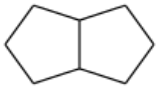
# trans-Bicyclo[3.3.0]octane

**InChI**: InChI=1S/C8H14/c1-3-7-5-2-6-8(7)4-1/h7-8H,1-6H2/t7-,8-
**InChI Key**: AEBWATHAIVJLTA-ZKCHVHJHSA-N
**Formula**: C8H14
**SMILES**: C1CC2CCCC2C1
**Molecular Weight**: 110.20
**CAS**: 5597-89-7



## Physical Properties

| Property | Value | Unit | Source |
|---|---|---|---|
| $\Delta_c H°_{liquid}$ | -5040.00 ± 2.00 | kJ/mol | NIST Webbook |
| $\Delta_c H°_{liquid}$ | -5041.70 ± 5.00 | kJ/mol | NIST Webbook |
| $\Delta_f G°$ | 113.78 | kJ/mol | Joback Method |
| $\Delta_f H°_{gas}$ | -67.00 ± 3.00 | kJ/mol | NIST Webbook |
| $\Delta_f H°_{liquid}$ | -109.00 ± 2.00 | kJ/mol | NIST Webbook |
| $\Delta_{fus} H°$ | 8.55 | kJ/mol | Joback Method |
| $\Delta_{vap} H°$ | 42.70 ± 0.80 | kJ/mol | NIST Webbook |
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| $\Delta_{vap} H°$ | 42.70 ± 0.80 | kJ/mol | NIST Webbook |
| $logP_{oct/wat}$ | 2.587 | | Crippen Method |
| $P_c$ | 3560.02 | kPa | Joback Method |
| $T_{boil}$ | 405.00 ± 2.00 | K | NIST Webbook |
| $T_{boil}$ | 409.40 ± 2.00 | K | NIST Webbook |
| $T_{boil}$ | 407.00 ± 3.00 | K | NIST Webbook |
| $T_{boil}$ | 405.00 ± 3.00 | K | NIST Webbook |
| $T_{boil}$ | 405.20 | K | NIST Webbook |
| $T_c$ | 614.38 | K | Joback Method |

| Property | Value | Unit | Source |
|---|---|---|---|
| $T_{fus}$ | 243.00 ± 3.00 | K | NIST Webbook |
| $T_{fus}$ | 244.00 ± 3.00 | K | NIST Webbook |
| $T_{fus}$ | 237.00 ± 3.00 | K | NIST Webbook |
| $V_c$ | 0.382 | $m^3$/kg-mol | Joback Method |

## Temperature Dependent Properties

| Property | Value | Unit | Temperature (K) | Source |
|---|---|---|---|---|
| $C_{p,gas}$ | 198.70 | J/mol×K | 404.46 | Joback Method |
| $C_{p,liquid}$ | 180.30 | J/mol×K | 308.0 | NIST Webbook |
| η | 0.0004750 | Pa×s | 404.46 | Joback Method |
| $\Delta_{vap}H$ | 41.40 | kJ/mol | 309.0 | NIST Webbook |
| $\Delta_{vap}H$ | 41.30 ± 0.40 | kJ/mol | 320.0 | NIST Webbook |

## Sources

**Joback Method**: https://en.wikipedia.org/wiki/Joback_method
**NIST Webbook**: http://webbook.nist.gov/cgi/inchi/InChI=1S/C8H14/c1-3-7-5-2-6-8(7)4-1/h7-8H,1-6H2/t7-,8-
**Crippen Method**: http://pubs.acs.org/doi/abs/10.1021/ci990307l

## Legend

$\Delta_c H°_{liquid}$: Standard liquid enthalpy of combustion (kJ/mol).
$C_{p,gas}$: Ideal gas heat capacity (J/mol×K).
$C_{p,liquid}$: Liquid phase heat capacity (J/mol×K).
η: Dynamic viscosity (Pa×s).
$\Delta_f G°$: Standard Gibbs free energy of formation (kJ/mol).
$\Delta_f H°_{gas}$: Enthalpy of formation at standard conditions (kJ/mol).
$\Delta_f H°_{liquid}$: Liquid phase enthalpy of formation at standard conditions (kJ/mol).
$\Delta_{fus} H°$: Enthalpy of fusion at standard conditions (kJ/mol).
$\Delta_{vap} H°$: Enthalpy of vaporization at standard conditions (kJ/mol).
$\Delta_{vap} H$: Enthalpy of vaporization at a given temperature (kJ/mol).
$logP_{oct/wat}$: Octanol/Water partition coefficient .

**$P_c$**: Critical Pressure (kPa).
**$T_{boil}$**: Normal Boiling Point Temperature (K).
**$T_c$**: Critical Temperature (K).
**$T_{fus}$**: Normal melting (fusion) point (K).
**$V_c$**: Critical Volume ($m^3$/kg-mol).