.59e-13	378	2.70e-14	44	1.79e-14	33
HFC-245eb	$CH_2FCH_2CF_3$	3.1	0.20 ^c	2.66e-11	1070	2.66e-11	290	3.15e-13	460	3.31e-14	54	2.20e-14	40
HFC-245fa	$CHF_2CH_2CF_3$	7.7	0.24	7.29e-11	2920	7.87e-11	858	1.35e-12	1970	1.51e-13	245	6.62e-14	121
HFC-263fb	$CH_3CH_2CF_3$	1.2	0.10 ^c	6.93e-12	278	6.93e-12	76	6.31e-14	92	8.02e-15	13	5.70e-15	10
HFC-272ca	$CH_3CF_2CH_3$	2.6	0.07	1.32e-11	530	1.32e-11	144	1.46e-13	213	1.61e-14	26	1.09e-14	20
HFC-329p	$CHF_2CF_2CF_2CF_3$	28.4	0.31	1.13e-10	4510	2.16e-10	2360	2.94e-12	4290	1.37e-12	2220	3.96e-13	725
HFC-365mfc	$CH_3CF_2CH_2CF_3$	8.7	0.22	6.64e-11	2660	7.38e-11	804	1.30e-12	1890	1.62e-13	262	6.24e-14	114
HFC-43-10mee	$CF_3CHFCH_2CF_2CF_3$	16.1	0.42 ^b	1.08e-10	4310	1.51e-10	1650	2.54e-12	3720	6.62e-13	1070	1.54e-13	281
HFC-1132a	$CH_2=CF_2$	4.0 days	0.004 ^d	3.87e-15	<1	3.87e-15	<1	3.08e-17	<1	4.35e-18	<1	3.18e-18	<1
HFC-1141	$CH_2=CHF$	2.1 days	0.002 ^d	1.54e-15	<1	1.54e-15	<1	1.23e-17	<1	1.73e-18	<1	1.27e-18	<1
(Z)-HFC-1225ye	$CF_3CF=CHF(Z)$	8.5 days	0.02	2.14e-14	<1	2.14e-14	<1	1.70e-16	<1	2.40e-17	<1	1.76e-17	<1
(E)-HFC-1225ye	$CF_3CF=CHF(E)$	4.9 days	0.01	7.25e-15	<1	7.25e-15	<1	5.77e-17	<1	8.14e-18	<1	5.95e-18	<1
(Z)-HFC-1234ze	$CF_3CH=CHF(Z)$	10.0 days	0.02	2.61e-14	1	2.61e-14	<1	2.08e-16	<1	2.93e-17	<1	2.14e-17	<1
HFC-1234yf	$CF_3CF=CH_2$	10.5 days	0.02	3.22e-14	1	3.22e-14	<1	2.57e-16	<1	3.62e-17	<1	2.65e-17	<1
(E)-HFC-1234ze	trans- $CF_3CH=CHF$	16.4 days	0.04	8.74e-14	4	8.74e-14	<1	6.98e-16	<1	9.82e-17	<1	7.18e-17	<1
(Z)-HFC-1336	$CF_3CH=CHF(Z)$	22.0 days	0.07 ^d	1.54e-13	6	1.54e-13	2	1.23e-15	2	1.73e-16	<1	1.26e-16	<1

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	AGTP 20-year (K kg ⁻¹)	GTP 20-year	AGTP 50-year (K kg ⁻¹)	GTP 50-year	AGTP 100-year (K kg ⁻¹)	GTP 100-year
HFC-1243zf	C ₂ F ₅ CH=CH ₂	7.0 days	0.01	1.37e-14	1	1.37e-14	<1	1.09e-16	<1	1.53e-17	<1	1.12e-17	<1
HFC-1345zfc	C ₂ F ₅ CH=CH ₂	7.6 days	0.01	1.15e-14	<1	1.15e-14	<1	9.19e-17	<1	1.30e-17	<1	9.48e-18	<1
3,3,4,4,5,5,6,6-Nonafluorohex-1-ene	C ₆ F ₉ CH=CH ₂	7.6 days	0.03	1.25e-14	<1	1.25e-14	<1	9.92e-17	<1	1.40e-17	<1	1.02e-17	<1
3,3,4,4,5,5,6,6,7,7,8,8-Tridecafluorooct-1-ene	C ₈ F ₁₃ CH=CH ₂	7.6 days	0.03	9.89e-15	<1	9.89e-15	<1	7.87e-17	<1	1.11e-17	<1	8.12e-18	<1
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-Hep-tadecafluorodec-1-ene	C ₈ F ₁₇ CH=CH ₂	7.6 days	0.03	8.52e-15	<1	8.52e-15	<1	6.79e-17	<1	9.57e-18	<1	7.00e-18	<1
Chlorocarbons and Hydrochlorocarbons													
Methyl chloroform	CH ₃ CCl ₃	5.0	0.07	1.44e-11	578	1.47e-11	160	2.17e-13	317	2.07e-14	34	1.22e-14	22
Carbon tetrachloride	CCl ₄	26.0	0.17	8.69e-11	3480	1.59e-10	1730	2.24e-12	3280	9.68e-13	1570	2.62e-13	479
Methyl chloride	CH ₃ Cl	1.0	0.01 ^a	1.12e-12	45	1.12e-12	12	9.93e-15	15	1.29e-15	2	9.20e-16	2
