

Ethane

Other names:	Bimethyl C2H6 Dimethyl Ethyl hydride Methylmethane R-170 UN 1035 UN 1961
Inchi:	InChI=1S/C2H6/c1-2/h1-2H3
InchiKey:	OTMSDBZUPAUEDD-UHFFFAOYSA-N
Formula:	C2H6
SMILES:	CC
Mol. weight [g/mol]:	30.07
CAS:	74-84-0

Physical Properties

Property code	Value	Unit	Source
af	0.0990		KDB
affp	596.30	kJ/mol	NIST Webbook
aigt	777.59	K	KDB
basg	569.90	kJ/mol	NIST Webbook
chg	-1559.90 ± 0.46	kJ/mol	NIST Webbook
chg	-1560.70 ± 0.30	kJ/mol	NIST Webbook
chg	-1559.80 ± 0.46	kJ/mol	NIST Webbook
dm	0.00	debye	KDB
fil	2.90	% in Air	KDB
flu	13.00	% in Air	KDB
fpc	138.15	K	KDB
fpo	138.15	K	KDB
gf	-32.95	kJ/mol	KDB
gyrad	1.8310		KDB
hcg	1550.42	kJ/mol	KDB
hcn	1418.376	kJ/mol	KDB
hf	-84.00 ± 0.40	kJ/mol	NIST Webbook
hf	-83.80 ± 0.30	kJ/mol	NIST Webbook
hf	-84.74	kJ/mol	KDB
hf	-84.67 ± 0.49	kJ/mol	NIST Webbook

hfus	0.94	kJ/mol	Joback Method
hvap	9.76	kJ/mol	NIST Webbook
ie	12.00	eV	NIST Webbook
ie	12.00	eV	NIST Webbook
ie	11.57	eV	NIST Webbook
ie	11.56 ± 0.02	eV	NIST Webbook
ie	11.99	eV	NIST Webbook
ie	11.56	eV	NIST Webbook
ie	11.52 ± 0.01	eV	NIST Webbook
ie	11.66 ± 0.05	eV	NIST Webbook
ie	11.51	eV	NIST Webbook
ie	11.45 ± 0.05	eV	NIST Webbook
ie	11.76 ± 0.05	eV	NIST Webbook
ie	11.56 ± 0.02	eV	NIST Webbook
ie	11.50 ± 0.10	eV	NIST Webbook
ie	11.40 ± 0.40	eV	NIST Webbook
ie	12.10 ± 0.10	eV	NIST Webbook
ie	11.52 ± 0.04	eV	NIST Webbook
ie	11.52	eV	NIST Webbook
ie	11.00 ± 1.00	eV	NIST Webbook
ie	11.55	eV	NIST Webbook
log10ws	-1.36		Estimated Solubility Method
log10ws	-1.64		Aqueous Solubility Prediction Method
logp	1.026		Crippen Method
mcpvol	39.040	ml/mol	McGowan Method
nfpaf	%!d(float64=4)		KDB
nfpah	%!d(float64=1)		KDB
pc	4950.00 ± 202.65	kPa	NIST Webbook
pc	4870.00 ± 10.00	kPa	NIST Webbook
pc	4871.80 ± 10.00	kPa	NIST Webbook
pc	4880.00	kPa	NIST Webbook
pc	4877.00 ± 5.00	kPa	NIST Webbook
pc	4889.00 ± 4.88	kPa	NIST Webbook
pc	4871.43 ± 0.10	kPa	NIST Webbook
pc	4889.00 ± 5.00	kPa	NIST Webbook
pc	4580.00 ± 303.98	kPa	NIST Webbook
pc	5100.00 ± 405.30	kPa	NIST Webbook
pc	5090.00 ± 202.65	kPa	NIST Webbook
pc	4907.00 ± 202.65	kPa	NIST Webbook
pc	4879.00 ± 13.79	kPa	NIST Webbook
pc	4872.00	kPa	KDB
pc	4877.00 ± 101.33	kPa	NIST Webbook
pc	4951.00 ± 82.73	kPa	NIST Webbook

pc	4910.00 ± 137.89	kPa	NIST Webbook
pc	4884.00 ± 40.53	kPa	NIST Webbook
pc	4778.00 ± 40.00	kPa	NIST Webbook
pc	4910.00 ± 13.78	kPa	NIST Webbook
pc	4920.00 ± 50.66	kPa	NIST Webbook
pc	4875.00 ± 27.58	kPa	NIST Webbook
pc	4876.00 ± 27.58	kPa	NIST Webbook
pc	5044.00 ± 202.65	kPa	NIST Webbook
pc	4930.00 ± 50.66	kPa	NIST Webbook
pc	4871.40 ± 10.00	kPa	NIST Webbook
pc	4875.00 ± 1.00	kPa	NIST Webbook
pc	4954.79 ± 50.66	kPa	NIST Webbook
pc	4884.00 ± 10.13	kPa	NIST Webbook
pc	4871.80 ± 0.48	kPa	NIST Webbook
pt	1.10e-03 ± 5.00e-07	kPa	NIST Webbook
rhoc	206.21 ± 3.01	kg/m3	NIST Webbook
rhoc	206.87 ± 3.01	kg/m3	NIST Webbook
rhoc	211.99 ± 6.01	kg/m3	NIST Webbook
rhoc	220.02 ± 1.59	kg/m3	NIST Webbook
rhoc	202.97 ± 6.01	kg/m3	NIST Webbook
rhoc	220.03 ± 9.02	kg/m3	NIST Webbook
rhoc	201.91 ± 6.01	kg/m3	NIST Webbook
rhoc	202.97	kg/m3	NIST Webbook
rhoc	205.10 ± 3.01	kg/m3	NIST Webbook
rhoc	214.99 ± 9.02	kg/m3	NIST Webbook
rhoc	206.60 ± 0.21	kg/m3	NIST Webbook
rhoc	205.49 ± 3.01	kg/m3	NIST Webbook
rhoc	206.21 ± 3.01	kg/m3	NIST Webbook
rhoc	205.79 ± 3.01	kg/m3	NIST Webbook
rhoc	204.46 ± 3.01	kg/m3	NIST Webbook
rhoc	200.89 ± 9.02	kg/m3	NIST Webbook
rhoc	202.97	kg/m3	NIST Webbook
rhoc	206.87 ± 3.01	kg/m3	NIST Webbook
rhoc	206.57 ± 0.30	kg/m3	NIST Webbook
sl	126.70	J/mol×K	NIST Webbook
tb	184.85 ± 0.50	K	NIST Webbook
tb	184.50	K	KDB
tb	184.46	K	NIST Webbook
tb	184.60 ± 0.20	K	NIST Webbook
tb	184.50 ± 0.30	K	NIST Webbook
tb	184.60	K	NIST Webbook
tb	184.50 ± 0.30	K	NIST Webbook
tb	184.52 ± 0.10	K	NIST Webbook
tb	184.55 ± 0.50	K	NIST Webbook

tb	184.65 ± 1.00	K	NIST Webbook
tb	184.60 ± 0.50	K	NIST Webbook
tb	184.30 ± 0.50	K	NIST Webbook
tb	185.15 ± 2.00	K	NIST Webbook
tb	184.30 ± 0.50	K	NIST Webbook
tb	185.15 ± 2.00	K	NIST Webbook
tb	184.10 ± 0.20	K	NIST Webbook
tb	185.15 ± 2.00	K	NIST Webbook
tb	184.65 ± 0.50	K	NIST Webbook
tb	184.90 ± 1.50	K	NIST Webbook
tb	184.55 ± 0.50	K	NIST Webbook
tb	184.65 ± 0.50	K	NIST Webbook
tb	184.85 ± 0.50	K	NIST Webbook
tb	184.15 ± 1.00	K	NIST Webbook
tb	184.46	K	NIST Webbook
tc	305.40	K	NIST Webbook
tc	305.39	K	Surface tension and critical point measurements of methane + propane mixtures
tc	305.32 ± 0.04	K	NIST Webbook
tc	305.37 ± 0.10	K	NIST Webbook
tc	305.32 ± 0.10	K	NIST Webbook
tc	305.33 ± 0.10	K	NIST Webbook
tc	305.42	K	NIST Webbook
tc	305.39 ± 0.10	K	NIST Webbook
tc	305.61 ± 0.03	K	NIST Webbook
tc	305.34 ± 0.05	K	NIST Webbook
tc	305.61 ± 0.10	K	NIST Webbook
tc	305.32	K	KDB
tc	305.38 ± 0.10	K	NIST Webbook
tc	305.32 ± 0.10	K	NIST Webbook
tc	305.37 ± 0.02	K	NIST Webbook
tc	305.37 ± 0.02	K	NIST Webbook
tc	305.34 ± 0.10	K	NIST Webbook
tc	305.22 ± 0.20	K	NIST Webbook
tc	305.36 ± 0.10	K	NIST Webbook
tc	305.33 ± 0.03	K	NIST Webbook
tc	305.35	K	NIST Webbook
tc	305.35 ± 0.10	K	NIST Webbook
tc	305.30 ± 0.03	K	NIST Webbook
tc	307.70 ± 2.00	K	NIST Webbook
tc	305.49 ± 0.40	K	NIST Webbook
tc	305.33 ± 0.10	K	NIST Webbook
tc	305.30	K	NIST Webbook

tc	305.60	K	NIST Webbook
tc	305.50 ± 0.40	K	NIST Webbook
tc	305.47 ± 0.20	K	NIST Webbook
tc	305.34 ± 0.10	K	NIST Webbook
tc	305.10 ± 0.44	K	NIST Webbook
tc	305.32 ± 0.10	K	NIST Webbook
tc	304.26 ± 0.40	K	NIST Webbook
tc	305.47 ± 0.40	K	NIST Webbook
tc	305.30 ± 0.20	K	NIST Webbook
tc	305.00 ± 0.40	K	NIST Webbook
tc	305.38 ± 0.20	K	NIST Webbook
tc	308.20 ± 3.00	K	NIST Webbook
tc	305.00 ± 0.55	K	NIST Webbook
tc	306.00 ± 0.33	K	NIST Webbook
tc	305.47 ± 0.60	K	NIST Webbook
tc	305.25 ± 0.60	K	NIST Webbook
tc	305.31 ± 1.00	K	NIST Webbook
tc	305.10 ± 0.60	K	NIST Webbook
tc	307.00 ± 2.00	K	NIST Webbook
tc	305.42 ± 0.20	K	NIST Webbook
tc	305.35 ± 0.05	K	NIST Webbook
tf	89.20 ± 1.50	K	NIST Webbook
tf	90.36	K	Aqueous Solubility Prediction Method
tf	90.30	K	KDB
tf	101.00 ± 1.00	K	NIST Webbook
tt	90.34 ± 0.02	K	NIST Webbook
tt	90.34 ± 0.01	K	NIST Webbook
tt	89.89 ± 0.10	K	NIST Webbook
tt	90.35 ± 0.00	K	NIST Webbook
tt	89.87 ± 0.02	K	NIST Webbook
tt	89.55 ± 0.10	K	NIST Webbook
tt	89.50 ± 0.15	K	NIST Webbook
tt	101.00 ± 0.30	K	NIST Webbook
tt	90.34 ± 0.01	K	NIST Webbook
tt	90.35 ± 0.20	K	NIST Webbook
vc	0.147 ± 0.001	m3/kmol	NIST Webbook
vc	0.145 ± 0.050	m3/kmol	NIST Webbook
vc	0.146	m3/kmol	NIST Webbook
vc	0.148 ± 0.001	m3/kmol	NIST Webbook
vc	0.145	m3/kmol	NIST Webbook
vc	0.145	m3/kmol	KDB
vc	0.148	m3/kmol	NIST Webbook
zc	0.2792400		KDB
zra	0.28		KDB

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	41.66 ± 0.31	J/mol×K	189.20	NIST Webbook
cpg	43.25 ± 0.32	J/mol×K	209.30	NIST Webbook
cpg	45.08 ± 0.34	J/mol×K	229.65	NIST Webbook
cpg	47.27 ± 0.35	J/mol×K	249.90	NIST Webbook
cpg	47.17 ± 0.35	J/mol×K	250.15	NIST Webbook
cpg	90.46	J/mol×K	603.25	NIST Webbook
cpg	86.27	J/mol×K	561.65	NIST Webbook
cpg	80.08	J/mol×K	520.55	NIST Webbook
cpg	72.43	J/mol×K	451.95	NIST Webbook
cpg	63.89	J/mol×K	387.55	NIST Webbook
cpg	62.10 ± 0.47	J/mol×K	373.60	NIST Webbook
cpg	61.04 ± 0.10	J/mol×K	364.78	NIST Webbook
cpg	49.51 ± 0.04	J/mol×K	272.07	NIST Webbook
cpg	58.91	J/mol×K	347.65	NIST Webbook
cpg	57.40 ± 0.04	J/mol×K	335.82	NIST Webbook
cpg	53.27 ± 0.07	J/mol×K	302.70	NIST Webbook
cpg	52.14 ± 0.39	J/mol×K	292.00	NIST Webbook
cpg	50.66 ± 0.42	J/mol×K	279.00	NIST Webbook
cpg	60.38	J/mol×K	359.75	NIST Webbook
cpg	49.68 ± 0.37	J/mol×K	272.00	NIST Webbook
cpl	72.22	J/mol×K	180.00	NIST Webbook
cpl	68.44	J/mol×K	100.32	NIST Webbook
cpl	68.50	J/mol×K	94.00	NIST Webbook
cpl	68.66	J/mol×K	100.00	NIST Webbook
cpl	74.48	J/mol×K	200.00	NIST Webbook
dvisc	0.0001579	Pa×s	200.87	Joback Method
dvisc	0.0001234	Pa×s	223.02	Joback Method
dvisc	0.0011192	Pa×s	112.30	Joback Method
dvisc	0.0005385	Pa×s	134.44	Joback Method
dvisc	0.0003187	Pa×s	156.59	Joback Method
dvisc	0.0001008	Pa×s	245.16	Joback Method
dvisc	0.0002148	Pa×s	178.73	Joback Method
hfust	0.58	kJ/mol	90.34	NIST Webbook
hfust	2.79	kJ/mol	89.50	NIST Webbook
hfust	0.58	kJ/mol	90.30	NIST Webbook
hfust	2.79	kJ/mol	89.50	NIST Webbook
hfust	2.86	kJ/mol	89.90	NIST Webbook

hsubt	22.60	kJ/mol	85.00	NIST Webbook
hsubt	20.50	kJ/mol	90.00	NIST Webbook
hvapt	15.70	kJ/mol	169.50	NIST Webbook
hvapt	15.30	kJ/mol	168.00	NIST Webbook
hvapt	14.70	kJ/mol	184.00	NIST Webbook
hvapt	14.70	kJ/mol	210.00	NIST Webbook
hvapt	17.10	kJ/mol	117.50	NIST Webbook
hvapt	14.90	kJ/mol	251.00	NIST Webbook
hvapt	14.70	kJ/mol	184.10	NIST Webbook
hvapt	14.90	kJ/mol	207.00	NIST Webbook
hvapt	14.71	kJ/mol	184.60	KDB
hvapt	13.89	kJ/mol	208.94	Enthalpy of Vaporization Measurements of Liquid Methane, Ethane, and Methane + Ethane by Differential Scanning Calorimetry at Low Temperatures and High Pressures
hvapt	13.26	kJ/mol	213.47	Enthalpy of Vaporization Measurements of Liquid Methane, Ethane, and Methane + Ethane by Differential Scanning Calorimetry at Low Temperatures and High Pressures
hvapt	14.49	kJ/mol	191.67	Enthalpy of Vaporization Measurements of Liquid Methane, Ethane, and Methane + Ethane by Differential Scanning Calorimetry at Low Temperatures and High Pressures
hvapt	17.70	kJ/mol	112.00	NIST Webbook
hvapt	15.30	kJ/mol	289.00	NIST Webbook

pvap	4560.00	kPa	302.13	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	94.31	kPa	183.28	Vapor-liquid and vapor-liquid-liquid equilibrium measurements and correlation of the binary mixtures 2,3,3,3-tetrafluoroprop-1-ene (R1234yf) p (tetrafluoromethane (R14), trifluoromethane (R23), octafluoropropane (R218), nitrogen (R728) and argon (R740)) and ethane (R170) p trifluoromethane (R23)
pvap	66.42	kPa	177.24	Vapor-liquid and vapor-liquid-liquid equilibrium measurements and correlation of the binary mixtures 2,3,3,3-tetrafluoroprop-1-ene (R1234yf) p (tetrafluoromethane (R14), trifluoromethane (R23), octafluoropropane (R218), nitrogen (R728) and argon (R740)) and ethane (R170) p trifluoromethane (R23)
pvap	4806.00	kPa	304.65	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System

