



Nacionalni centar  
za vanjsko vrednovanje  
obrazovanja

Identifikacijska  
naljepnica

PAŽLJIVO NALIJEPI TI

# KEM

## KEMIJA

Periodni sustav elemenata  
Temeljne prirodne konstante  
Standardni redukcijski elektrodni potencijali

KEM T D

KEM.29.HR.R.T1.04



23538



12

Periodni sustav elemenata IUPAC

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
<div>1 <b>H</b> 1,01</div>			<div>2 <b>He</b> 4,00</div>														
3 <b>Li</b> 6,94	4 <b>Be</b> 9,01											5 <b>B</b> 10,8	6 <b>C</b> 12,0	7 <b>N</b> 14,0	8 <b>O</b> 16,0	9 <b>F</b> 19,0	10 <b>Ne</b> 20,2
11 <b>Na</b> 23,0	12 <b>Mg</b> 24,3											13 <b>Al</b> 27,0	14 <b>Si</b> 28,1	15 <b>P</b> 31,0	16 <b>S</b> 32,1	17 <b>Cl</b> 35,5	18 <b>Ar</b> 39,9
19 <b>K</b> 39,1	20 <b>Ca</b> 40,1	21 <b>Sc</b> 45,0	22 <b>Ti</b> 47,9	23 <b>V</b> 50,9	24 <b>Cr</b> 52,0	25 <b>Mn</b> 54,9	26 <b>Fe</b> 55,8	27 <b>Co</b> 58,9	28 <b>Ni</b> 58,7	29 <b>Cu</b> 63,5	30 <b>Zn</b> 65,4	31 <b>Ga</b> 69,7	32 <b>Ge</b> 72,6	33 <b>As</b> 74,9	34 <b>Se</b> 79,0	35 <b>Br</b> 79,9	36 <b>Kr</b> 83,8
37 <b>Rb</b> 85,5	38 <b>Sr</b> 87,6	39 <b>Y</b> 88,9	40 <b>Zr</b> 91,2	41 <b>Nb</b> 92,9	42 <b>Mo</b> 95,9	43 <b>Tc</b> [98]	44 <b>Ru</b> 101	45 <b>Rh</b> 103	46 <b>Pd</b> 106	47 <b>Ag</b> 108	48 <b>Cd</b> 112	49 <b>In</b> 115	50 <b>Sn</b> 119	51 <b>Sb</b> 122	52 <b>Te</b> 128	53 <b>I</b> 127	54 <b>Xe</b> 131
55 <b>Cs</b> 133	56 <b>Ba</b> 137	57-71 lantanoidi	72 <b>Hf</b> 178	73 <b>Ta</b> 181	74 <b>W</b> 184	75 <b>Re</b> 186	76 <b>Os</b> 190	77 <b>Ir</b> 192	78 <b>Pt</b> 195	79 <b>Au</b> 197	80 <b>Hg</b> 201	81 <b>Tl</b> 204	82 <b>Pb</b> 207	83 <b>Bi</b> 209	84 <b>Po</b> [209]	85 <b>At</b> [210]	86 <b>Rn</b> [222]
87 <b>Fr</b> [223]	88 <b>Ra</b> [226]	89-103 aktinoidi	104 <b>Rf</b> [261]	105 <b>Db</b> [262]	106 <b>Sg</b> [266]	107 <b>Bh</b> [264]	108 <b>Hs</b> [277]	109 <b>Mt</b> [268]	110 <b>Ds</b> [269]	111 <b>Rg</b> [272]	112 <b>Cn</b> [285]						
57 <b>La</b> 139	58 <b>Ce</b> 140	59 <b>Pr</b> 141	60 <b>Nd</b> 144	61 <b>Pm</b> [145]	62 <b>Sm</b> 150	63 <b>Eu</b> 152	64 <b>Gd</b> 157	65 <b>Tb</b> 159	66 <b>Dy</b> 163	67 <b>Ho</b> 165	68 <b>Er</b> 167	69 <b>Tm</b> 169	70 <b>Yb</b> 173	71 <b>Lu</b> 175			
89 <b>Ac</b> [227]	90 <b>Th</b> 232	91 <b>Pa</b> 231	92 <b>U</b> 238	93 <b>Np</b> [237]	94 <b>Pu</b> [244]	95 <b>Am</b> [243]	96 <b>Cm</b> [247]	97 <b>Bk</b> [247]	98 <b>Cf</b> [251]	99 <b>Es</b> [252]	100 <b>Fm</b> [257]	101 <b>Md</b> [258]	102 <b>No</b> [259]	103 <b>Lr</b> [262]			



