R-12 Dichlorodifluoromethane Properties

Thermodynamic properties of saturated and superheated - Dichlorodifluoromethane - CF_2Cl_2 - specific volume, enthalpy and entropy

Specific volume (v), specific internal energy (u), enthalpy (h), and entropy (s) of saturated and superheated Dichlorodifluoromethane (CF_2Cl_2) - also known as refrigerant 12 R-12.

For full table with Entropy and Superheated properties - **rotate the screen!**

Saturated Properties				
Temperature - t_s - (^oC) (deg F)	Pressure - p_s - (bar abs) (psia)	Specific Volume - v_i - (m^3/kg)	Specific Enthalpy	
			saturated liquid - h_f - (kJ/kg)	saturated vapor - h_g - (kJ/kg)
-100	0.0118	10.100	-51.84	142.00
-95	0.0181	6.585	-47.56	144.22
-90	0.0284	4.416	-43.28	146.46
-85	0.0424	3.037	-39.00	148.73
-80	0.0617	2.138	-34.72	151.02
-75	0.0879	1.538	-30.43	153.32
-70	0.1227	1.127	-26.13	155.63
-65	0.1680	0.8412	-21.81	157.96
-60	0.2262	0.6379	-17.49	160.29
-55	0.2998	0.4910	-13.14	162.62
-50	0.3915	0.3831	-8.78	164.95
-45	0.5044	0.3027	-4.40	167.28
-40	0.6417	0.2419	0	169.60
-35	0.8071	0.1954	4.42	171.90
-30	1.004	0.1594	8.86	174.20
-25	1.237	0.1312	13.33	176.48
-20	1.509	0.1088	17.82	178.73
-15	1.826	0.0910	22.33	180.97
-10	2.191	0.0766	26.87	183.19
-5	2.610	0.0650	31.45	185.38
0	3.086	0.0554	36.05	187.53
5	3.626	0.0475	40.69	189.66
10	4.233	0.0409	45.37	191.74
15	4.914	0.0354	50.10	193.78
20	5.673	0.0308	54.87	195.78
25	6.516	0.0269	59.70	197.73
30	7.449	0.0235	64.59	199.62
35	8.477	0.0206	69.55	201.45
40	9.607	0.0182	74.59	203.20
45	10.84	0.0160	79.71	204.87
50	12.19	0.0142	84.94	206.45
55	13.66	0.0125	90.27	207.92
60	15.26	0.0111	95.74	209.26
65	16.99	0.00985	101.36	210.46

Saturated Properties				
Temperature - t_s - (^oC) (deg F)	Pressure - p_s - (bar abs) (psia)	Specific Volume - v_i - (m^3/kg)	Specific Enthalpy	
			saturated liquid - h_f - (kJ/kg)	saturated vapor - h_g - (kJ/kg)
70	18.86	0.00873	107.15	211.48
75	20.88	0.00772	113.15	212.29
80	23.05	0.00682	119.39	212.83
85	25.38	0.00601	125.93	213.04
90	27.89	0.00526	132.84	212.80
95	30.57	0.00456	140.23	211.94
100	33.44	0.00390	148.32	210.12
105	36.51	0.00324	157.52	206.57
110	39.79	0.00246	169.55	197.99
112	41.15	0.00179	183.43	183.43

- *1 m^3/kg = 16.02 ft^3/lb = 27680 in^3/lb = 119.8 gal(US)/lb = 99.7764 gal(UK)/lb*
- *1 kJ/kg = 1 J/g = 0.23885 kcal/kg = 0.4299 Btu/lb = 0.0002778 kWh/kg*
- Dichlorodifluoromethane Molecular weight : *120.93 g/mol*
- Dichlorodifluoromethane Liquid Density (*1.013 bar* at boiling point) : *1486 kg/m^3 (250 K : 1468 kg/m^3) (300 K : 1304 kg/m^3)*
- Dichlorodifluoromethane Liquid Specific Heat (c_p) *(250 K : 0.902 kJ/kg.K) (300 K : 0.980 kJ/kg.K)*
- Dichlorodifluoromethane Liquid/gas equivalent (*1.013 bar* and *15^oC (59^oF)) : 292 vol/vol*
- Dichlorodifluoromethane Liquid Dynamic Viscosity *(250K : 336 10^6 Ns/m^2) (300K : 213 10^6 Ns/m^2)*
- Dichlorodifluoromethane Liquid Thermal Conductivity *(250 K : 86.8 10^6 kW/m.K) (300 K : 68.6 10^6 kW/m.K)*
- Dichlorodifluoromethane Boiling point *(1.013 bar) : -29.8^oC*
- Dichlorodifluoromethane Latent heat of vaporization (*1.013 bar* at boiling point) : *166.95 kJ/kg*
- Dichlorodifluoromethane Critical point - Critical temperature : *112^oC* - Critical pressure : *41.15 bar*
- Dichlorodifluoromethane Gas Density (*1.013 bar* at boiling point) : *6.25 kg/m^3*
- Dichlorodifluoromethane Gas Density (*1.013 bar* and *15^oC (59^oF)) : 5.11 kg/m^3*
- Dichlorodifluoromethane Gas Compressibility Factor (Z) (the ratio of the actual volume of the gas to the volume determined according to the perfect gas law) (*1.013 bar* and *15^oC (59^oF)) : 0.995*
- Dichlorodifluoromethane Gas Specific Gravity *(air = 1) (1.013 bar and 21^oC (70^oF)) : 4.2*
- Dichlorodifluoromethane Gas Specific volume (*1.013 bar* and *21^oC (70^oF)) : 0.195 m^3/kg*
- Dichlorodifluoromethane Gas Specific Heat at constant pressure (c_p) (*1.013 bar* and *15^oC (59^oF)) : 0.074 kJ/(mol.K)*
- Dichlorodifluoromethane Gas Specific Heat at constant volume (c_v) (*1.013 bar* and *15^oC (59^oF)) : 0.065 kJ/(mol.K)*
- Dichlorodifluoromethane Gas Ratio of Specific Heats (Gamma: c_p/c_v) (*1.013 bar* and *15^oC (59^oF)) : 1.138889*
- Dichlorodifluoromethane Gas Dynamic Viscosity (*1.013 bar* and *0^oC (32^oF)) : 0.0001168 Poise*
- Dichlorodifluoromethane Gas Thermal conductivity (*1.013 bar* and *0^oC (32^oF)) : 9.46 mW/(m.K)*

Note! Due to its ozone-depleting potential, dichlorodifluoromethane is currently replaced by R134a (1,1,1,2-tetrafluoroethane), R142b (Chloro-1-difluoro-1,1-ethane) or R409a (mixture containing 60 % of R12)

Related Topics

- **Air Conditioning** - Air Conditioning systems - heating, cooling and dehumidification of indoor air for thermal comfort

Related Documents

- **Dichlorodifluoromethane Properties** - Properties of saturated liquid Dichlorodifluoromethane R-12 - CCl_2F_2 - density, specific heat capacity, kinematic viscosity, thermal conductivity and Prandtl number