

# Butyrolactone

## Other names:

2(3H)-Furanone, dihydro-  
«gamma»-Butyrolactone  
«gamma»-BL  
«gamma»-Hydroxybutyric acid cyclic ester  
«gamma»-Hydroxybutyric acid lactone  
«gamma»-Hydroxybutyrolactone  
Butanoic acid, 4-hydroxy-, «gamma»-lactone  
Butyric acid lactone  
Butyryl lactone  
Dihydro-2(3H)-furanone  
Tetrahydro-2-furanone  
1,4-Butanolide  
4-Butanolide  
4-Butyrolactone  
4-Deoxytetronic acid  
4-Hydroxybutanoic acid lactone  
4-Hydroxybutyric acid lactone  
6480  
1,4-Butyrolactone  
«gamma»-6480  
Butyric acid, 4-hydroxy-, «gamma»-lactone  
Butyrylactone  
BLO  
BLON  
Dihydro-2-furanone  
NCI-C55878  
1,2-Butanolide  
4-Hydroxybutanoic acid, «gamma»-lactone  
4-Hydroxybutyric acid, «gamma»-lactone  
2-Oxolanone  
1-Oxacyclopentan-2-one  
2-Oxotetrahydrofuran  
«gamma»-Butanolactone  
«gamma»-Hydroxybutyric acid lactone  
Agrisynth BLO  
GBL  
Butyric acid, 4-hydroxy-, gamma-lactone  
2(3H)-dihydrofuranone  
Dihydro-(3 H)-furan-2-one  
Dihydrofuran-2(3H)-one

NSC 4592  
 dihydro-2(3H)-furanone («gamma»-butyrolactone)  
 Butan-4-olide  
 Dihydro-2(3H)-furanone (-butyrolactone)  
 2-Dihydrofuranone  
**Inchi:** InChI=1S/C4H6O2/c5-4-2-1-3-6-4/h1-3H2  
**InchiKey:** YEJRWHAVMIAJKC-UHFFFAOYSA-N  
**Formula:** C4H6O2  
**SMILES:** O=C1CCCO1  
**Mol. weight [g/mol]:** 86.09  
**CAS:** 96-48-0

## Physical Properties

Property code	Value	Unit	Source
affp	840.00	kJ/mol	NIST Webbook
basg	808.10	kJ/mol	NIST Webbook
chl	-2009.20 ± 0.80	kJ/mol	NIST Webbook
chl	-2010.60 ± 0.50	kJ/mol	NIST Webbook
chl	-2012.46 ± 0.28	kJ/mol	NIST Webbook
chl	-2000.40 ± 6.40	kJ/mol	NIST Webbook
gf	-181.65	kJ/mol	Joback Method
hf	-364.00 ± 3.00	kJ/mol	NIST Webbook
hf	-368.50	kJ/mol	NIST Webbook
hf	-377.70	kJ/mol	NIST Webbook
hf	-366.50 ± 0.80	kJ/mol	NIST Webbook
hf	-365.61 ± 0.44	kJ/mol	NIST Webbook
hfl	-431.20 ± 2.70	kJ/mol	NIST Webbook
hfl	-422.00 ± 1.10	kJ/mol	NIST Webbook
hfl	-419.07 ± 0.36	kJ/mol	NIST Webbook
hfl	-420.90 ± 0.70	kJ/mol	NIST Webbook
hfl	-419.00 ± 3.00	kJ/mol	NIST Webbook
hfus	6.47	kJ/mol	Joback Method
hvap	53.46 ± 0.13	kJ/mol	NIST Webbook
hvap	53.50	kJ/mol	NIST Webbook
hvap	51.50	kJ/mol	NIST Webbook
hvap	48.90 ± 0.30	kJ/mol	NIST Webbook
hvap	54.40 ± 0.40	kJ/mol	NIST Webbook
hvap	54.40	kJ/mol	NIST Webbook
hvap	54.40 ± 0.40	kJ/mol	NIST Webbook
hvap	55.60 ± 1.40	kJ/mol	NIST Webbook

hvap	55.00	kJ/mol	NIST Webbook
hvap	55.00 ± 1.00	kJ/mol	NIST Webbook
hvap	53.10 ± 0.20	kJ/mol	NIST Webbook
hvap	47.60 ± 4.00	kJ/mol	NIST Webbook
hvap	48.00 ± 0.40	kJ/mol	NIST Webbook
hvap	55.20 ± 1.30	kJ/mol	NIST Webbook
hvap	54.60 ± 0.20	kJ/mol	NIST Webbook
hvap	54.90 ± 0.20	kJ/mol	NIST Webbook
ie	10.26	eV	NIST Webbook
ie	10.26	eV	NIST Webbook
log10ws	-0.25		Crippen Method
logp	0.323		Crippen Method
mcvol	63.800	ml/mol	McGowan Method
pc	5131.00 ± 40.00	kPa	NIST Webbook
rinpol	915.00		NIST Webbook
rinpol	921.00		NIST Webbook
rinpol	913.00		NIST Webbook
rinpol	941.00		NIST Webbook
rinpol	909.00		NIST Webbook
rinpol	917.00		NIST Webbook
rinpol	920.00		NIST Webbook
rinpol	915.00		NIST Webbook
rinpol	911.00		NIST Webbook
rinpol	891.00		NIST Webbook
rinpol	891.00		NIST Webbook
rinpol	910.00		NIST Webbook
rinpol	891.00		NIST Webbook
rinpol	921.00		NIST Webbook
rinpol	924.00		NIST Webbook
rinpol	918.00		NIST Webbook
rinpol	918.00		NIST Webbook
rinpol	866.00		NIST Webbook
rinpol	899.00		NIST Webbook
rinpol	905.00		NIST Webbook
rinpol	915.00		NIST Webbook
rinpol	920.00		NIST Webbook
rinpol	867.00		NIST Webbook
rinpol	922.00		NIST Webbook
rinpol	941.00		NIST Webbook
rinpol	911.00		NIST Webbook
rinpol	899.00		NIST Webbook
rinpol	941.00		NIST Webbook
rinpol	922.00		NIST Webbook
rinpol	867.00		NIST Webbook

rinpol	914.00	NIST Webbook
rinpol	925.00	NIST Webbook
rinpol	908.00	NIST Webbook
rinpol	912.00	NIST Webbook
rinpol	871.00	NIST Webbook
rinpol	909.00	NIST Webbook
rinpol	908.00	NIST Webbook
rinpol	913.80	NIST Webbook
rinpol	917.00	NIST Webbook
rinpol	916.00	NIST Webbook
rinpol	875.00	NIST Webbook
rinpol	920.00	NIST Webbook
rinpol	904.00	NIST Webbook
rinpol	915.00	NIST Webbook
rinpol	915.00	NIST Webbook
rinpol	913.00	NIST Webbook
rinpol	894.00	NIST Webbook
rinpol	917.00	NIST Webbook
rinpol	864.00	NIST Webbook
rinpol	862.00	NIST Webbook
rinpol	861.00	NIST Webbook
rinpol	867.00	NIST Webbook
rinpol	916.00	NIST Webbook
rinpol	922.00	NIST Webbook
rinpol	908.00	NIST Webbook
rinpol	916.00	NIST Webbook
rinpol	920.00	NIST Webbook
rinpol	915.00	NIST Webbook
rinpol	870.00	NIST Webbook
rinpol	901.00	NIST Webbook
rinpol	915.00	NIST Webbook
rinpol	915.00	NIST Webbook
rinpol	866.00	NIST Webbook
rinpol	865.00	NIST Webbook
rinpol	908.00	NIST Webbook
rinpol	895.00	NIST Webbook
rinpol	938.00	NIST Webbook
ripol	1601.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1664.00	NIST Webbook
ripol	1615.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1623.00	NIST Webbook
ripol	1637.00	NIST Webbook

