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Table S1. Measured speeds of sound, u (/ms^{-1}), for selected aqueous alcohol and aqueous diol systems at fixed concentrations, p = (0.1, 20.0, 40.0, 60.0, 80.0, 120.0) MPa, and T = 298.15 K

p /MPa	m=0.04760 /mol kg^{-1}	m=0.07518 /mol kg^{-1}	m=0.14367 /mol kg^{-1}	m=0.20718 /mol kg^{-1}	m=0.29132 /mol kg^{-1}	m=0.51970 /mol kg^{-1}
			2-propanol			
0.1	1499.14	1500.57	1504.11	1507.35	1511.62	1523.06
20.0	1532.63	1533.90	1537.28	1540.37	1544.40	1555.00
40.0	1565.98	1567.20	1570.21	1573.11	1581.71	1586.76
60.0	1599.20	1600.38	1603.14	1605.76	1609.27	1618.70
80.0	1632.40	1633.55	1635.94	1638.29	1641.43	1650.05
120.0	1697.89	1698.76	1700.81	1702.73	1705.32	1712.95
			2-butanol			
	m=0.06700 /mol kg^{-1}	m=0.14261 /mol kg^{-1}	m=0.22305 /mol kg^{-1}	m=0.50121 /mol kg^{-1}		
0.1	1501.36	1506.62	1512.16	1530.84		
20.0	1534.51	1539.24	1544.25	1561.42		
40.0	1567.76	1572.22	1576.94	1593.12		
60.0	1600.99	1605.13	1609.73	1625.09		
80.0	1633.99	1638.00	1642.29	1656.82		
120.0	1699.62	1702.98	1706.68	1719.78		
			2-pentanol			
	m=0.06386 /mol kg^{-1}	m=0.08559 /mol kg^{-1}	m=0.11549 /mol kg^{-1}	m=0.27075 /mol kg^{-1}	m=0.49376 /mol kg^{-1}	
0.1	1502.06	1503.88	1506.33	1518.85	1535.86	
20.0	1535.13	1536.80	1539.01	1550.07	1564.64	
40.0	1568.36	1569.94	1572.02	1582.44	1597.26	
60.0	1601.60	1603.10	1605.10	1615.06	1629.39	
80.0	1634.66	1636.04	1637.87	1647.10	1659.59	
120.0	1699.87	1701.37	1703.04	1711.28	1722.57	
			2-hexanol			
	m=0.03075 /mol kg^{-1}	m=0.04110 /mol kg^{-1}	m=0.04868 /mol kg^{-1}	m=0.05999 /mol kg^{-1}	m=0.08201 /mol kg^{-1}	
0.1	1499.83	1500.90	1501.64	1502.80	1505.03	
20.0	1532.86	1533.76	1534.41	1535.37	1537.13	
40.0	1566.22	1567.03	1567.63	1568.49	1570.21	
60.0	1599.54	1600.28	1600.79	1601.64	1603.21	
80.0	1632.75	1633.49	1633.96	1634.72	1636.18	
120.0	1698.42	1699.05	1699.48	1700.18	1701.56	

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Table S1 (cont.)

1,4-butanediol				
p /MPa	m=0.25266 /mol kg^{-1}	m=0.26786 /mol kg^{-1}	m=0.29529 /mol kg^{-1}	m=0.48784 /mol kg^{-1}
0.1	1508.92	1509.64	1510.92	1519.93
20.0	1541.64	1542.18	1543.41	1551.74
40.0	1574.82	1575.38	1576.55	1584.56
60.0	1607.83	1608.35	1609.46	1617.10
80.0	1640.29	1641.01	1641.99	1649.22
120.0	1705.11	1705.60	1706.50	1713.12
1,5-pentanediol				
	m=0.07314 /mol kg^{-1}	m=0.14913 /mol kg^{-1}	m=0.36620 /mol kg^{-1}	m=0.44095 /mol kg^{-1}
0.1	1501.32	1506.06	1519.12	1523.42
20.0	1534.64	1539.13	1551.56	1555.67
40.0	1568.05	1572.43	1584.26	1588.50
60.0	1601.34	1605.53	1616.93	1621.03
80.0	1634.43	1638.32	1649.26	1653.05
120.0	1699.86	1703.25	1712.73	1716.59
1,6-hexanediol				
	m=0.06751 /mol kg^{-1}	m=0.09216 /mol kg^{-1}	m=0.29736 /mol kg^{-1}	m=0.41309 /mol kg^{-1}
0.1	1502.06	1503.88	1519.29	1527.38
20.0	1535.13	1536.80	1551.52	1559.19
40.0	1568.36	1569.94	1584.52	1592.18
60.0	1601.60	1603.10	1617.19	1624.70
80.0	1634.66	1636.04	1649.51	1656.62
120.0	1699.87	1701.37	1713.62	1720.23

