

Table 2 Production and Atmospheric Release
CFC-12 (thousand metric tonnes)

Expanded Data

Reporting Companies only

(thousand metric tonnes)

	Annual		Total			Refrigeration HERMETIC			Cumulative			Refrigeration NON Hermetic			Blowing Agents Closed Cell Foam			Open Cell Foam, Aerosols & Others		
	Production	Released	Production	Released	Unreleased	Sales	Released	Unreleased	Sales	Released	Unreleased	Sales	Released	Unreleased	Sales	Released	Unreleased	Sales	Released	Unreleased
1931	0.5	0.1	0.5	0.1	0.5	0.0	0.0	0.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1932	0.1	0.1	0.7	0.1	0.6	0.0	0.0	0.0	0.7	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1933	0.3	0.1	1.0	0.2	0.8	0.0	0.0	0.0	1.0	0.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1934	0.7	0.2	1.7	0.4	1.3	0.1	0.0	0.1	1.6	0.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1935	1.0	0.3	2.7	0.8	2.0	0.1	0.0	0.1	2.6	0.7	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
1936	1.7	0.5	4.4	1.3	3.2	0.2	0.0	0.1	4.2	1.2	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
1937	3.1	0.8	7.5	2.1	5.6	0.3	0.0	0.3	7.2	1.9	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0
1938	2.8	1.2	10.3	3.3	7.3	0.4	0.0	0.3	9.9	3.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0
1939	3.9	1.7	14.2	5.0	9.6	0.5	0.0	0.5	13.7	4.6	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.0
1940	4.5	2.3	18.8	7.3	12.0	0.7	0.0	0.6	18.1	6.8	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0
1941	6.3	3.0	25.0	10.3	15.4	0.9	0.0	0.8	24.2	9.6	14.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.0
1942	5.9	3.7	31.0	13.9	17.8	1.1	0.1	1.0	29.9	13.1	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0
1943	8.2	4.5	39.2	18.5	21.7	1.4	0.1	1.3	37.8	17.4	20.4	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	0.0
1944	16.7	6.1	55.9	24.6	32.7	2.0	0.1	1.8	54.0	23.1	30.9	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	0.0
1945	20.1	8.0	76.0	32.6	45.3	2.7	0.2	2.5	73.4	30.5	42.9	0.0	0.0	0.0	0.0	0.0	0.0	1.9	1.9	0.0
1946	16.6	13.9	92.7	46.5	48.5	2.9	0.3	2.7	80.4	39.3	41.1	0.0	0.0	0.0	0.0	0.0	0.0	11.7	7.0	4.7
1947	20.1	21.3	112.8	67.9	47.8	3.2	0.4	2.9	88.9	49.6	39.2	0.0	0.0	0.0	0.0	0.0	0.0	23.5	17.9	5.7
1948	24.8	24.8	137.6	92.6	48.4	3.6	0.5	3.1	99.3	61.0	38.3	0.0	0.0	0.0	0.0	0.0	0.0	38.1	31.1	7.0
1949	26.1	26.6	163.7	119.2	48.6	4.0	0.6	3.4	110.3	72.5	37.8	0.0	0.0	0.0	0.0	0.0	0.0	53.5	46.1	7.4
1950	34.6	29.5	198.3	148.7	54.5	4.5	0.8	3.8	124.9	83.9	41.0	0.0	0.0	0.0	0.0	0.0	0.0	73.8	64.1	9.7