pvap	1862.00	kPa	264.05	Isothermal Vapor Liquid Equilibrium Data and Modeling for the Ethane (R170) + Perfluoropropane (R218) System at Temperatures from (264 to 308) K
pvap	2275.00	kPa	271.05	Isothermal Vapor Liquid Equilibrium Data and Modeling for the Ethane (R170) + Perfluoropropane (R218) System at Temperatures from (264 to 308) K
pvap	2700.00	kPa	278.05	Isothermal Vapor Liquid Equilibrium Data and Modeling for the Ethane (R170) + Perfluoropropane (R218) System at Temperatures from (264 to 308) K
pvap	4600.00	kPa	303.04	Isothermal Vapor Liquid Equilibrium Data and Modeling for the Ethane (R170) + Perfluoropropane (R218) System at Temperatures from (264 to 308) K
pvap	673.93	kPa	228.82	Vapor-liquid and vapor-liquid-liquid equilibrium measurements and correlation of the binary mixtures 2,3,3,3-tetrafluoroprop-1-ene (R1234yf) p (tetrafluoromethane (R14), trifluoromethane (R23), octafluoropropane (R218), nitrogen (R728) and argon (R740)) and ethane (R170) p trifluoromethane (R23)

pvap	88.97	kPa	182.33	Vapour pressure and excess Gibbs free energy of binary mixtures of hydrogen sulphide with ethane, propane, and n-butane at temperature of 182.33 K
pvap	77.00	kPa	179.68	Isothermal Vapor-Liquid Equilibrium Data for Tetrafluoromethane + Ethane over a Temperature Range from (179.68 to 210.03) K
pvap	4154.00	kPa	297.72	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	4003.00	kPa	296.02	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	3735.00	kPa	292.81	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	3542.00	kPa	290.31	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System

pvap	3324.00	kPa	287.43	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	3155.00	kPa	285.10	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	2970.00	kPa	282.49	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	2793.00	kPa	279.82	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System
pvap	1084.00	kPa	243.76	Vapor-Liquid Equilibrium Data for the Ethane + Trifluoromethane System at Temperatures from (188.31 to 243.76) K
pvap	665.40	kPa	228.50	Vapor-Liquid Equilibrium Data for the Ethane + Trifluoromethane System at Temperatures from (188.31 to 243.76) K
pvap	374.30	kPa	212.84	Vapor-Liquid Equilibrium Data for the Ethane + Trifluoromethane System at Temperatures from (188.31 to 243.76) K

pvap	204.70	kPa	198.66	Vapor-Liquid Equilibrium Data for the Ethane + Trifluoromethane System at Temperatures from (188.31 to 243.76) K
pvap	159.00	kPa	193.28	Vapor-Liquid Equilibrium Data for the Ethane + Trifluoromethane System at Temperatures from (188.31 to 243.76) K
pvap	123.80	kPa	188.31	Vapor-Liquid Equilibrium Data for the Ethane + Trifluoromethane System at Temperatures from (188.31 to 243.76) K
pvap	336.00	kPa	210.03	Isothermal Vapor-Liquid Equilibrium Data for Tetrafluoromethane + Ethane over a Temperature Range from (179.68 to 210.03) K
pvap	223.00	kPa	200.68	Isothermal Vapor-Liquid Equilibrium Data for Tetrafluoromethane + Ethane over a Temperature Range from (179.68 to 210.03) K
pvap	136.00	kPa	190.14	Isothermal Vapor-Liquid Equilibrium Data for Tetrafluoromethane + Ethane over a Temperature Range from (179.68 to 210.03) K
pvap	4379.00	kPa	300.21	Vapor Liquid Equilibrium Measurements and Modeling for the Ethane (R-170) + 1,1,2,3,3,3-Hexafluoro-1-propene (R-1216) Binary System

pvap	2699.00	kPa	278.15	Experimental Solubility Data for Binary Mixtures of Ethane and 2,2,4-Trimethylpentane at Pressures up to 6 MPa Using a New Variable-Volume Sapphire Cell
pvap	53.57	kPa	173.63	Vapor-liquid and vapor-liquid-liquid equilibrium measurements and correlation of the binary mixtures 2,3,3,3-tetrafluoroprop-1-ene (R1234yf) p (tetrafluoromethane (R14), trifluoromethane (R23), octafluoropropane (R218), nitrogen (R728) and argon (R740)) and ethane (R170) p trifluoromethane (R23)
rho1	548.00	kg/m3	183.00	KDB
sfust	6.46	J/mol×K	90.34	NIST Webbook
srf	0.02	N/m	153.20	KDB
svapt	79.87	J/mol×K	184.10	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/(T + C)$
Coeff. A	1.39922e+01
Coeff. B	-1.60935e+03
Coeff. C	-1.28860e+01
Temperature range (K), min.	130.32
Temperature range (K), max.	305.32

Information	Value
Property code	pvap
Equation	$\ln(P_{vp}) = A + B/T + C \cdot \ln(T) + D \cdot T^2$
Coeff. A	4.63913e+01

Coeff. B	-2.62673e+03
Coeff. C	-5.38156e+00
Coeff. D	1.60186e-05
Temperature range (K), min.	90.35
Temperature range (K), max.	305.42

Datasets

Mass density, kg/m3

Temperature, K - Fluid (supercritical or subcritical phases)	Pressure, kPa - Fluid (supercritical or subcritical phases)	Mass density, kg/m3 - Fluid (supercritical or subcritical phases)
469.94	10882.00	98.22
399.00	10202.00	130.49
469.95	21121.00	194.69
469.96	31179.00	260.81
399.00	20736.00	270.05
469.98	41149.00	303.71
399.01	30973.00	330.57
469.97	55719.00	346.04
399.00	42071.00	368.25
304.30	10173.00	372.8
469.97	70405.00	376.04
399.00	55861.00	399.66
469.97	86507.00	401.16
304.30	20724.00	417.38
399.00	69356.00	422.4
469.96	105448.00	424.56
470.00	120161.00	439.65
304.30	30964.00	441.74
469.99	125610.00	444.69
399.00	86735.00	444.78
469.97	137417.00	454.98
304.30	41974.00	460.6
399.00	103351.00	462.05
399.02	120965.00	477.5
399.01	123093.00	479.22
304.29	56004.00	479.29
399.01	136122.00	489.14

304.30	69715.00	494.0
304.30	86990.00	509.02
304.30	103841.00	521.63
304.30	113927.00	528.42
304.31	120907.00	532.8
304.30	137643.00	542.63

Reference

<https://www.doi.org/10.1021/acs.jced.6b00138>

Temperature, K	Pressure, kPa	Mass density, kg/m3
298.15	2000.00	29.226
298.15	5987.00	352.999
298.15	7909.00	371.593
298.15	10071.00	385.867
298.15	14959.00	407.911
298.15	20004.00	423.934
298.15	24927.00	436.235
298.15	29893.00	446.599
298.15	35020.00	455.82
298.15	39905.00	463.582
298.15	49977.00	477.362
298.15	75091.00	503.592
298.15	99827.00	523.125
298.15	119760.00	536.225
298.15	149807.00	552.995
350.00	1999.00	22.819
350.00	29974.00	384.889
350.00	49928.00	430.315
350.00	74959.00	464.696
350.00	100019.00	489.111
350.00	124863.00	508.192
350.00	149906.00	524.195
350.00	172157.00	536.528
400.00	805.00	7.452
400.00	7325.00	84.481
400.00	27286.00	311.921
400.00	48575.00	383.533
400.00	69346.00	421.214
400.00	92289.00	450.02
400.00	117459.00	473.901
400.00	139686.00	491.026
400.00	154657.00	501.119
400.00	166558.00	508.474

400.00	181565.00	517.111
400.00	196062.00	524.823
450.00	1998.00	16.685
450.00	5021.00	44.467
450.00	10001.00	96.599
450.00	20005.00	202.282
450.00	30018.00	272.417
450.00	49974.00	346.238
450.00	69967.00	388.105
450.00	79928.00	403.693
450.00	99962.00	429.113
450.00	119860.00	449.29
450.00	139478.00	465.963

