

phosphorus

Other names:	Phosphorus atom phosphorus-31 red phosphorus
Inchi:	InChI=1S/P
InchiKey:	OAICVXFJPJFONN-UHFFFAOYSA-N
Formula:	P
SMILES:	[P]
Mol. weight [g/mol]:	30.97
CAS:	7723-14-0

Physical Properties

Property code	Value	Unit	Source
affp	626.80	kJ/mol	NIST Webbook
basg	604.80	kJ/mol	NIST Webbook
ea	0.77 ± 0.05	eV	NIST Webbook
ea	0.75 ± 0.00	eV	NIST Webbook
ea	0.75 ± 0.05	eV	NIST Webbook
ea	0.75 ± 0.00	eV	NIST Webbook
ea	0.75 ± 0.00	eV	NIST Webbook
ea	0.75 ± 0.00	eV	NIST Webbook
gf	292.20	kJ/mol	KDB
hf	316.50 ± 1.00	kJ/mol	NIST Webbook
hf	334.10	kJ/mol	KDB
ie	10.49	eV	NIST Webbook
ie	10.49	eV	NIST Webbook
ie	10.49	eV	NIST Webbook
ie	10.49	eV	NIST Webbook
sgb	163.20 ± 0.00	J/mol×K	NIST Webbook
ss	41.09 ± 0.25	J/mol×K	NIST Webbook
tb	550.00 ± 3.00	K	NIST Webbook
tb	553.60	K	KDB
tc	994.00	K	KDB
tf	317.30	K	KDB
tt	317.30 ± 0.06	K	NIST Webbook
tt	870.00 ± 0.60	K	NIST Webbook

Sources

Standard enthalpy, entropy and Gibbs free energy of formation of "A" type carbonate phosphocalcium hydroxyapatites:	https://www.doi.org/10.1016/j.jct.2016.10.035
Aluminum dihydrogen tripolyphosphate: Thermodynamic characterization of	https://www.cheric.org/research/kdb/hcprop/showprop.php?cmpid=1961
$\text{La}_{1-x}\text{Ln}_x\text{PO}_4$ -monazites (Ln = Gd, Eu): Isomorphism and phase diagram of $\text{Pb}_5(\text{PO}_4)_3\text{F}$ - $\text{Pb}_5(\text{PO}_4)_3\text{Cl}$ system: Thermodynamic properties of trizirconium tetraphosphate: Standard molar enthalpies of formation of hydroxy-, chlor-, and bromapatite: NIST Webbook:	https://www.doi.org/10.1016/j.jct.2017.03.017
	https://www.doi.org/10.1016/j.jct.2016.11.003
	https://www.doi.org/10.1016/j.tca.2010.11.020
	https://www.doi.org/10.1016/j.jct.2004.11.002
	https://www.doi.org/10.1016/j.jct.2005.01.010
	http://webbook.nist.gov/cgi/cbook.cgi?ID=C7723140&Units=SI
Thermodynamic investigation of thorium and strontium substituted monazite solid-solution:	https://www.doi.org/10.1016/j.tca.2019.01.031

Legend

affp:	Proton affinity
basg:	Gas basicity
ea:	Electron affinity
gf:	Standard Gibbs free energy of formation
hf:	Enthalpy of formation at standard conditions
ie:	Ionization energy
sgb:	Molar entropy at standard conditions (1 bar)
ss:	Solid phase molar entropy at standard conditions
tb:	Normal Boiling Point Temperature
tc:	Critical Temperature
tf:	Normal melting (fusion) point
tt:	Triple Point Temperature

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