1951	36.2	32.4	234.5	181.1	59.2	5.1	1.0	4.1	140.2	95.3	44.9	0.0	0.0	0.0	0.0	0.0	0.0	95.1	84.9	10.2
1952	37.2	33.7	271.7	214.8	63.7	5.7	1.2	4.5	155.9	107.1	48.8	0.0	0.0	0.0	0.0	0.0	0.0	117.0	106.5	10.5
1953	46.5	37.9	318.2	252.7	73.5	6.4	1.5	4.9	175.5	120.0	55.5	0.0	0.0	0.0	0.0	0.0	0.0	144.3	131.3	13.1
1954	49.1	42.9	367.4	295.6	81.0	7.1	1.8	5.4	196.2	134.4	61.8	0.0	0.0	0.0	0.0	0.0	0.0	173.2	159.4	13.8
1955	57.6	48.2	425.0	343.7	91.9	8.0	2.1	5.9	220.4	150.7	69.7	0.0	0.0	0.0	0.0	0.0	0.0	207.1	190.9	16.2
1956	68.7	56.1	493.6	399.9	106.1	9.1	2.5	6.6	249.4	169.2	80.2	0.0	0.0	0.0	0.0	0.0	0.0	247.4	228.1	19.3
1957	74.2	63.8	567.8	463.7	118.3	10.1	2.9	7.2	279.3	189.8	89.5	0.0	0.0	0.0	0.0	0.0	0.0	292.3	270.8	21.5
1958	73.4	66.9	641.2	530.6	126.6	11.3	3.3	8.0	311.8	213.0	98.8	0.0	0.0	0.0	0.0	0.0	0.0	333.9	314.0	19.8
1959	87.6	74.8	728.8	605.4	141.6	12.5	3.8	8.7	345.3	238.8	106.5	0.0	0.0	0.0	0.0	0.0	0.0	388.8	362.4	26.4
1960	99.4	89.1	828.3	694.5	154.5	13.8	4.3	9.5	380.7	267.1	113.6	0.0	0.0	0.0	0.0	0.0	0.0	453.7	422.5	31.2
1961	108.5	99.8	936.8	794.3	165.9	15.2	4.9	10.3	418.9	297.8	121.1	0.0	0.0	0.0	0.0	0.0	0.0	525.1	490.7	34.3
1962	128.1	114.5	1064.9	908.7	182.7	16.6	5.5	11.2	458.7	330.5	128.2	0.0	0.0	0.0	0.0	0.0	0.0	614.6	571.4	43.2
1963	146.4	133.9	1211.3	1042.7	198.9	18.2	6.1	12.0	500.7	365.3	135.5	0.0	0.0	0.0	0.0	0.0	0.0	719.9	669.1	50.8
1964	170.1	155.5	1381.4	1198.2	217.7	19.8	6.9	12.9	544.5	402.0	142.5	0.0	0.0	0.0	0.0	0.0	0.0	846.6	785.3	61.2
1965	190.1	175.4	1571.4	1373.6	237.2	21.6	7.7	13.9	596.0	441.1	154.9	0.0	0.0	0.0	0.0	0.0	0.0	985.8	918.6	67.2
1966	216.2	195.0	1787.6	1568.5	263.8	23.7	8.6	15.1	653.3	483.0	170.3	0.0	0.0	0.0	0.0	0.0	0.0	1145.2	1068.2	77.0
1967	242.8	219.9	2030.4	1788.5	292.7	26.0	9.5	16.4	715.4	528.3	187.1	0.0	0.0	0.0	0.0	0.0	0.0	1326.9	1239.1	87.8
1968	267.5	246.5	2297.9	2034.9	320.4	28.3	10.6	17.7	780.0	577.6	202.4	0.0	0.0	0.0	0.0	0.0	0.0	1530.8	1432.2	98.6
1969	297.3	274.3	2595.1	2309.2	350.8	30.9	11.7	19.2	851.5	631.5	220.1	0.0	0.0	0.0	0.0	0.0	0.0	1756.7	1647.4	109.2
1970	321.1	299.9	2916.2	2609.1	380.0	33.7	12.9	20.8	929.2	690.2	239.0	0.0	0.0	0.0	0.0	0.0	0.0	2000.3	1882.5	117.8
1971	341.6	321.8	3257.8	2930.9	408.4	36.7	14.3	22.5	1012.1	754.0	258.1	0.0	0.0	0.0	0.0	0.0	0.0	2259.1	2134.0	125.1
1972	379.9	349.9	3637.7	3280.8	447.9	40.1	15.7	24.4	1105.0	823.4	281.7	0.0	0.0	0.0	0.0	0.0	0.0	2544.9	2406.8	138.2
1973	423.3	387.3	4061.0	3668.0	494.5	43.9	17.2	26.6	1208.9	898.8	310.0	0.0	0.0	0.0	0.0	0.0	0.0	2862.5	2709.0	153.5