Reference

<https://www.doi.org/10.1021/je900978x>

Speed of sound, m/s

Temperature, K - Liquid	Pressure, kPa - Liquid	Speed of sound, m/s - Liquid
240.00	4105.93	925.763
240.00	5106.52	940.945
240.00	6107.17	955.52
240.00	7107.81	969.562
240.00	8108.48	983.126
240.00	9109.14	996.249
240.00	10109.80	1008.96
240.00	10110.00	1008.98
240.00	12611.70	1039.17
240.00	15113.30	1067.42
240.00	17615.00	1094.0
240.00	20116.60	1119.17
240.00	25119.90	1165.94
240.00	30123.10	1208.8
240.00	35126.40	1248.52
240.00	40130.30	1285.64
240.00	45133.50	1320.54
240.00	50136.80	1353.53
240.00	60143.40	1414.76
240.00	70149.90	1470.8
240.00	80157.40	1522.63
240.00	90164.10	1571.0

240.00	100171.00	1616.41
260.00	4105.20	758.383
260.00	4105.21	758.386
260.00	5105.87	779.502
260.00	6106.58	799.28
260.00	7107.27	817.917
260.00	8107.95	835.581
260.00	9108.59	852.394
260.00	10109.20	868.453
260.00	10108.80	868.423
260.00	25118.20	1054.69
260.00	30121.60	1103.09
260.00	35125.00	1147.34
260.00	40129.20	1188.26
260.00	45132.60	1226.43
260.00	50136.10	1262.28
260.00	60142.90	1328.26
260.00	60142.90	1328.25
260.00	70149.80	1388.14
280.01	4105.15	566.583
280.01	5105.80	601.029
280.01	6106.50	631.087
280.01	7107.21	657.999
280.01	8107.89	682.515
280.00	9108.55	705.137
280.01	10109.20	726.207
280.01	12610.90	773.631
280.01	15112.60	815.405
280.01	17614.40	853.035
280.01	20116.10	887.449
280.01	25119.50	948.992
280.01	30122.90	1003.29
280.01	35126.30	1052.22
280.01	40129.70	1096.96
280.01	45132.90	1138.35
280.01	50136.20	1176.96
280.01	60142.90	1247.48
280.00	70149.60	1311.0
280.00	80156.30	1369.01
280.00	90163.00	1422.61
280.00	100169.00	1472.55
300.00	5104.86	368.772
300.00	6105.63	434.335
300.00	7106.43	481.551

300.00	8107.14	519.902
300.00	9107.82	552.801
300.00	10108.50	581.928
300.00	12610.20	643.77
300.00	15111.90	695.353
300.00	17613.30	740.223
300.00	20115.10	780.276
300.00	25118.60	850.196
300.00	30122.00	910.523
300.00	35125.50	964.074
300.00	40128.90	1012.53
300.00	45132.60	1056.98
300.00	50135.90	1098.18
300.00	60142.80	1172.9
300.00	70149.50	1239.68
300.00	80156.30	1300.36
300.00	90163.10	1356.21
300.00	100170.00	1408.09
305.32	6104.96	370.713
305.32	7105.78	429.663
305.32	8106.55	474.293
305.32	9107.32	511.282
305.32	10108.00	543.313
305.32	12609.80	609.924
305.32	15111.60	664.48
305.32	17613.40	711.441
305.32	20115.20	753.077
305.32	25118.70	825.252
305.32	25119.00	825.252
305.32	30122.20	887.154
305.32	35125.40	941.89
305.32	40129.00	991.286
305.32	45132.30	1036.51
305.32	50135.70	1078.35
305.32	60142.40	1154.11
305.32	70148.90	1221.7
305.32	80155.40	1283.04
305.32	90161.80	1339.44
305.32	100168.00	1391.79

Reference

<https://www.doi.org/10.1016/j.fluid.2015.11.019>

Temperature, K

Pressure, kPa

Speed of sound, m/s

280.01	500.43	294.645
280.01	500.43	294.646
280.01	500.43	294.645
280.02	500.43	294.647
280.02	500.44	294.647
280.02	500.43	294.648
319.55	463.50	316.216
319.55	463.51	316.218
319.95	464.08	316.403
319.95	464.09	316.405
324.99	479.74	318.642
324.99	479.75	318.646
325.00	479.75	318.647
325.00	479.75	318.649
325.00	479.75	318.649
325.00	479.76	318.65
339.37	492.93	325.401
339.37	492.93	325.401
339.89	493.66	325.638
339.89	493.66	325.639
359.27	522.10	334.296
359.27	522.11	334.297
359.85	523.03	334.572
359.85	523.03	334.572
365.00	479.42	337.342
365.00	479.42	337.344
365.01	479.42	337.345
365.01	479.42	337.345
365.01	479.43	337.344
365.01	479.42	337.346
365.01	479.42	337.346
365.01	479.42	337.347
365.01	479.43	337.348
379.19	551.11	342.951
379.19	551.11	342.953
379.76	551.90	343.188
379.77	551.90	343.189
399.22	579.97	351.407
399.22	579.97	351.409
399.80	580.93	351.687
399.80	580.93	351.688
404.98	531.39	354.225
404.98	531.41	354.222
404.98	531.41	354.222

404.98	531.39	354.225
404.98	531.40	354.226
404.98	531.40	354.226
404.98	531.40	354.226
404.98	531.41	354.222
404.98	531.40	354.227
419.45	608.87	359.755
419.46	608.88	359.757
419.91	609.51	359.943
419.92	609.52	359.946
444.98	496.45	370.717
444.98	496.45	370.719
444.98	496.45	370.719
444.98	496.44	370.716
444.98	496.45	370.716
444.98	496.45	370.718
444.98	496.45	370.719
444.99	496.45	370.717
444.99	496.45	370.719
484.95	497.53	386.13
484.95	497.54	386.131
484.95	497.55	386.141
484.95	497.55	386.142
484.95	497.52	386.129
484.95	497.56	386.144
484.96	539.52	386.002
484.96	497.55	386.136
484.96	497.55	386.137
484.96	497.55	386.138
484.96	539.51	386.0
484.96	539.52	386.002

Reference

<https://www.doi.org/10.1016/j.jct.2015.07.005>

Molar heat capacity at constant pressure, J/K/mol

Temperature, K - Liquid	Pressure, kPa - Liquid	Molar heat capacity at constant pressure, J/K/mol - Liquid
108.15	1050.00	67.90
108.15	2020.00	67.87
108.15	4290.00	67.78
118.15	1060.00	68.26

118.15	2030.00	67.63
118.15	4290.00	68.95
128.15	4310.00	68.65
143.15	4080.00	68.62
153.15	4070.00	69.94
163.15	4050.00	70.84
188.15	1120.00	73.46
188.15	4310.00	72.41
228.15	1170.00	81.04
228.15	4320.00	80.07
238.15	1210.00	83.71
238.15	4330.00	82.72

Reference

<https://www.doi.org/10.1021/je300762m>

Viscosity, Pa*s

Temperature, K - Gas	Pressure, kPa - Gas	Viscosity, Pa*s - Gas
290.00	79.60	0.0000090
290.00	103.08	0.0000090
290.00	124.24	0.0000090
290.00	148.27	0.0000090
290.00	176.98	0.0000090
290.00	202.62	0.0000090
290.00	225.58	0.0000090
290.00	246.46	0.0000090
290.00	271.01	0.0000090
290.00	300.59	0.0000090
290.00	327.37	0.0000090
290.00	353.88	0.0000090
290.00	378.73	0.0000090
290.00	412.83	0.0000090
290.00	437.94	0.0000090
290.00	476.96	0.0000090
290.00	508.87	0.0000090
290.00	556.20	0.0000091
290.00	595.19	0.0000091
290.00	636.89	0.0000091
290.00	671.53	0.0000091
290.00	710.98	0.0000091
290.00	775.23	0.0000091

