Isobaric Properties for Ammonia

- Fluid Data
- Auxiliary Data
- References
- Additional Information
- Important Information About This Data
- Notes
- **Other Data Available:**
  - View data with display applet. (requires Java capable browser).
  - Download data as a tab-delimited text file.
  - Main NIST Chemistry WebBook page for this species.
  - Recommended citation for data from this page.
  - Fluid data for other species

Fluid Data

Isobaric Data for P = 11.672 bar

Temperature (C)	Pressure (bar)	Density (mol/l)	Volume (l/mol)	Internal Energy (kJ/kg)	Enthalpy (kJ/kg)	Entropy (J/g*K)	Cv (J/g*K)	Cp (J/g*K)	Sound Spd. (m/s)	Joule-Thomson (K/bar)	Viscosity (uPa*s)	Therm. Cond. (W/m*K)	Phase
35.000	11.672	0.51722	1.9334	1512.7	1645.2	5.7867	2.1161	3.1135	410.77	2.3231	10.203	0.027279	vapor
36.000	11.672	0.51449	1.9437	1515.1	1648.3	5.7968	2.1051	3.0895	411.90	2.2996	10.245	0.027368	vapor
37.000	11.672	0.51182	1.9538	1517.5	1651.4	5.8067	2.0946	3.0666	413.02	2.2765	10.286	0.027458	vapor
38.000	11.672	0.50918	1.9639	1519.9	1654.5	5.8166	2.0845	3.0445	414.13	2.2536	10.328	0.027548	vapor
39.000	11.672	0.50660	1.9740	1522.2	1657.5	5.8263	2.0748	3.0234	415.22	2.2311	10.369	0.027640	vapor
40.000	11.672	0.50405	1.9839	1524.5	1660.5	5.8359	2.0655	3.0030	416.30	2.2088	10.410	0.027732	vapor
41.000	11.672	0.50154	1.9938	1526.8	1663.5	5.8455	2.0565	2.9835	417.38	2.1869	10.452	0.027825	vapor
42.000	11.672	0.49908	2.0037	1529.1	1666.5	5.8549	2.0479	2.9647	418.44	2.1652	10.493	0.027919	vapor
43.000	11.672	0.49665	2.0135	1531.4	1669.4	5.8643	2.0397	2.9467	419.49	2.1438	10.534	0.028013	vapor
44.000	11.672	0.49426	2.0232	1533.7	1672.4	5.8736	2.0317	2.9293	420.53	2.1227	10.575	0.028109	vapor
45.000	11.672	0.49190	2.0329	1536.0	1675.3	5.8828	2.0241	2.9126	421.56	2.1019	10.616	0.028205	vapor
46.000	11.672	0.48958	2.0426	1538.2	1678.2	5.8919	2.0168	2.8965	422.58	2.0814	10.657	0.028302	vapor
47.000	11.672	0.48729	2.0522	1540.4	1681.1	5.9009	2.0097	2.8809	423.59	2.0611	10.698	0.028400	vapor
48.000	11.672	0.48503	2.0617	1542.6	1683.9	5.9099	2.0029	2.8660	424.60	2.0411	10.739	0.028498	vapor
