Richard Greene Company, Inc.
INDUSTRIAL CONTROLS FOR FACTORY AUTOMATION
Since 1958
RGreene.com

St. Louis
Richard Greene Company
10742 Kahlmeyer Drive
St Louis, MO 63132
(314) 423-8989

Kansas City
Richard Greene Company
8200 Marshall Drive
Lenexa, KS 66214
(913) 492-6886

WATLOW® Powered by Possibility

Properties of Gases and Air

Applications Guide

Reference Data

Physical Properties of Solids, Liquids and Gases
Continued

Properties of Gases—Ref. 136

Substance	*Density lb./ft³	*Specific Heat at Constant Pressure Btu/lb. - °F	*Thermal Conductivity Btu-in. / hr.-ft²-°F
Acetylene	0.073	0.35	0.129
Air	0.076	0.240	0.18
Alcohol, Ethyl (Vapor)		0.4534	
Alcohol, Methyl (Vapor)		0.4580	
Ammonia	0.044	0.523	0.16
Argon	0.103	0.124	0.12
Butane	0.1623		0.0876
Butylene	0.148		
Carbon Dioxide	0.113	0.199	0.12
Carbon Monoxide	0.078	0.248	0.18
Chlorine	0.184	0.115	0.06
Chloroform		0.1441	0.046
Chloromethane	0.1309	0.24	0.0636
Dichlorodifluoromethane (F-12)	0.329	0.143	0.058
Ethyl Chloride	0.1703		0.066
Ethylene	0.0728	0.40	0.1212
Ethyl Ether		0.4380	0.0924
Helium	0.0104	1.25	1.10
Hydrochloric Acid	0.0946	0.191	
Hydrogen	0.0056	3.43	0.13
Hydrogen Sulfide	0.096	0.2451	0.091
Methane	0.0447	0.60	0.21
Nitric Oxide	0.0779	0.231	0.1656
Nitrogen	0.075	0.249	0.19
Nitrous Oxide	0.1143	0.221	0.1056
Oxygen	0.082	0.218	0.18
Sulfur Dioxide	0.179	0.155	0.07
Water Vapor (212°F)	0.0372	0.482	0.16

Properties of Air*—Ref. 137

Temperature (°F)	Specific Heat (Btu/lb.-°F)	Density (lb./ft³)
0	0.240	0.086
50	0.240	0.078
100	0.240	0.071
150	0.241	0.065
200	0.242	0.060
250	0.243	0.056
300	0.244	0.052
350	0.245	0.049
400	0.247	0.046
450	0.248	0.043
500	0.249	0.041
550	0.250	0.039

Temperature (°F)	Specific Heat (Btu/lb.-°F)	Density (lb./ft³)
600	0.252	0.037
650	0.253	0.035
700	0.254	0.034
750	0.256	0.033
800	0.257	0.032
850	0.258	0.030
900	0.260	0.029
950	0.261	0.028
1000	0.262	0.027
1050	0.264	0.026
1100	0.265	0.025
1150	0.266	0.025
1200	0.267	0.024

* At 60°F and atmospheric pressure (14.7 psia)
To convert to kg/m³ multiply lb/ft³ by 16.02
To convert to kJ/kg multiply Btu/lb by 2.326
To convert to kJ/kg-°C multiply Btu/lb-°F by 4.187
To convert to W/m-°C multiply BTU-in/hr-ft²-°F by 0.1442

Reference Data