

01 GAS REFRIGERANTE R-22

**PROHIBIDA
SU VENTA
A PARTIR
DE ENERO
2010**

- ✓ En comparación con el R12, la potencia de destrucción del ozono (ODP) es un 94,5% menor.
- ✓ Empleado en una amplia gama de distintas aplicaciones.
- ✓ Es el refrigerante más utilizado en el mundo.
- ✓ Es un posible sustituto del R12 y R502 en aplicaciones de baja temperatura.
- ✓ Refrigerante probado y reconocido.

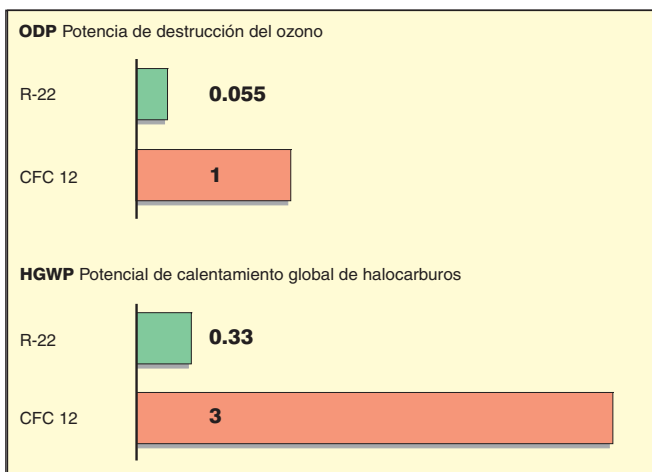
Aplicaciones:

- Displays de alimentos congelados.
- Aire acondicionado.
- Bombas de calor.
- Refrigeración comercial (p.e. supermercados, en media y baja temperatura).
- Congeladores de vitrina.
- Cámaras frigoríficas.
- Refrigeración industrial.
- Sistemas de enfriamiento para transporte.

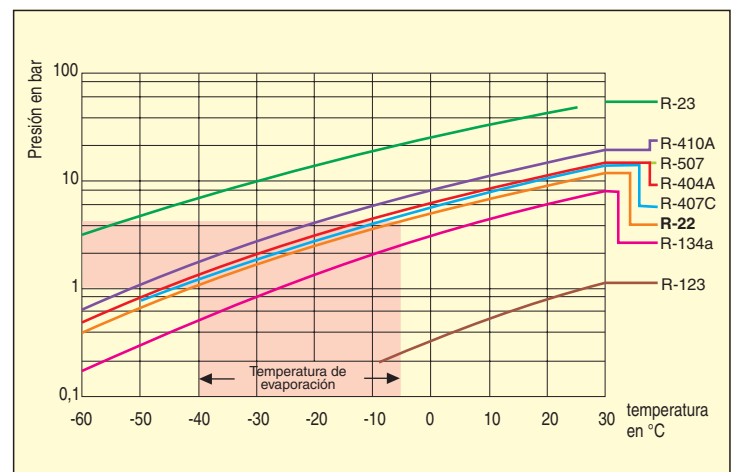


Especificaciones técnicas		R-22
Descripción química		Clorodifluorometano
Fórmula química		CHCLF ₂
Peso molecular	Kg/kmol	86,5
Punto de ebullición a 1.013 bar	°C	-40,8
Temperatura crítica	°C	96,2
Presión crítica	bar	49,9
Densidad crítica	Kg/m ³	513
Volumen crítico	m ³ /Kg	1,95 x 10 ⁻³
Densidad del líquido a 25°C	Kg/m ³	1,195
Densidad del vapor saturado a 25°C	Kg/m ³	44,111
Calor de vaporización a 25°C	kJ/kg	182,0
Calor específico a 25°C (líquido)	kJ/kgK	1.227
Calor específico a 25°C y 1.013 bar (vapor)	kJ/kgK	0,658

Aspectos medioambientales:



Rango de aplicaciones:





