CF3OCH3

Other names:	ether, methyl trifluoromethyl methane, trifluoromethoxy- methyl trifluoromethyl ether trifluoromethoxymethane
Inchi:	InChI=1S/C2H3F3O/c1-6-2(3,4)5/h1H3
InchiKey:	JRHMNRMPVRXNOS-UHFFFAOYSA-N
Formula:	C2H3F3O
SMILES:	COC(F)(F)F
Mol. weight [g/mol]:	100.04
CAS:	421-14-7

Physical Properties

Property code	Value	Unit	Source
affp	719.20	kJ/mol	NIST Webbook
basg	690.00	kJ/mol	NIST Webbook
gf	-720.63	kJ/mol	Joback Method
hf	-813.91	kJ/mol	Joback Method
hfus	3.95	kJ/mol	Joback Method
hvap	18.71	kJ/mol	Joback Method
log10ws	-0.90		Crippen Method
logp	1.153		Crippen Method
mcvol	50.220	ml/mol	McGowan Method
pc	3588.00 ± 5.00	kPa	NIST Webbook
pc	3640.00	kPa	Critical Properties of 1,2,2,2-Tetrafluoroethyl Trifluoromethyl Ether (HFE-227me) + Trifluoromethoxymethane (HFE-143m) and + Methyl Pentafluoroethyl Ether (HFE-245mc)

pc	3640.00	kPa	Critical Properties of Four HFE + HFC Binary Systems: Trifluoromethoxymethane (HFE-143m) + Pentafluoroethane (HFC-125), + 1,1,1,2-Tetrafluoroethane (HFC-134a), + 1,1,1,2,3,3,3-Heptafluoropropane (HFC-227ea), and + 1,1,1,2,3,3-Hexafluoropropane (HFC-236ea)
pc	3680.00 ± 12.00	kPa	NIST Webbook
tb	262.16	K	Joback Method
tc	378.02 ± 0.20	K	NIST Webbook
tc	378.08 ± 0.30	K	NIST Webbook
tf	124.00 ± 2.00	K	NIST Webbook
tf	124.00 ± 2.00	K	NIST Webbook
vc	0.229 ± 0.003	m3/kmol	NIST Webbook
vc	0.229 ± 0.005	m3/kmol	NIST Webbook

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
cpg	84.31	J/mol×K	262.16	Joback Method
cpg	88.96	J/mol×K	285.96	Joback Method
cpg	93.43	J/mol×K	309.76	Joback Method
cpg	97.74	J/mol×K	333.55	Joback Method
cpg	101.87	J/mol×K	357.35	Joback Method
cpg	105.84	J/mol×K	381.15	Joback Method
cpg	109.65	J/mol×K	404.95	Joback Method
hvapt	22.50	kJ/mol	273.00	NIST Webbook
pvap	1325.70	kPa	330.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	607.30	kPa	300.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether

pvap	698.70	kPa	305.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	800.90	kPa	310.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	800.70	kPa	310.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	801.70	kPa	310.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	914.30	kPa	315.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	1038.10	kPa	320.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	1038.50	kPa	320.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	

pvap	1038.40	kPa	320.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1175.70	kPa	325.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	607.70	kPa	300.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1325.60	kPa	330.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1325.70	kPa	330.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1489.70	kPa	335.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1668.80	kPa	340.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether

pvap	1668.50	kPa	340.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1670.20	kPa	340.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	1863.60	kPa	345.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	2074.90	kPa	350.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	2075.00	kPa	350.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	2071.70	kPa	350.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether
pvap	2304.30	kPa	355.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether

pvap	2553.10	kPa	360.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	2553.80	kPa	360.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	2554.90	kPa	360.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	2823.30	kPa	365.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	3116.40	kPa	370.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	3117.30	kPa	370.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	
pvap	3117.10	kPa	370.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether	

pvap	3435.70	kPa	375.00	Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether

Sources

Critical Properties of Four HFE + HFC Binary Systems:	https://www.doi.org/10.1021/je0499723
Joback Method:	https://en.wikipedia.org/wiki/Joback_method
Crippen Method:	http://pubs.acs.org/doi/abs/10.1021/ci990307l
Crippen Method:	https://www.chemeo.com/doc/models/crippen_log10ws
Binary Vapor Liquid and Vapor Liquid Equilibria of Hydrofluorocarbons (HFC-125 and HFC-143a) and Hydrofluoroethers (HFE-125 and HFE-143a) with Ionic Liquid [emmim][Tf2N]:	https://www.doi.org/10.1021/je700588d
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C421147&Units=SI
Thermodynamic Property Measurements for Trifluoromethyl Methyl Ether and Pentafluoroethyl Methyl Ether:	https://www.doi.org/10.1021/je025657+
Critical Temperature of 1,2,2,2-Tetrafluoroethyl Trifluoromethyl Ether (HFE-227me) + Trifluoromethoxymethane (HFE-143m) and + Methyl Pentafluoroethyl Ether (HFE-245mc):	https://www.doi.org/10.1021/je700123q
Joback Method:	http://link.springer.com/article/10.1007/BF02311772

Legend

affp:	Proton affinity
basg:	Gas basicity
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
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
pvap:	Vapor pressure
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
vc:	Critical Volume