290.00	825.27	0.0000091
290.00	882.03	0.0000091
290.00	913.28	0.0000091
290.00	958.42	0.0000091
290.00	1009.50	0.0000091
290.00	1064.40	0.0000091
290.00	1123.30	0.0000092
290.00	1181.70	0.0000092
290.00	1216.60	0.0000092
290.00	1259.30	0.0000092
290.00	1350.10	0.0000092
290.00	1438.10	0.0000092
290.00	1484.80	0.0000092
290.00	1559.50	0.0000093
290.00	1615.30	0.0000093
290.00	1667.30	0.0000093
290.00	1716.80	0.0000093
290.00	1816.00	0.0000094
290.00	1884.50	0.0000094
290.00	1946.80	0.0000094
290.00	2026.70	0.0000095
290.00	2080.60	0.0000095
290.00	2139.40	0.0000095
290.00	2227.50	0.0000095
290.00	2279.90	0.0000096
290.00	2347.30	0.0000096
290.00	2438.70	0.0000097
290.00	2475.40	0.0000097
290.00	2532.70	0.0000097
290.00	2602.60	0.0000098
290.00	2675.10	0.0000098
290.00	2747.80	0.0000099
290.00	2795.40	0.0000099
290.00	2853.60	0.0000100
290.00	2890.10	0.0000100
290.00	2916.00	0.0000100
300.00	71.39	0.0000093
300.00	102.60	0.0000093
300.00	125.56	0.0000093
300.00	151.72	0.0000093
300.00	178.40	0.0000093
300.00	203.62	0.0000093
300.00	224.20	0.0000093
300.00	254.24	0.0000093

300.00	275.46	0.0000093
300.00	305.63	0.0000093
300.00	334.53	0.0000093
300.00	358.06	0.0000093
300.00	388.48	0.0000093
300.00	419.92	0.0000093
300.00	447.23	0.0000093
300.00	481.95	0.0000094
300.00	507.29	0.0000094
300.00	545.78	0.0000094
300.00	579.91	0.0000094
300.00	618.84	0.0000094
300.00	649.95	0.0000094
300.00	683.78	0.0000094
300.00	728.32	0.0000094
300.00	778.72	0.0000094
300.00	813.14	0.0000094
300.00	869.08	0.0000094
300.00	911.25	0.0000094
300.00	974.32	0.0000094
300.00	1013.50	0.0000094
300.00	1064.60	0.0000095
300.00	1116.40	0.0000095
300.00	1160.00	0.0000095
300.00	1251.50	0.0000095
300.00	1321.30	0.0000095
300.00	1364.60	0.0000095
300.00	1446.40	0.0000095
300.00	1514.90	0.0000096
300.00	1551.00	0.0000096
300.00	1610.70	0.0000096
300.00	1653.60	0.0000096
300.00	1760.90	0.0000096
300.00	1829.20	0.0000097
300.00	1871.30	0.0000097
300.00	1910.30	0.0000097
300.00	2005.60	0.0000097
300.00	2082.70	0.0000098
300.00	2130.40	0.0000098
300.00	2244.00	0.0000098
300.00	2333.80	0.0000099
300.00	2391.70	0.0000099
300.00	2455.40	0.0000099
300.00	2558.40	0.0000100

300.00	2606.20	0.0000100
300.00	2688.10	0.0000101
300.00	2745.70	0.0000101
300.00	2853.70	0.0000102
300.00	2904.90	0.0000102
300.00	2986.60	0.0000103
300.00	3054.50	0.0000103
300.00	3131.80	0.0000104
300.00	3213.80	0.0000105
300.00	3267.40	0.0000105
300.00	3349.10	0.0000106
300.00	3404.20	0.0000107
300.00	3483.60	0.0000108
300.00	3535.20	0.0000108
300.00	3619.90	0.0000110
300.00	3692.70	0.0000111
300.00	3760.00	0.0000112
300.00	3800.70	0.0000112
300.00	3838.00	0.0000113
310.00	100.00	0.0000096
310.00	123.15	0.0000096
310.00	148.48	0.0000096
310.00	175.41	0.0000096
310.00	200.44	0.0000096
310.00	226.30	0.0000096
310.00	248.76	0.0000096
310.00	274.29	0.0000096
310.00	299.70	0.0000096
310.00	328.47	0.0000096
310.00	354.89	0.0000096
310.00	382.87	0.0000096
310.00	439.93	0.0000096
310.00	468.57	0.0000096
310.00	498.24	0.0000097
310.00	533.99	0.0000097
310.00	581.86	0.0000097
310.00	623.38	0.0000097
310.00	670.29	0.0000097
310.00	714.00	0.0000097
310.00	756.22	0.0000097
310.00	815.85	0.0000097
310.00	859.52	0.0000097
310.00	924.11	0.0000097
310.00	983.07	0.0000097

310.00	1052.80	0.0000098
310.00	1133.60	0.0000098
310.00	1191.40	0.0000098
310.00	1251.40	0.0000098
310.00	1357.60	0.0000098
310.00	1428.80	0.0000098
310.00	1497.20	0.0000099
310.00	1568.90	0.0000099
310.00	1607.50	0.0000099
310.00	1714.10	0.0000099
310.00	1790.80	0.0000100
310.00	1833.70	0.0000100
310.00	1917.40	0.0000100
310.00	1998.30	0.0000100
310.00	2078.30	0.0000101
310.00	2158.00	0.0000101
310.00	2236.30	0.0000101
310.00	2348.30	0.0000102
310.00	2449.30	0.0000102
310.00	2529.40	0.0000103
310.00	2633.40	0.0000103
310.00	2741.50	0.0000104
310.00	2846.90	0.0000104
310.00	2926.80	0.0000105
310.00	3015.60	0.0000105
310.00	3161.00	0.0000106
310.00	3229.90	0.0000107
310.00	3346.20	0.0000108
310.00	3445.60	0.0000109
310.00	3573.20	0.0000110
310.00	3666.30	0.0000111
310.00	3799.10	0.0000112
310.00	3907.90	0.0000113
310.00	4097.00	0.0000116
310.00	4223.40	0.0000118
310.00	4370.50	0.0000121
310.00	4494.90	0.0000123
310.00	4596.30	0.0000126
310.00	4702.60	0.0000129
310.00	4809.20	0.0000132
310.00	4892.20	0.0000136
310.00	4941.20	0.0000138
310.00	5009.40	0.0000142
310.00	5055.90	0.0000146

310.00	5108.70	0.0000150
310.00	5164.00	0.0000156
310.00	5195.50	0.0000161
310.00	5222.40	0.0000166
310.00	5255.50	0.0000172
310.00	5272.20	0.0000178
310.00	5296.90	0.0000185
310.00	5317.40	0.0000192
310.00	5335.70	0.0000200
310.00	5354.20	0.0000209
310.00	5374.80	0.0000218
310.00	5394.80	0.0000228
310.00	5414.00	0.0000235
310.00	5435.10	0.0000243
310.00	5460.20	0.0000251
310.00	5493.20	0.0000260
310.00	5530.60	0.0000269
310.00	5581.20	0.0000279
310.00	5645.50	0.0000289
310.00	5736.20	0.0000300
310.00	5848.80	0.0000311
310.00	5991.90	0.0000324
310.00	6166.70	0.0000336
310.00	6385.60	0.0000349
310.00	6844.20	0.0000371
310.00	7383.20	0.0000392
310.00	8208.10	0.0000418
310.00	8880.40	0.0000436
310.00	9706.30	0.0000454
310.00	10618.00	0.0000474
310.00	11697.00	0.0000494
310.00	12756.00	0.0000512
310.00	14805.00	0.0000544
310.00	16313.00	0.0000565
310.00	18248.00	0.0000590
310.00	19609.00	0.0000607
310.00	22390.00	0.0000638
310.00	24935.00	0.0000666
320.00	119.57	0.0000099
320.00	152.92	0.0000099
320.00	181.50	0.0000099
320.00	215.30	0.0000099
320.00	243.93	0.0000099
320.00	278.70	0.0000099

320.00	313.02	0.0000099
320.00	345.57	0.0000099
320.00	377.95	0.0000099
320.00	412.10	0.0000099
320.00	448.82	0.0000099
320.00	477.80	0.0000100
320.00	509.18	0.0000100
320.00	544.11	0.0000100
320.00	584.95	0.0000100
320.00	620.20	0.0000100
320.00	670.29	0.0000100
320.00	719.06	0.0000100
320.00	781.87	0.0000100
320.00	854.01	0.0000100
320.00	899.65	0.0000100
320.00	952.26	0.0000100
320.00	1049.80	0.0000100
320.00	1125.90	0.0000101
320.00	1222.50	0.0000101
320.00	1345.60	0.0000101
320.00	1449.60	0.0000101
320.00	1525.60	0.0000102
320.00	1639.00	0.0000102
320.00	1757.00	0.0000102
320.00	1853.70	0.0000103
320.00	1962.10	0.0000103
320.00	2068.20	0.0000103
320.00	2212.00	0.0000104
320.00	2327.40	0.0000104
320.00	2466.70	0.0000105
320.00	2594.20	0.0000106
320.00	2710.60	0.0000106
320.00	2850.10	0.0000107
320.00	2965.50	0.0000107
320.00	3083.10	0.0000108
320.00	3226.80	0.0000109
320.00	3372.10	0.0000110
320.00	3495.10	0.0000111
320.00	3628.00	0.0000112
320.00	3711.20	0.0000113
320.00	3995.50	0.0000115
320.00	4174.20	0.0000117
320.00	4326.40	0.0000119
320.00	4506.50	0.0000121

320.00	4679.80	0.0000123
320.00	4802.60	0.0000126
320.00	4971.50	0.0000129
320.00	5150.20	0.0000133
320.00	5276.00	0.0000136
320.00	5401.10	0.0000139
320.00	5516.40	0.0000144
320.00	5655.90	0.0000149
320.00	5738.60	0.0000153
320.00	5847.90	0.0000159
320.00	5934.60	0.0000165
320.00	6017.40	0.0000172
320.00	6083.40	0.0000177
320.00	6131.80	0.0000182
320.00	6201.30	0.0000189
320.00	6270.10	0.0000197
320.00	6344.60	0.0000206
320.00	6421.50	0.0000215
320.00	6484.30	0.0000222
320.00	6542.40	0.0000229
320.00	6603.20	0.0000236
320.00	6699.90	0.0000247
320.00	6820.60	0.0000259
320.00	6970.00	0.0000272
320.00	7084.60	0.0000281
320.00	7278.40	0.0000295
320.00	7560.50	0.0000311
320.00	7921.50	0.0000330
320.00	8226.40	0.0000343
320.00	8606.90	0.0000357
320.00	9057.30	0.0000372
320.00	9550.80	0.0000386
320.00	10191.00	0.0000403
320.00	10925.00	0.0000420
320.00	12245.00	0.0000448
320.00	13361.00	0.0000468
320.00	15697.00	0.0000505
320.00	17376.00	0.0000529
320.00	19353.00	0.0000554
320.00	21685.00	0.0000583
320.00	24197.00	0.0000610
320.00	25347.00	0.0000623
340.00	105.61	0.0000105
340.00	135.53	0.0000105

340.00	173.00	0.0000105
340.00	203.75	0.0000105
340.00	246.71	0.0000105
340.00	281.07	0.0000105
340.00	317.73	0.0000105
340.00	340.53	0.0000105
340.00	365.44	0.0000105
340.00	406.17	0.0000105
340.00	430.83	0.0000105
340.00	471.02	0.0000105
340.00	524.00	0.0000105
340.00	563.09	0.0000106
340.00	632.12	0.0000106
340.00	668.44	0.0000106
340.00	746.01	0.0000106
340.00	826.84	0.0000106
340.00	865.72	0.0000106
340.00	924.23	0.0000106
340.00	978.06	0.0000106
340.00	1047.10	0.0000106
340.00	1133.50	0.0000107
340.00	1206.60	0.0000107
340.00	1333.70	0.0000107
340.00	1452.90	0.0000107
340.00	1550.00	0.0000108
340.00	1616.00	0.0000108
340.00	1729.50	0.0000108
340.00	1841.80	0.0000108
340.00	1956.30	0.0000109
340.00	2076.00	0.0000109
340.00	2208.90	0.0000110
340.00	2348.80	0.0000110
340.00	2499.00	0.0000111
340.00	2602.70	0.0000111
340.00	2711.90	0.0000112
340.00	2892.80	0.0000112
340.00	3009.10	0.0000113
340.00	3131.30	0.0000113
340.00	3257.10	0.0000114
340.00	3452.10	0.0000115
340.00	3564.40	0.0000116
340.00	3674.20	0.0000116
340.00	3778.40	0.0000117
340.00	3876.00	0.0000118

340.00	3952.90	0.0000118
340.00	4079.40	0.0000119
340.00	4236.70	0.0000120
340.00	4399.00	0.0000121
340.00	4487.20	0.0000122
340.00	4577.50	0.0000123
340.00	4669.50	0.0000124
340.00	4964.90	0.0000126
340.00	5080.40	0.0000128
340.00	5188.40	0.0000129
340.00	5312.30	0.0000130
340.00	5429.80	0.0000132
340.00	5556.80	0.0000133
340.00	6232.10	0.0000144
340.00	6448.50	0.0000148
340.00	6663.50	0.0000153
340.00	6848.40	0.0000157
340.00	7040.90	0.0000163
340.00	7221.80	0.0000168
340.00	7403.80	0.0000174
340.00	7583.40	0.0000180
340.00	8081.60	0.0000200
340.00	8262.80	0.0000208
340.00	8448.50	0.0000216
340.00	8644.60	0.0000225
340.00	8861.90	0.0000235
340.00	9077.10	0.0000244
340.00	9322.70	0.0000255
340.00	9574.50	0.0000265
340.00	9854.70	0.0000275
340.00	10697.00	0.0000304
340.00	11140.00	0.0000317
340.00	11651.00	0.0000331
340.00	12243.00	0.0000346
340.00	12873.00	0.0000361
340.00	13585.00	0.0000375
340.00	14512.00	0.0000393
340.00	15608.00	0.0000413
340.00	16887.00	0.0000433
340.00	18734.00	0.0000460
340.00	20544.00	0.0000484
340.00	22692.00	0.0000510
340.00	24738.00	0.0000533
370.00	113.32	0.0000113

370.00	147.46	0.0000114
370.00	180.32	0.0000114
370.00	219.78	0.0000114
370.00	250.53	0.0000114
370.00	277.77	0.0000114
370.00	320.51	0.0000114
370.00	346.69	0.0000114
370.00	373.36	0.0000114
370.00	400.72	0.0000114
370.00	439.73	0.0000114
370.00	485.60	0.0000114
370.00	519.47	0.0000114
370.00	562.25	0.0000114
370.00	598.82	0.0000114
370.00	639.50	0.0000114
370.00	742.62	0.0000115
370.00	790.53	0.0000115
370.00	851.13	0.0000115
370.00	897.21	0.0000115
370.00	957.22	0.0000115
370.00	1061.30	0.0000115
370.00	1145.10	0.0000115
370.00	1245.00	0.0000116
370.00	1356.80	0.0000116
370.00	1444.20	0.0000116
370.00	1544.00	0.0000116
370.00	1691.60	0.0000117
370.00	1792.10	0.0000117
370.00	1890.40	0.0000117
370.00	2039.80	0.0000118
370.00	2203.90	0.0000118
370.00	2348.70	0.0000118
370.00	2474.50	0.0000119
370.00	2660.20	0.0000119
370.00	2735.40	0.0000120
370.00	2950.00	0.0000120
370.00	3097.60	0.0000121
370.00	3253.80	0.0000122
370.00	3413.10	0.0000122
370.00	3571.80	0.0000123
370.00	3749.70	0.0000124
370.00	4010.60	0.0000125
370.00	4256.80	0.0000126
370.00	4408.20	0.0000127

370.00	4642.80	0.0000128
370.00	4829.10	0.0000129
370.00	5031.80	0.0000131
370.00	5303.70	0.0000133
370.00	5567.20	0.0000134
370.00	5790.40	0.0000136
370.00	5962.10	0.0000137
370.00	6228.20	0.0000140
370.00	6502.90	0.0000142
370.00	6800.20	0.0000145
370.00	7065.00	0.0000148
370.00	7360.20	0.0000151
370.00	7672.90	0.0000155
370.00	8020.10	0.0000160
370.00	8250.40	0.0000163
370.00	8589.30	0.0000168
370.00	8848.50	0.0000172
370.00	9106.30	0.0000176
370.00	9463.40	0.0000183
370.00	9764.30	0.0000189
370.00	10125.00	0.0000196
370.00	10524.00	0.0000204
370.00	10821.00	0.0000210
370.00	11121.00	0.0000217
370.00	11584.00	0.0000227
370.00	11948.00	0.0000235
370.00	12311.00	0.0000243
370.00	12696.00	0.0000251
370.00	13112.00	0.0000260
370.00	14179.00	0.0000282
370.00	14733.00	0.0000292
370.00	15324.00	0.0000303
370.00	15969.00	0.0000315
370.00	17164.00	0.0000335
370.00	18821.00	0.0000360
370.00	20693.00	0.0000386
370.00	23709.00	0.0000423
370.00	25448.00	0.0000442
370.00	27478.00	0.0000464
370.00	29959.00	0.0000488
400.00	113.97	0.0000122
400.00	143.04	0.0000122
400.00	172.06	0.0000122
400.00	220.10	0.0000122