Propiedades termodinámicas del R-22:

t	p	v'	v''	rho'	rho''	h'	h''	r	s'	s''
°C	bar	dm³/kg	dm³/kg	kg/dm³	kg/m³	kJ/kg	kJ/kg	kJ/kg	kJ/kgK	kJ/kgK
-60	0.38	0.683	537.90	1.464	1.860	132.40	378.06	245.66	0.7227	1.8752
-59	0.40	0.684	510.19	1.461	1.960	133.45	378.56	245.11	0.7276	1.8722
-58	0.42	0.686	484.18	1.458	2.070	134.51	379.06	244.56	0.7326	1.8692
-57	0.45	0.687	459.75	1.456	2.180	135.57	379.57	244.00	0.7375	1.8663
-56	0.47	0.688	436.79	1.453	2.290	136.63	380.07	243.43	0.7424	1.8634
-55	0.50	0.690	415.19	1.450	2.410	137.70	380.57	242.87	0.7473	1.8606
-54	0.52	0.691	394.87	1.447	2.530	138.77	381.07	242.29	0.7522	1.8578
-53	0.55	0.692	375.73	1.445	2.660	139.84	381.56	241.72	0.7570	1.8550
-52	0.58	0.694	357.71	1.442	2.800	140.92	382.06	241.14	0.7619	1.8523
-51	0.61	0.695	340.72	1.439	2.940	142.00	382.56	240.55	0.7668	1.8496
-50	0.65	0.696	324.69	1.436	3.080	143.08	383.05	239.97	0.7716	1.8470
-49	0.68	0.698	309.57	1.433	3.230	144.17	383.54	239.37	0.7765	1.8444
-48	0.72	0.699	295.29	1.431	3.390	145.26	384.03	238.78	0.7813	1.8418
-47	0.75	0.700	281.80	1.428	3.550	146.35	384.52	238.17	0.7861	1.8393
-46	0.79	0.702	269.05	1.425	3.720	147.44	385.01	237.57	0.7909	1.8368
-45	0.83	0.703	257.24	1.422	3.890	148.54	385.52	237.18	0.7949	1.8344
-44	0.87	0.705	245.82	1.419	4.070	149.64	386.00	236.57	0.7997	1.8320
-43	0.91	0.706	235.01	1.416	4.260	150.74	386.49	235.95	0.8044	1.8296
-42	0.96	0.707	224.78	1.414	4.450	151.85	386.97	235.32	0.8092	1.8273
-41	1.01	0.709	215.08	1.411	4.650	152.95	387.45	234.70	0.8140	1.8250
-40	1.05	0.710	205.88	1.408	4.860	154.06	387.93	234.07	0.8187	1.8227
-39	1.10	0.712	197.17	1.405	5.070	155.17	388.40	233.43	0.8235	1.8204
-38	1.15	0.713	188.89	1.402	5.290	156.29	388.88	232.79	0.8282	1.8182
-37	1.21	0.715	181.04	1.399	5.520	157.41	389.35	232.15	0.8329	1.8160
-36	1.26	0.716	173.58	1.396	5.760	158.52	389.82	231.50	0.8376	1.8138
-35	1.32	0.718	166.54	1.393	6.000	159.63	390.30	230.92	0.8421	1.8117
-34	1.38	0.719	159.80	1.390	6.260	160.74	390.76	230.26	0.8468	1.8096
-33	1.44	0.721	153.39	1.387	6.520	161.85	391.23	229.60	0.8514	1.8075
-32	1.51	0.722	147.29	1.385	6.790	162.95	391.69	228.94	0.8561	1.8054
-31	1.57	0.724	141.49	1.382	7.070	164.06	392.15	228.27	0.8607	1.8034
-30	1.64	0.725	135.96	1.379	7.360	165.16	392.61	227.59	0.8654	1.8014
-29	1.71	0.727	130.69	1.376	7.650	166.26	393.06	226.92	0.8700	1.7994
-28	1.78	0.728	125.68	1.373	7.960	167.36	393.51	226.24	0.8746	1.7975
-27	1.86	0.730	120.89	1.370	8.270	168.46	393.96	225.55	0.8792	1.7955
-26	1.94	0.732	116.33	1.367	8.600	169.56	394.41	224.86	0.8838	1.7936
-25	2.02	0.733	111.97	1.364	8.930	170.66	394.85	224.17	0.8884	1.7917
-24	2.10	0.735	107.82	1.361	9.280	171.76	395.30	223.47	0.8929	1.7899
-23	2.18	0.737	103.85	1.358	9.630	172.86	395.74	222.77	0.8975	1.7880
-22	2.27	0.738	100.06	1.355	9.990	173.96	396.17	222.07	0.9020	1.7862
