# Cholesterol

**Other names:**

(-)-Cholesterol
(3.beta.)-cholest-5-en-3-ol
(3«beta»)-Cholest-5-en-3-ol
(3Â«betaÂ»)-Cholest-5-en-3-ol
.DELTA.5-cholesten-3.beta.-ol
3.beta.-hydroxycholest-5-ene
3«beta»-Hydroxycholest-5-ene
3Â«betaÂ»-Hydroxycholest-5-ene
5,6-Cholesten-3«beta»-ol
5,6-Cholesten-3Â«betaÂ»-ol
5-Cholesten-3B-ol
5-Cholesten-3«beta»-ol
5-Cholesten-3Â«betaÂ»-ol
5-cholesten-3.beta.-ol
5:6-cholesten-3.beta.-ol
Cholest-5-en-3-ol
Cholest-5-en-3-ol (3«beta»)-
Cholest-5-en-3-ol (3Â«betaÂ»)-
Cholest-5-en-3b-ol
Cholest-5-en-3beta-ol
Cholest-5-en-3«beta»-ol
Cholest-5-en-3Â«betaÂ»-ol
Cholesterin
Cholesterine
Cholesterol base H
Cholesteryl alcohol
Cholestrin
Cholestrol
Cordulan
Dastar
Dusoline
Dusoran
Dythol
Fancol CH
Hydrocerin
Kathro
Lanol
Lidinite
NSC 8798
Nimco cholesterol base H

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|---|---|
| | Nimco cholesterol base No. 712 |
| | Provitamin D |
| | Super hartolan |
| | Tegolan |
| | Wool alcohols B. P. |
| | cholest-5-en-3-ol, (3.beta.)- |
| | cholest-5-en-3.beta.-ol |
| | «DELTA»5-Cholesten-3-«beta»-ol |
| | Â«DELTAÂ»5-Cholesten-3-Â«betaÂ»-ol |
| **Inchi:** | InChI=1S/C27H46O/c1-18(2)7-6-8-19(3)23-11-12-24-22-10-9-20-17-21(28)13-15-26(20,4 |
| **InchiKey:** | HVYWMOMLDIMFJA-VUDDDUNTSA-N |
| **Formula:** | C27H46O |
| **SMILES:** | CC(C)CCCC(C)C1CCC2C3CC=C4CC(O)CCC4(C)C3CCC12C |
| **Mol. weight [g/mol]:** | 386.65 |
| **CAS:** | 57-88-5 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| chs | -16524.00 ± 3.90 | kJ/mol | NIST Webbook |
| chs | -16590.00 ± 67.00 | kJ/mol | NIST Webbook |
| gf | 203.48 | kJ/mol | Joback Method |
| hf | -487.23 | kJ/mol | Joback Method |
| hfs | -674.80 ± 4.10 | kJ/mol | NIST Webbook |
| hfus | 148.00 | kJ/mol | Evaluation of the Vaporization, Fusion, and Sublimation Enthalpies of the 1-Alkanols: The Vaporization Enthalpy of 1-, 6-, 7-, and 9-Heptadecanol, 1-Octadecanol, 1-Eicosanol, 1-Docosanol, 1-Hexacosanol, and Cholesterol at T ) 298.15 K by Correlation Gas Chromatography |
| hfus | 28.50 | kJ/mol | Solubilities of cholesterol and desmosterol in binary solvent mixtures of n-hexane + ethanol |
| hsub | 114.60 | kJ/mol | NIST Webbook |
| hvap | 153.70 ± 0.80 | kJ/mol | NIST Webbook |
| log10ws | -7.00 | | Aqueous Solubility Prediction Method |
| logp | 7.389 | | Crippen Method |