Methylene chloride	CH ₂ Cl ₂	0.4	0.03 ^b	8.18e-13	33	8.18e-13	9	6.78e-15	10	9.26e-16	2	6.72e-16	1
Chloroform	CHCl ₃	0.4	0.08	1.50e-12	60	1.50e-12	16	1.25e-14	18	1.70e-15	3	1.24e-15	2
1,2-Dichloroethane	CH ₂ ClCH ₂ Cl	65.0 days	0.01	8.24e-14	3	8.24e-14	<1	6.67e-16	<1	9.29e-17	<1	6.77e-17	<1
Bromocarbons, Hydrobromocarbons and Halons													
Methyl bromide	CH ₃ Br	0.8	0.004	2.16e-13	9	2.16e-13	2	1.87e-15	3	2.47e-16	<1	1.78e-16	<1
Methylene bromide	CH ₂ Br ₂	0.3	0.01	9.31e-14	4	9.31e-14	1	7.66e-16	1	1.05e-16	<1	7.65e-17	<1
Halon-1201	CHBrF ₂	5.2	0.15	3.37e-11	1350	3.45e-11	376	5.17e-13	756	4.96e-14	80	2.87e-14	52
Halon-1202	CBr ₂ F ₂	2.9	0.27	2.12e-11	848	2.12e-11	231	2.43e-13	356	2.61e-14	42	1.75e-14	32
Halon-1211	CBrClF ₂	16.0	0.29	1.15e-10	4590	1.60e-10	1750	2.70e-12	3950	6.98e-13	1130	1.62e-13	297
Halon-1301	CBF ₃	65.0	0.30	1.95e-10	7800	5.77e-10	6290	5.46e-12	7990	4.16e-12	6750	2.28e-12	4170
Halon-2301	CH ₂ BrCF ₃	3.4	0.14	1.59e-11	635	1.59e-11	173	1.96e-13	286	2.01e-14	33	1.32e-14	24
Halon-2311 / Halothane	CHBrClCF ₃	1.0	0.13	3.77e-12	151	3.77e-12	41	3.35e-14	49	4.34e-15	7	3.10e-15	6
Halon-2401	CHBr ₂ CF ₃	2.9	0.19	1.68e-11	674	1.68e-11	184	1.94e-13	283	2.07e-14	34	1.39e-14	25
Halon-2402	CBF ₂ CBF ₂	20.0	0.31	8.59e-11	3440	1.35e-10	1470	2.12e-12	3100	7.08e-13	1150	1.66e-13	304
Fully Fluorinated Species													
Nitrogen trifluoride	NF ₃	500.0	0.20	3.19e-10	12,800	1.47e-09	16,100	9.39e-12	13,700	1.02e-11	16,500	9.91e-12	18,100
Sulphur hexafluoride	SF ₆	3,200.0	0.57	4.37e-10	17,500	2.16e-09	23,500	1.29e-11	18,900	1.47e-11	23,800	1.54e-11	28,200
(Trifluoromethyl) sulphur pentafluoride	SF ₅ CF ₃	800.0	0.59	3.36e-10	13,500	1.60e-09	17,400	9.93e-12	14,500	1.10e-11	17,800	1.11e-11	20,200
Sulphuryl fluoride	SO ₂ F ₂	36.0	0.20	1.71e-10	6840	3.76e-10	4090	4.58e-12	6690	2.55e-12	4140	9.01e-13	1650
PFC-14	CF ₄	50,000.0	0.09	1.22e-10	4880	6.08e-10	6630	3.61e-12	5270	4.12e-12	6690	4.40e-12	8040
PFC-116	C ₂ F ₆	10,000.0	0.25	2.05e-10	8210	1.02e-09	11,100	6.07e-12	8880	6.93e-12	11,200	7.36e-12	13,500
PFC-c216	c-C ₃ F ₆	3,000.0	0.23 [*]	1.71e-10	6850	8.44e-10	9200	5.06e-12	7400	5.74e-12	9310	6.03e-12	11,000
PFC-218	C ₃ F ₈	2,600.0	0.28	1.66e-10	6640	8.16e-10	8900	4.91e-12	7180	5.56e-12	9010	5.83e-12	10,700
PFC-318	c-C ₄ F ₈	3,200.0	0.32	1.77e-10	7110	8.75e-10	9540	5.25e-12	7680	5.96e-12	9660	6.27e-12	11,500

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	AGTP 20-year (K kg ⁻¹)	GTP 20-year	AGTP 50-year (K kg ⁻¹)	GTP 50-year	AGTP 100-year (K kg ⁻¹)	GTP 100-year
PFC-31-10	C ₄ F ₁₀	2,600.0	0.36	1.71e-10	6870	8.44e-10	9200	5.08e-12	7420	5.75e-12	9320	6.02e-12	11,000
Perfluorocyclopentene	c-C ₅ F ₈	31.0 days	0.08 ^f	1.71e-13	7	1.71e-13	2	1.37e-15	2	1.92e-16	<1	1.40e-16	<1
