Supporting Information

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Table S1. Fitting parameters to the power-law and the Arrhenius equation of the viscosity data of 80 liquids; the melting (T_M), glass transition temperature (T_g), the references, and temperature range of the experimental data are also reported

System	Full name	T_M, K	T_g, K	T range, K	η_0, P	T_x, K	θ	T_M/T_x	T_x/T_g	$\ln(\eta_{0A})$, P	E/k_B, kK	Ref. η
AC	Acetic acid	289.6	150	304–389	3.97E−03	177	1.856	1.64	1.18			(1)
AMM	Ammonia	195	30	198–240	2.37E−03	122.55	1.655	1.59	4.09			(2)
An			1,160	1,085–2,458	5.70E−02	1742	1.915		1.50	−93.12	139.56	(3)
ANIL	Aniline	266.9	161	274–392	2.73E−03	235.66	1.960	1.13	1.46			(4, 5)
ANOR	Anorthite	1,830	870	1,190–2,426	1.67E−01	1575	3.2	1.16	1.81	−75.45	120.44	(6)
B2O3	Boron Oxide	723	541	536–1675	5.64E+01	702.7	2.900	1.03	1.30	−53.16	45.60	(7)
BAS	Basalt	1,500	973	995–1918	2.27E+00	1,250	3.96	1.2	1.28	−58.62	86.93	(6)
BEZ	Benzene	279	125	266–353	6.48E−03	145	2.130	1.92	1.16	−5.30	1.40	(8)
BRP3	3-bromopentane	146.9	108	107–127	4.60E−02	141	2.290	1.04	1.31	−89.10	12.22	(9)
BSC	Borosilicate Glass		825	807–1611	1.21E+01	993	2.500		1.20	−59.62	75.19	(7)
Ca1244			1,122	1,104–2,073	2.40E−01	1,300	3.260		1.16	−144.98	199.42	(3)
Ca7611			1,199	1,153–2,458	4.36E−01	1,777	3.350		1.48	−54.20	97.39	(3)
CaKNO3	Ca-K-NO_3^-		333	354–473	6.08E−03	390	2.080		1.17	−180.80	70.40	(10)
CDF	1-chloro-1,1-difluoroethane	142	27	143–264	8.29E−03	100.65	1.830	1.41	3.73			(2)
CN60.0	Soda lime Silicate G0		1,030	1,012–1,810	6.30E−01	1,211	2.110		1.18	−103.30	136.92	(11)
CN60.2	Soda lime Silicate G2		820	803–1653	1.67E+00	1,221	2.607		1.49	−76.20	86.91	(11)
CN60.4	Soda lime Silicate G4		700	684–1563	5.40E+00	1,094	2.090		1.56	−64.62	66.12	(11)
CTFM	Chlorotrifluoromethane	91.2	18	92–191	9.00E−03	67.034	1.820	1.36	3.72			(2)
CTTC	Carbon tetrachloride	250	60	273–373	4.86E−03	175	1.734	1.43	2.92			(1)
Cum	Isopropylbenzene	177	124.8	136–304	5.07E−03	172	2.020	1.03	1.38	−89.00	14.82	(12)
D20	Deuterium oxide	276.97	160	277–374	1.35E−03	238.14	1.480	1.16	1.49			(2)
DBP	Dibutyl phthalate	238	170	180–330	7.30E−03	220	2.720	1.08	1.29	−102.44	22.50	(12)
DCDFM	Dichlorodifluoromethane	115.5	18	116–243	5.50E−03	101.66	1.660	1.14	5.65			(2)
DEC	Decane	243.5	54	244–447	4.20E−03	175.477	1.830	1.39	3.25			(2)
DFE	1,1-dichloro-1-fluoroethane	169.7	41	171–305	7.89E−03	123.9	1.930	1.37	3.02			(2)
Di			1,005	962–2312	3.16E−01	1,248	2.999		1.24	−112.34	141.78	(3)
DIOP	Diopside	1,664	990	959–2,065	2.6E−01	1,382	2.37	1.2	1.19	−96.61	126.02	(13, 14)
DMP	Dimethyl phthalate	279	206	243–369	3.60E−03	249.75	2.23	1.12	1.21	−41.77	11.09	(15)
DOD	Dodecane	263.5	76	264–489	4.20E−03	196	1.810	1.34	2.58			(2)
ECT	Ethane, 1-chloro-1,2,2,2-tetrafluoro-	156	36	122–261	1.39E−02	93.39	2.220	1.67	2.59			(2)
EDT	Ethane, 2,2-dichloro-1,1,1-trifluoro-	166	59	166–301	8.30E−03	120	1.870	1.38	2.03			(2)
ETF	Ethane, 1,1,1,2-tetrafluoro-	169.9	71	170–247	3.08E−03	131.2	1.568	1.29	1.85			(2)
ETZ	Ethyl benzene	178.2	111.8	160–303	5.90E−03	149.22	2.02	1.19	1.33			(15)
FM	Fluoromethane	131.4		177–195	4.60E−03	87.7	1.764	1.50				(2)
GEO	GeO2	1,388	810	755–1,787	4.54E+01	1,255	2.99	1.1	1.55	−11.98	34.49	(3)
Gly	Glycerol	291	190	192–343	6.70E−03	277	2.990	1.05	1.46	−66.64	17.75	(16)
H2O	Water	273.15	160	243–340	1.37E−03	225	1.677	1.21	1.41			(17)
HFPA	1,1,1,2,3,3,3-heptafluoropropane	146	47	146–256	6.99E−03	68.133	2.300	2.14	1.45			(2)
HFPB	1,1,1,2,3,3-hexafluoropropane	179	95	243–279	2.90E−03	160	1.788	1.12	1.68			(2)
HFPC	1,1,1,3,3,3-hexafluoropropane	179	98	180–271	2.82E−03	152.72	1.516	1.17	1.56			(2)
HPT	Heptane	182.6	44	180–373	5.00E−03	138	1.809	1.32	3.14			(2)
HXA	Hexane	178	23	175–341	5.60E−03	121.2	1.870	1.47	5.27			(2)
ISB	Isobutane	113	20	116–261	1.13E−02	82.6	2.150	1.37	4.13			(2)
METH	Methanol	175.3	100	178–337	1.05E−02	126	2.270	1.39	1.26	−10.87	1.55	(18)
MTP2	2-methylpentane	120	78	80.5–333	6.46E−03	112.26	1.716	1.07	1.44	−65.37	7.80	(2)
NBB	Butylbenzene	185	125	136–304	5.22E−03	175	1.960	1.06	1.40	−90.44	15.02	(12)
NBS 711	NBS711 glass		705	670–1,622	3.76E+01	881.3	2.230		1.25	−42.57	51.75	(7)
NBS 710	NBS710 glass		830	827–1,776	5.84E+00	1,263	2.190		1.52	−57.43	72.34	(11)
NON	Nonane	219.5	122	220–423	2.94E−03	189.7	1.417	1.16	1.55			(2)
nPBZ	n-propyl benzene	173.7	124	151–303	4.30E−03	164	2.27	1.06	1.32	−50.28	8.59	(15)
nProp	Propanol	147	96.2	103–368	9.00E−03	139	2.900	1.06	1.44	−53.87	7.97	(19)
NS4			784	703–1,725	1.54E+01	1,154	2.998		1.47	−53.01	62.56	(3)
NS66			726	719–1,805	3.86E+00	1,005	2.500		1.38	−70.21	72.77	(11)
NS80			758	718–1,759	9.85E+00	1,209	2.770		1.59	−49.51	39.90	(11)
OCT	Octane	216.3	54	216–398	4.04E−03	159.39	1.684	1.36	2.95			(2)
OTP	o-terphenyl	328.5	246	239–383	3.00E−03	306	1.800	1.07	1.24	−184.12	51.30	(20, 21)
PDE	phenolphthalein dimethyl ether	373	294	296–511	1.79E−03	343.51	2.99	1.08	1.17	−118.00	42.00	(13)
PEN	Pentane	143.4	52	143–309	4.30E−03	115.7	1.520	1.24	2.23			(2)
PHN	Phenol	314.6	197.6	297–343	2.10E−03	236.39	2.78	1.33	1.20			(22)
POC	α-phenyl-o-cresol	323	220	207–285	1.38E−02	266	1.620	1.21	1.21	−135.46	34.64	(20)
POLYS	Polystyrene		332	335–489	1.74E−03	375	2.999		1.05	−165.40	63.50	(23)

(*continued*)

Table S1. (*Continued*)

System	Full name	T_M, K	T_g, K	T range, K	η_0, P	T_x, K	θ	T_M/T_x	T_x/T_g	$\ln(\eta_{0A})$, P	E/k_B, kK	Ref. η
PPCA	Propylene carbonate	218	159.5	157–342	1.40E−02	161	2.070	1.35	1.01	−161.19	29.32	(1)
PRPA	Propane	85.5	30	86–280	6.30E−03	68	1.800	1.26	2.27			(2)
PRPE	Propene	88	29	100–225	5.30E−03	78.47	1.613	1.12	2.71			(2)
PS1	Ti-bearing Na silicate melt 1		796	785–1,683	9.24E+00	1,162	2.150		1.46	−40.06	51.59	(24)
PS2	Ti-bearing Na silicate melt 2		746	784–1,679	5.80E+00	1,206	2.050		1.62	−42.65	54.32	(24)
PS3	Ti-bearing Na silicate melt 3		765	815–1,676	8.88E+00	1,210	2.320		1.58	−42.21	55.31	(24)
PS4	Ti-bearing Na silicate melt 4		809	837–1,591	8.17E+00	1,208	2.050		1.49	−45.22	59.88	(24)
PS5	Ti-bearing Na silicate melt 5		827	884–1,565	6.32E+00	1,220	2.200		1.48	−54.57	77.83	(24)
PS6	Ti-bearing Na silicate melt 6		857	864–1,565	8.77E+00	1,206	2.130		1.41	−48.96	65.04	(24)
Sal	Salol	318	220	213–333	5.00E−03	262	1.350	1.21	1.19	−129.50	33.87	(20)
SBB	Sec-butylbenzene	197.5	127	159–219	4.00E−03	162	2.770	1.22	1.28	−40.70	7.55	(12)
SIO	SiO2	1,923	1,480	1276–2,517	5.40E+01	1,612	2.700	1.19	1.09	−28.97	86.19	(3)
TANAB	Tri-α-naphthylbenzene	442	340	330–680	3.40E−03	424	2.170	1.04	1.25	−126.20	51.94	(20)
tBT	t-butanol	298.82		290–315	4.30E−04	248.85	2.85	1.2				(22)
TCFM	Trichlorofluoromethane	162.5	40	163–296	5.20E−03	136.4	1.588	1.19	3.41			(2)
TCTF	1,1,2-trichloro-1,2,2-trifluoroethane	238	120	237–320	2.80E−03	191	1.437	1.25	1.59			(2)
Tol	Toluene	180	113	157–380	4.24E−03	161	1.720	1.12	1.42	−10.08	3.08	(12)
TPE	Triphenyl ethene	341	248	253–570	3.40E−03	297	2.4	1.15	1.20	−134.84	40.83	(6)
TPP	Triphenyl phosphite	295	200	208–424	3.30E−03	215	1.34	1.37	1.08	−9.10	1.39	(25)

