

PTE

ptbl: periodic table of elements page1,2	<pre> 1 2 3 4 5 6 7 8 9 1 H 2 Li Be 3 Na Mg 4 K Ca Sc Ti V Cr Mn Fe Co 5 Rb Sr Y Zr Nb Mo Tc Ru Rh 6 Cs Ba + Hf Ta W Re Os Ir 7 Fr Ra + Rf Db Sg Bh Hs Mt Lan + La Ce Pr Nd Pm Sm Eu Act + Ac Th Pa U Np Pu Am </pre>	<pre> 10 11 12 13 14 15 16 17 18 1 He 1 2 He 2 3 He 3 4 He 4 5 He 5 6 He 6 7 He 7 Gd Tb Dy Ho Er Tm Yb Lu Ch Bk Cf Es Fm Md No Lr </pre>
Eldata: element data	<pre> 7: 6: 5: 4: 3: 2: 1: </pre>	<pre> SY:0 NA:"Oxygen" GP:"16,2,p" AN:15.9994 AD:8 EC:"He 2s2 2p4" ES:"2,6" GS:"3F2" </pre>
vertical view	<pre> ptbl Eldat Elus3 Elpro Molwt ZxEI </pre>	<pre> TEXT OK </pre>
vertical view, end	<pre> TC:(.02658_ H H.K) TE:? CP:(5.043_MPa) CT:(154.59_K) SC:"" CU:"" </pre>	<pre> OS:"2..2" CS:"cub" IS:"16-12 12-22" PC:"gas,class" EM:"- ,param." CA:.46 UA:.01 EN:2.44 </pre>
Elview: view element data page 1	<pre> SYMBOL:C NAME:Carbon GROUP,PERIOD,BLOCK:14,2,p AT.WEIGHT:12.0107 AT.NUMBER:6 ELEC.CONF.:He 2s2 2p2 ELEC.SHELL:2,4 GROUND STATE:3P0 OXID.STATES:-4..4 CRYSTAL STRUCT.:dia ISO.STAB:112,1318-22 PHASE COL:sol,black EL MAGN:cond,diam. </pre>	<pre> CRUST ABUND.:.0012 UNIV ABUND.:.005 ELECTRO NEG.:2.55 ELEC.AFFIN.:153.9_kJ/mol EL.CONDUCT.:100000_1/(cm) MAGN.SUSC.:-.000014 REFR.INDEX:2.417 IONIS.ENERGY:1086.5_kJ/mol MOLAR VOLUME:5.314_cm^3/mol ATOMIC RADIUS:67_pm COVAL.RADIUS:77_pm VDWAALS RADIUS:170_pm IONIC RADIUS:29_pm </pre>
page 2	<pre> DENSITY:'2260_kg/m^3' VELSOUND:'12350_m/s' BULK MODULUS:'33_GPa' SHEAR MODULUS:'?' YOUNG MODULUS:'?' POISSON RATIO:'?' MOHS HARD.:5 BRIN.HARD.:?' VICK.HARD.:?' MELT.POINT:'3550_°C' BOIL.POINT:'4027_°C' HEAT FUSION:'105_kJ/mol' HEAT VAPOR.:715_kJ/mol' </pre>	<pre> HEAT ATOM.:717_kJ/mol' SPEC.HEAT:710_J/(kg*K) THERM.CONDUCT.:140_W/(cm*K) THERM.EXPANS.:.0000071_1/K' CRIT.PRESS.:? CRIT.TEMP.:? SUPCOND.TEMP.:? CURIE TEMP.:? </pre>
page 3	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: </pre>	<pre> 1: </pre>
Elprop: AR atomic radius of Li, melting-, boiling-point of Fe (1.5s)	<pre> 'Li' 'AR' AR(Li):(167_pm) 'Fe' (MP BP) (MP(Fe):(1538_°C) BP) </pre>	<pre> IR(Li):(60_pm) IR(Be):(44_pm) IR(B):(35_pm) IR(C):(29_pm) IR(N):(25_pm) IR(O):(22_pm) IR(F):(19_pm) IR(He):(112_pm) </pre>
Elprop: IR ionic radii of second period	<pre> ptl pts ptg Eldat Elus3 Elpro </pre>	<pre> ptl pts ptg Eldat Elus3 Elpro </pre>
Molwt: molweight	<pre> 8: 7: 6: 5: 4: 3: 2: 1: </pre>	<pre> 49 'In' 'W' Z(W):74 "Tungst" 'W' 'Pd' "Palladium" </pre>
ZxEI, NxEl: atomic number, string to symbol	<pre> Molwt ZxEI NxEl #Grou #Perd #Propx </pre>	<pre> Molwt ZxEI NxEl #Grou #Perd #Propx </pre>
→Group, →Period: elements of 18 group, 4 period, Lanthanides	<pre> 9: 8: 7: 6: 5: 4: 3: 2: 1: </pre>	<pre> 18 (He Ne Ar Kr Xe Rn) 4 (K Ca Sc Ti V Cr Mn Fe) 'LAN' (La Ce Pr Nd Pm Sm Eu) </pre>
Drop?: omit elements with unknown properties	<pre> Molwt Atno ZxEI DxEI #Grou #Perd </pre>	<pre> Prbar PrLin PrScd Drops Elunon PRLIS </pre>

→Group, →Period: elements of 18 group, 4 period, Lanthanides	<pre> 9: 8: 7: 6: 5: 18 4: (He Ne Ar Kr Xe Rn) 3: (K Ca Sc Ti V Cr Mn Fe) 2: 'LAN' 1: (La Ce Pr Nd Pm Sm Eu) Molwt Atno 3+EL 0+EL +Grou+Per3 </pre>	<pre> 4: 3: 2: 1: </pre> <pre> AR(Co):(152_pH) AR(Rh):(173_pH) AR(Ir):(180_pH) AR(Mt):? AR(Co):(152_pH) AR(Rh):(173_pH) AR(Ir):(180_pH) </pre> <pre> Prbar Prlin Prscat Drop? Elnam PRLIS </pre>
Elchoose: choose elements with certain properties	<pre> 9: 8: CH He N O F Ne Cl Kr Xe Rn3 7: "gas" 6: CB C3 5: "black" 4: CB S Cl Br I3 3: "insu" 2: CF Co Ni Gd3 1: "ferro" Prpex Prbar Prlin Prscat Elnam Elcho </pre>	
Prlineplot: barplot of atomic radii of 6. period	<pre> 9: 8: 7: 6: 5: 4: 3: 2: CH Ca Sc Ti V Cr Mn Fe Co Ni Cu 1: 'EN' +ALL +A112 Lpex Lplot Prpex Prplo </pre>	
Prscatplot: scatterplot of melting points of all elements	<pre> 9: 8: 7: 6: 5: 4: 3: 2: CH He Li Be B C N O F Ne Na Mg 1: 'MP' Prbar Prlin Prscat Drop? Elnam PRLIS </pre>	
Eledit: edit element data	<pre> * :SYMBOL: 0 :NAME: "Oxygen" :GROUP,PERIOD: "16,2" :AT.WEIGHT: 15.9994 :AT.NUMBER: 8 :EL.CON.: "(He)(2s^2)(2p^4)" :EL.SHELL: "2,6" :GROUND STATE: "3P2" +SKIP+SKIP+ +DEL DEL+ DEL LINS + </pre>	<pre> 9: 8: 7: 6: 5: 4: 3: 2: IE(Be):{299.50-$\frac{kJ}{mol}$ 1757.10-$\frac{kJ}{mol}$} 1: IE(Be):{29.32-eV 18.21-eV 153.1-eV} ULIST View HelpPPrHeLEledsKJmeV </pre>
kJmeV: kJ/mol to eV		
