

Thermo-technical Data for  $D_2O$ ,  
Table 2A1

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This report AE-52 replaces RFN-8 Värmetekniska data för D<sub>2</sub>O. (sat. volume of steam  $v'_s$  m<sup>3</sup>/kg has been calculated with greater accuracy).

PROPERTIES OF HEAVY WATER AT THE SATURATED STATE

Table 2 A 1:

saturated pressure .....	$p_s$ bar
sat. volume of liquid .....	$v'_s$ m <sup>3</sup> /kg
sat. volume of steam .....	$v''_s$ m <sup>3</sup> /kg

By E. Axblom

Summary

The above mentioned data are given in table form 10° (10°) 370°C (p. 6) and 4° (1°) 370°C (pp. 7-14).

This report was written in order to sum up measurements of  $v'_s$  for D<sub>2</sub>O according to available references up to 300°C, and suggests an extrapolation formula for the range 300° - 370°C with great accuracy.

$p_s$  for D<sub>2</sub>O was calculated from an empirical formula.

$v''_s$  for D<sub>2</sub>O was calculated by assuming that the molecular volumes of D<sub>2</sub>O and H<sub>2</sub>O are the same at the same pressure and reduced temperature.

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Properties of Heavy Water at the Saturated State Table 2 A 1

saturated pressure .....  $p_s$  bar  
 sat. volume of liquid .....  $v'_s$  m<sup>3</sup>/kg  
 sat. volume of steam .....  $v''_s$  m<sup>3</sup>/kg  
 and conversion factor from H<sub>2</sub>O

The following tables were calculated as functions of the temperature °C by correlation with (1), Table 2A and assuming that the mol. volumes are approximately the same at the same reduced temperature =  $T_{red} = T_s/T_{crit}$ .

In according to (1), (2) and (3) is assumed:

	H <sub>2</sub> O	D <sub>2</sub> O
molecule weight	18.0160 (1)	20.0284 (1)
critical temperature °C	374.15 (1)	370.9 (3)
" " °K	647.31	644.06

(mol. weights refer to chemically pure H<sub>2</sub>O<sup>16</sup> and D<sub>2</sub>O<sup>16</sup>)

$v'_s$  for D<sub>2</sub>O at  $t_{D_2O}$  were calculated according to

$$T_{red} = \frac{t_{D_2O} + 273.16}{644.06} = \frac{t_{H_2O} + 273.16}{647.31}$$

$$t_{H_2O} = 1.0050461 t_{D_2O} + 1.37839$$

$v'_{s_{H_2O}}$  at  $t_{H_2O}$  were calculated using a parabolic interpolation of

three consecutive values of  $v'_{s_{H_2O}} = f(t)$  tabulated according to (1) Table 2 A

$$v'_{s_{D_2O}} \text{ by } t_{D_2O} = \frac{18.021065}{20.0284} v'_{s_{H_2O}} \text{ by } t_{H_2O}$$



This ratio of molar volumes is according to natural water and  $D_2O^{16}$  (7). Differences between the correlated and measured values are presumably due to the fact that the maximum density of  $H_2O$  and  $D_2O$  does not occur at the same  $T_{red}$ , which can be due to different degrees of polymerisation. A correction factor  $(1 + 0.0063 \cdot 10^{-0.0115}) \cdot t_{D_2O}$  has been allowed for in all the values.

The correlated (and corrected) values show very good agreement with (6). A noticeable tendency to lie above (6) can be explained by the occurrence of  $O^{18}$  (approx. 0.2 %) in all measurements, while the correlated values refer to 100 %  $D_2O^{16}$ .

