1,2,4,5-Benzene-tetracarboxylic acid

Other names: 1,2,4,5-benzenetetracarboxylic acid
1,2,4,5-tetracarboxybenzene
Benzene-1,2,4,5-tetracarboxylic acid
USAF xr-20
pyromellitic acid
Inchi: InChI=1S/C10H6O8/c11-7(12)3-1-4(8(13)14)6(10(17)18)2-5(3)9(15)16/h1-2H,(H,11,12)(H
InchiKey: CYIDZMCFTVVTJO-UHFFFAOYSA-N
Formula: C10H6O8
SMILES: O=C(O)c1cc(C(=O)O)c(C(=O)O)cc1C(=O)O
Mol. weight [g/mol]: 254.15
CAS: 89-05-4

Physical Properties

Property code	Value	Unit	Source
chs	-3221.80 ± 0.88	kJ/mol	NIST Webbook
gf	-946.12	kJ/mol	Joback Method
hf	-1106.85	kJ/mol	Joback Method
hfs	-1570.80 ± 0.88	kJ/mol	NIST Webbook
hfus	37.28	kJ/mol	Joback Method
hvap	135.82	kJ/mol	Joback Method
log10ws	-1.71		Crippen Method
logp	0.479		Crippen Method
mcvol	157.760	ml/mol	McGowan Method
pc	6180.53	kPa	Joback Method
tb	1054.02	K	Joback Method
tc	1292.89	K	Joback Method
tf	544.15 ± 2.00	K	NIST Webbook
vc	0.588	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	443.75	J/mol×K	1054.02	Joback Method
cpg	446.96	J/mol×K	1093.83	Joback Method

cpg	449.56	J/mol×K	1133.64	Joback Method
cpg	451.57	J/mol×K	1173.45	Joback Method
cpg	453.00	J/mol×K	1213.26	Joback Method
cpg	453.89	J/mol×K	1253.07	Joback Method
cpg	454.26	J/mol×K	1292.89	Joback Method
dvisc	0.0000042	Pa×s	709.44	Joback Method
dvisc	0.0000016	Pa×s	766.87	Joback Method
dvisc	0.0000007	Pa×s	824.30	Joback Method
dvisc	0.0000004	Pa×s	881.73	Joback Method
dvisc	0.0000002	Pa×s	939.16	Joback Method
dvisc	0.0000001	Pa×s	996.59	Joback Method
dvisc	6.7288840e-08	Pa×s	1054.02	Joback Method

Sources

Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
The solubilities of benzene polycarboxylic acids in water:	https://www.doi.org/10.1016/j.jct.2005.07.007
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=C89054&Units=SI

Legend

chs:	Standard solid enthalpy of combustion
cpg:	Ideal gas 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
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
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature

tf: Normal melting (fusion) point

vc: Critical Volume