400.00	256.28	0.0000122
400.00	290.91	0.0000122
400.00	313.22	0.0000122
400.00	340.31	0.0000122
400.00	379.05	0.0000122
400.00	412.95	0.0000122
400.00	452.22	0.0000122
400.00	493.06	0.0000123
400.00	539.15	0.0000123
400.00	583.20	0.0000123
400.00	612.60	0.0000123
400.00	650.91	0.0000123
400.00	697.00	0.0000123
400.00	769.42	0.0000123
400.00	828.12	0.0000123
400.00	882.81	0.0000123
400.00	935.77	0.0000123
400.00	1048.20	0.0000124
400.00	1174.60	0.0000124
400.00	1279.30	0.0000124
400.00	1386.00	0.0000124
400.00	1491.30	0.0000124
400.00	1572.90	0.0000125
400.00	1673.50	0.0000125
400.00	1797.20	0.0000125
400.00	1896.50	0.0000125
400.00	2054.70	0.0000126
400.00	2240.00	0.0000126
400.00	2392.10	0.0000127
400.00	2533.00	0.0000127
400.00	2674.50	0.0000128
400.00	2841.80	0.0000128
400.00	3003.50	0.0000128
400.00	3194.50	0.0000129
400.00	3340.90	0.0000130
400.00	3516.80	0.0000130
400.00	3669.80	0.0000131
400.00	3778.40	0.0000131
400.00	3988.00	0.0000132
400.00	4168.40	0.0000133
400.00	4352.60	0.0000133
400.00	4582.40	0.0000134
400.00	4783.40	0.0000135
400.00	4973.10	0.0000136

400.00	5178.50	0.0000137
400.00	5404.20	0.0000138
400.00	5646.70	0.0000140
400.00	5902.20	0.0000141
400.00	6167.00	0.0000143
400.00	6465.30	0.0000145
400.00	6870.00	0.0000147
400.00	7332.70	0.0000150
400.00	7767.60	0.0000154
400.00	8216.20	0.0000157
400.00	8682.80	0.0000161
400.00	9060.00	0.0000165
400.00	9435.60	0.0000169
400.00	9837.10	0.0000173
400.00	10232.00	0.0000177
400.00	10615.00	0.0000181
400.00	11009.00	0.0000186
400.00	11425.00	0.0000191
400.00	11864.00	0.0000197
400.00	12272.00	0.0000202
400.00	12725.00	0.0000208
400.00	13189.00	0.0000215
400.00	14034.00	0.0000227
400.00	14540.00	0.0000234
400.00	15072.00	0.0000241
400.00	15650.00	0.0000250
400.00	16442.00	0.0000261
400.00	17258.00	0.0000272
400.00	18095.00	0.0000284
400.00	18892.00	0.0000294
400.00	19765.00	0.0000305
400.00	20714.00	0.0000317
400.00	21765.00	0.0000330
400.00	22931.00	0.0000344
400.00	24246.00	0.0000358
400.00	25689.00	0.0000373
400.00	27359.00	0.0000390
400.00	29228.00	0.0000409
430.00	138.54	0.0000130
430.00	186.79	0.0000130
430.00	220.94	0.0000130
430.00	248.21	0.0000130
430.00	284.70	0.0000130
430.00	314.45	0.0000130

430.00	338.20	0.0000130
430.00	360.36	0.0000130
430.00	400.10	0.0000131
430.00	429.22	0.0000131
430.00	460.50	0.0000131
430.00	521.75	0.0000131
430.00	572.47	0.0000131
430.00	607.44	0.0000131
430.00	670.06	0.0000131
430.00	737.74	0.0000131
430.00	783.92	0.0000131
430.00	862.64	0.0000131
430.00	905.70	0.0000131
430.00	976.56	0.0000131
430.00	1087.40	0.0000132
430.00	1180.90	0.0000132
430.00	1348.40	0.0000132
430.00	1446.40	0.0000132
430.00	1530.80	0.0000133
430.00	1620.80	0.0000133
430.00	1717.10	0.0000133
430.00	1818.00	0.0000133
430.00	1924.70	0.0000133
430.00	2096.80	0.0000134
430.00	2291.40	0.0000134
430.00	2428.10	0.0000135
430.00	2573.50	0.0000135
430.00	2724.20	0.0000135
430.00	2898.60	0.0000136
430.00	3053.20	0.0000136
430.00	3194.60	0.0000137
430.00	3356.60	0.0000137
430.00	3507.90	0.0000138
430.00	3656.90	0.0000138
430.00	3831.30	0.0000139
430.00	3954.50	0.0000139
430.00	4110.60	0.0000140
430.00	4343.80	0.0000140
430.00	4492.10	0.0000141
430.00	4786.00	0.0000142
430.00	5105.40	0.0000143
430.00	5477.70	0.0000145
430.00	5739.30	0.0000146
430.00	6014.30	0.0000147

430.00	6310.10	0.0000148
430.00	6613.30	0.0000150
430.00	6932.10	0.0000152
430.00	7322.60	0.0000154
430.00	7787.20	0.0000156
430.00	8292.40	0.0000159
430.00	8671.00	0.0000162
430.00	9056.80	0.0000164
430.00	9598.50	0.0000168
430.00	10163.00	0.0000172
430.00	10894.00	0.0000178
430.00	11360.00	0.0000182
430.00	11839.00	0.0000186
430.00	12362.00	0.0000190
430.00	12882.00	0.0000195
430.00	13394.00	0.0000200
430.00	14177.00	0.0000207
430.00	14772.00	0.0000213
430.00	15400.00	0.0000220
430.00	16025.00	0.0000226
430.00	16743.00	0.0000234
430.00	17527.00	0.0000242
430.00	18351.00	0.0000251
430.00	19231.00	0.0000260
430.00	20081.00	0.0000269
430.00	21171.00	0.0000280
430.00	22413.00	0.0000293
430.00	23636.00	0.0000305
430.00	24931.00	0.0000317
430.00	26291.00	0.0000330
430.00	27712.00	0.0000343
430.00	29313.00	0.0000357
430.00	30906.00	0.0000371

Reference

<https://www.doi.org/10.1021/je050287l>

Temperature, K	Pressure, kPa	Viscosity, Pa*s
293.15	64.37	0.0000091
293.15	80.37	0.0000091
293.15	80.42	0.0000091
293.15	80.48	0.0000091
293.15	160.10	0.0000091
293.15	160.16	0.0000091

293.15	315.97	0.0000091
293.15	316.05	0.0000091
293.15	467.91	0.0000091
293.15	467.96	0.0000091
293.15	468.01	0.0000091
293.15	615.93	0.0000091
293.15	616.03	0.0000091
293.15	759.69	0.0000092
293.15	889.73	0.0000092
293.15	889.87	0.0000092
293.15	1036.20	0.0000092
293.15	1036.30	0.0000092
293.15	1167.20	0.0000092
293.15	1167.30	0.0000092
293.15	1293.60	0.0000093
293.15	1293.80	0.0000093
293.15	1420.80	0.0000093
293.15	1421.00	0.0000093
293.15	1992.40	0.0000095
293.15	1992.50	0.0000095
293.15	1992.60	0.0000095
293.15	2477.20	0.0000097
293.15	2477.40	0.0000097
293.15	2477.60	0.0000097
293.15	2879.70	0.0000100
293.15	2879.90	0.0000100
293.15	3212.10	0.0000104
293.15	3212.20	0.0000104
293.15	3212.30	0.0000104
293.15	3471.90	0.0000107
293.15	3472.00	0.0000107
293.15	3472.20	0.0000107
293.15	3577.60	0.0000109
293.15	3577.80	0.0000109
293.15	64.37	0.0000091
293.15	160.10	0.0000091
293.15	316.05	0.0000091
293.15	615.93	0.0000091
293.15	759.69	0.0000092
293.15	889.73	0.0000092
293.15	1036.20	0.0000092
293.15	1167.30	0.0000092
293.15	1293.80	0.0000093
293.15	1420.80	0.0000093

293.15	759.69	0.0000092
307.15	92.55	0.0000095
307.15	92.62	0.0000095
307.15	160.18	0.0000095
307.15	332.45	0.0000095
307.15	493.91	0.0000096
307.15	493.97	0.0000096
307.15	649.95	0.0000096
307.15	650.01	0.0000096
307.15	800.35	0.0000096
307.15	800.41	0.0000096
307.15	959.13	0.0000097
307.15	959.20	0.0000097
307.15	1094.40	0.0000097
307.15	1094.50	0.0000097
307.15	1233.80	0.0000097
307.15	1233.90	0.0000097
307.15	1343.40	0.0000098
307.15	1502.40	0.0000098
307.15	2134.40	0.0000101
307.15	2134.50	0.0000101
307.15	2674.20	0.0000103
307.15	2674.30	0.0000103
307.15	3138.10	0.0000107
307.15	3138.20	0.0000107
307.15	3138.40	0.0000107
307.15	3539.60	0.0000110
307.15	3539.80	0.0000110
307.15	3889.00	0.0000115
307.15	3892.40	0.0000115
307.15	4150.50	0.0000119
307.15	4151.60	0.0000119
307.15	4152.00	0.0000119
307.15	4152.40	0.0000119
307.15	4328.60	0.0000123
307.15	4329.50	0.0000123
307.15	4330.10	0.0000123
307.15	4330.40	0.0000123
307.15	4331.50	0.0000123
307.15	4514.60	0.0000128
307.15	4516.20	0.0000128
307.15	4517.40	0.0000128
307.15	4518.30	0.0000128
307.15	4519.20	0.0000128

307.15	4736.30	0.0000137
307.15	4736.70	0.0000137
307.15	4939.20	0.0000155
307.15	4939.30	0.0000155
307.15	5019.40	0.0000177
307.15	5019.50	0.0000177
307.15	5042.90	0.0000193
307.15	5043.00	0.0000193
307.15	5051.00	0.0000203
307.15	5051.10	0.0000203
307.15	5058.70	0.0000213
307.15	5058.80	0.0000214
307.15	5060.30	0.0000216
307.15	5060.40	0.0000216
307.15	5064.10	0.0000221
307.15	5064.20	0.0000222
307.15	5105.00	0.0000258
307.15	5105.10	0.0000258
307.15	5105.20	0.0000258
307.15	5160.60	0.0000278
307.15	5160.90	0.0000278
307.15	5161.00	0.0000278
307.15	5348.10	0.0000311
307.15	5348.30	0.0000311
307.15	5348.50	0.0000311
307.15	5348.60	0.0000311
307.15	5648.10	0.0000339
307.15	5648.30	0.0000339
307.15	5648.70	0.0000339
307.15	5648.80	0.0000339
307.15	6326.20	0.0000377
307.15	6328.20	0.0000377
307.15	6328.50	0.0000377
307.15	6328.90	0.0000378
307.15	7598.20	0.0000423
307.15	7602.20	0.0000423
307.15	7603.00	0.0000423
307.15	9627.40	0.0000473
307.15	9628.10	0.0000473
307.15	12507.00	0.0000526
307.15	12508.00	0.0000526
307.15	12509.00	0.0000526
307.15	15941.00	0.0000577
307.15	15981.00	0.0000577

307.15	15985.00	0.0000577
307.15	15986.00	0.0000577
307.15	15987.00	0.0000577
307.15	160.18	0.0000095
307.15	332.45	0.0000095
307.15	800.41	0.0000096
307.15	959.20	0.0000097
307.15	1343.40	0.0000098
307.15	1502.40	0.0000098
307.15	2674.20	0.0000103
307.15	2674.30	0.0000103
307.15	4939.30	0.0000155
307.15	5019.40	0.0000177
307.15	5043.00	0.0000193
307.15	5051.00	0.0000203
307.15	5051.10	0.0000203
307.15	5058.70	0.0000213
307.15	5058.80	0.0000214
307.15	5060.30	0.0000216
307.15	5064.10	0.0000222
307.15	5064.20	0.0000222
307.15	5105.00	0.0000258
307.15	5161.00	0.0000278
307.15	5058.80	0.0000213
307.15	5064.10	0.0000221

Reference

<https://www.doi.org/10.1021/je101178u>

Mass density, kg/m3

Temperature, K - Gas	Pressure, kPa - Gas	Mass density, kg/m3 - Gas
265.07	1811.51	32.6652
265.08	1612.28	27.8016
265.08	1404.49	23.2391
265.10	1199.36	19.1462
265.10	1004.37	15.548
265.10	816.83	12.3046
265.02	505.80	7.3166
265.06	279.98	3.9405
265.06	116.65	1.6114
259.63	1548.63	27.5129

259.63	1351.60	23.0046
259.63	1351.53	23.0156
259.62	1174.87	19.3302
259.62	933.39	14.7341
259.63	726.92	11.1161
259.63	550.88	8.2159
259.63	358.50	5.211
259.63	152.52	2.1615
254.74	1474.67	26.843
254.76	1280.41	22.2529
254.76	1280.46	22.2533
254.76	1040.10	17.2189
254.76	825.19	13.1528
254.76	634.94	9.817
254.77	423.98	6.354
254.73	225.89	3.2988
254.72	114.93	1.6547
249.80	1281.64	23.1579
249.81	1281.26	23.1411
249.81	1067.47	18.3574
249.81	1067.48	18.3577
249.79	863.82	14.2661
249.80	863.80	14.2677
249.81	633.60	10.0488
249.81	360.58	5.4802
249.82	147.60	2.1773
244.95	1111.38	20.0202
244.93	904.97	15.5558
244.91	1111.57	20.0182
244.91	880.77	15.0548
244.92	877.28	14.9812
244.92	628.26	10.2258
244.93	350.79	5.4481
244.93	350.80	5.4496
244.93	138.73	2.0893
240.01	954.18	17.1448
239.99	717.05	12.2167
240.04	502.79	8.2138
240.04	323.60	5.1239
240.04	105.82	1.619
235.03	694.56	12.1431
235.01	592.34	10.1286
235.01	499.46	8.3818
235.00	391.54	6.4356

235.01	305.16	4.9382
235.02	197.50	3.137
230.36	615.49	10.8842
230.35	493.22	8.4852
230.35	391.01	6.5852
230.34	306.85	5.0853
230.35	197.35	3.2054
225.47	499.44	8.8558
225.44	403.34	6.9981
225.41	310.68	5.2843
225.42	212.66	3.5454

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Legend

af:	Acentric Factor
affp:	Proton affinity
aigt:	Autoignition Temperature
basg:	Gas basicity
chg:	Standard gas enthalpy of combustion
cpg:	Ideal gas heat capacity
cpl:	Liquid phase heat capacity
dm:	Dipole Moment
dvisc:	Dynamic viscosity
fl:	Lower Flammability Limit
flu:	Upper Flammability Limit
fpc:	Flash Point (Closed Cup Method)
fpo:	Flash Point (Open Cup Method)
gf:	Standard Gibbs free energy of formation
gyrad:	Radius of Gyration
hcg:	Heat of Combustion, Gross form
hcn:	Heat of Combustion, Net Form
hf:	Enthalpy of formation at standard conditions

hfus:	Enthalpy of fusion at standard conditions
hfust:	Enthalpy of fusion at a given temperature
hsubt:	Enthalpy of sublimation at a given temperature
hvap:	Enthalpy of vaporization at standard conditions
hvapt:	Enthalpy of vaporization at a given temperature
ie:	Ionization energy
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
nfpaf:	NFPA Fire Rating
nfpah:	NFPA Health Rating
pc:	Critical Pressure
pt:	Triple Point Pressure
pvap:	Vapor pressure
rhoc:	Critical density
rhog:	Gas Density
rhof:	Liquid Density
sfust:	Entropy of fusion at a given temperature
sl:	Liquid phase molar entropy at standard conditions
speedsl:	Speed of sound in fluid
srf:	Surface Tension
svapt:	Entropy of vaporization at a given temperature
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility
zra:	Rackett Parameter

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