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|---|---|---|---|
| mcvol | 349.420 | ml/mol | McGowan Method |
| pc | 1078.51 | kPa | Joback Method |
| rinpol | 3044.00 | | NIST Webbook |
| rinpol | 3053.00 | | NIST Webbook |
| rinpol | 3068.00 | | NIST Webbook |
| rinpol | 3093.00 | | NIST Webbook |
| rinpol | 3020.00 | | NIST Webbook |
| rinpol | 3034.00 | | NIST Webbook |
| rinpol | 3051.00 | | NIST Webbook |
| rinpol | 3071.00 | | NIST Webbook |
| rinpol | 3005.00 | | NIST Webbook |
| rinpol | 3008.00 | | NIST Webbook |
| rinpol | 3090.00 | | NIST Webbook |
| rinpol | 3075.00 | | NIST Webbook |
| rinpol | 3004.00 | | NIST Webbook |
| rinpol | 3081.00 | | NIST Webbook |
| rinpol | 3081.00 | | NIST Webbook |
| rinpol | 3041.00 | | NIST Webbook |
| rinpol | 3023.00 | | NIST Webbook |
| rinpol | 3100.00 | | NIST Webbook |
| rinpol | 3098.00 | | NIST Webbook |
| rinpol | 3080.00 | | NIST Webbook |
| rinpol | 3080.00 | | NIST Webbook |
| rinpol | 3098.00 | | NIST Webbook |
| rinpol | 3093.00 | | NIST Webbook |
| rinpol | 3041.00 | | NIST Webbook |
| rinpol | 3008.00 | | NIST Webbook |
| rinpol | 3020.00 | | NIST Webbook |
| rinpol | 3086.00 | | NIST Webbook |
| rinpol | 3020.00 | | NIST Webbook |
| rinpol | 3053.00 | | NIST Webbook |
| rinpol | 3034.00 | | NIST Webbook |
| rinpol | 3043.00 | | NIST Webbook |
| rinpol | 3086.00 | | NIST Webbook |
| rinpol | 3100.00 | | NIST Webbook |
| rinpol | 3051.00 | | NIST Webbook |
| rinpol | 3034.00 | | NIST Webbook |
| rinpol | 3020.00 | | NIST Webbook |
| rinpol | 3080.00 | | NIST Webbook |
| rinpol | 3098.00 | | NIST Webbook |
| tb | 633.20 | K | NIST Webbook |
| tc | 1168.23 | K | Joback Method |
| tf | 420.20 ± 0.50 | K | NIST Webbook |
| tf | 417.90 | K | Aqueous Solubility Prediction Method |

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|---|---|---|---|
| tf | 421.15 | K | Experimental solid-liquid phase equilibria of {cholesterol + binary solvent mixture: 1-Alcohol (C4-C10) + cyclohexane} |
| tf | 421.00 | K | Sublimation Thermodynamic Parameters for Cholesterol, Ergosterol, |
| vc | 1.321 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 1511.34 | J/mol×K | 1168.23 | Joback Method |
| cpg | 1316.89 | J/mol×K | 947.38 | Joback Method |
| cpg | 1347.08 | J/mol×K | 984.19 | Joback Method |
| cpg | 1377.74 | J/mol×K | 1021.00 | Joback Method |
| cpg | 1409.17 | J/mol×K | 1057.80 | Joback Method |
| cpg | 1441.71 | J/mol×K | 1094.61 | Joback Method |
| cpg | 1475.66 | J/mol×K | 1131.42 | Joback Method |
| hfust | 27.41 | kJ/mol | 420.20 | NIST Webbook |
| hfust | 28.50 | kJ/mol | 421.70 | NIST Webbook |
| hfust | 25.10 | kJ/mol | 370.00 | NIST Webbook |
| hfust | 21.11 | kJ/mol | 423.20 | NIST Webbook |
| hfust | 26.50 | kJ/mol | 422.50 | NIST Webbook |
| hfust | 28.40 | kJ/mol | 422.30 | NIST Webbook |
| hsubt | 142.50 ± 0.90 | kJ/mol | 400.00 | NIST Webbook |
| hvapt | 114.90 | kJ/mol | 429.00 | NIST Webbook |

# Sources

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|---|---|
| **Evaluation of the Vaporization, Fusion, and Sublimation Enthalpies of the 1-Alkanols: The Vaporization Enthalpy of 1-, 6-, 7-, and 9-Heptadecanol, 1-Octadecanol, 1-Eicosanol, 1-Docosanol, 1-Hexacosanol, and Cholesterol at T ) 298.15 K by Correlation Gas Chromatography:** | https://www.doi.org/10.1021/je0503857 |
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=C57885&Units=SI |
| **Crippen Method:** | http://pubs.acs.org/doi/abs/10.1021/ci990307l |
| **Aqueous Solubility Prediction Method:** | http://onschallenge.wikispaces.com/file/view/AqueousDataset002.xlsx/351826032/AqueousDa |
| **Experimental solid-liquid phase equilibria of {cholesterol + binary solvent mixture: 1-Alcohol (C4-C10) + cyclohexane}:** | https://www.doi.org/10.1016/j.fluid.2009.10.009 |
| **Sublimation Thermodynamic Parameters for Cholesterol, Ergosterol,:** | https://www.doi.org/10.1021/je800395m |
| **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 |
| **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 |
| **hfust:** | Enthalpy of fusion at a given temperature |
| **hsub:** | Enthalpy of sublimation at standard conditions |
| **hsubt:** | Enthalpy of sublimation at a given temperature |
| **hvap:** | Enthalpy of vaporization at standard conditions |
| **hvapt:** | Enthalpy of vaporization at a given temperature |
| **log10ws:** | Log10 of Water solubility in mol/l |
| **logp:** | Octanol/Water partition coefficient |
| **mcvol:** | McGowan's characteristic volume |
| **pc:** | Critical Pressure |
| **rinpol:** | Non-polar retention indices |
| **tb:** | Normal Boiling Point Temperature |
| **tc:** | Critical Temperature |
| **tf:** | Normal melting (fusion) point |
| **vc:** | Critical Volume |