



U.S. Environmental Protection Agency

Ozone Depletion

[Recent Additions](#) | [Contact Us](#) | [Print Version](#) Search:

GO

[EPA Home](#) > [Ozone Depletion](#) > Class II Chemicals

Glossary

About Us

Chemicals

Resource Center

Ozone Science

Rules & Regulations

Recordkeeping & Reporting

Enforcement

Alternatives / SNAP

Montreal Protocol

Fun Stuff

Class II Ozone-Depleting Substances

Class II substances are listed in [section 602](#) of the Clean Air Act, and comprise all [HCFCs](#). All the class II substances and their isomers are regulated under the [accelerated phaseout](#). These compounds are numbered according to the ASHRAE [Standard 34 scheme](#).

The list of Class I substances (the [CFCs](#)) is [here](#).

GWPs for selected non-ozone-depleting substances are provided in [another table](#).

Why are there three values given for the ODPs and four values given for the GWPs?

The numbers in the "ODP-1" column are from Table 1-5 of *The Scientific Assessment of Ozone Depletion, 2002*, a report of the World Meteorological Association's Global Ozone Research and Monitoring Project. The ODPs in the "ODP-1" column that were not in Table 1-5 of the 2002 report have not been updated since 1998 and are from *The Scientific Assessment of Ozone Depletion, 1998*. The "ODP-2" column numbers are from the Montreal Protocol, and the "ODP-3" column numbers are from 40 CFR Part 82, stratospheric ozone protection regulations required by title VI of the Clean Air Act amendments.

All GWP values represent global warming potential over a 100-year time horizon. The numbers in the "GWP-1" column are from Table 1-6 of *The Scientific Assessment of Ozone Depletion, 2002*, a report of the World Meteorological Association's Global Ozone Research and Monitoring Project. The GWPs in the "GWP-1" column that were not provided in Table 1-6 of the 2002 report have not been updated since 1998 and are from *The Scientific Assessment of Ozone Depletion, 1998*. "GWP-2" column numbers are from the Intergovernmental Panel on Climate Change ([IPCC](#) [EXIT Disclaimer](#)) *Second Assessment Report: Climate Change 1995*, "GWP-3" column numbers are from the *IPCC Third Assessment Report: Climate Change 2001*, and "GWP-4" column numbers are from 40 CFR Part 82, stratospheric ozone protection regulations required by title VI of the Clean Air Act amendments.

Under section 602, EPA was required to list in the Federal Register the GWPs for ozone-depleting substances. That list was published on [January 19, 1996](#).

● Blanks in the data indicate that the information was not shown in the original source.

Chemical Name	Lifetime, in years	ODP1 (WMO 2002 ¹)	ODP2 (Montreal Protocol)	ODP3 (40 CFR)	GWP1 (WMO 2002)	GWP2 (SAR)	GWP3 (TAR)	GWP4 (40 CFR)	CAS Number
HCFC-21 (CHFCI ₂) Dichlorofluoromethane	1.7	0.04	0.04		148		210		75-43-4
HCFC-22 (CHF ₂ CI) Monochlorodifluoromethane	12.0	0.05	0.055	0.05	1780	1500	1700	1700	75-45-6
HCFC-31 (CH ₂ FCI) Monochlorofluoromethane		0.02	0.02						593-70-4
HCFC-121 (C ₂ HFCl ₄) Tetrachlorofluoroethane		0.01 - 0.04	0.01 - 0.04						354-14-3
HCFC-122 (C ₂ HF ₂ Cl ₃) Trichlorodifluoroethane		0.02 - 0.08	0.02 - 0.08						354-21-2
HCFC-123 (C ₂ HF ₃ Cl ₂) Dichlorotrifluoroethane	1.3	0.02	0.02 - 0.06	0.02	76	90	120	93	306-83-2
HCFC-124 (C ₂ HF ₄ Cl)			0.02 -						2837-