PFC-41-12	n-C ₅ F ₁₂	4,100.0	0.41	1.58e-10	6350	7.84e-10	8550	4.69e-12	6860	5.33e-12	8650	5.62e-12	10,300
PFC-51-14	n-C ₆ F ₁₄	3,100.0	0.44	1.47e-10	5890	7.26e-10	7910	4.35e-12	6370	4.94e-12	8010	5.19e-12	9490
PFC-61-16	n-C ₇ F ₁₆	3,000.0	0.50	1.45e-10	5830	7.17e-10	7820	4.31e-12	6290	4.88e-12	7920	5.13e-12	9380
PFC-71-18	C ₈ F ₁₈	3,000.0	0.55	1.42e-10	5680	6.99e-10	7620	4.20e-12	6130	4.76e-12	7710	5.00e-12	9140
PFC-91-18	C ₁₀ F ₁₈	2,000.0	0.55	1.34e-10	5390	6.59e-10	7190	3.98e-12	5820	4.49e-12	7290	4.68e-12	8570
Perfluorodecalin (cis)	Z-C ₁₀ F ₁₈	2,000.0	0.56	1.35e-10	5430	6.64e-10	7240	4.01e-12	5860	4.52e-12	7340	4.72e-12	8630
Perfluorodecalin (trans)	E-C ₁₀ F ₁₈	2,000.0	0.48	1.18e-10	4720	5.77e-10	6290	3.48e-12	5090	3.93e-12	6380	4.10e-12	7500
PFC-1114	CF ₂ =CF ₂	1.1 days	0.002	2.68e-16	<1	2.68e-16	<1	2.13e-18	<1	3.00e-19	<1	2.20e-19	<1
PFC-1216	CF ₃ CF=CF ₂	4.9 days	0.01	6.42e-15	<1	6.42e-15	<1	5.11e-17	<1	7.21e-18	<1	5.27e-18	<1
Perfluorobuta-1,3-diene	CF ₂ =CFCF=CF ₂	1.1 days	0.003	3.29e-16	<1	3.29e-16	<1	2.61e-18	<1	3.69e-19	<1	2.70e-19	<1
Perfluorobut-1-ene	CF ₃ CF ₂ CF=CF ₂	6.0 days	0.02	8.38e-15	<1	8.38e-15	<1	6.67e-17	<1	9.41e-18	<1	6.88e-18	<1
Perfluorobut-2-ene	CF ₃ CF=CFCF ₃	31.0 days	0.07	1.62e-13	6	1.62e-13	2	1.30e-15	2	1.82e-16	<1	1.33e-16	<1
Halogenated Alcohols and Ethers													
HFE-125	CHF ₂ OCF ₃	119.0	0.41	3.10e-10	12,400	1.14e-09	12,400	8.91e-12	13,000	8.14e-12	13,200	5.97e-12	10,900
HFE-134 (HG-00)	CHF ₂ OCHF ₂	24.4	0.44	2.90e-10	11,600	5.10e-10	5560	7.42e-12	10,800	3.02e-12	4900	7.83e-13	1430
HFE-143a	CH ₃ OCF ₃	4.8	0.18	4.72e-11	1890	4.80e-11	523	6.95e-13	1020	6.66e-14	108	3.99e-14	73
HFE-227ea	CF ₃ CHFOCF ₃	51.6	0.44	2.22e-10	8900	5.92e-10	6450	6.15e-12	8980	4.22e-12	6850	1.98e-12	3630
HCFE-235ca2 (enflurane)	CHF ₂ OCF ₂ CHFCl	4.3	0.41	5.30e-11	2120	5.35e-11	583	7.36e-13	1080	7.14e-14	116	4.44e-14	81
HCFE-235da2 (isoflurane)	CHF ₂ OCHClCF ₃	3.5	0.42	4.49e-11	1800	4.50e-11	491	5.62e-13	822	5.72e-14	93	3.73e-14	68
HFE-236ca	CHF ₂ OCF ₂ CHF ₂	20.8	0.56 ^g	2.42e-10	9710	3.89e-10	4240	6.03e-12	8820	2.10e-12	3400	4.98e-13	912
HFE-236ea2 (desflurane)	CHF ₂ OCHF ₂ CF ₃	10.8	0.45	1.39e-10	5550	1.64e-10	1790	2.93e-12	4280	4.64e-13	753	1.42e-13	260
HFE-236fa	CF ₃ CH ₂ OCF ₃	7.5	0.36	8.35e-11	3350	8.98e-11	979	1.53e-12	2240	1.68e-13	273	7.54e-14	138
HFE-245cb2	CF ₃ CF ₂ OCH ₃	4.9	0.33	5.90e-11	2360	6.00e-11	654	8.77e-13	1280	8.40e-14	136	4.99e-14	91
HFE-245fa1	CHF ₂ CH ₂ OCF ₃	6.6	0.31	7.22e-11	2900	7.59e-11	828	1.25e-12	1820	1.27e-13	206	6.35e-14	116
HFE-245fa2	CHF ₂ OCH ₂ CF ₃	5.5	0.36	7.25e-11	2910	7.45e-11	812	1.15e-12	1670	1.10e-13	179	6.21e-14	114
2,2,3,3,3-Pentafluoropropan-1-ol	CF ₃ CF ₂ CH ₂ OH	0.3	0.14	1.72e-12	69	1.72e-12	19	1.42e-14	21	1.95e-15	3	1.42e-15	3