-21	2.36	0.740	96.40	1.352	10.370	175.06	396.60	221.29	0.9067	1.7843
-20	2.45	0.742	92.94	1.348	10.760	176.16	397.03	220.57	0.9112	1.7826
-19	2.55	0.743	89.63	1.345	11.160	177.26	397.46	219.86	0.9157	1.7808
-18	2.65	0.745	86.46	1.342	11.570	178.36	397.88	219.13	0.9202	1.7791
-17	2.75	0.747	83.43	1.339	11.990	179.46	398.30	218.41	0.9247	1.7773
-16	2.86	0.748	80.53	1.336	12.420	180.56	398.72	217.68	0.9291	1.7756
-15	2.96	0.750	77.72	1.333	12.870	181.66	399.13	216.96	0.9338	1.7739
-14	3.07	0.752	75.06	1.330	13.320	182.76	399.54	216.14	0.9382	1.7722
-13	3.19	0.754	72.49	1.327	13.800	183.86	399.94	215.33	0.9428	1.7705
-12	3.30	0.756	70.04	1.324	14.280	184.96	400.35	214.52	0.9472	1.7689
-11	3.42	0.757	67.70	1.320	14.770	186.06	400.75	213.83	0.9516	1.7673
-10	3.55	0.759	65.43	1.317	15.280	187.16	401.14	213.01	0.9562	1.7656
-9	3.68	0.761	63.27	1.314	15.810	188.26	401.54	212.25	0.9605	1.7640
-8	3.81	0.763	61.18	1.311	16.350	189.36	401.93	211.42	0.9651	1.7624
-7	3.94	0.765	59.19	1.308	16.900	190.46	402.31	210.66	0.9694	1.7609
-6	4.08	0.767	57.26	1.304	17.460	191.56	402.69	209.82	0.9739	1.7593
-5	4.22	0.769	55.42	1.301	18.040	192.66	403.07	209.04	0.9782	1.7577
-4	4.36	0.771	53.64	1.298	18.640	193.76	403.44	208.20	0.9827	1.7562
-3	4.51	0.772	51.95	1.295	19.250	194.86	403.82	207.41	0.9869	1.7547
-2	4.66	0.774	50.30	1.291	19.880	195.96	404.18	206.56	0.9914	1.7531
-1	4.82	0.776	48.73	1.288	20.520	197.06	404.54	205.74	0.9957	1.7517
0	4.98	0.778	47.21	1.285	21.180	198.16	404.90	204.90	1.0000	1.7502
1	5.14	0.781	45.74	1.281	21.860	199.26	405.25	204.03	1.0044	1.7487
2	5.31	0.783	44.35	1.278	22.550	200.36	405.61	203.23	1.0086	1.7472
3	5.48	0.785	42.99	1.274	23.260	201.46	405.95	202.35	1.0130	1.7457
4	5.66	0.787	41.69	1.271	23.990	202.56	406.30	201.51	1.0172	1.7443
5	5.84	0.789	40.42	1.268	24.740	203.66	406.63	200.63	1.0215	1.7428
6	6.02	0.791	39.21	1.264	25.500	204.76	406.96	199.76	1.0258	1.7414
7	6.21	0.793	38.04	1.261	26.290	205.86	407.29	198.86	1.0301	1.7400
8	6.40	0.795	36.92	1.257	27.090	206.96	407.62	198.01	1.0343	1.7385
9	6.60	0.798	35.83	1.254	27.910	208.06	407.94	197.12	1.0385	1.7371
10	6.80	0.800	34.78	1.250	28.760	209.16	408.25	196.21	1.0428	1.7357
11	7.01	0.802	33.76	1.247	29.620	210.26	408.56	195.30	1.0470	1.7343
12	7.22	0.804	32.79	1.243	30.500	211.36	408.86	194.42	1.0511	1.7329
13	7.43	0.807	31.84	1.240	31.410	212.46	409.16	193.49	1.0554	1.7315
14	7.65	0.809	30.93	1.236	32.330	213.56	409.46	192.58	1.0595	1.7302
15	7.88	0.811	30.04	1.232	33.280	214.66	409.75	191.65	1.0637	1.7288
16	8.11	0.814	29.19	1.229	34.260	215.76	410.03	190.70	1.0679	1.7274
17	8.34	0.816	28.37	1.225	35.250	216.86	410.31	189.78	1.0720	1.7261
18	8.58	0.819	27.57	1.221	36.270	217.96	410.59	188.84	1.0761	1.7247
19	8.83	0.821	26.80	1.218	37.310	219.06	410.86	187.88	1.0802	1.7233