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Table S2. Calculated densities, ρ_2 /(kg m^{-3}), for selected aqueous alcohol and aqueous diol systems at fixed concentrations, p = (0.1, 20.0, 40.0, 60.0, 80.0, 120.0) MPa, and T = 298.15 K

p /MPa	m=0.04760 /mol kg^{-1}	m=0.07518 /mol kg^{-1}	m=0.14367 /mol kg^{-1}	m=0.20718 /mol kg^{-1}	m=0.29132 /mol kg^{-1}	m=0.51970 /mol kg^{-1}
2-propanol						
0.1*	996.501	996.190	995.433	994.742	993.864	991.577
20.0	1005.262	1004.936	1004.140	1003.414	1002.481	1000.085
40.0	1013.719	1013.380	1012.550	1011.792	1010.808	1008.318
60.0	1021.845	1021.495	1020.636	1019.851	1018.822	1016.250
80.0	1029.665	1029.304	1028.421	1027.613	1026.543	1023.900
120.0	1044.461	1044.084	1043.164	1042.320	1041.191	1038.424
2-butanol						
	m=0.06700 /mol kg^{-1}	m=0.14261 /mol kg^{-1}	m=0.22305 /mol kg^{-1}	m=0.50121 /mol kg^{-1}		
0.1*	996.237	995.347	994.424	991.452		
20.0	1004.976	1004.030	1003.051	999.893		
40.0	1013.414	1012.420	1011.392	1008.072		
60.0	1021.524	1020.489	1019.417	1015.953		
80.0	1029.329	1028.256	1027.144	1023.552		
120.0	1044.099	1042.962	1041.785	1037.975		
2-pentanol						
	m=0.06386 /mol kg^{-1}	m=0.08559 /mol kg^{-1}	m=0.11549 /mol kg^{-1}	m=0.27075 /mol kg^{-1}	m=0.49376 /mol kg^{-1}	
0.1*	996.165	995.872	995.470	993.519	990.993	
20.0	1004.897	1004.585	1004.158	1002.085	999.400	
40.0	1013.329	1013.000	1012.552	1010.374	1007.546	
60.0	1021.434	1021.091	1020.623	1018.354	1015.403	
80.0	1029.234	1028.877	1028.392	1026.043	1022.986	
120.0	1043.996	1043.615	1043.102	1040.615	1037.389	
2-hexanol						
	m=0.03075 /mol kg^{-1}	m=0.04110 /mol kg^{-1}	m=0.04868 /mol kg^{-1}	m=0.05999 /mol kg^{-1}	m=0.08201 /mol kg^{-1}	
0.1*	996.574	996.414	996.297	996.125	995.787	
20.0	1005.331	1005.161	1005.037	1004.853	1004.493	
40.0	1013.787	1013.608	1013.478	1013.283	1012.907	
60.0	1021.913	1021.727	1021.592	1021.389	1020.998	
80.0	1029.730	1029.538	1029.399	1029.188	1028.784	
120.0	1044.521	1044.318	1044.172	1043.948	1043.521	

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Table S2 (cont.)

1,4-butanediol				
p /MPa	*m*=0.25266 /mol kg^{-1}	*m*=0.26786 /mol kg^{-1}	*m*=0.29529 /mol kg^{-1}	*m*=0.48784 /mol kg^{-1}
0.1*	997.595	997.629	997.696	998.148
20.0	1006.251	1006.278	1006.332	1006.689
40.0	1014.613	1014.635	1014.676	1014.949
60.0	1022.655	1022.672	1022.703	1022.900
80.0	1030.399	1030.409	1030.431	1030.560
120.0	1045.067	1045.064	1045.071	1045.083
1,5-pentanediol				
	m=0.07314 /mol kg^{-1}	*m*=0.14913 /mol kg^{-1}	*m*=0.36620 /mol kg^{-1}	*m*=0.44095 /mol kg^{-1}
0.1*	997.066	997.087	997.211	997.277
20.0	1005.804	1005.774	1005.760	1005.781
40.0	1014.240	1014.163	1014.024	1014.003
60.0	1022.347	1022.228	1021.978	1021.918
80.0	1030.148	1029.992	1029.640	1029.546
120.0	1044.911	1044.694	1044.170	1044.016
1,6-hexanediol				
	m=0.06751 /mol kg^{-1}	*m*=0.09216 /mol kg^{-1}	*m*=0.29736 /mol kg^{-1}	*m*=0.41309 /mol kg^{-1}
0.1*	996.927	996.886	996.570	996.440
20.0	1005.658	1005.597	1005.121	1004.908
40.0	1014.086	1014.007	1013.387	1013.097
60.0	1022.187	1022.092	1021.342	1020.982
80.0	1029.982	1029.872	1029.005	1028.582
120.0	1044.734	1044.600	1043.531	1043.001