$p_s$  were calculated according to (2).

$${}^{10}\log p_{s_{D_2O}} - {}^{10}\log p_{s_{H_2O}} = 0.0306605 - \frac{9.14956}{75.753 + t_{D_2O}}$$

$v_{s_{D_2O}}''$  were calculated in accordance to the general gas laws to apply for  $p_{s_{D_2O}}$

$$\left[ \frac{p_H v_H''}{T_H} \right]_{t_{H_2O}} = \left[ \frac{p_D v_D''}{T_D} \right]_{t_{D_2O}} \cdot \frac{M_D}{M_H}$$





$t_{D_2O}$	Mol.-vol. ratio $V_D/V_H$		$v'_{s_{D_2O}} \cdot 10^3$		Correc- tion $\cdot 10^7$	Correl + Correction $\cdot 10^3$	Error $\cdot 10^7$	$t_{D_2O}$	
	(9)	(7)	Smooth	Smooth					Correl.
3,8	1.00574		1.00574	0.9047	0.8999	49	0.9048	1	3.8
5	558		555	46	0.8999	48	47	1	5
10	495		495	43	0.9002	42	44	1	10
15	447		446	44	8	37	45	1	15
20	404	1.00401	404	48	17	32	49	1	20
25	369	368	368	56	28	29	57	1	25
30	339	338	337	66	42	25	67	1	30
35	312	311	311	78	57	22	79	1	35
40	291	289	289	92	74	19	83	1	40
45	272	272	271	109	93	17	110	1	45
50	257	257	256	127	114	15	129	2	50
60				169	159	11	170	1	60
70				ref (6) 219	212	9	221	2	70
80				274	269	7	276	2	80
90				336	332	5	337	1	90
100				404	402	4	406	2	100
	$v'_{s_{D_2O}} = v'_{s_{H_2O}} \cdot \frac{M_H}{M_D} \cdot \frac{V_D}{V_H}$				476	3	479	2	110
	$v'_{s_{H_2O}}$ according to (1)				556	3	559	3	120
	$M_H = 18.0160$				643	2	645	3	130
	$M_D = 20.0284$				735	2	737	3	140
					834	1	835	3	150

max correction =  $49 \cdot 10^{-7} \text{ m}^3/\text{kg}$  (approx. 5.5 promille)

max error =  $3 \cdot 10^{-7} \text{ "}$  (approx. 0.3 promille)



$t_{D_2O}$	Sat. volume of liquid according to different refs: tablevalue $\cdot 10^{-3}$ gives $m^3/kg$				$t_{D_2O}$	Sat. volume of liquid according to different refs: tablevalue $\cdot 10^{-3}$ gives $m^3/kg$			
		(5)	(6)	acc. to table		(4)	(5)	(6)	acc. to table
30	0.9065	0.9065		0.9067	200	1.0449	1.0449	1.0438	1.0440
40	92	92		93	210	604	604	586	588
50	ref (9) 127	127	0.9126	129	220	764	776	746	748
60	170	169	169	170	230	953	953	918	921
70	219	219	219	221	240	1136	1148	1107	1109
80	275	275	274	276	250	1351	1351	1312	1314
90	337	339	336	337	260	1574		1538	1540
100	0.9403	407	404	406	270	1806		1787	1788
110	477	481	477	479	280	2063		2066	2066
120	557	561	556	559	290	2361		2378	2379
130	ref (8) 642	647	642	645	300	2706		2736	2737
140	734	739	734	737	310	3106			3153
150	833	836	832	835	320	3605			3647
160	941	942	938	941	330	4184			4246
170		1.0050	1.0053	1.0053	340	4970			5007
180	ref (4) 1.0173	177	170	173	350	5974			6025
190	0309	309	299	302	360	7452			7689
					370	2.1645			2.3092