HFE-254cb1	CH ₃ OCF ₂ CHF ₂	2.5	0.26	2.76e-11	1110	2.76e-11	301	2.99e-13	438	3.34e-14	54	2.28e-14	42
HFE-263fb2	CF ₃ CH ₂ OCH ₃	23.0 days	0.04	1.22e-13	5	1.22e-13	1	9.72e-16	1	1.37e-16	<1	9.98e-17	<1
HFE-263m1	CF ₃ OCH ₂ CH ₃	0.4	0.13	2.70e-12	108	2.70e-12	29	2.25e-14	33	3.06e-15	5	2.22e-15	4
3,3,3-Trifluoropropan-1-ol	CF ₃ CH ₂ CH ₂ OH	12.0 days	0.02	3.57e-14	1	3.57e-14	<1	2.85e-16	<1	4.01e-17	<1	2.93e-17	<1
HFE-329mcc2	CHF ₂ CF ₂ OCF ₂ CF ₃	22.5	0.53	1.68e-10	6720	2.81e-10	3070	4.23e-12	6180	1.59e-12	2580	3.93e-13	718
HFE-338mmz1	(CF ₃) ₂ CHOCHF ₂	21.2	0.44	1.48e-10	5940	2.40e-10	2620	3.70e-12	5410	1.31e-12	2130	3.14e-13	575

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency ($W\ m^{-2}\ ppb^{-1}$)	AGWP 20-year ($W\ m^{-2}\ yr\ kg^{-1}$)	GWP 20-year	AGWP 100-year ($W\ m^{-2}\ yr\ kg^{-1}$)	GWP 100-year	AGTP 20-year ($K\ kg^{-1}$)	GTP 20-year	AGTP 50-year ($K\ kg^{-1}$)	GTP 50-year	AGTP 100-year ($K\ kg^{-1}$)	GTP 100-year
HFE-338mcf2	$CF_3CH_2OCF_2CF_3$	7.5	0.44	$7.93e-11$	3180	$8.52e-11$	929	$1.45e-12$	2120	$1.60e-13$	259	$7.16e-14$	131
Sevoflurane (HFE-347mmz1)	$(CF_3)_2CHOCHF_2$	2.2	0.32	$1.98e-11$	795	$1.98e-11$	216	$2.06e-13$	302	$2.37e-14$	38	$1.64e-14$	30
HFE-347mcc3 (HFE-7000)	$CH_3OCF_2CF_2CF_3$	5.0	0.35	$4.78e-11$	1910	$4.86e-11$	530	$7.18e-13$	1050	$6.87e-14$	111	$4.05e-14$	74
HFE-347mcf2	$CHF_2CH_2OCF_2CF_3$	6.6	0.42	$7.45e-11$	2990	$7.83e-11$	854	$1.29e-12$	1880	$1.31e-13$	212	$6.55e-14$	120
HFE-347pcf2	$CHF_2CF_2OCH_2CF_3$	6.0	0.48 ^h	$7.86e-11$	3150	$8.15e-11$	889	$1.30e-12$	1900	$1.27e-13$	206	$6.81e-14$	124
HFE-347mmy1	$(CF_3)_2CF_2OCH_3$	3.7	0.32	$3.32e-11$	1330	$3.33e-11$	363	$4.27e-13$	624	$4.28e-14$	69	$2.76e-14$	51
HFE-356mcc3	$CH_3OCF_2CHF_2CF_3$	3.8	0.30	$3.53e-11$	1410	$3.55e-11$	387	$4.60e-13$	673	$4.58e-14$	74	$2.94e-14$	54
HFE-356mff2	$CF_3CH_2OCH_2CF_3$	105.0 days	0.17	$1.54e-12$	62	$1.54e-12$	17	$1.26e-14$	18	$1.74e-15$	3	$1.26e-15$	2
HFE-356pcf2	$CHF_2CH_2OCF_2CHF_2$	5.7	0.37	$6.40e-11$	2560	$6.59e-11$	719	$1.03e-12$	1500	$9.97e-14$	162	$5.50e-14$	101
HFE-356pcf3	$CHF_2OCH_2CF_2CHF_2$	3.5	0.38	$4.08e-11$	1640	$4.09e-11$	446	$5.11e-13$	747	$5.20e-14$	84	$3.39e-14$	62
HFE-356pcc3	$CH_3OCF_2CF_2CHF_2$	3.8	0.32	$3.77e-11$	1510	$3.79e-11$	413	$4.91e-13$	718	$4.89e-14$	79	$3.14e-14$	57
HFE-356mmz1	$(CF_3)_2CHOCH_3$	97.1 days	0.15	$1.25e-12$	50	$1.25e-12$	14	$1.02e-14$	15	$1.41e-15$	2	$1.02e-15$	2
HFE-365mcf3	$CF_3CF_2CH_2OCH_3$	19.3 days	0.05	$8.51e-14$	3	$8.51e-14$	<1	$6.80e-16$	<1	$9.56e-17$	<1	$6.99e-17$	<1
HFE-365mcf2	$CF_3CF_2OCH_2CH_3$	0.6	0.26 ⁱ	$5.35e-12$	215	$5.35e-12$	58	$4.53e-14$	66	$6.10e-15$	10	$4.40e-15$	8
HFE-374pcf2	$CHF_2CF_2OCH_2CH_3$	5.0	0.30	$5.65e-11$	2260	$5.75e-11$	627	$8.48e-13$	1240	$8.12e-14$	132	$4.79e-14$	88
4,4,4-Trifluorobutane-1-ol	$CF_3(CH_2)_2CH_2OH$	4.0 days	0.01	$1.73e-15$	<1	$1.73e-15$	<1	$1.38e-17$	<1	$1.94e-18$	<1	$1.42e-18$	<1
2,2,3,3,4,4,5,5-Octafluorocyclopentanol	$-(CF_2)_4C(OH)-$	0.3	0.16	$1.18e-12$	47	$1.18e-12$	13	$9.67e-15$	14	$1.33e-15$	2	$9.69e-16$	2
HFE-43-10pcccl124 (H-Galden 1040x, HG-11)	$CHF_2OCF_2OCF_2OCF_2$	13.5	1.02	$2.00e-10$	8010	$2.58e-10$	2820	$4.52e-12$	6600	$9.46e-13$	1530	$2.38e-13$	436
HFE-449s1 (HFE-7100)	$C_6F_9OCH_3$	4.7	0.36	$3.80e-11$	1530	$3.86e-11$	421	$5.54e-13$	809	$5.32e-14$	86	$3.21e-14$	59
n-HFE-7100	$n-C_6F_9OCH_3$	4.7	0.42	$4.39e-11$	1760	$4.45e-11$	486	$6.39e-13$	934	$6.14e-14$	99	$3.70e-14$	68
i-HFE-7100	$i-C_6F_9OCH_3$	4.7	0.35	$3.68e-11$	1480	$3.73e-11$	407	$5.35e-13$	783	$5.14e-14$	83	$3.10e-14$	57
HFE-569sf2 (HFE-7200)	$C_6F_9OC_2H_5$	0.8	0.30	$5.21e-12$	209	$5.21e-12$	57	$4.52e-14$	66	$5.97e-15$	10	$4.29e-15$	8
n-HFE-7200	$n-C_6F_9OC_2H_5$	0.8	0.35 ⁱ	$5.92e-12$	237	$5.92e-12$	65	$5.14e-14$	75	$6.78e-15$	11	$4.87e-15$	9
i-HFE-7200	$i-C_6F_9OC_2H_5$	0.8	0.24	$4.06e-12$	163	$4.06e-12$	44	$3.52e-14$	52	$4.65e-15$	8	$3.34e-15$	6
HFE-236ca12 (HG-10)	$CHF_2OCF_2OCF_2$	25.0	0.65	$2.75e-10$	11,000	$4.91e-10$	5350	$7.06e-12$	10,300	$2.94e-12$	4770	$7.75e-13$	1420
HFE-338pcc13 (HG-01)	$CHF_2OCF_2CF_2OCF_2$	12.9	0.86	$2.10e-10$	8430	$2.67e-10$	2910	$4.69e-12$	6860	$9.28e-13$	1500	$2.42e-13$	442
1,1,1,3,3,3-Hexafluoropropan-2-ol	$(CF_3)_2CHOH$	1.9	0.26	$1.67e-11$	668	$1.67e-11$	182	$1.66e-13$	243	$1.97e-14$	32	$1.38e-14$	25
HG-02	$HF_2C-(OCF_2CF_2)_2-OCF_2H$	12.9	1.24 ⁱ	$1.97e-10$	7900	$2.50e-10$	2730	$4.40e-12$	6430	$8.70e-13$	1410	$2.27e-13$	415
HG-03	$HF_2C-(OCF_2CF_2)_3-OCF_2H$	12.9	1.76 ⁱ	$2.06e-10$	8270	$2.62e-10$	2850	$4.60e-12$	6730	$9.10e-13$	1480	$2.37e-13$	434
HG-20	$HF_2C-(OCF_2)_2-OCF_2H$	25.0	0.92 ⁱ	$2.73e-10$	10,900	$4.86e-10$	5300	$7.00e-12$	10,200	$2.91e-12$	4730	$7.68e-13$	1400
HG-21	$HF_2C-OCF_2CF_2OCF_2OCF_2OCF_2H$	13.5	1.71 ⁱ	$2.76e-10$	11,100	$3.57e-10$	3890	$6.23e-12$	9110	$1.31e-12$	2120	$3.29e-13$	602

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	AGTP 20-year (K kg ⁻¹)	GTP 20-year	AGTP 50-year (K kg ⁻¹)	GTP 50-year	AGTP 100-year (K kg ⁻¹)	GTP 100-year
HG-30	HF ₂ C-(OCF ₂) ₃ -OCF ₂ H	25.0	1.65 ⁱ	3.77e-10	15,100	6.73e-10	7330	9.68e-12	14,100	4.03e-12	6530	1.06e-12	1940
1-Ethoxy-1,1,2,2,3,3,3-heptafluoropropane	CF ₃ CF ₂ CF ₂ OCH ₂ CH ₃	0.8	0.28 ⁱ	5.56e-12	223	5.56e-12	61	4.80e-14	70	6.36e-15	10	4.57e-15	8
Fluoroxene	CF ₃ CH ₂ OCH=CH ₂	3.6 days	0.01 ⁱ	4.97e-15	<1	4.97e-15	<1	3.95e-17	<1	5.58e-18	<1	4.08e-18	<1
1,1,2,2-Tetrafluoro-1-(fluoromethoxy)ethane	CH ₂ FOCF ₂ CF ₂ H	6.2	0.34 ⁱ	7.68e-11	3080	7.99e-11	871	1.29e-12	1880	1.28e-13	207	6.68e-14	122
2-Ethoxy-3,3,4,4,5-pentafluorotetrahydro-2,5-bis(1,2,2,2-tetrafluoro-1-(trifluoromethyl)ethyl)-furan	C ₁₂ H ₅ F ₁₉ O ₂	1.0	0.49 ⁱ	5.09e-12	204	5.09e-12	56	4.53e-14	66	5.86e-15	10	4.19e-15	8
Fluoro(methoxy)methane	CH ₃ OCH ₂ F	73.0 days	0.07 ⁹	1.15e-12	46	1.15e-12	13	9.34e-15	14	1.30e-15	2	9.46e-16	2
Difluoro(methoxy)methane	CH ₂ OCHF ₂	1.1	0.17 ⁹	1.32e-11	528	1.32e-11	144	1.18e-13	173	1.52e-14	25	1.08e-14	20
Fluoro(fluoromethoxy)methane	CH ₂ FOCH ₂ F	0.9	0.19 ⁹	1.20e-11	479	1.20e-11	130	1.05e-13	153	1.37e-14	22	9.84e-15	18
Difluoro(fluoromethoxy)methane	CH ₂ FOCHF ₂	3.3	0.30 ⁹	5.65e-11	2260	5.66e-11	617	6.88e-13	1010	7.11e-14	115	4.69e-14	86
Trifluoro(fluoromethoxy)methane	CH ₂ FOCF ₃	4.4	0.33 ⁹	6.82e-11	2730	6.89e-11	751	9.59e-13	1400	9.27e-14	150	5.72e-14	105
HG'-01	CH ₃ OCF ₂ CF ₂ OCH ₃	2.0	0.29	2.03e-11	815	2.03e-11	222	2.06e-13	301	2.42e-14	39	1.68e-14	31
HG'-02	CH ₂ O(CF ₂ CF ₂ O) ₂ CH ₃	2.0	0.56	2.16e-11	868	2.16e-11	236	2.19e-13	320	2.57e-14	42	1.79e-14	33
HG'-03	CH ₃ O(CF ₂ CF ₂ O) ₃ CH ₃	2.0	0.76	2.03e-11	812	2.03e-11	221	2.05e-13	299	2.41e-14	39	1.67e-14	31
HFE-329me3	CF ₃ CFHCF ₂ OCF ₃	40.0	0.48	1.79e-10	7170	4.17e-10	4550	4.85e-12	7090	2.89e-12	4690	1.12e-12	2040
3,3,4,4,5,5,6,6,7,7-Undecafluoroheptan-1-ol	CF ₃ (CF ₂) ₄ CH ₂ OH	20.0 days	0.06	3.91e-14	2	3.91e-14	<1	3.12e-16	<1	4.39e-17	<1	3.21e-17	<1
3,3,4,4,5,5,6,6,7,7,8,8,9,9-Pentadecafluorononan-1-ol	CF ₃ (CF ₂) ₆ CH ₂ OH	20.0 days	0.07	3.00e-14	1	3.00e-14	<1	2.40e-16	<1	3.37e-17	<1	2.46e-17	<1
3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11-Nonadecafluorodecan-1-ol	CF ₃ (CF ₂) ₈ CH ₂ OH	20.0 days	0.05	1.72e-14	<1	1.72e-14	<1	1.37e-16	<1	1.93e-17	<1	1.41e-17	<1
2-Chloro-1,1,2-trifluoro-1-methoxyethane	CH ₃ OCF ₂ CHCl	1.4	0.21	1.12e-11	449	1.12e-11	122	1.05e-13	153	1.31e-14	21	9.24e-15	17
PFPMIE (perfluoropolymethylisopropyl ether)	CF ₃ OCF(CF ₃)CF ₂ OCF ₂ OCF ₃	800.0	0.65	1.87e-10	7500	8.90e-10	9710	5.52e-12	8070	6.11e-12	9910	6.15e-12	11,300
HFE-216	CF ₃ OCF=CF ₂	8.4 days	0.02	1.92e-14	<1	1.92e-14	<1	1.53e-16	<1	2.15e-17	<1	1.58e-17	<1
Trifluoromethyl formate	HCOOCF ₃	3.5	0.31 ⁱ	5.37e-11	2150	5.39e-11	588	6.73e-13	984	6.85e-14	111	4.47e-14	82
Perfluoroethyl formate	HCOOCF ₂ CF ₃	3.5	0.44 ⁱ	5.30e-11	2130	5.32e-11	580	6.64e-13	971	6.76e-14	110	4.41e-14	81
Perfluoropropyl formate	HCOOCF ₂ CF ₂ CF ₃	2.6	0.50 ⁱ	3.45e-11	1380	3.45e-11	376	3.80e-13	555	4.19e-14	68	2.85e-14	52
Perfluorobutyl formate	HCOOCF ₂ CF ₂ CF ₂ CF ₃	3.0	0.56 ⁱ	3.59e-11	1440	3.59e-11	392	4.19e-13	613	4.45e-14	72	2.97e-14	54
2,2,2-Trifluoroethyl formate	HCOOC(CH ₃) ₂ CF ₃	0.4	0.16 ⁱ	3.07e-12	123	3.07e-12	33	2.55e-14	37	3.48e-15	6	2.52e-15	5
3,3,3-Trifluoropropyl formate	HCOOC(CH ₂) ₂ CF ₃	0.3	0.13 ⁱ	1.60e-12	64	1.60e-12	17	1.31e-14	19	1.80e-15	3	1.31e-15	2
1,2,2,2-Tetrafluoroethyl formate	HCOOC(CF ₂) ₂ CF ₃	3.2	0.35 ⁱ	4.30e-11	1720	4.31e-11	470	5.17e-13	755	5.39e-14	87	3.57e-14	65
1,1,1,3,3,3-Hexafluoropropan-2-yl formate	HCOOC(CF ₃) ₃	3.2	0.33 ⁱ	3.05e-11	1220	3.05e-11	333	3.66e-13	535	3.81e-14	62	2.53e-14	46
Perfluorobutyl acetate	CH ₃ COOCF ₂ CF ₂ CF ₂ CF ₃	21.9 days	0.12 ⁱ	1.52e-13	6	1.52e-13	2	1.21e-15	2	1.71e-16	<1	1.25e-16	<1
Perfluoropropyl acetate	CH ₃ COOCF ₂ CF ₂ CF ₃	21.9 days	0.11 ⁱ	1.59e-13	6	1.59e-13	2	1.27e-15	2	1.78e-16	<1	1.30e-16	<1
Perfluoroethyl acetate	CH ₃ COOCF ₂ CF ₃	21.9 days	0.10 ⁱ	1.89e-13	8	1.89e-13	2	1.51e-15	2	2.12e-16	<1	1.55e-16	<1
Trifluoromethyl acetate	CH ₃ COOCF ₃	21.9 days	0.07 ⁱ	1.90e-13	8	1.90e-13	2	1.52e-15	2	2.14e-16	<1	1.56e-16	<1

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Table 8.A.1 (continued)

Acronym, Common Name or Chemical Name	Chemical Formula	Lifetime (Years)	Radiative Efficiency (W m ⁻² ppb ⁻¹)	AGWP 20-year (W m ⁻² yr kg ⁻¹)	GWP 20-year	AGWP 100-year (W m ⁻² yr kg ⁻¹)	GWP 100-year	AGTP 20-year (K kg ⁻¹)	GTP 20-year	AGTP 50-year (K kg ⁻¹)	GTP 50-year	AGTP 100-year (K kg ⁻¹)	GTP 100-year
Methyl carbonyl fluoride	FCOOCH ₃	1.8	0.07 [†]	8.74e-12	350	8.74e-12	95	8.60e-14	126	1.03e-14	17	7.21e-15	13
1,1-Difluoroethyl carbonyl fluoride	FCOOCF ₂ CH ₃	0.3	0.17 [†]	2.46e-12	99	2.46e-12	27	2.02e-14	30	2.78e-15	5	2.02e-15	4
1,1-Difluoroethyl 2,2,2-trifluoroacetate	CF ₃ COOCF ₂ CH ₃	0.3	0.27 [†]	2.83e-12	113	2.83e-12	31	2.33e-14	34	3.20e-15	5	2.32e-15	4
Ethyl 2,2,2-trifluoroacetate	CF ₃ COOCH ₂ CH ₃	21.9 days	0.05 [†]	1.26e-13	5	1.26e-13	1	1.00e-15	1	1.41e-16	<1	1.03e-16	<1
2,2,2-Trifluoroethyl 2,2,2-trifluoroacetate	CF ₃ COOCH ₂ CF ₃	54.8 days	0.15 [†]	6.27e-13	25	6.27e-13	7	5.06e-15	7	7.07e-16	1	5.15e-16	<1
Methyl 2,2,2-trifluoroacetate	CF ₃ COOCH ₃	0.6	0.18 [†]	4.80e-12	192	4.80e-12	52	4.08e-14	60	5.47e-15	9	3.95e-15	7
Methyl 2,2-difluoroacetate	HCF ₂ COOCH ₃	40.1 days	0.05 [†]	3.00e-13	12	3.00e-13	3	2.41e-15	4	3.38e-16	<1	2.47e-16	<1
Difluoromethyl 2,2,2-trifluoroacetate	CF ₃ COOCHF ₂	0.3	0.24 [†]	2.48e-12	99	2.48e-12	27	2.04e-14	30	2.81e-15	5	2.04e-15	4
2,2,3,3,4,4,4-Heptafluorobutan-1-ol	C ₃ F ₇ CH ₂ OH	0.6	0.20	3.10e-12	124	3.10e-12	34	2.61e-14	38	3.52e-15	6	2.55e-15	5
1,1,2-Trifluoro-2-(trifluoromethoxy)-ethane	CHF ₂ CHFCF ₃	9.8	0.35	9.91e-11	3970	1.14e-10	1240	2.03e-12	2960	2.88e-13	467	9.74e-14	178
1-Ethoxy-1,1,2,3,3,3-hexafluoropropane	CF ₃ CHFCF ₂ OCH ₂ CH ₃	0.4	0.19	2.14e-12	86	2.14e-12	23	1.77e-14	26	2.43e-15	4	1.76e-15	3
1,1,1,2,2,3,3-Heptafluoro-3-(1,2,2,2-tetrafluoroethoxy)-propane	CF ₃ CF ₂ CF ₂ OCHFCF ₃	67.0	0.58	1.98e-10	7940	5.95e-10	6490	5.57e-12	8140	4.29e-12	6960	2.39e-12	4380
2,2,3,3-Tetrafluoro-1-propanol	CHF ₂ CF ₂ CH ₂ OH	91.3 days	0.11	1.19e-12	48	1.19e-12	13	9.72e-15	14	1.35e-15	2	9.79e-16	2
