n-Butyl laurate

Other names:	Butyl dodecanoate
	Butyl laurate
	Dodecanoic acid, butyl ester
	Lauric acid butyl ester
	Lauric acid n-butyl ester
	lauric acid, butyl ester
	n-Butyl n-dodecanoate
Inchi:	InChI=1S/C16H32O2/c1-3-5-7-8-9-10-11-12-13-14-16(17)18-15-6-4-2/h3-15H2,1-2H3
InchiKey:	NDKYEUQMPZIGFN-UHFFFAOYSA-N
Formula:	C16H32O2
SMILES:	CCCCCCCCCCCC(=O)OCCCC
Mol. weight [g/mol]:	256.42
CAS:	106-18-3

Physical Properties

Property code	Value	Unit	Source
gf	-150.08	kJ/mol	Joback Method
hf	-618.37	kJ/mol	Joback Method
hfus	39.98	kJ/mol	Joback Method
hvap	89.20	kJ/mol	NIST Webbook
log10ws	-5.38		Crippen Method
logp	5.251		Crippen Method
mcvol	243.740	ml/mol	McGowan Method
pc	1363.65	kPa	Joback Method
rinpol	1761.00		NIST Webbook
rinpol	1786.00		NIST Webbook
rinpol	1772.00		NIST Webbook
rinpol	1786.00		NIST Webbook
rinpol	1786.00		NIST Webbook
rinpol	1786.00		NIST Webbook
rinpol	1772.00		NIST Webbook
ripol	2024.00		NIST Webbook
ripol	2035.00		NIST Webbook
ripol	2000.00		NIST Webbook
ripol	2035.00		NIST Webbook
tb	641.77	K	Joback Method
tc	809.14	K	Joback Method

tf	266.31 ± 0.20	K	NIST Webbook
vc	0.956	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	772.16	J/mol×K	809.14	Joback Method
cpg	757.90	J/mol×K	781.24	Joback Method
cpg	742.94	J/mol×K	753.35	Joback Method
cpg	727.27	J/mol×K	725.45	Joback Method
cpg	710.87	J/mol×K	697.56	Joback Method
cpg	693.74	J/mol×K	669.66	Joback Method
cpg	675.85	J/mol×K	641.77	Joback Method
dvisc	0.0024033	Pa×s	342.24	Joback Method
dvisc	0.0001221	Pa×s	641.77	Joback Method
dvisc	0.0001627	Pa×s	591.85	Joback Method
dvisc	0.0002286	Pa×s	541.93	Joback Method
dvisc	0.0003441	Pa×s	492.00	Joback Method
dvisc	0.0005682	Pa×s	442.08	Joback Method
dvisc	0.0010661	Pa×s	392.16	Joback Method
hvapt	75.80	kJ/mol	363.00	NIST Webbook

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.49106e+01
Coeff. B	-4.87568e+03
Coeff. C	-9.90960e+01
Temperature range (K), min.	432.52
Temperature range (K), max.	607.02

Sources

Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Solubilities of n-Butyl Esters in Supercritical Carbon Dioxide:	https://www.doi.org/10.1021/je500309x
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C106183&Units=SI
The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l

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
hvapt:	Enthalpy of vaporization at a given temperature
log10ws:	Log10 of Water solubility in mol/l
logp:	Octanol/Water partition coefficient
mcvol:	McGowan's characteristic volume
pc:	Critical Pressure
pvap:	Vapor pressure
rinpol:	Non-polar retention indices
ripol:	Polar retention indices
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume