Perchloryl fluoride

Other names:	Chlorine fluoride oxide
	Chlorine fluoride oxide (ClO3F)
	Chlorine oxyfluoride
	Chlorine oxyfluoride (ClO3F)
	ClO3F
	Perchloryl fluoride ((ClO3)F)
	Trioxychlorofluoride
Inchi:	InChI=1S/ClFO3/c2-1(3,4)5
InchiKey:	XHFXMNZYIKFCPN-UHFFFAOYSA-N
Formula:	ClFO3
Mol. weight [g/mol]:	102.45
CAS:	7616-94-6

Physical Properties

Property code	Value	Unit	Source
ie	12.95 ± 0.01	eV	NIST Webbook; DeKock, Lloyd, et al., 1972
ie	13.60 ± 0.20	eV	NIST Webbook; Dibeler, Reese, et al., 1957
pc	5370.23	kPa	Mathews (1972), critical constants of inorganic substances
tb	226.40 ± 0.30	K	NIST Webbook; Streng, 1971
tc	368.40	K	Mathews (1972), critical constants of inorganic substances
tf	127.20 ± 0.30	K	NIST Webbook; Streng, 1971
tt	125.65	K	Staveley, Lobo and Calado (1981), triple points
vc	0.161	m3/kmol	Mathews (1972), critical constants of inorganic substances
zc	0.2820000		Mathews (1972), critical constants of inorganic substances

Temperature Dependent Properties

Property code	Value	Unit	Temperature [K]	Source
hvapt	19.20	kJ/mol	196.00	NIST Webbook; Koehler and Giauque, 1958
hvapt	19.30	kJ/mol	226.00	NIST Webbook; Koehler and Giauque, 1958

Correlations

Information	Value
Property code	cpg
Equation	$Y = A + B \cdot t + C \cdot t^2 + D \cdot t^3 + E/t^2$, $t = T/1000$
Y unit	J/mol×K
Coeff. A	3.66652e+01
Coeff. B	1.52484e+02
Coeff. C	-1.25863e+02
Coeff. D	3.72124e+01
Coeff. E	-6.25788e-01
Reference	Chase, 1998
Comment	F=-40.19443, G=279.6280, H=-21.42204; Data last reviewed in March, 1961
Temperature range (K), min.	298.00
Temperature range (K), max.	1200.00

Information	Value
Property code	cpg
Equation	$Y = A + B \cdot t + C \cdot t^2 + D \cdot t^3 + E/t^2$, $t = T/1000$
Y unit	J/mol×K
Coeff. A	1.07049e+02
Coeff. B	5.61539e-01
Coeff. C	-1.10696e-01
Coeff. D	7.50800e-03
Coeff. E	-7.74354e+00
Reference	Chase, 1998
Comment	F=-74.34382, G=377.5227, H=-21.42204; Data last reviewed in March, 1961
Temperature range (K), min.	1200.00

Temperature range (K), max.	6000.00

Information	Value
Property code	pvap
Equation	ln(Y) = A + B/(T + C)
Y unit	kPa
Coeff. A	1.42944e+01
Coeff. B	-1.96782e+03
Coeff. C	-2.31200e+01
Temperature range (K), min.	125.41
Temperature range (K), max.	368.40

Sources

The Yaws Handbook of Vapor Pressure:	https://www.sciencedirect.com/book/9780128029992/the-yaws-handbook-of-vapor-pressure
Mathews (1972), critical constants of inorganic substances:	https://doi.org/10.1021/cr60275a004
Staveley, Lobo and Calado (1981), triple points:	https://doi.org/10.1016/0011-2275(81)90264-2
NIST Webbook:	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7616946&Units=SI

Legend

cpg:	Ideal gas heat capacity
hvapt:	Enthalpy of vaporization at a given temperature
ie:	Ionization energy
pc:	Critical Pressure
pvap:	Vapor pressure
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature
vc:	Critical Volume
zc:	Critical Compressibility

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