Propanoic acid, 2-hydroxy-, ethyl ester, (L)-

Other names:	(+)-ethyl lactate
	(R)-(+)-ethyl lactate
	D-ethyl lactate
	Ethyl (L)-(-)-lactate
	Ethyl (S)-(-)-lactate
	Ethyl 2-hydroxypropanoate, (L-)-
	Propanoic acid, 2-hydroxy-, ethyl ester, (S)-
	ethyl (R)-2-hydroxypropanoate
	ethyl (R)-2-hydroxypropionate
	ethyl (S)-2-hydroxypropionate
	ethyl D-lactate
Inchi:	InChI=1S/C5H10O3/c1-3-8-5(7)4(2)6/h4,6H,3H2,1-2H3/t4-/m1/s1
InchiKey:	LZCLXQDLBQLTDK-SCSAIBSYSA-N
Formula:	C5H10O3
SMILES:	CCOC(=O)C(C)O
Mol. weight [g/mol]:	118.13
CAS:	687-47-8

Physical Properties

Property code	Value	Unit	Source
gf	-381.96	kJ/mol	Joback Method
hf	-548.84	kJ/mol	Joback Method
hfus	12.06	kJ/mol	Joback Method
hvap	52.17	kJ/mol	Joback Method
log10ws	-0.15		Crippen Method
logp	-0.070		Crippen Method
mcvol	94.620	ml/mol	McGowan Method
pc	4151.61	kPa	Joback Method
ripol	1356.00		NIST Webbook
tb	427.10 ± 0.50	K	NIST Webbook
tb	427.10 ± 0.50	K	NIST Webbook
tb	427.10 ± 0.50	K	NIST Webbook
tb	427.20	K	NIST Webbook
tb	427.25 ± 0.50	K	NIST Webbook
tc	657.66	K	Joback Method
tf	264.09	K	Joback Method
vc	0.352	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	248.43	J/mol×K	657.66	Joback Method
cpg	212.77	J/mol×K	511.13	Joback Method
cpg	220.46	J/mol×K	540.44	Joback Method
cpg	235.00	J/mol×K	599.05	Joback Method
cpg	241.86	J/mol×K	628.35	Joback Method
cpg	227.87	J/mol×K	569.74	Joback Method
cpg	204.80	J/mol×K	481.83	Joback Method
dvisc	0.0255824	Pa×s	264.09	Joback Method
dvisc	0.0023843	Pa×s	336.67	Joback Method
dvisc	0.0010292	Pa×s	372.96	Joback Method
dvisc	0.0001769	Pa×s	481.83	Joback Method
dvisc	0.0005156	Pa×s	409.25	Joback Method
dvisc	0.0002891	Pa×s	445.54	Joback Method
dvisc	0.0067671	Pa×s	300.38	Joback Method
pvap	0.56	kPa	308.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.29	kPa	299.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.35	kPa	301.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods

pvap	0.39	kPa	303.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.46	kPa	305.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.48	kPa	306.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.52	kPa	307.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.27	kPa	298.40	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	

pvap	0.58	kPa	308.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.65	kPa	310.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.70	kPa	311.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.76	kPa	313.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.81	kPa	314.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods

pvap	0.95	kPa	316.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	1.05	kPa	318.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.28	kPa	298.40	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.26	kPa	297.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	
pvap	0.21	kPa	295.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods	

pvap	0.19	kPa	293.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.16	kPa	291.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.14	kPa	289.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.11	kPa	286.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.10	kPa	285.40	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods

pvap	0.08	kPa	283.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.08	kPa	282.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.07	kPa	280.30	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.06	kPa	278.20	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods
pvap	0.05	kPa	276.40	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods

pvap	0.04	kPa	274.40	Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods

Sources

NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C687478&Units=SI
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Renewable platform chemicals: Evaluation of thermochemical data of alkyl lactates with complementary experimental and computational methods:	https://www.doi.org/10.1016/j.jct.2018.07.029
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772

Legend

cpg:	Ideal gas heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hvap:	Enthalpy of vaporization at standard conditions
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
ripol:	Polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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