PRLIST: list with >50 element properties page 1	<pre> PTE: PERIODIC TABLE OF ELEMENTS E = ELEMENT SYMBOL H,O,SI,Al Lele LIST ELEMENT DATA IN PORT 2 [+], [+], [+], [+], INRT] = PREV,NEXT,FIRST, LAST, NEXT PAGE QUIT VIEW WITH CENTER] Ptbl = + PERIODIC TABLE PICTURE Elldata E + C3 SYMBOL + DATA Elview E + PICTURE WITH DATA Elprop E,CE1..3 P,CP1..3 + P(E),CP(E1)..3 GET ELEMENT PROPERTIES </pre>	<pre> +Group n + C3 n. GROUP (12n20) 19 = LAN, 20 = ACT +period n + C3 n. PERIOD (12n27) Prpex = + C3 Prplot EXAMPLE Prbarplot CE1..3 PR + BARPLOT Prlineplot CE1..3 PR + LINEPLOT Prscatplot CE1..3 PR + SCATPLOT PLOT OF ELEMENTS WITH PROPERTY PR ACCORDING ASCENDANT ATOMIC NUMBER. FOR ELEMENTS WITH UNKNOWN OR NONEXISTENT PROPERTIES THESE ARE SET TO 0 </pre>
page 2	<pre> Elnames = + C3 LIST OF ELEMENT NAMES WITH INCREASING 2 Elchoose prop + C3 ELEMENTS WITH PROPERTY. EXAMPLES: PHASE,COL,EL,MAGN. TYPE DROP? C3 + C3' DROP OBJECTS WITH ? = UNKNOWN VALUES "--" = NOT EXISTENT AFTER THIS YOU CAN SORT ASCENDING WITH SORT, ADD INVERT WITH REVLIST Molwt 'H2O','H2CO32' + M MOLECULAR WEIGHT </pre>	<pre> 2xEl 2 ↔ E ATOMIC NUMBER TO ELEMENT SYMBOL DxEl D ↔ E ELEMENT NAME OR SUBSTRING TO EL. SYMBOL PRLIST = + LIST OF PROPERTIES ULIST = + LIST WITH UNITS FOR PROPERTIES 15-39 KJmeV x.kJ/mol ↔ y.eV CONVERT FOR IONISATION ENERGY Eledit E + C3, EDIT EL.PROPERTIES PRESS COOT AFTER EDIT View 0 + 0 PICTURE, VIEW OBJECT QUIT WITH CENTER] </pre>
HelpPTE: help page 1	<pre> PTE: PERIODIC TABLE OF ELEMENTS E = ELEMENT SYMBOL H,O,SI,Al [+], [+], [+], [+], INRT] = PREV,NEXT,FIRST, LAST, NEXT PAGE QUIT VIEW WITH CENTER] Ptbl = + PERIODIC TABLE PICTURE Elldata E + C3 SYMBOL + DATA Elview E + PICTURE WITH DATA Elprop E,CE1..3 P,CP1..3 + P(E),CP(E1)..3 GET ELEMENT PROPERTIES </pre>	<pre> +Group n + C3 n. GROUP (12n20) 19 = LAN, 20 = ACT +period n + C3 n. PERIOD (12n27) Prpex = + C3 Prplot EXAMPLE Prbarplot CE1..3 PR + BARPLOT Prlineplot CE1..3 PR + LINEPLOT Prscatplot CE1..3 PR + SCATPLOT PLOT OF ELEMENTS WITH PROPERTY PR ACCORDING ASCENDANT ATOMIC NUMBER. FOR ELEMENTS WITH UNKNOWN OR NONEXISTENT PROPERTIES THESE ARE SET TO 0 </pre>

HelpPTE: help	<p>DROP? <3 + <3> DROP OBJECTS WITH ? = UNKNOWN VALUES "-" = NOT EXISTENT AFTER THIS YOU CAN SORT ASCENDING WITH SORT, AND INVERT WITH REVLST Elnames _ + <3> LIST OF ELEMENT NAMES WITH INCREASING Z Molwt 'H2O', 'NaCOH12' + M MOLECULAR WEIGHT ZxE1 2 ↔ E ATOMIC NUMBER TO ELEMENT SYMBOL</p>	<p>AXE1 0 ↔ E ELEMENT NAME OR SUBSTRING TO EL. SYMBOL PALIST - + LIST OF PROPERTIES ULIST - + LIST WITH UNITS FOR PROPERTIES 15-39 View 0 + 0 PICTURE, VIEW OBJECT END WITH [ENTER] Eledit E + <3>, EDIT EL.PROPERTIES PrHelp PRESS CONT AFTER EDIT Lele HELP TO ELEM. PROPERTIES LxLx LIST WITH ELEMENT DATA KJmV x.kJ/mol ↔ y.eV CONVERT FOR IONISATION ENERGY</p>
