# Ethane, 2-chloro-1,1,1-trifluoro-

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|---|---|
| **Other names:** | (Chloromethyl)trifluoromethane |
| | 1,1,1-TRIFLUORO-2-CHLOROETHANE |
| | 1,1,1-Trifluoroethyl chloride |
| | 1-Chloro-2,2,2-trifluoroethane |
| | 1-Chloro-2,2,2-trifluoroethene |
| | 2,2,2-Trifluorochloroethane |
| | 2,2,2-Trifluoroethyl chloride |
| | 2-Chloro-1,1,1-trifluoroethane |
| | CF3CH2Cl |
| | CFC 133a |
| | FC 133a |
| | Forane 133a |
| | Freon 133a |
| | GENETRON 133A |
| | HCFC 133a |
| | R 133a |
| | chloro-1,1,1-trifluoroethane |
| **Inchi:** | InChI=1S/C2H2ClF3/c3-1-2(4,5)6/h1H2 |
| **InchiKey:** | CYXIKYKBLDZZNW-UHFFFAOYSA-N |
| **Formula:** | C2H2ClF3 |
| **SMILES:** | FC(F)(F)CCl |
| **Mol. weight [g/mol]:** | 118.48 |
| **CAS:** | 75-88-7 |

# Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | -627.56 | kJ/mol | Joback Method |
| hf | -697.43 | kJ/mol | Joback Method |
| hfus | 6.96 | kJ/mol | Joback Method |
| hvap | 20.68 | kJ/mol | Joback Method |
| log10ws | -1.48 | | Crippen Method |
| logp | 1.788 | | Crippen Method |
| mcvol | 56.590 | ml/mol | McGowan Method |
| pc | 4093.38 | kPa | Joback Method |
| rhoc | 520.15 ± 4.74 | kg/m3 | NIST Webbook |
| rinpol | 365.00 | | NIST Webbook |
| rinpol | 375.00 | | NIST Webbook |

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|---|---|---|---|
| rinpol | 375.00 | | NIST Webbook |
| rinpol | 365.00 | | NIST Webbook |
| ripol | 665.00 | | NIST Webbook |
| ripol | 665.00 | | NIST Webbook |
| tb | 279.30 ± 1.00 | K | NIST Webbook |
| tb | 279.25 ± 0.50 | K | NIST Webbook |
| tb | 280.10 | K | NIST Webbook |
| tb | 280.00 | K | NIST Webbook |
| tc | 425.01 ± 0.20 | K | NIST Webbook |
| tf | 146.41 | K | Joback Method |
| vc | 0.239 | m3/kmol | Joback Method |

# Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 85.31 | J/mol×K | 277.17 | Joback Method |
| cpg | 90.38 | J/mol×K | 302.47 | Joback Method |
| cpg | 95.16 | J/mol×K | 327.76 | Joback Method |
| cpg | 99.67 | J/mol×K | 353.06 | Joback Method |
| cpg | 103.90 | J/mol×K | 378.36 | Joback Method |
| cpg | 107.88 | J/mol×K | 403.66 | Joback Method |
| cpg | 111.60 | J/mol×K | 428.95 | Joback Method |

# Correlations

| Information | Value |
|---|---|
| Property code | pvap |
| Equation | ln(Pvp) = A + B/(T + C) |
| Coeff. A | 1.47717e+01 |
| Coeff. B | -2.81191e+03 |
| Coeff. C | -3.15700e+00 |
| Temperature range (K), min. | 197.29 |
| Temperature range (K), max. | 300.39 |

# Sources

| | |
|---|---|
| **KDB:** | https://www.cheric.org/files/research/kdb/mol/mol1555.mol |
| **McGowan Method:** | http://link.springer.com/article/10.1007/BF02311772 |
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=C75887&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 |
| **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 |
| **rhoc:** | Critical density |
| **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 |