°C	bar	m <sup>3</sup> /kg		Conversion factor		
t	P <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>	P <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>
10	0.010303	0.0009044	114.04	0.8396	0.9041	1.072
20	0.020129	0.0009049	60.408			
30	0.037306	0.0009067	33.684	0.8795	0.9027	1.023
40	0.065987	0.0009093	19.653			
50	0.11197	0.0009129	11.936	0.9078	0.9019	0.991
60	0.18306	0.0009170	7.5143			
70	0.28943	0.0009221	4.8855	0.9289	0.9015	0.968
80	0.44399	0.0009276	3.2696			
90	0.66266	0.0009337	2.2462	0.9452	0.9014	0.951
100	0.9646	0.0009406	1.5799			
110	1.3727	0.0009479	1.1354	0.9582	0.9015	0.938
120	1.9134	0.0009559	0.83169			
130	2.6168	0.0009645	0.61995	0.9688	0.9017	0.928
140	3.5175	0.0009737	0.46950			
150	4.6532	0.0009835	0.36070	0.9776	0.9018	0.919
160	6.0660	0.0009941	0.28075			
170	7.8020	0.0010053	0.22109	0.9851	0.9021	0.911
180	9.9104	0.0010173	0.17601			
190	12.445	0.0010302	0.14146	0.9914	0.9025	0.905
200	15.461	0.0010440	0.11470			
210	19.021	0.0010588	0.09374	0.9969	0.9030	0.899
220	23.188	0.0010748	0.07713			
230	28.028	0.0010921	0.06388	1.0018	0.9036	0.894
240	33.612	0.0011109	0.05318			
250	40.015	0.0011314	0.04448	1.0060	0.9043	0.889
260	47.313	0.0011540	0.03736			
270	55.589	0.0011788	0.03146	1.0098	0.9052	0.884
280	64.929	0.0012066	0.02655			
290	75.427	0.0012379	0.02244	1.0131	0.9066	0.878
300	87.179	0.0012737	0.01895			
310	100.29	0.0013153	0.01598	1.0162	0.9087	0.872
320	114.88	0.0013647	0.01343			
330	131.07	0.0014246	0.01121	1.0189	0.9121	0.864
340	149.03	0.0015007	0.00926			
350	168.91	0.0016025	0.00748	1.0214	0.9204	0.850
360	190.95	0.0017689	0.00577			
370	215.50	0.0023092	0.00357	1.0237	1.0378	0.724

Conversion factor · H<sub>2</sub>O - value = D<sub>2</sub>O-value



°C	bar	m <sup>3</sup> /kg		Conversion factor		
		t	P <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>	P <sub>s</sub>
4	0.006700	0.0009048	171.67	0.8242	0.9047	1.092
5	0.007210	0.0009047	160.10			
6	0.007753	0.0009046	149.41	0.8296	0.9045	1.084
7	0.008332	0.0009045	139.54			
8	0.008949	0.0009045	130.37	0.8347	0.9043	1.078
9	0.009605	0.0009044	121.90			
10	0.010303	0.0009044	114.04	0.8396	0.9041	1.072
11	0.011045	0.0009044	106.75			
12	0.011833	0.0009044	99.990	0.8443	0.9039	1.066
13	0.012671	0.0009044	93.699			
14	0.013559	0.0009045	87.866	0.8488	0.9037	1.060
15	0.014502	0.0009045	82.436			
16	0.015502	0.0009046	77.383	0.8532	0.9036	1.055
17	0.016562	0.0009046	72.680			
18	0.017684	0.0009047	68.299	0.8574	0.9034	1.049
19	0.018872	0.0009048	64.214			
20	0.020129	0.0009049	60.408	0.8614	0.9033	1.044
21	0.021459	0.0009050	56.855			
22	0.022864	0.0009052	53.539	0.8653	0.9031	1.040
23	0.024349	0.0009053	50.442			
24	0.025918	0.0009055	47.546	0.8690	0.9030	1.035
25	0.027573	0.0009057	44.838			
26	0.029320	0.0009058	42.305	0.8726	0.9029	1.031
27	0.031162	0.0009060	39.934			
28	0.033104	0.0009062	37.715	0.8761	0.9028	1.027
29	0.035150	0.0009064	35.635			
30	0.037306	0.0009067	33.684	0.8795	0.9027	1.023
31	0.039575	0.0009069	31.855			
32	0.041962	0.0009071	30.139	0.8827	0.9026	1.019
33	0.044474	0.0009074	28.528			
34	0.047114	0.0009076	27.015	0.8859	0.9025	1.016
35	0.049889	0.0009079	25.593			
36	0.052804	0.0009082	24.256	0.8889	0.9024	1.012
37	0.055866	0.0009084	22.998			
38	0.059079	0.0009087	21.815	0.8919	0.9023	1.009
39	0.062451	0.0009090	20.701			
40	0.065987	0.0009093	19.653	0.8947	0.9022	1.005
41	0.069696	0.0009097	18.664			
42	0.073581	0.0009100	17.733	0.8975	0.9021	1.002
43	0.077653	0.0009103	16.854			
44	0.081916	0.0009106	16.026	0.9002	0.9021	0.999
45	0.086380	0.0009110	15.244			
46	0.091051	0.0009113	14.505	0.9028	0.9020	0.996
47	0.095937	0.0009117	13.807			
48	0.101047	0.0009121	13.149	0.9053	0.9019	0.994
49	0.106388	0.0009124	12.526			
50	0.11197	0.0009129	11.936	0.9078	0.9019	0.991