* Densities at p=0.1 MPa were measured using an Anton Paar 60/602 vibrating tube densimeter

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Table S3. Calculated apparent molar volumes, $V_{\phi 2}$ /(cm^3 mol^{-1}), for selected aqueous alcohol and aqueous diol systems at fixed concentrations, p = (0.1, 20.0, 40.0, 60.0, 80.0, 120.0) MPa, and T = 298.15 K

2-propanol						
p /MPa	*m*=0.04760 /mol kg^{-1}	*m*=0.07518 /mol kg^{-1}	*m*=0.14367 /mol kg^{-1}	*m*=0.20718 /mol kg^{-1}	*m*=0.29132 /mol kg^{-1}	*m*=0.51970 /mol kg^{-1}
0.1	71.87	71.82	71.70	71.64	71.50	71.25
20.0	71.73	71.65	71.54	71.48	71.37	71.09
40.0	71.53	71.45	71.33	71.28	71.20	70.89
60.0	71.29	71.20	71.08	71.03	70.99	70.64
80.0	71.01	70.92	70.80	70.74	70.75	70.37
120.0	70.34	70.26	70.13	70.09	70.13	69.75
2-butanol						
	m=0.06700 /mol kg^{-1}	*m*=0.14261 /mol kg^{-1}	*m*=0.22305 /mol kg^{-1}	*m*=0.50121 /mol kg^{-1}		
0.1	86.59	86.49	86.40	86.06		
20.0	86.47	86.37	86.28	85.92		
40.0	86.27	86.17	86.08	85.72		
60.0	86.02	85.92	85.83	85.47		
80.0	85.72	85.64	85.54	85.19		
120.0	85.04	84.99	84.91	84.56		
2-pentanol						
	m=0.06386 /mol kg^{-1}	*m*=0.08559 /mol kg^{-1}	*m*=0.11549 /mol kg^{-1}	*m*=0.27075 /mol kg^{-1}	*m*=0.49376 /mol kg^{-1}	
0.1	102.41	102.35	102.32	101.88	101.36	
20.0	102.28	102.22	102.18	101.71	101.17	
40.0	102.05	102.00	101.95	101.46	100.91	
60.0	101.77	101.72	101.66	101.14	100.59	
80.0	101.44	101.39	101.33	100.80	100.23	
120.0	100.65	100.65	100.58	100.03	99.42	
2-hexanol						
	m=0.03075 /mol kg^{-1}	*m*=0.04110 /mol kg^{-1}	*m*=0.04868 /mol kg^{-1}	*m*=0.05999 /mol kg^{-1}	*m*=0.08201 /mol kg^{-1}	
0.1	118.04	118.07	118.09	118.06	118.09	
20.0	117.90	117.92	117.93	117.92	117.94	
40.0	117.59	117.61	117.61	117.62	117.62	
60.0	117.21	117.22	117.21	117.23	117.22	
80.0	116.78	116.79	116.77	116.80	116.79	
120.0	115.85	115.86	115.81	115.87	115.86	

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Table S3 (cont.)

1,4-butanediol				
p /MPa	*m*=0.25266 /mol kg^{-1}	*m*=0.26786 /mol kg^{-1}	*m*=0.29529 /mol kg^{-1}	*m*=0.48784 /mol kg^{-1}
0.1	88.16	88.15	88.12	88.02
20.0	87.94	87.93	87.90	87.80
40.0	87.69	87.67	87.64	87.54
60.0	87.41	87.39	87.35	87.25
80.0	87.11	87.09	87.05	86.95
120.0	86.45	86.45	86.40	86.31
1,5-pentanediol				
	m=0.07314 /mol kg^{-1}	*m*=0.14913 /mol kg^{-1}	*m*=0.36620 /mol kg^{-1}	*m*=0.44095 /mol kg^{-1}
0.1	104.21	104.19	103.99	103.91
20.0	103.99	103.97	103.76	103.68
40.0	103.73	103.71	103.49	103.40
60.0	103.43	103.41	103.18	103.10
80.0	103.10	103.08	102.86	102.78
120.0	102.36	102.35	102.13	102.06
1,6-hexanediol				
	m=0.06751 /mol kg^{-1}	*m*=0.09216 /mol kg^{-1}	*m*=0.29736 /mol kg^{-1}	*m*=0.41309 /mol kg^{-1}
0.1	120.34	120.31	120.20	120.08
20.0	120.14	120.10	119.96	119.82
40.0	119.88	119.82	119.66	119.52
60.0	119.57	119.51	119.32	119.19
80.0	119.22	119.15	118.96	118.82
120.0	118.43	118.36	118.16	118.02