HelpPTE: help	<p>DROP? <3 + <3> DROP OBJECTS WITH ? = UNKNOWN VALUES "-" = NOT EXISTENT AFTER THIS YOU CAN SORT ASCENDING WITH SORT, AND INVERT WITH REVLST Elnames _ + <3> LIST OF ELEMENT NAMES WITH INCREASING Z Molwt 'H2O', 'NaCOH12' + M MOLECULAR WEIGHT ZxE1 2 ↔ E ATOMIC NUMBER TO ELEMENT SYMBOL</p>	<p>AXE1 0 ↔ E ELEMENT NAME OR SUBSTRING TO EL. SYMBOL PALIST - + LIST OF PROPERTIES ULIST - + LIST WITH UNITS FOR PROPERTIES 15-39 View 0 + 0 PICTURE, VIEW OBJECT END WITH [ENTER] Eledit E + <3>, EDIT EL.PROPERTIES PrHelp PRESS CONT AFTER EDIT Lele HELP TO ELEM. PROPERTIES LxLx LIST WITH ELEMENT DATA KJmV x.kJ/mol ↔ y.eV CONVERT FOR IONISATION ENERGY</p>
PrHelp: help to properties choose box		
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PrHelp: OK gives help	<p>AW AT. WEIGHT atomic mass relative to H12/12</p>	<p>ES EL. SHELL electron shell conf. electron-number in shell K, L, ..</p>
PrHelp: OK gives help	<p>GS GROUND STATE 2S+1 L J</p>	<p>CS CRYST. STRUCT. crystal struct. cub cubic fcc Face centered cubic bcc body centered cubic hex hexagonal tet tetragonal mcl monoclinic dia diamond orc orthorhombic rhf rhombohedrnl scb simple cubic</p>
PrHelp: OK gives help	<p>MS MAGN. SUSC. volume Magnetic susceptibility, degree of magnetisation in external field $B = \mu \times H$, $\mu = \mu_0 \times (1 + \chi)$ B = magnetic induction, H = magnetic field, $\chi_{mass} = \chi / \rho$ mass susceptibility, $\chi_{mol} = M \times \chi_{mass}$ molar susceptibility</p>	<p>AR AT. RADIUS 1/4th atomic radius distance nucleus-outest electron</p>

PrHelp: OK gives help	SH SHEAR MOD. 1.GPa shear modulus, shear stress/strain G, $G=(F/A)/(ax/I)$, F=force, A=area, ax=displacement, I=initial length GRAPH	VH VICK.HARD. 1.HPa Vickers hardness, indentation of pyramid $HV=F/A=1.854 \times F/d^2$, F=force, A=area, d=diameter pyramid GRAPH
PrHelp: OK gives help	SH SPEC.HEAT 1.J/(kg.K) specific heat capacity, energy to change temperature of 1kg by 1K, $c=dx/dt$, cp,cv at constant pressure, volume GRAPH	TE THERM EXP. 1.1/K thermal linear expansion α , $\alpha=(\Delta L/L)/\Delta T$, $\Delta L=L_{final}-L_{initial}$, L=initial, ΔT =temperature difference GRAPH