Conversion factor · H<sub>2</sub>O-value = D<sub>2</sub>O-value





°C	bar	m <sup>3</sup> /kg		Conversion factor		
		t	p <sub>H</sub>	v' <sub>S</sub>	v'' <sub>S</sub>	p <sub>S</sub>
50	0.11197	0.0009129	11.936	0.9078	0.9019	0.991
51	0.11780	0.0009133	11.378			
52	0.12389	0.0009136	10.851	0.9101	0.9018	0.988
53	0.13024	0.0009140	10.352			
54	0.13688	0.0009144	9.8788	0.9125	0.9018	0.986
55	0.14380	0.0009149	9.4305			
56	0.15102	0.0009153	9.0054	0.9147	0.9018	0.983
57	0.15854	0.0009158	8.6032			
58	0.16638	0.0009162	8.2211	0.9169	0.9017	0.981
59	0.17455	0.0009166	7.8584			
60	0.18306	0.0009170	7.5143	0.9190	0.9016	0.979
61	0.19192	0.0009175	7.1879			
62	0.20114	0.0009180	6.8775	0.9211	0.9017	0.977
63	0.21074	0.0009186	6.5825			
64	0.22072	0.0009191	6.3024	0.9231	0.9017	0.974
65	0.23110	0.0009196	6.0359			
66	0.24189	0.0009201	5.7825	0.9251	0.9016	0.972
67	0.25311	0.0009205	5.5414			
68	0.26476	0.0009211	5.3120	0.9270	0.9016	0.970
69	0.27687	0.0009216	5.0934			
70	0.28943	0.0009221	4.8855	0.9289	0.9015	0.968
71	0.30248	0.0009226	4.6874			
72	0.31603	0.0009231	4.4983	0.9307	0.9015	0.966
73	0.33008	0.0009237	4.3182			
74	0.34466	0.0009242	4.1467	0.9324	0.9015	0.965
75	0.35976	0.0009247	3.9831			
76	0.37544	0.0009252	3.8267	0.9342	0.9014	0.963
77	0.39168	0.0009258	3.6777			
78	0.40850	0.0009264	3.5354	0.9359	0.9015	0.961
79	0.42594	0.0009270	3.3995			
80	0.44399	0.0009276	3.2696	0.9375	0.9014	0.959
81	0.46268	0.0009282	3.1455			
82	0.48203	0.0009288	3.0270	0.9391	0.9015	0.958
83	0.50205	0.0009294	2.9137			
84	0.52278	0.0009300	2.8052	0.9407	0.9015	0.956
85	0.54419	0.0009307	2.7016			
86	0.56635	0.0009313	2.6024	0.9422	0.9014	0.954
87	0.58924	0.0009319	2.5075			
88	0.61292	0.0009325	2.4166	0.9437	0.9014	0.953
89	0.63738	0.0009331	2.3296			
90	0.66266	0.0009337	2.2462	0.9452	0.9014	0.951
91	0.68876	0.0009344	2.1664			
92	0.71571	0.0009351	2.0898	0.9466	0.9014	0.950
93	0.74354	0.0009358	2.0164			
94	0.77226	0.0009364	1.9462	0.9480	0.9014	0.949
95	0.80191	0.0009371	1.8786			
96	0.83249	0.0009378	1.8139	0.9494	0.9015	0.947
97	0.86402	0.0009385	1.7518			
98	0.89654	0.0009392	1.69. 2	0.9507	0.9014	0.946
99	0.93007	0.0009399	1.6349			
100	0.9646	0.0009406	1.5799	0.9520	0.9015	0.944

