# Cystine

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|---|---|
| **Other names:** | (-)-Cystine |
| | (R-(R*,R*))-3,3'-Dithiobis(2-aminopropanoic acid) |
| | 3,3'-Dithiobis(2-aminopropanoic acid) |
| | 3,3'-Dithiobis(2-aminopropionic acid) |
| | 3,3'-Dithiodialanine |
| | 3,3'-dithiobis-L-alanine |
| | Alanine, 3,3'-dithiobis- |
| | Alanine, 3,3'-dithiodi- |
| | Bis(«beta»-amino-«beta»-carboxyethyl) disulfide |
| | Cysteine disulfide |
| | Cystin |
| | Cystine acid |
| | Cystine, L- |
| | Dicysteine |
| | L-3,3'-dithiodialanine |
| | L-Alanine, 3,3'-dithiobis- |
| | L-Cysteine disulfide |
| | L-Cystin |
| | L-cystine |
| | NSC 13203 |
| | Oxidized L-cysteine |
| | Propanoic acid, 3,3'-dithiobis(2-amino-, (R-(R*,R*))- |
| | «beta»,«beta»'-Diamino-«beta»,«beta»'-dicarboxydiethyl disulfide |
| | «beta»,«beta»'-Dithiobisalanine |
| | «beta»,«beta»'-Dithiodialanine |
| **Inchi:** | InChI=1S/C6H12N2O4S2/c7-3(5(9)10)1-13-14-2-4(8)6(11)12/h3-4H,1-2,7-8H2,(H,9,10)(H |
| **InchiKey:** | LEVWYRKDKASIDU-QWWZWVQMSA-N |
| **Formula:** | C6H12N2O4S2 |
| **SMILES:** | NC(CSSCC(N)C(=O)O)C(=O)O |
| **Mol. weight [g/mol]:** | 240.30 |
| **CAS:** | 56-89-3 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| chs | -4248.00 ± 3.80 | kJ/mol | NIST Webbook |
| chs | -4158.20 | kJ/mol | NIST Webbook |

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|---|---|---|---|
| chs | -4201.20 | kJ/mol | NIST Webbook |
| chs | -4230.00 ± 3.80 | kJ/mol | NIST Webbook |
| gf | -337.58 | kJ/mol | Joback Method |
| hf | -556.03 | kJ/mol | Joback Method |
| hfs | -1105.00 | kJ/mol | NIST Webbook |
| hfus | 34.28 | kJ/mol | Joback Method |
| hvap | 109.94 | kJ/mol | Joback Method |
| log10ws | -0.38 | | Crippen Method |
| logp | -0.808 | | Crippen Method |
| mcvol | 162.940 | ml/mol | McGowan Method |
| pc | 5739.21 | kPa | Joback Method |
| ss | 286.60 | J/mol×K | NIST Webbook |
| ss | 280.58 | J/mol×K | NIST Webbook |
| tb | 910.52 | K | Joback Method |
| tc | 1133.18 | K | Joback Method |
| tf | 584.20 | K | Joback Method |
| vc | 0.576 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 458.08 | J/mol×K | 910.52 | Joback Method |
| cpg | 463.72 | J/mol×K | 947.63 | Joback Method |
| cpg | 468.63 | J/mol×K | 984.74 | Joback Method |
| cpg | 472.85 | J/mol×K | 1021.85 | Joback Method |
| cpg | 476.36 | J/mol×K | 1058.96 | Joback Method |
| cpg | 479.17 | J/mol×K | 1096.07 | Joback Method |
| cpg | 481.31 | J/mol×K | 1133.18 | Joback Method |
| cps | 261.92 | J/mol×K | 298.15 | NIST Webbook |
| cps | 268.60 | J/mol×K | 297.30 | NIST Webbook |

# Sources

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|---|---|
| **Solubility and Acidic Constants of L-Cystine in NaClO4 Aqueous Solutions at 25 deg C:** | https://www.doi.org/10.1021/je900116h |
| **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=C56893&Units=SI |
| **Crippen Method:** | http://pubs.acs.org/doi/abs/10.1021/ci990307l |

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

**Solubility and Activity Coefficients of Acidic and Basic Nonelectrolytes in Aqueous Salt Solutions. 1. Solubility and Activity Coefficients of o-Phthalic Acid and L-Cystine in NaCl(aq), (CH3)4NCl(aq), and (C2H5)4NI(aq) at Different Ionic Strengths and at t ) 25 deg C:** https://www.doi.org/10.1021/je0502039

# Legend

| | |
|---|---|
| **chs:** | Standard solid enthalpy of combustion |
| **cpg:** | Ideal gas heat capacity |
| **cps:** | Solid phase heat capacity |
| **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 |