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Table S4. Calculated isentropic compressibilities, $10^5\kappa_{S2}$ /MPa^{-1}, for selected aqueous alcohol and aqueous diol systems at fixed concentrations, p = (0.1, 20.0, 40.0, 60.0, 80.0, 120.0) MPa, and T = 298.15 K

			2-propanol			
p /MPa	m=0.04760 /mol kg^{-1}	m=0.07518 /mol kg^{-1}	m=0.14367 /mol kg^{-1}	m=0.20718 /mol kg^{-1}	m=0.29132 /mol kg^{-1}	m=0.51970 /mol kg^{-1}
0.1	44.65	44.58	44.40	44.24	44.03	43.48
20.0	42.35	42.29	42.14	42.00	41.82	41.35
40.0	40.23	40.18	40.06	39.94	39.54	39.39
60.0	38.27	38.22	38.12	38.03	37.90	37.56
80.0	36.45	36.41	36.33	36.26	36.16	35.87
120.0	33.21	33.19	33.14	33.09	33.03	32.82
			2-butanol			
	m=0.06700 /mol kg^{-1}	m=0.14261 /mol kg^{-1}	m=0.22305 /mol kg^{-1}	m=0.50121 /mol kg^{-1}		
0.1	44.53	44.26	43.98	43.04		
20.0	42.26	42.04	41.81	41.02		
40.0	40.15	39.96	39.76	39.09		
60.0	38.19	38.03	37.86	37.27		
80.0	36.39	36.25	36.10	35.59		
120.0	33.16	33.06	32.96	32.57		
			2-pentanol			
	m=0.06386 /mol kg^{-1}	m=0.08559 /mol kg^{-1}	m=0.11549 /mol kg^{-1}	m=0.27075 /mol kg^{-1}	m=0.49376 /mol kg^{-1}	
0.1	44.49	44.40	44.27	43.63	42.78	
20.0	42.23	42.15	42.05	41.53	40.87	
40.0	40.12	40.05	39.96	39.52	38.90	
60.0	38.17	38.11	38.03	37.65	37.10	
80.0	36.36	36.31	36.25	35.93	35.49	
120.0	33.15	33.10	33.05	32.82	32.49	
			2-hexanol			
	m=0.03075 /mol kg^{-1}	m=0.04110 /mol kg^{-1}	m=0.04868 /mol kg^{-1}	m=0.05999 /mol kg^{-1}	m=0.08201 /mol kg^{-1}	
0.1	44.61	44.55	44.51	44.45	44.33	
20.0	42.33	42.29	42.26	42.22	42.13	
40.0	40.21	40.18	40.15	40.11	40.04	
60.0	38.25	38.22	38.20	38.17	38.11	
80.0	36.43	36.40	36.39	36.36	36.31	
120.0	33.19	33.17	33.16	33.14	33.10	

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Table S4(cont.)

1,4-butanediol				
p /MPa	*m*=0.25266 /mol kg^{-1}	*m*=0.26786 /mol kg^{-1}	*m*=0.29529 /mol kg^{-1}	*m*=0.48784 /mol kg^{-1}
0.1	44.03	43.98	43.91	43.37
20.0	41.81	41.78	41.72	41.25
40.0	39.74	39.71	39.65	39.24
60.0	37.83	37.80	37.75	37.38
80.0	36.07	36.04	35.99	35.68
120.0	32.91	32.89	32.86	32.60
1,5-pentanediol				
	m=0.07314 /mol kg^{-1}	*m*=0.14913 /mol kg^{-1}	*m*=0.36620 /mol kg^{-1}	*m*=0.44095 /mol kg^{-1}
0.1	44.50	44.22	43.45	43.21
20.0	42.22	41.97	41.30	41.08
40.0	40.10	39.88	39.29	39.08
60.0	38.14	37.95	37.43	37.24
80.0	36.34	36.17	35.71	35.55
120.0	33.12	33.00	32.65	32.51
1,6-hexanediol				
	m=0.06751 /mol kg^{-1}	*m*=0.09216 /mol kg^{-1}	*m*=0.29736 /mol kg^{-1}	*m*=0.41309 /mol kg^{-1}
0.1	44.46	44.35	43.47	43.02
20.0	42.19	42.09	41.33	40.93
40.0	40.07	39.98	39.30	38.94
60.0	38.12	38.04	37.44	37.11
80.0	36.32	36.25	35.72	35.43
120.0	33.10	33.04	32.63	32.40