Conversion factor . (H<sub>2</sub>O-value = D<sub>2</sub>O-value)



°C	bar	m <sup>3</sup> /kg		Conversion factor		
t	p <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>	p <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>
100	0.9646	0.0009406	1.5799	0.9520	0.9015	0.944
101	1.0002	0.0009413	1.5273			
102	1.0369	0.0009420	1.4767	0.9533	0.9014	0.943
103	1.0748	0.0009427	1.4278			
104	1.1138	0.0009434	1.3810	0.9546	0.9014	0.942
105	1.1539	0.0009441	1.3360			
106	1.1952	0.0009449	1.2926	0.9558	0.9015	0.941
107	1.2377	0.0009457	1.2509			
108	1.2814	0.0009464	1.2109	0.9570	0.9014	0.939
109	1.3264	0.0009472	1.1725			
110	1.3727	0.0009479	1.1354	0.9582	0.9015	0.938
111	1.4204	0.0009487	1.0996			
112	1.4693	0.0009495	1.0651	0.9593	0.9015	0.937
113	1.5196	0.0009502	1.0320			
114	1.5714	0.0009510	1.0001	0.9605	0.9015	0.936
115	1.6246	0.0009518	0.96941			
116	1.6793	0.0009526	0.93982	0.9616	0.9015	0.935
117	1.7355	0.0009535	0.91123			
118	1.7933	0.0009543	0.88374	0.9627	0.9015	0.934
119	1.8525	0.0009551	0.85727			
120	1.9134	0.0009559	0.83169	0.9638	0.9015	0.933
121	1.9759	0.0009568	0.80693			
122	2.0401	0.0009576	0.78308	0.9648	0.9016	0.931
123	2.1058	0.0009584	0.76012			
124	2.1734	0.0009593	0.73798	0.9658	0.9016	0.931
125	2.2427	0.0009601	0.71656			
126	2.3138	0.0009610	0.69586	0.9668	0.9016	0.930
127	2.3868	0.0009619	0.67591			
128	2.4616	0.0009627	0.65662	0.9678	0.9016	0.929
129	2.5383	0.0009636	0.63795			
130	2.6168	0.0009645	0.61995	0.9688	0.9017	0.928
131	2.6975	0.0009654	0.60248			
132	2.7801	0.0009663	0.58567	0.9698	0.9017	0.927
133	2.8647	0.0009672	0.56945			
134	2.9515	0.0009681	0.55366	0.9707	0.9017	0.926
135	3.0402	0.0009690	0.53849			
136	3.1312	0.0009700	0.52375	0.9716	0.9017	0.925
137	3.2245	0.0009709	0.50947			
138	3.3198	0.0009718	0.49574	0.9725	0.9017	0.924
139	3.4174	0.0009728	0.48241			
140	3.5175	0.0009737	0.46950	0.9734	0.9017	0.923
141	3.6198	0.0009747	0.45698			
142	3.7245	0.0009756	0.44488	0.9741	0.9017	0.922
143	3.8317	0.0009766	0.43314			
144	3.9413	0.0009776	0.42180	0.9751	0.9018	0.921
145	4.0534	0.0009786	0.41082			
146	4.1680	0.0009796	0.40013	0.9760	0.9018	0.920
147	4.2854	0.0009805	0.38980			
148	4.4053	0.0009815	0.37982	0.9768	0.9018	0.920
149	4.5278	0.0009825	0.37011			
150	4.6532	0.0009835	0.36070	0.9776	0.9018	0.919