ripol	1636.00	NIST Webbook
ripol	1611.00	NIST Webbook
ripol	1607.00	NIST Webbook
ripol	1604.00	NIST Webbook
ripol	1650.00	NIST Webbook
ripol	1628.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1624.00	NIST Webbook
ripol	1607.00	NIST Webbook
ripol	1666.00	NIST Webbook
ripol	1618.00	NIST Webbook
ripol	1619.00	NIST Webbook
ripol	1619.00	NIST Webbook
ripol	1619.00	NIST Webbook
ripol	1624.00	NIST Webbook
ripol	1670.00	NIST Webbook
ripol	1666.00	NIST Webbook
ripol	1668.00	NIST Webbook
ripol	1671.00	NIST Webbook
ripol	1623.00	NIST Webbook
ripol	1665.00	NIST Webbook
ripol	1662.00	NIST Webbook
ripol	1651.00	NIST Webbook
ripol	1671.00	NIST Webbook
ripol	1631.00	NIST Webbook
ripol	1634.00	NIST Webbook
ripol	1644.00	NIST Webbook
ripol	1626.00	NIST Webbook
ripol	1652.00	NIST Webbook
ripol	1665.00	NIST Webbook
ripol	1640.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1613.00	NIST Webbook
ripol	1668.00	NIST Webbook
ripol	1666.00	NIST Webbook
ripol	1608.00	NIST Webbook
ripol	1618.00	NIST Webbook
ripol	1622.00	NIST Webbook
ripol	1673.00	NIST Webbook
ripol	1610.00	NIST Webbook
ripol	1673.00	NIST Webbook
ripol	1673.00	NIST Webbook

ripol	1608.00	NIST Webbook
ripol	1652.00	NIST Webbook
ripol	1626.00	NIST Webbook
ripol	1623.00	NIST Webbook
ripol	1620.00	NIST Webbook
ripol	1623.00	NIST Webbook
ripol	1618.00	NIST Webbook
ripol	1647.00	NIST Webbook
ripol	1607.00	NIST Webbook
ripol	1600.00	NIST Webbook
ripol	1620.00	NIST Webbook
ripol	1596.00	NIST Webbook
ripol	1637.00	NIST Webbook
ripol	1640.00	NIST Webbook
ripol	1637.00	NIST Webbook
ripol	1640.00	NIST Webbook
ripol	1646.00	NIST Webbook
ripol	1637.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1660.00	NIST Webbook
ripol	1611.00	NIST Webbook
ripol	1593.00	NIST Webbook
ripol	1610.00	NIST Webbook
ripol	1609.00	NIST Webbook
ripol	1632.00	NIST Webbook
ripol	1646.00	NIST Webbook
ripol	1652.00	NIST Webbook
ripol	1605.00	NIST Webbook
ripol	1592.00	NIST Webbook
ripol	1640.00	NIST Webbook
ripol	1596.00	NIST Webbook
ripol	1651.00	NIST Webbook
ripol	1601.00	NIST Webbook
ripol	1632.00	NIST Webbook
ripol	1647.00	NIST Webbook
ripol	1625.00	NIST Webbook
ripol	1632.00	NIST Webbook
ripol	1595.00	NIST Webbook
ripol	1611.00	NIST Webbook
ripol	1662.00	NIST Webbook
ripol	1644.00	NIST Webbook
ripol	1635.00	NIST Webbook
ripol	1618.00	NIST Webbook
ripol	1673.00	NIST Webbook

ripol	1620.00		NIST Webbook
ripol	1600.00		NIST Webbook
ripol	1637.00		NIST Webbook
ripol	1650.00		NIST Webbook
ripol	1624.00		NIST Webbook
ripol	1619.00		NIST Webbook
ripol	1614.00		NIST Webbook
ripol	1626.00		NIST Webbook
ripol	1646.00		NIST Webbook
ripol	1593.00		NIST Webbook
ripol	1652.00		NIST Webbook
ripol	1651.00		NIST Webbook
ripol	1632.00		NIST Webbook
ripol	1635.00		NIST Webbook
ripol	1640.00		NIST Webbook
ripol	1643.00		NIST Webbook
ripol	1602.00		NIST Webbook
ripol	1617.00		NIST Webbook
ripol	1626.00		NIST Webbook
ripol	1645.00		NIST Webbook
ripol	1641.00		NIST Webbook
ripol	1595.00		NIST Webbook
ripol	1666.00		NIST Webbook
ripol	1611.00		NIST Webbook
ripol	1641.00		NIST Webbook
sl	197.50	J/molxK	NIST Webbook
sl	201.28	J/molxK	NIST Webbook
sl	197.40	J/molxK	NIST Webbook
tb	479.20 ± 0.20	K	NIST Webbook
tb	477.70	K	NIST Webbook
tc	731.00 ± 0.40	K	NIST Webbook
tf	229.00 ± 0.60	K	NIST Webbook
tt	229.78 ± 0.05	K	NIST Webbook
tt	229.78 ± 0.01	K	NIST Webbook
tt	229.78 ± 0.02	K	NIST Webbook
vc	0.230	m3/kmol	Joback Method

## Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	152.61	J/molxK	554.37	Joback Method

cpg	160.69	J/mol×K	591.56	Joback Method
cpg	116.24	J/mol×K	405.64	Joback Method
cpg	125.93	J/mol×K	442.82	Joback Method
cpg	135.22	J/mol×K	480.01	Joback Method
cpg	144.12	J/mol×K	517.19	Joback Method
cpg	168.36	J/mol×K	628.74	Joback Method
cpl	141.30	J/mol×K	298.15	NIST Webbook
cpl	141.40	J/mol×K	298.15	NIST Webbook
cpl	140.50	J/mol×K	298.15	NIST Webbook
cpl	140.90	J/mol×K	298.15	NIST Webbook
cpl	141.30	J/mol×K	298.15	NIST Webbook
hfust	9.57	kJ/mol	229.78	NIST Webbook
hfust	9.57	kJ/mol	230.00	NIST Webbook
hfust	9.57	kJ/mol	229.78	NIST Webbook
hvapt	45.20 ± 0.40	kJ/mol	349.00	NIST Webbook
hvapt	48.20	kJ/mol	433.00	NIST Webbook
hvapt	49.50 ± 0.10	kJ/mol	392.00	NIST Webbook
hvapt	51.80 ± 0.60	kJ/mol	357.50	NIST Webbook
sfust	41.56	J/mol×K	229.78	NIST Webbook
sfust	41.56	J/mol×K	229.78	NIST Webbook

## Pressure Dependent Properties

Property code	Value	Unit	Pressure [kPa]	Source
tbrp	362.20	K	1.60	NIST Webbook

## Sources

**McGowan Method:**

<http://link.springer.com/article/10.1007/BF02311772>

**NIST Webbook:**

<http://webbook.nist.gov/cgi/cbook.cgi?ID=C96480&Units=SI>

**Crippen Method:**

<http://pubs.acs.org/doi/abs/10.1021/ci990307l>

**Crippen Method:**

[https://www.chemeo.com/doc/models/crippen\\_log10ws](https://www.chemeo.com/doc/models/crippen_log10ws)

**Joback Method:**

[https://en.wikipedia.org/wiki/Joback\\_method](https://en.wikipedia.org/wiki/Joback_method)

## Legend



<b>affp:</b>	Proton affinity
<b>basg:</b>	Gas basicity
<b>chl:</b>	Standard liquid enthalpy of combustion
<b>cpg:</b>	Ideal gas heat capacity
<b>cpl:</b>	Liquid phase heat capacity
<b>gf:</b>	Standard Gibbs free energy of formation
<b>hf:</b>	Enthalpy of formation at standard conditions
<b>hfl:</b>	Liquid phase enthalpy of formation at standard conditions
<b>hfus:</b>	Enthalpy of fusion at standard conditions
<b>hfust:</b>	Enthalpy of fusion at a given temperature
<b>hvap:</b>	Enthalpy of vaporization at standard conditions
<b>hvapt:</b>	Enthalpy of vaporization at a given temperature
<b>ie:</b>	Ionization energy
<b>log10ws:</b>	Log10 of Water solubility in mol/l
<b>logp:</b>	Octanol/Water partition coefficient
<b>mcvol:</b>	McGowan's characteristic volume
<b>pc:</b>	Critical Pressure
<b>rinpol:</b>	Non-polar retention indices
<b>ripol:</b>	Polar retention indices
<b>sfust:</b>	Entropy of fusion at a given temperature
<b>sl:</b>	Liquid phase molar entropy at standard conditions
<b>tb:</b>	Normal Boiling Point Temperature
<b>tbrp:</b>	Boiling point at reduced pressure
<b>tc:</b>	Critical Temperature
<b>tf:</b>	Normal melting (fusion) point
<b>tt:</b>	Triple Point Temperature
<b>vc:</b>	Critical Volume

Latest version available from:

<https://www.chemeo.com/cid/41-525-3/Butyrolactone.pdf>

Generated by Cheméo on 2024-04-20 01:45:19.626917135 +0000 UTC m=+15866768.547494449.

Cheméo (<https://www.chemeo.com>) is the biggest free database of chemical and physical data for the process industry.