2,2,3,3,4,4-Hexafluoro-1-butanol	CF ₃ CHFCF ₂ CH ₂ OH	94.9 days	0.19	1.56e-12	63	1.56e-12	17	1.27e-14	19	1.76e-15	3	1.28e-15	2
2,2,3,3,4,4-Heptafluoro-1-butanol	CF ₃ CF ₂ CF ₂ CH ₂ OH	0.3	0.16	1.49e-12	60	1.49e-12	16	1.23e-14	18	1.69e-15	3	1.23e-15	2
1,1,2,2-Tetrafluoro-3-methoxy-propane	CHF ₂ CF ₂ CH ₂ OCH ₃	14.2 days	0.03	4.82e-14	2	4.82e-14	<1	3.84e-16	<1	5.41e-17	<1	3.96e-17	<1
perfluoro-2-methyl-3-pentanone	CF ₃ CF ₂ C(O)CF(CF ₃) ₂	7.0 days	0.03	9.14e-15	<1	9.14e-15	<1	7.27e-17	<1	1.03e-17	<1	7.51e-18	<1
3,3,3-Trifluoro-propanal	CF ₃ CH ₂ CHO	2.0 days	0.004	9.86e-16	<1	9.86e-16	<1	7.84e-18	<1	1.11e-18	<1	8.10e-19	<1
2-Fluoroethanol	CH ₃ FCH ₂ OH	20.4 days	0.02	8.07e-14	3	8.07e-14	<1	6.45e-16	<1	9.07e-17	<1	6.63e-17	<1
2,2-Difluoroethanol	CHF ₂ CH ₂ OH	40.0 days	0.04	2.78e-13	11	2.78e-13	3	2.23e-15	3	3.12e-16	<1	2.28e-16	<1
2,2,2-Trifluoroethanol	CF ₃ CH ₂ OH	0.3	0.10	1.83e-12	73	1.83e-12	20	1.50e-14	22	2.07e-15	3	1.50e-15	3
1,1'-Oxybis[2-(difluoromethoxy)-1,1,2,2-tetrafluoroethane	HCF ₂ O(CF ₂ CF ₂ O) ₂ CF ₂ H	26.0	1.15 [*]	2.47e-10	9910	4.51e-10	4920	6.38e-12	9320	2.75e-12	4460	7.45e-13	1360
1,1,3,3,4,4,6,6,7,7,9,10,10,12,12,12-hexa-decafluoro-2,5,8,11-tetraoxadodecane	HCF ₂ O(CF ₂ CF ₂ O) ₄ CF ₂ H	26.0	1.43 [*]	2.26e-10	9050	4.12e-10	4490	5.83e-12	8520	2.51e-12	4080	6.81e-13	1250
1,1,3,3,4,4,6,6,7,7,9,10,10,12,12,13,13,15,15-eico-safluoro-2,5,8,11,14-Pentaoxapentadecane	HCF ₂ O(CF ₂ CF ₂ O) ₅ CF ₂ H	26.0	1.46 [*]	1.83e-10	7320	3.33e-10	3630	4.71e-12	6880	2.03e-12	3300	5.50e-13	1010

Notes:

For CH₄ we estimate an uncertainty of ±30% and ±40% for 20- and 100-year time horizon, respectively (for 90% uncertainty range). The uncertainty is dominated by AGWP for CO₂ and indirect effects. The uncertainty in GWP for N₂O is estimated to ±20% and ±30% for 20- and 100-year time horizon, with the largest contributions from CO₂. The uncertainty in GWP for HFC-134a is estimated to ±25% and ±35% for 20- and 100-year time horizons while for CFC-11 the GWP the corresponding numbers are approximately ±20% and ±35% (not accounting for the indirect effects). For CFC-12 the corresponding numbers are ±20 and ±30. The uncertainties estimated for HFC-134a and CFC-11 are assessed as representative for most other gases with similar or longer lifetimes. For shorter-lived gases, the uncertainties will be larger. For GTP, few estimates are available in the literature. The uncertainty is assessed to be of the order of ±75% for the methane GTP₁₀₀.

* No single lifetime can be given. The impulse response function for CO₂ from Joos et al. (2013) has been used. See also Supplementary Material Section 8.SM.11.

† Perturbation lifetime is used in calculation of metrics, not the lifetime of the atmospheric burden.

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