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Table S2. Fitting parameters to the power-law and the Arrhenius equation of the inverse of the self-diffusion coefficient data of 12 liquids; the melting (T_M), glass transition temperature (T_g), the references, and temperature range of the experimental data are also reported

System	Full name	T_M, K	T_g, K	T range, K	$1/D_0$, m^{-2} s	T_x, K	θ	T_M/T_g	T_x/T_g	$\ln(1/D_{0A})$, m^{-2} s	E/k_B, kK	Ref. D_s
CDE	Cresolphthaleine dimethyl ether	387	310	371–431	2.09E+08	377.4	2.622	1.03	1.22	−36.74	24.92	(1)
DIOP	Diopside	1,664	990	1,666–2,263	8.46E+07	1180	2.650	1.41	1.19			(2)
Gly	Glycerol	291	190	256–459	7.29E+08	238.3	3.930	1.22	1.25	0.17	8.09	(1, 3)
METH	Methanol	175.3	100	154–338	2.24E+08	172.3	2.290	1.02	1.72	11.37	2.07	(4, 5)
OTP	o-terphenyl	328.5	246	246–344	7.93E+08	302	1.470	1.09	1.23	−63.97	26.77	(6, 7)
PDE	phenolphthalein dimethyl ether	373	294	337–428	2.76E+08	362.96	2.380	1.03	1.23	−21.87	17.85	(1, 8)
POLYS	Polystyrene		332	335–581	1.62E+09	375	3.050		1.13	−94.48	47.37	(9)
PP6	PEP-PDMS-6		201	309–433	8.72E+9	260.53	4.000		1.30			(10)
PPCA	Propylene carbonate	218	159.5	179–332	1.33E+09	168	3.050	1.30	1.05	−13.64	8.11	(11)
Sal	Salol	318	220	249–369	2.16E+08	276	1.860	1.15	1.25	−102.50	33.67	(1)
TANAB	Tri-α-naphthylbenzene	442	340	343–476	3.37E+08	424.9	2.120	1.04	1.25	−80.60	43.21	(12)
Tol	Toluene	180	113	135–378	3.41E+08	160.4	1.890	1.12	1.42	−23.65	7.53	(13)

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Table S3. Fitting parameters to the power-law and the Arrhenius equation of the relaxation time data of 8 liquids; the melting (T_M), glass transition temperature (T_g), the references, and temperature range of the experimental data are also reported

System	Full name	T_M, K	T_g, K	T range, K	τ_0, s	T_x, K	θ	T_M/T_x	T_x/T_g	$\ln(\tau_{0A})$, s	E/k_B, kK	Ref. τ
BPH	Benzophenone	321	208	200–434	7.65E−12	255.6	1.960	1.26	1.23	−139.45	29.71	(1)
BRP3	3-bromopentane	146.9	108	111–298	1.70E−11	140	2.300	1.05	1.30	−91.79	10.65	(2)
CaKNO3	Ca-K-NO_3^-		333	341–468	2.68E−12	391.7	2.378		1.18	−196.24	69.00	(3)
Gly	Glycerol	291	190	221–270	1.16E−10	231.4	2.999	1.26	1.22	−69.25	13.30	(4)
KDE	cresolphthalein-dimethylether	383	312	308–500	1.29E−11	375	2.650	1.02	1.20	−126.55	40.76	(5)
OTP	o-terphenyl	328.5	246	248–311	9.77E−12	291.3	1.650	1.13	1.18	−135.42	33.94	(5)
PPCA	Propylene carbonate	218	159.5	162–310	8.39E−12	188.9	2.700	1.15	1.18	−137.99	22.46	(5)
Sal	Salol	318	220	219–383	1.11E−11	263	1.817	1.21	1.20	−116.40	25.80	(6)

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