Conversion factor · H<sub>2</sub>O-value = D<sub>2</sub>O-value



°C	bar	m <sup>3</sup> /kg		Conversion factor		
t	p <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>	p <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>
150	4.6532	0.0009835	0.36070	0.9776	0.9018	0.919
151	4.7813	0.0009846	0.35155			
152	4.9123	0.0009856	0.34271	0.9784	0.9019	0.918
153	5.0459	0.0009866	0.33412			
154	5.1826	0.0009877	0.32580	0.9792	0.9019	0.917
155	5.3222	0.0009888	0.31771			
156	5.4648	0.0009898	0.30988	0.9800	0.9019	0.916
157	5.6104	0.0009908	0.30226			
158	5.7592	0.0009919	0.29487	0.9807	0.9020	0.916
159	5.9111	0.0009930	0.28769			
160	6.0660	0.0009941	0.28075	0.9815	0.9020	0.915
161	6.2243	0.0009952	0.27396			
162	6.3859	0.0009963	0.26740	0.9822	0.9020	0.914
163	6.5508	0.0009973	0.26101			
164	6.7190	0.0009985	0.25481	0.9830	0.9021	0.913
165	6.8906	0.0009996	0.24879			
166	7.0657	0.0010007	0.24293	0.9837	0.9020	0.913
167	7.2445	0.0010019	0.23725			
168	7.4267	0.0010030	0.23171	0.9844	0.9022	0.912
169	7.6125	0.0010041	0.22633			
170	7.8020	0.0010053	0.22109	0.9851	0.9021	0.911
171	7.9952	0.0010065	0.21601			
172	8.1923	0.0010076	0.21107	0.9857	0.9022	0.911
173	8.3931	0.0010088	0.20624			
174	8.5978	0.0010100	0.20157	0.9864	0.9023	0.910
175	8.8065	0.0010112	0.19701			
176	9.0191	0.0010124	0.19258	0.9871	0.9023	0.909
177	9.2357	0.0010136	0.18827			
178	9.4564	0.0010149	0.18407	0.9877	0.9023	0.909
179	9.6813	0.0010161	0.17999			
180	9.9104	0.0010173	0.17601	0.9884	0.9023	0.908
181	10.144	0.0010186	0.17212			
182	10.382	0.0010199	0.16835	0.9890	0.9024	0.907
183	10.623	0.0010211	0.16468			
184	10.870	0.0010224	0.16109	0.9896	0.9024	0.907
185	11.121	0.0010237	0.15761			
186	11.376	0.0010249	0.15422	0.9902	0.9024	0.906
187	11.637	0.0010262	0.15091			
188	11.901	0.0010276	0.14767	0.9908	0.9025	0.905
189	12.171	0.0010289	0.14452			
190	12.445	0.0010302	0.14146	0.9914	0.9025	0.905
191	12.724	0.0010316	0.13847			
192	13.007	0.0010329	0.13557	0.9920	0.9026	0.904
193	13.296	0.0010343	0.13273			
194	13.591	0.0010356	0.12995	0.9926	0.9026	0.904
195	13.890	0.0010370	0.12725			
196	14.193	0.0010384	0.12462	0.9932	0.9026	0.903
197	14.502	0.0010398	0.12205			
198	14.817	0.0010412	0.11954	0.9937	0.9027	0.902
199	15.137	0.0010426	0.11709			
200	15.461	0.0010440	0.11470	0.9943	0.9027	0.902

