# 2-[2-[2-[2-[2-[2-(2,2,3,3,4,4,4-Heptafluorobutanoyl)
# 2,2,3,3,4,4,4-heptafluorobutanoate

**Other names:** 20,20,21,21,22,22,22-Heptafluoro-19-oxo-3,6,9,12,15,18-hexaoxadocos-1-yl heptafluorobutyrate; Hexaethylene glycol, bis(heptafluorobutyrate)

**Inchi:** InChI=1S/C20H24F14O9/c21-15(22,17(25,26)19(29,30)31)13(35)42-11-9-40-7-5-38-3-1-

**InchiKey:** DWSNSRVFOZDBFX-UHFFFAOYSA-N

**Formula:** C20H24F14O9

**SMILES:** O=C(OCCOCCOCCOCCOCCOCCOC(=O)C(F)(F)C(F)(F)C(F)(F)F)C(F)(F)C(F)(F)C(F)(F

**Mol. weight [g/mol]:** 674.38

## Physical Properties

| Property code | Value | Unit | Source |
|---|---|---|---|
| gf | -3585.62 | kJ/mol | Joback Method |
| hf | -4404.87 | kJ/mol | Joback Method |
| hfus | 57.71 | kJ/mol | Joback Method |
| hvap | 71.26 | kJ/mol | Joback Method |
| log10ws | -3.94 | | Crippen Method |
| logp | 3.822 | | Crippen Method |
| mcvol | 361.670 | ml/mol | McGowan Method |
| pc | 751.85 | kPa | Joback Method |
| rinpol | 1988.90 | | NIST Webbook |
| tb | 892.08 | K | Joback Method |
| tc | 1116.52 | K | Joback Method |
| tf | 593.41 | K | Joback Method |
| vc | 1.480 | m3/kmol | Joback Method |

## Temperature Dependent Properties

| Property code | Value | Unit | Temperature [K] | Source |
|---|---|---|---|---|
| cpg | 1226.75 | J/mol×K | 892.08 | Joback Method |
| cpg | 1242.01 | J/mol×K | 929.49 | Joback Method |
| cpg | 1255.66 | J/mol×K | 966.89 | Joback Method |
| cpg | 1267.80 | J/mol×K | 1004.30 | Joback Method |
| cpg | 1278.55 | J/mol×K | 1041.71 | Joback Method |
| cpg | 1287.99 | J/mol×K | 1079.11 | Joback Method |
| cpg | 1296.24 | J/mol×K | 1116.52 | Joback Method |

# Sources

| | |
|---|---|
| **NIST Webbook:** | http://webbook.nist.gov/cgi/cbook.cgi?ID=U352028&Units=SI |
| **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 |
| **McGowan Method:** | http://link.springer.com/article/10.1007/BF02311772 |

# 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 |
| **rinpol:** | Non-polar retention indices |
| **tb:** | Normal Boiling Point Temperature |
| **tc:** | Critical Temperature |
| **tf:** | Normal melting (fusion) point |
| **vc:** | Critical Volume |