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Table S5. Calculated isothermal compressibilities, $10^5\kappa_{T2}$ /MPa^{-1}, for selected aqueous alcohol and aqueous diol systems at fixed concentrations, p = (0.1, 20.0, 40.0, 60.0, 80.0, 120.0) MPa, and T = 298.15 K

			2-propanol			
p /MPa	m=0.04760 /mol kg^{-1}	m=0.07518 /mol kg^{-1}	m=0.14367 /mol kg^{-1}	m=0.20718 /mol kg^{-1}	m=0.29132 /mol kg^{-1}	m=0.51970 /mol kg^{-1}
0.1	45.12	45.06	44.88	44.73	44.52	43.98
20.0	42.90	42.85	42.70	42.56	42.39	41.94
40.0	40.87	40.82	40.70	40.59	40.19	40.06
60.0	38.99	38.95	38.85	38.76	38.64	38.31
80.0	37.25	37.22	37.14	37.07	36.97	36.70
120.0	34.15	34.13	34.08	34.04	33.98	33.78
			2-butanol			
	m=0.06700 /mol kg^{-1}	m=0.14261 /mol kg^{-1}	m=0.22305 /mol kg^{-1}	m=0.50121 /mol kg^{-1}		
0.1	45.01	44.75	44.48	43.60		
20.0	42.82	42.61	42.39	41.66		
40.0	40.79	40.61	40.42	39.80		
60.0	38.93	38.77	38.61	38.07		
80.0	37.20	37.06	36.92	36.46		
120.0	34.10	34.01	33.91	33.57		
			2-pentanol			
	m=0.06386 /mol kg^{-1}	m=0.08559 /mol kg^{-1}	m=0.11549 /mol kg^{-1}	m=0.27075 /mol kg^{-1}	m=0.49376 /mol kg^{-1}	
0.1	44.98	44.89	44.77	44.18	43.41	
20.0	42.79	42.72	42.62	42.16	41.58	
40.0	40.77	40.70	40.62	40.23	39.68	
60.0	38.90	38.85	38.78	38.43	37.95	
80.0	37.18	37.13	37.07	36.79	36.42	
120.0	34.10	34.05	34.01	33.81	33.54	
			2-hexanol			
	m=0.03075 /mol kg^{-1}	m=0.04110 /mol kg^{-1}	m=0.04868 /mol kg^{-1}	m=0.05999 /mol kg^{-1}	m=0.08201 /mol kg^{-1}	
0.1	45.09	45.04	45.00	44.94	44.83	
20.0	42.90	42.86	42.83	42.79	42.71	
40.0	40.86	40.83	40.81	40.77	40.70	
60.0	38.98	38.96	38.94	38.91	38.85	
80.0	37.24	37.22	37.20	37.18	37.13	
120.0	34.13	34.12	34.11	34.09	34.05	

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Table S5(cont.)

1,4-butanediol				
p /MPa	*m*=0.25266 /mol kg^{-1}	*m*=0.26786 /mol kg^{-1}	*m*=0.29529 /mol kg^{-1}	*m*=0.48784 /mol kg^{-1}
0.1	44.51	44.47	44.39	43.86
20.0	42.38	42.35	42.28	41.83
40.0	40.39	40.36	40.30	39.90
60.0	38.56	38.53	38.48	38.12
80.0	36.88	36.85	36.81	36.49
120.0	33.86	33.84	33.80	33.55
1,5-pentanediol				
	m=0.07314 /mol kg^{-1}	*m*=0.14913 /mol kg^{-1}	*m*=0.36620 /mol kg^{-1}	*m*=0.44095 /mol kg^{-1}
0.1	44.98	44.70	43.96	43.72
20.0	42.78	42.54	41.88	41.67
40.0	40.75	40.53	39.96	39.76
60.0	38.88	38.69	38.17	38.00
80.0	37.15	36.99	36.53	36.38
120.0	34.06	33.94	33.60	33.47
1,6-hexanediol				
	m=0.06751 /mol kg^{-1}	*m*=0.09216 /mol kg^{-1}	*m*=0.29736 /mol kg^{-1}	*m*=0.41309 /mol kg^{-1}
0.1	44.94	44.84	43.99	43.56
20.0	42.75	42.65	41.93	41.55
40.0	40.72	40.64	39.98	39.63
60.0	38.85	38.78	38.20	37.88
80.0	37.13	37.07	36.56	36.28
120.0	34.04	33.99	33.60	33.38