Benzoic acid, 3,4-dimethyl-

Other names:	1-Carboxy-3,4-dimethylbenzene
	3,4-Dimethylbenzoic acid
Inchi:	InChI=1S/C9H10O2/c1-6-3-4-8(9(10)11)5-7(6)2/h3-5H,1-2H3,(H,10,11)
InchiKey:	OPVAJFQBSDUNQA-UHFFFAOYSA-N
Formula:	C9H10O2
SMILES:	Cc1ccc(C(=O)O)cc1C
Mol. weight [g/mol]:	150.17
CAS:	619-04-5

Physical Properties

Property code	Value	Unit	Source
chs	-4502.00 ± 1.00	kJ/mol	NIST Webbook
chs	-4501.90 ± 0.50	kJ/mol	NIST Webbook
gf	-147.69	kJ/mol	Joback Method
hf	-362.40	kJ/mol	NIST Webbook
hf	-362.40 ± 1.70	kJ/mol	NIST Webbook
hfs	-468.80 ± 1.90	kJ/mol	NIST Webbook
hfs	-468.80 ± 1.30	kJ/mol	NIST Webbook
hfus	18.02	kJ/mol	Joback Method
hsub	106.40 ± 0.30	kJ/mol	NIST Webbook
hsub	106.40	kJ/mol	NIST Webbook
hvap	62.65	kJ/mol	Joback Method
log10ws	-2.48		Crippen Method
logp	2.002		Crippen Method
mcvol	121.350	ml/mol	McGowan Method
pc	3782.33	kPa	Joback Method
rinpol	1387.00		NIST Webbook
ripol	2447.00		NIST Webbook
tb	588.01	K	Joback Method
tc	793.17	K	Joback Method
tf	435.65 ± 2.00	K	NIST Webbook
tf	437.00 ± 3.00	K	NIST Webbook
vc	0.457	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	331.47	J/mol×K	793.17	Joback Method
cpg	324.08	J/mol×K	758.97	Joback Method
cpg	316.19	J/mol×K	724.78	Joback Method
cpg	307.80	J/mol×K	690.59	Joback Method
cpg	298.88	J/mol×K	656.40	Joback Method
cpg	289.42	J/mol×K	622.20	Joback Method
cpg	279.40	J/mol×K	588.01	Joback Method
cps	199.70	J/mol×K	299.65	NIST Webbook
dvisc	0.0001448	Pa×s	548.91	Joback Method
dvisc	0.0002218	Pa×s	509.81	Joback Method
dvisc	0.0003649	Pa×s	470.70	Joback Method
dvisc	0.0006569	Pa×s	431.60	Joback Method
dvisc	0.0013296	Pa×s	392.50	Joback Method
dvisc	0.0031453	Pa×s	353.40	Joback Method
dvisc	0.0001000	Pa×s	588.01	Joback Method

Correlations

Information	Value
Property code	pvap
Equation	ln(Pvp) = A + B/(T + C)
Coeff. A	1.41709e+01
Coeff. B	-4.37093e+03
Coeff. C	-8.71000e+01
Temperature range (K), min.	401.93
Temperature range (K), max.	580.46

Sources

NIST Webbook: http://webbook.nist.gov/cgi/cbook.cgi?ID=C619045&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

Crippen Method: https://www.chemeo.com/doc/models/crippen_log10ws

Joback Method:	https://en.wikipedia.org/wiki/Joback_method
McGowan Method:	http://link.springer.com/article/10.1007/BF02311772

Legend

chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas heat capacity
cps:	Solid phase heat capacity
dvisc:	Dynamic viscosity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
hfs:	Solid phase enthalpy of formation at standard conditions
hfus:	Enthalpy of fusion at standard conditions
hsub:	Enthalpy of sublimation 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
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