49.000	11.672	0.48281	2.0712	1544.9	1686.8	5.9188	1.9964	2.8516	425.59	2.0213	10.780	0.028597	vapor
50.000	11.672	0.48061	2.0807	1547.1	1689.7	5.9276	1.9901	2.8377	426.58	2.0018	10.821	0.028697	vapor
51.000	11.672	0.47845	2.0901	1549.2	1692.5	5.9363	1.9841	2.8243	427.56	1.9826	10.862	0.028798	vapor
52.000	11.672	0.47632	2.0994	1551.4	1695.3	5.9450	1.9783	2.8114	428.53	1.9636	10.903	0.028899	vapor
53.000	11.672	0.47421	2.1088	1553.6	1698.1	5.9536	1.9728	2.7989	429.49	1.9449	10.943	0.029001	vapor
54.000	11.672	0.47213	2.1181	1555.7	1700.9	5.9622	1.9674	2.7869	430.45	1.9264	10.984	0.029104	vapor
55.000	11.672	0.47008	2.1273	1557.9	1703.7	5.9707	1.9623	2.7753	431.40	1.9082	11.025	0.029208	vapor
56.000	11.672	0.46805	2.1365	1560.0	1706.5	5.9791	1.9573	2.7641	432.34	1.8902	11.066	0.029312	vapor
57.000	11.672	0.46605	2.1457	1562.1	1709.2	5.9875	1.9526	2.7533	433.27	1.8724	11.106	0.029417	vapor
58.000	11.672	0.46407	2.1548	1564.3	1712.0	5.9958	1.9480	2.7428	434.20	1.8549	11.147	0.029523	vapor
59.000	11.672	0.46212	2.1640	1566.4	1714.7	6.0040	1.9436	2.7328	435.12	1.8376	11.188	0.029629	vapor
60.000	11.672	0.46019	2.1730	1568.5	1717.4	6.0122	1.9394	2.7230	436.03	1.8205	11.228	0.029736	vapor
61.000	11.672	0.45828	2.1821	1570.6	1720.1	6.0204	1.9354	2.7136	436.94	1.8036	11.269	0.029844	vapor
62.000	11.672	0.45640	2.1911	1572.7	1722.8	6.0285	1.9315	2.7045	437.84	1.7870	11.310	0.029952	vapor
63.000	11.672	0.45453	2.2001	1574.8	1725.5	6.0365	1.9277	2.6957	438.73	1.7705	11.350	0.030062	vapor
64.000	11.672	0.45269	2.2090	1576.8	1728.2	6.0445	1.9242	2.6872	439.62	1.7543	11.391	0.030171	vapor
65.000	11.672	0.45087	2.2179	1578.9	1730.9	6.0524	1.9207	2.6790	440.50	1.7383	11.431	0.030282	vapor
66.000	11.672	0.44907	2.2268	1581.0	1733.6	6.0603	1.9175	2.6711	441.38	1.7225	11.472	0.030393	vapor
67.000	11.672	0.44729	2.2357	1583.0	1736.3	6.0682	1.9143	2.6634	442.25	1.7069	11.513	0.030505	vapor
68.000	11.672	0.44553	2.2445	1585.1	1738.9	6.0760	1.9113	2.6560	443.12	1.6914	11.553	0.030617	vapor
69.000	11.672	0.44379	2.2533	1587.1	1741.6	6.0838	1.9084	2.6488	443.98	1.6762	11.594	0.030730	vapor

70.000	11.672	0.44207	2.2621	1589.2	1744.2	6.0915	1.9056	2.6419	444.83	1.6612	11.634	0.030844	vapor
71.000	11.672	0.44036	2.2709	1591.2	1746.9	6.0992	1.9030	2.6352	445.68	1.6464	11.675	0.030959	vapor
72.000	11.672	0.43868	2.2796	1593.3	1749.5	6.1068	1.9005	2.6287	446.53	1.6317	11.715	0.031074	vapor
73.000	11.672	0.43701	2.2883	1595.3	1752.1	6.1144	1.8981	2.6224	447.37	1.6172	11.755	0.031189	vapor
74.000	11.672	0.43535	2.2970	1597.3	1754.7	6.1220	1.8958	2.6163	448.21	1.6029	11.796	0.031306	vapor
75.000	11.672	0.43372	2.3056	1599.3	1757.4	6.1295	1.8936	2.6105	449.04	1.5888	11.836	0.031422	vapor
76.000	11.672	0.43210	2.3143	1601.3	1760.0	6.1370	1.8915	2.6048	449.86	1.5749	11.877	0.031540	vapor
77.000	11.672	0.43050	2.3229	1603.4	1762.6	6.1444	1.8895	2.5993	450.68	1.5611	11.917	0.031658	vapor
78.000	11.672	0.42891	2.3315	1605.4	1765.2	6.1518	1.8876	2.5940	451.50	1.5475	11.958	0.031777	vapor
79.000	11.672	0.42734	2.3401	1607.4	1767.8	6.1592	1.8858	2.5889	452.31	1.5341	11.998	0.031896	vapor
80.000	11.672	0.42578	2.3486	1609.4	1770.3	6.1665	1.8840	2.5840	453.12	1.5209	12.038	0.032017	vapor
81.000	11.672	0.42424	2.3572	1611.4	1772.9	6.1738	1.8824	2.5792	453.92	1.5078	12.079	0.032137	vapor
82.000	11.672	0.42271	2.3657	1613.4	1775.5	6.1811	1.8809	2.5746	454.72	1.4948	12.119	0.032258	vapor
83.000	11.672	0.42120	2.3742	1615.3	1778.1	6.1883	1.8794	2.5701	455.52	1.4820	12.159	0.032380	vapor
84.000	11.672	0.41970	2.3827	1617.3	1780.6	6.1955	1.8781	2.5658	456.31	1.4694	12.200	0.032503	vapor
85.000	11.672	0.41821	2.3911	1619.3	1783.2	6.2027	1.8768	2.5616	457.10	1.4569	12.240	0.032626	vapor
86.000	11.672	0.41674	2.3996	1621.3	1785.8	6.2098	1.8755	2.5576	457.88	1.4446	12.280	0.032749	vapor
87.000	11.672	0.41528	2.4080	1623.3	1788.3	6.2169	1.8744	2.5537	458.66	1.4324	12.321	0.032873	vapor
88.000	11.672	0.41384	2.4164	1625.3	1790.9	6.2240	1.8733	2.5499	459.44	1.4204	12.361	0.032998	vapor
89.000	11.672	0.41241	2.4248	1627.2	1793.4	6.2310	1.8723	2.5463	460.21	1.4085	12.401	0.033124	vapor
90.000	11.672	0.41099	2.4332	1629.2	1796.0	6.2381	1.8714	2.5428	460.98	1.3968	12.442	0.033250	vapor
91.000	11.672	0.40958	2.4415	1631.2	1798.5	6.2450	1.8705	2.5394	461.74	1.3852	12.482	0.033376	vapor
92.000	11.672	0.40819	2.4499	1633.1	1801.0	6.2520	1.8697	2.5361	462.51	1.3737	12.522	0.033503	vapor
93.000	11.672	0.40680	2.4582	1635.1	1803.6	6.2589	1.8690	2.5330	463.26	1.3624	12.562	0.033631	vapor
94.000	11.672	0.40543	2.4665	1637.1	1806.1	6.2658	1.8683	2.5299	464.02	1.3512	12.603	0.033759	vapor
95.000	11.672	0.40407	2.4748	1639.0	1808.6	6.2727	1.8677	2.5270	464.77	1.3401	12.643	0.033888	vapor
96.000	11.672	0.40273	2.4831	1641.0	1811.2	6.2796	1.8671	2.5242	465.52	1.3292	12.683	0.034017	vapor
97.000	11.672	0.40139	2.4913	1642.9	1813.7	6.2864	1.8666	2.5215	466.26	1.3184	12.723	0.034147	vapor
98.000	11.672	0.40006	2.4996	1644.9	1816.2	6.2932	1.8662	2.5188	467.01	1.3077	12.764	0.034277	vapor
99.000	11.672	0.39875	2.5078	1646.8	1818.7	6.3000	1.8658	2.5163	467.75	1.2971	12.804	0.034408	vapor
100.00	11.672	0.39745	2.5161	1648.8	1821.2	6.3067	1.8654	2.5139	468.48	1.2867	12.844	0.034539	vapor

Auxiliary Data

Reference States

Internal energy	U = 0 at 273.16 K for saturated liquid.
Entropy	S = 0 at 273.16 K for saturated liquid.

Additional fluid properties

Critical temperature (T_c)	132.25 C
Critical pressure (P_c)	113.330 bar
Critical density (D_c)	13.2118 mol/l
Acentric factor	0.25601
Normal boiling point	-33.327 C
Dipole moment	1.470 Debye

References

Equation of state and auxiliary model

Tillner-Roth, R.; Harms-Watzenberg, F.; Baehr, H.D., *Eine neue Fundamentalgleichung für Ammoniak.*, **DKV-Tagungsbericht**, 1993, 20, 167-181. [all data]

Auxiliary model

Ahrendts, J.; Baehr, H.D., *The Thermodynamic Properties of Ammonia*, **VDI-Forsch.**, 1979, 596, 0. [all data]