Monochlorotetrafluoroethane	5.8	0.02	0.04	0.02	599	470	620	480	89-0
HCFC-131 (C ₂ H ₂ FCI ₃) Trichlorofluoroethane		0.007 - 0.05	0.007 - 0.05						359- 28-4
HCFC-132b (C ₂ H ₂ F ₂ CI ₂) Dichlorodifluoroethane		0.008 - 0.05	0.008 - 0.05						1649- 08-7
HCFC-133a (C ₂ H ₂ F ₃ CI) Monochlorotrifluoroethane		0.02 - 0.06	0.02 - 0.06						75-88- 7
HCFC-141b (C ₂ H ₃ FCI ₂) Dichlorofluoroethane	9.3	0.12	0.11	0.1	713		700	630	1717- 00-6
HCFC-142b (C ₂ H ₃ F ₂ CI) Monochlorodifluoroethane	17.9	0.07	0.065	0.06	2270	1800	2400	2000	75-68- 3
HCFC-221 (C ₃ HFCI ₆) Hexachlorofluoropropane		0.015 - 0.07	0.015 - 0.07						422- 26-4
HCFC-222 (C ₃ HF ₂ CI ₅) Pentachlorodifluoropropane		0.01 - 0.09	0.01 - 0.09						422- 49-1
HCFC-223 (C ₃ HF ₃ CI ₄) Tetrachlorotrifluoropropane		0.01 - 0.08	0.01 - 0.08						422- 52-6
HCFC-224 (C ₃ HF ₄ CI ₃) Trichlorotetrafluoropropane		0.01 - 0.09	0.01 - 0.09						422- 54-8
HCFC-225ca (C ₃ HF ₅ CI ₂) Dichloropentafluoropropane	1.9	0.02	0.025		120		180	170	422- 56-0
HCFC-225cb (C ₃ HF ₅ CI ₂) Dichloropentafluoropropane	5.8	0.03	0.033		586		620	530	507- 55-1
HCFC-226 (C ₃ HF ₆ CI) Monochlorohexafluoropropane		0.02 - 0.1	0.02 - 0.1						431- 87-8
HCFC-231 (C ₃ H ₂ FCI ₅) Pentachlorofluoropropane		0.05 - 0.09	0.05 - 0.09						421- 94-3
HCFC-232 (C ₃ H ₂ F ₂ CI ₄) Tetrachlorodifluoropropane		0.008 - 0.1	0.008 - 0.1						460- 89-9
HCFC-233 (C ₃ H ₂ F ₃ CI ₃) Trichlorotrifluoropropane		0.007 - 0.23	0.007 - 0.23						7125- 84-0
HCFC-234 (C ₃ H ₂ F ₄ CI ₂) Dichlorotetrafluoropropane		0.01 - 0.28	0.01 - 0.28						425- 94-5
HCFC-235 (C ₃ H ₂ F ₅ CI) Monochloropentafluoropropane		0.03 - 0.52	0.03 - 0.52						460- 92-4
HCFC-241 (C ₃ H ₃ FCI ₄) Tetrachlorofluoropropane		0.004 - 0.09	0.004 - 0.09						666- 27-3
HCFC-242 (C ₃ H ₃ F ₂ CI ₃) Trichlorodifluoropropane		0.005 - 0.13	0.005 - 0.13						460- 63-9
HCFC-243 (C ₃ H ₃ F ₃ CI ₂) Dichlorotrifluoropropane		0.007 - 0.12	0.007 - 0.12						460- 69-5
HCFC-244 (C ₃ H ₃ F ₄ CI) Monochlorotetrafluoropropane		0.009 - 0.14	0.009 - 0.14						
HCFC-251 (C ₃ H ₄ FCI ₃) Trichlorofluoropropane		0.001 - 0.01	0.001 - 0.01						421- 41-0
HCFC-252 (C ₃ H ₄ F ₂ CI ₂) Dichlorodifluoropropane		0.005 - 0.04	0.005 - 0.04						819- 00-1
HCFC-253 (C ₃ H ₄ F ₃ CI) Monochlorotrifluoropropane		0.003 - 0.03	0.003 - 0.03						460- 35-5
HCFC-261 (C ₃ H ₅ FCI ₂) Dichlorofluoropropane		0.002 - 0.02	0.002 - 0.02						420- 97-3
HCFC-262 (C ₃ H ₅ F ₂ CI) Monochlorodifluoropropane		0.002 - 0.02	0.002 - 0.02						421- 02-03
HCFC-271 (C ₃ H ₆ FCI) Monochlorofluoropropane		0.001 - 0.03	0.001 - 0.03						430- 55-7

¹ *The Scientific Assessment of Ozone Depletion, 2002* updated a limited number of GWPs and ODPs (semiempirical values for all updated ODPs except CFC-114 and CFC-115, which are model-derived). All GWPs and ODPs that were not updated in 2002 are 1998 values that have not changed.

[Ozone Home](#) | [Ozone Science](#) | [Rules & Regulations](#) | [Alternatives](#)

[EPA Home](#) | [Privacy and Security Notice](#) | [Contact Us](#)

Last updated on Wednesday, March 8th, 2006
URL: <http://www.epa.gov/ozone/ods2.html>