1974	442.8	418.6	4503.8	4086.7	529.8	47.7	18.9	28.8	1315.5	980.7	334.8	57.2	52.3	4.9	3196.0	3034.8	161.2
1975	381.0	404.1	4884.8	4490.8	516.1	51.3	20.7	30.7	1415.4	1068.7	346.7	66.7	61.9	4.7	3473.5	3339.5	134.0
1976	410.7	390.4	5295.5	4881.2	546.7	55.8	22.6	33.2	1538.7	1163.8	374.9	73.1	69.9	3.2	3760.3	3624.9	135.4
1977	382.8	371.2	5678.4	5252.4	567.9	61.3	24.7	36.6	1689.3	1267.0	422.3	83.3	78.2	5.1	3986.4	3882.5	104.0
1978	372.1	341.3	6050.4	5593.7	608.0	66.9	27.0	39.9	1843.2	1378.6	464.7	101.4	92.3	9.0	4190.2	4095.8	94.5
1979	357.2	337.5	6407.6	5931.2	636.6	72.6	29.5	43.1	2002.3	1500.0	502.3	119.4	110.4	9.0	4373.4	4291.3	82.2
1980	350.2	332.5	6757.8	6263.7	663.1	78.3	32.2	46.2	2158.9	1631.9	527.0	143.3	131.3	11.9	4546.3	4468.3	78.0
1981	351.3	340.7	7109.1	6604.4	682.5	84.2	35.0	49.1	2320.1	1773.6	546.5	164.6	153.9	10.7	4718.0	4641.8	76.2
1982	328.0	337.4	7437.2	6941.7	681.4	89.6	38.2	51.5	2470.5	1922.2	548.3	187.3	176.0	11.4	4875.7	4805.5	70.3
1983	355.3	343.3	7792.5	7285.0	702.3	95.8	41.5	54.2	2640.0	2076.5	563.6	213.5	200.4	13.1	5038.0	4966.7	71.4
1984	382.1	359.4	8174.6	7644.5	734.5	102.3	45.1	57.2	2821.0	2234.8	586.2	244.2	228.8	15.3	5211.5	5135.7	75.8
1985	376.3	368.4	8550.9	8012.8	751.9	108.8	49.1	59.7	2999.5	2396.3	603.2	274.4	259.3	15.1	5382.0	5308.2	73.8
1986	398.4	376.6	8949.3	8389.4	783.6	115.7	53.2	62.5	3190.9	2562.5	628.4	312.5	293.4	19.0	5554.0	5480.2	73.7
1987	424.7	386.6	9374.0	8775.9	832.4	123.4	57.7	65.7	3402.2	2735.6	666.7	372.4	342.4	30.0	5710.4	5640.2	70.1
1988	421.0	392.8	9795.0	9168.7	871.2	131.7	62.5	69.2	3630.7	2917.7	713.0	431.8	402.1	29.7	5845.7	5786.5	59.3
1989	379.8	364.7	10174.8	9533.5	895.7	140.3	67.5	72.8	3867.1	3109.9	757.2	476.4	454.1	22.3	5945.4	5902.0	43.5
1990	231.0	310.5	10405.8	9843.9	822.0	145.9	72.8	73.2	4023.1	3307.5	715.6	499.4	487.9	11.5	5997.5	5975.8	21.7
1991	224.8	271.6	10630.6	10115.6	780.7	152.0	78.2	73.8	4192.0	3509.5	682.5	518.1	508.7	9.3	6034.2	6019.1	15.1
1992	216.2	255.4	10846.8	10370.9	747.0	158.3	84.0	74.3	4363.2	3709.7	653.5	531.8	524.9	6.9	6064.7	6052.4	12.4
1993	214.7	237.8	11061.4	10608.7	729.2	164.9	89.9	75.0	4545.6	3903.9	641.7	539.5	535.6	3.8	6088.0	6079.3	8.7
1994	133.6	211.5	11195.0	10820.3	654.7	169.0	96.0	73.1	4660.5	4085.9	574.5	542.7	541.1	1.6	6102.7	6097.2	5.4
1995	82.8	188.6	11277.9	11008.9	550.9	171.5	102.2	69.3	4729.2	4253.1	476.1	543.8	543.3	0.5	6115.3	6110.2	5.1
1996	48.9	166.1	11326.7	11174.9	435.0	173.0	108.6	64.3	4768.9	4401.7	367.2	544.4	544.1	0.3	6123.6	6120.4	3.2
1997	32.9	140.1	11359.6	11315.0	328.6	173.8	115.1	58.7	4792.9	4526.7	266.2	545.0	544.7	0.3	6131.8	6128.4	3.4
1998	33.3	114.1	11392.9	11429.1	248.6	174.8	121.6	53.2	4818.9	4626.4	192.4	545.6	545.3	0.3	6138.5	6135.8	2.7
1999	27.1	87.4	11420.0	11516.6	188.9	175.5	128.1	47.4	4839.2	4700.6	138.7	546.1	545.8	0.2	6144.7	6142.1	2.6
2000	24.6	65.6	11444.6	11582.2	148.5	176.2	134.4	41.8	4857.7	4753.6	104.1	546.6	546.3	0.2	6150.3	6147.9	2.4

Notes

Emissions are calculated from production and categorised sales using "emission functions".

The emission functions for CFC-12 remain the same as in previous AFEAS compilations:

Releases from hermetic refrigeration are normally distributed about an average service lifetime of 10 years.

The emission function for non-hermetic refrigeration is the same as in previous reports (normally distributed about a 4.5 year service lifetime).

Due to the nature of the plastic foam matrices, half of the material used in closed cell foam is emitted in the year of manufacture and half in the following year.

The emission function for "Open Cell Foam, Aerosols and others" is the same as in previous reports (50% in the year of manufacture and the rest in the year following, for aerosols and others, and 83% in the year of manufacture for open cell foams).