Conversion factor · H<sub>2</sub>O-value = D<sub>2</sub>O-value



°C	bar	m <sup>3</sup> /kg		Conversion factor		
t	P <sub>s</sub>	v <sub>s</sub> '	v <sub>s</sub> ''	P <sub>s</sub>	v <sub>s</sub> '	v <sub>s</sub> ''
200	15.461	0.0010440	0.11470	0.9943	0.9027	0.902
201	15.793	0.0010454	0.11237			
202	16.128	0.0010469	0.11070	0.9948	0.9028	0.901
203	16.469	0.0010483	0.10788			
204	16.817	0.0010498	0.10570	0.9954	0.9028	0.901
205	17.171	0.0010513	0.10359			
206	17.528	0.0010528	0.10153	0.9959	0.9029	0.900
207	17.893	0.0010543	0.09951			
208	18.264	0.0010557	0.09754	0.9964	0.9029	0.900
209	18.640	0.0010573	0.09561			
210	19.021	0.0010588	0.09374	0.9969	0.9030	0.899
211	19.411	0.0010604	0.09190			
212	19.805	0.0010619	0.09010	0.9975	0.9030	0.898
213	20.205	0.0010635	0.08835			
214	20.612	0.0010651	0.08663	0.9980	0.9031	0.898
215	21.024	0.0010667	0.08496			
216	21.445	0.0010683	0.08332	0.9985	0.9031	0.897
217	21.871	0.0010699	0.08172			
218	22.304	0.0010715	0.08015	0.9990	0.9032	0.897
219	22.743	0.0010732	0.07862			
220	23.188	0.0010748	0.07713	0.9994	0.9032	0.896
221	23.640	0.0010765	0.07567			
222	24.100	0.0010782	0.07424	0.9999	0.9033	0.896
223	24.566	0.0010799	0.07285			
224	25.039	0.0010816	0.07148	1.0004	0.9034	0.895
225	25.520	0.0010833	0.07014			
226	26.007	0.0010850	0.06883	1.0008	0.9034	0.895
227	26.501	0.0010868	0.06755			
228	27.003	0.0010885	0.06627	1.0013	0.9034	0.894
229	27.511	0.0010903	0.06503			
230	28.028	0.0010921	0.06388	1.0018	0.9036	0.894
231	28.526	0.0010940	0.06276			
232	29.083	0.0010958	0.06155	1.0022	0.9036	0.893
233	29.622	0.0010976	0.06043			
234	30.168	0.0010994	0.05932	1.0027	0.9036	0.893
235	30.723	0.0011013	0.05824			
236	31.284	0.0011032	0.05718	1.0031	0.9038	0.892
237	31.854	0.0011051	0.05615			
238	32.432	0.0011070	0.05514	1.0035	0.9038	0.892
239	33.018	0.0011090	0.05416			
240	33.612	0.0011109	0.05318	1.0039	0.9038	0.891
241	34.215	0.0011128	0.05222			
242	34.825	0.0011148	0.05130	1.0044	0.9039	0.891
243	35.444	0.0011168	0.05039			
244	36.071	0.0011189	0.04948	1.0048	0.9040	0.890
245	36.707	0.0011209	0.04861			
246	37.351	0.0011229	0.04775	1.0052	0.9041	0.890
247	38.003	0.0011250	0.04691			
248	38.666	0.0011272	0.04609	1.0056	0.9042	0.889
249	39.335	0.0011293	0.04527			
250	40.015	0.0011314	0.04448	1.0060	0.9043	0.889

