

«beta»-D-Glucopyranose, 4-O-«beta»-D-galactopyranosyl-

Other names:	Lactose, «beta»- «beta»-Lactose 4-O-«beta»-D-Galactopyranosyl-«beta»-D-glucopyranose beta-Lactose «beta»-D-Lactose Lactopress
Inchi:	InChI=1S/C12H22O11/c13-1-3-5(15)6(16)9(19)12(22-3)23-10-4(2-14)21-11(20)8(18)7(10)
InchiKey:	GUBGYTABKSRVRQ-OXMKDSILSA-N
Formula:	C12H22O11
SMILES:	OCC1OC(OC2C(CO)OC(O)C(O)C2O)C(O)C(O)C1O
Mol. weight [g/mol]:	342.30
CAS:	5965-66-2

Physical Properties

Property code	Value	Unit	Source
chs	-5629.45 ± 0.50	kJ/mol	NIST Webbook
gf	-1334.42	kJ/mol	Joback Method
hf	-1959.15	kJ/mol	Joback Method
hfs	-2236.70 ± 0.71	kJ/mol	NIST Webbook
hfus	68.92	kJ/mol	Joback Method
hvap	185.55	kJ/mol	Joback Method
log10ws	1.89		Crippen Method
logp	-5.397		Crippen Method
mcvol	222.790	ml/mol	McGowan Method
pc	4311.22	kPa	Joback Method
ss	403.30	J/mol×K	NIST Webbook
ss	386.20	J/mol×K	NIST Webbook
tb	1289.46	K	Joback Method
tc	1783.82	K	Joback Method
tf	767.77	K	Joback Method
vc	0.777	m3/kmol	Joback Method

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	874.12	J/mol×K	1371.85	Joback Method
cpg	889.71	J/mol×K	1289.46	Joback Method
cpg	641.99	J/mol×K	1783.82	Joback Method
cpg	709.75	J/mol×K	1701.43	Joback Method
cpg	766.60	J/mol×K	1619.03	Joback Method
cpg	812.80	J/mol×K	1536.64	Joback Method
cpg	848.56	J/mol×K	1454.25	Joback Method
cps	399.78	J/mol×K	289.44	NIST Webbook
cps	408.27	J/mol×K	298.44	NIST Webbook
dvisc	1.2390430e-11	Pa×s	1289.46	Joback Method
dvisc	2.7226863e-11	Pa×s	1202.51	Joback Method
dvisc	6.7640490e-11	Pa×s	1115.56	Joback Method
dvisc	1.9598804e-10	Pa×s	1028.62	Joback Method
dvisc	6.9115221e-10	Pa×s	941.67	Joback Method
dvisc	3.1497617e-09	Pa×s	854.72	Joback Method
dvisc	2.0238363e-08	Pa×s	767.77	Joback Method

Sources

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=C5965662&Units=SI
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws

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
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
ss:	Solid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume

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