## TEMELJNE PRIRODNE KONSTANTE

Veličina	Znak	Vrijednost
brzina svjetlosti u vakuumu	$c_0$	$3,00 \times 10^8 \text{ m s}^{-1}$
Planckova konstanta	$h$	$6,63 \times 10^{-34} \text{ J s}$
elementarni naboj	$e$	$1,60 \times 10^{-19} \text{ C}$
masa mirovanja elektrona	$m_e$	$9,11 \times 10^{-31} \text{ kg}$
masa mirovanja protona	$m_p$	$1,67 \times 10^{-27} \text{ kg}$
masa mirovanja neutrona	$m_n$	$1,67 \times 10^{-27} \text{ kg}$
atomska masena konstanta, unificirana atomska jedinica mase, dalton	$m_u = 1 \text{ u} = 1 \text{ Da}$	$1,66 \times 10^{-27} \text{ kg}$
Avogadrova konstanta	$L, N_A$	$6,02 \times 10^{23} \text{ mol}^{-1}$
Boltzmannova konstanta	$k$	$1,38 \times 10^{-23} \text{ J K}^{-1}$
Faradayeva konstanta	$F$	$9,65 \times 10^4 \text{ C mol}^{-1}$
molarna plinska konstanta	$R$	$8,31 \text{ J K}^{-1} \text{ mol}^{-1}$
nula Celzijeve temperature		$273 \text{ K}$
molarni volumen idealnoga plina ( $p = 101,325 \text{ kPa}$ , $t = 0 \text{ }^\circ\text{C}$ )	$V_m$	$22,4 \text{ L mol}^{-1}$



STANDARDNI REDUKCIJSKI ELEKTRODNI POTENCIJALI  
ODABRANIH REDOKS SUSTAVA U VODENIM OTOPINAMA PRI 25 °C

Shematski prikaz	$E^{\circ}$ / mV
$\text{Au}^+ \mid \text{Au}$	1,692
$\text{Cl}^- \mid \text{Cl}_2$	1,358
$\text{Br}^- \mid \text{Br}_2$	1,087
$\text{Hg}^{2+} \mid \text{Hg}$	0,851
$\text{Ag}^+ \mid \text{Ag}$	0,800
$\text{I}^- \mid \text{I}_2$	0,535
$\text{Cu}^+ \mid \text{Cu}$	0,521
$\text{OH}^- \mid \text{O}_2$	0,401
$\text{Cu}^{2+} \mid \text{Cu}$	0,342
$\text{H}^+ \mid \text{H}_2$	0
$\text{Fe}^{3+} \mid \text{Fe}$	-0,037
$\text{Pb}^{2+} \mid \text{Pb}$	-0,126
$\text{Sn}^{2+} \mid \text{Sn}$	-0,137
$\text{Ni}^{2+} \mid \text{Ni}$	-0,257
$\text{Co}^{2+} \mid \text{Co}$	-0,28
$\text{Cd}^{2+} \mid \text{Cd}$	-0,352
$\text{Fe}^{2+} \mid \text{Fe}$	-0,447
$\text{Cr}^{3+} \mid \text{Cr}$	-0,744
$\text{Zn}^{2+} \mid \text{Zn}$	-0,762
$\text{Cr}^{2+} \mid \text{Cr}$	-0,913
$\text{Mn}^{2+} \mid \text{Mn}$	-1,185
$\text{Ti}^{2+} \mid \text{Ti}$	-1,630
$\text{Al}^{3+} \mid \text{Al}$	-1,662
$\text{Mg}^{2+} \mid \text{Mg}$	-2,372
$\text{Na}^+ \mid \text{Na}$	-2,71
$\text{Ca}^{2+} \mid \text{Ca}$	-2,868
$\text{Ba}^{2+} \mid \text{Ba}$	-2,912
$\text{K}^+ \mid \text{K}$	-2,931
$\text{Cs}^+ \mid \text{Cs}$	-3,026