Conversion factor · H<sub>2</sub>O-value = D<sub>2</sub>O-value





°C	bar	m <sup>3</sup> /kg		Conversion factor		
t	P <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>	P <sub>s</sub>	v' <sub>s</sub>	v'' <sub>s</sub>
300	87.179	0.0012737	0.01895	1.0147	0.9075	0.876
301	88.426	0.0012776	0.01863			
302	89.690	0.0012815	0.01832	1.0150	0.9077	0.875
303	90.965	0.0012855	0.01802			
304	92.254	0.0012896	0.01771	1.0153	0.9080	0.874
305	93.559	0.0012937	0.01741			
306	94.876	0.0012979	0.01712	1.0156	0.9082	0.874
307	96.209	0.0013021	0.01683			
308	97.555	0.0013065	0.01654	1.0159	0.9084	0.873
309	98.916	0.0013108	0.01626			
310	100.29	0.0013153	0.01598	1.0162	0.9087	0.872
311	101.68	0.0013198	0.01571			
312	103.09	0.0013244	0.01544	1.0165	0.9090	0.872
313	104.51	0.0013291	0.01518			
314	105.94	0.0013339	0.01492	1.0167	0.9092	0.871
315	107.39	0.0013388	0.01466			
316	108.86	0.0013438	0.01440	1.0170	0.9096	0.870
317	110.34	0.0013488	0.01415			
318	111.84	0.0013540	0.01391	1.0173	0.9099	0.870
319	113.35	0.0013593	0.01367			
320	114.88	0.0013647	0.01343	1.0176	0.9103	0.869
321	116.44	0.0013702	0.01320			
322	117.99	0.0013757	0.01296	1.0178	0.9106	0.868
323	119.57	0.0013812	0.01273			
324	121.17	0.0013875	0.01251	1.0181	0.9112	0.867
325	122.77	0.0013930	0.01229			
326	124.40	0.0013993	0.01206	1.0184	0.9116	0.867
327	126.04	0.0014056	0.01185			
328	127.71	0.0014120	0.01164	1.0186	0.9121	0.866
329	129.38	0.0014183	0.01142			
330	131.07	0.0014246	0.01121	1.0189	0.9121	0.864
331	132.79	0.0014319	0.01101			
332	134.53	0.0014391	0.01080	1.0192	0.9131	0.863
333	136.27	0.0014454	0.01060			
334	138.04	0.0014527	0.01040	1.0194	0.9131	0.863
335	139.82	0.0014609	0.01021			
336	141.63	0.0014681	0.01002	1.0197	0.9141	0.862
337	143.45	0.0014753	0.00982			
338	145.29	0.0014835	0.00963	1.0199	0.9141	0.860
339	147.15	0.0014917	0.00944			
340	149.03	0.0015007	0.00926	1.0202	0.9156	0.859
341	150.92	0.0015089	0.00907			
342	152.84	0.0015180	0.00889	1.0204	0.9161	0.857
343	154.78	0.0015271	0.00871			
344	156.73	0.0015370	0.00853	1.0207	0.9171	0.856
345	158.71	0.0015470	0.00835			
346	160.71	0.0015570	0.00818	1.0209	0.9180	0.854
347	162.72	0.0015679	0.00800			
348	164.76	0.0015788	0.0078	1.0212	0.9190	0.852
349	166.82	0.0015906	0.00765			
350	168.91	0.0016025	0.00748	1.0214	0.9204	0.850

Conversion factor · H<sub>2</sub>O-value = D<sub>2</sub>O-value



°C	bar	m <sup>3</sup> /kg		Conversion factor		
t	P <sub>s</sub>	v <sub>s</sub> '	v <sub>s</sub> ''	P <sub>s</sub>	v <sub>s</sub> '	v <sub>s</sub> ''
350	168.91	0.0016025	0.00748	1.0214	0.9204	0.850
351	171.01	0.0016152	0.00731			
352	173.13	0.0016280	0.00714	1.0216	0.9219	0.847
353	175.27	0.0016426	0.00697			
354	177.45	0.0016571	0.00680	1.0219	0.9242	0.844
355	179.61	0.0016727	0.00663			
356	181.85	0.0016892	0.00646	1.0221	0.9266	0.841
357	184.10	0.0017074	0.00629			
358	186.35	0.0017258	0.00612	1.0223	0.9298	0.836
359	188.63	0.0017469	0.00594			
360	190.95	0.0017689	0.00577	1.0225	0.9339	0.831
361	193.28	0.0017929	0.00560			
362	195.65	0.0018195	0.00542	1.0228	0.9394	0.825
363	198.03	0.0018483	0.00523			
364	200.44	0.0018817	0.00505	1.0230	0.9470	0.815
365	202.87	0.0019190	0.00485			
366	205.35	0.0019630	0.00465	1.0232	0.9590	0.802
367	207.85	0.0020151	0.00443			
368	210.37	0.0020801	0.00420	1.0234	0.9798	0.780
369	212.92	0.0021661	0.00393			
370	215.50	0.0023092	0.00357	1.0237	1.0378	0.724

Conversion factor · H<sub>2</sub>O-value = D<sub>2</sub>O-value



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