# trans-2-Decenoic acid

**Other names:** 2-Decenoic acid, (E)-
E-2-Decenoic acid
**Inchi:** InChI=1S/C10H18O2/c1-2-3-4-5-6-7-8-9-10(11)12/h8-9H,2-7H2,1H3,(H,11,12)/b9-8+
**InchiKey:** WXBXVVIUZANZAU-CMDGGOBGSA-N
**Formula:** C10H18O2
**SMILES:** CCCCCCCC=CC(=O)O
**Mol. weight [g/mol]:** 170.25
**CAS:** 334-49-6

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | -152.20 | kJ/mol | Joback Method |
| hf | -397.32 | kJ/mol | Joback Method |
| hfus | 27.55 | kJ/mol | Joback Method |
| hvap | 61.24 | kJ/mol | Joback Method |
| log10ws | -2.96 | | Crippen Method |
| logp | 2.988 | | Crippen Method |
| mcvol | 154.900 | ml/mol | McGowan Method |
| pc | 2574.11 | kPa | Joback Method |
| rinpol | 1392.00 | | NIST Webbook |
| rinpol | 1392.00 | | NIST Webbook |
| ripol | 2428.00 | | NIST Webbook |
| ripol | 2428.00 | | NIST Webbook |
| tb | 578.41 | K | Joback Method |
| tc | 751.50 | K | Joback Method |
| tf | 308.13 | K | Joback Method |
| vc | 0.601 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 383.20 | J/mol×K | 578.41 | Joback Method |
| cpg | 395.15 | J/mol×K | 607.26 | Joback Method |
| cpg | 406.55 | J/mol×K | 636.11 | Joback Method |

| | | | | |
|---|---|---|---|---|
| cpg | 417.42 | J/mol×K | 664.96 | Joback Method |
| cpg | 427.78 | J/mol×K | 693.80 | Joback Method |
| cpg | 437.66 | J/mol×K | 722.65 | Joback Method |
| cpg | 447.07 | J/mol×K | 751.50 | Joback Method |
| dvisc | 0.0110783 | Pa×s | 308.13 | Joback Method |
| dvisc | 0.0029530 | Pa×s | 353.18 | Joback Method |
| dvisc | 0.0010616 | Pa×s | 398.22 | Joback Method |
| dvisc | 0.0004699 | Pa×s | 443.27 | Joback Method |
| dvisc | 0.0002417 | Pa×s | 488.32 | Joback Method |
| dvisc | 0.0001391 | Pa×s | 533.36 | Joback Method |
| dvisc | 0.0000873 | Pa×s | 578.41 | Joback Method |

# Correlations

| Information | Value |
|---|---|
| Property code | pvap |
| Equation | ln(Pvp) = A + B/(T + C) |
| Coeff. A | 1.38286e+01 |
| Coeff. B | -4.35701e+03 |
| Coeff. C | -9.07560e+01 |
| Temperature range (K), min. | 412.52 |
| Temperature range (K), max. | 602.31 |

# Sources

**McGowan Method:** http://link.springer.com/article/10.1007/BF02311772

**NIST Webbook:** http://webbook.nist.gov/cgi/cbook.cgi?ID=C334496&Units=SI

**The Yaws Handbook of Vapor Pressure:** https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure

**Crippen Method:** http://pubs.acs.org/doi/abs/10.1021/ci990307l

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

**Joback Method:** https://en.wikipedia.org/wiki/Joback_method

# Legend

**cpg:** Ideal gas heat capacity

**dvisc:** Dynamic viscosity

| | |
|---|---|
| **gf:** | Standard Gibbs free energy of formation |
| **hf:** | 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 |
| **pvap:** | Vapor pressure |
| **rinpol:** | Non-polar retention indices |
| **ripol:** | Polar retention indices |
| **tb:** | Normal Boiling Point Temperature |
| **tc:** | Critical Temperature |
| **tf:** | Normal melting (fusion) point |
| **vc:** | Critical Volume |