t	p	v'	v''	rho'	rho''	h'	h''	r	s'	s''
°C	bar	dm³/kg	dm³/kg	kg/dm³	kg/m³	kJ/kg	kJ/kg	kJ/kg	kJ/kgK	kJ/kgK
20	9.08	0.824	26.06	1.214	38.380	224.19	411.13	186.94	1.0843	1.7220
21	9.33	0.826	25.33	1.210	39.470	225.42	411.39	185.96	1.0884	1.7206
22	9.59	0.829	24.63	1.206	40.590	226.65	411.64	184.99	1.0925	1.7193
23	9.86	0.832	23.96	1.203	41.740	227.87	411.89	184.02	1.0966	1.7179
24	10.13	0.834	23.31	1.199	42.910	229.10	412.13	183.03	1.1007	1.7166
25	10.41	0.837	22.67	1.195	44.110	230.34	412.37	182.03	1.1047	1.7153
26	10.69	0.840	22.06	1.191	45.330	231.56	412.60	181.04	1.1087	1.7139
27	10.98	0.842	21.46	1.187	46.590	232.79	412.83	180.03	1.1128	1.7126
28	11.27	0.845	20.89	1.183	47.880	234.03	413.04	179.01	1.1168	1.7112
29	11.57	0.848	20.33	1.179	49.200	235.27	413.26	177.98	1.1208	1.7099
30	11.88	0.851	19.79	1.175	50.540	236.50	413.47	176.97	1.1248	1.7086
31	12.19	0.854	19.26	1.171	51.920	237.74	413.67	175.93	1.1288	1.7072
32	12.51	0.857	18.75	1.167	53.330	238.99	413.86	174.87	1.1328	1.7059
33	12.83	0.860	18.25	1.163	54.780	240.23	414.05	173.82	1.1368	1.7045
34	13.16	0.863	17.77	1.159	56.260	241.48	414.23	172.75	1.1408	1.7032
35	13.49	0.866	17.31	1.155	57.780	242.73	414.40	171.67	1.1447	1.7018
36	13.84	0.869	16.86	1.150	59.330	243.98	414.57	170.59	1.1487	1.7005
37	14.18	0.873	16.42	1.146	60.920	245.23	414.73	169.50	1.1526	1.6991
38	14.54	0.876	15.99	1.142	62.540	246.49	414.88	168.39	1.1566	1.6978
39	14.90									