

# Приложение 1

## Периодическая система элементов Д. И. Менделеева

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1	1 H 1.008																	2 He 4.0026	
2	3 Li 6.941	4 Be 9.0122												5 B 10.811	6 C 12.011	7 N 14.007	8 O 15.999	9 F 18.998	10 Ne 20.180
3	11 Na 22.990	12 Mg 24.305											13 Al 26.982	14 Si 28.086	15 P 30.974	16 S 32.066	17 Cl 35.453	18 Ar 39.948	
4	19 K 39.098	20 Ca 40.078	21 Sc 44.956	22 Ti 47.867	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.845	27 Co 58.933	28 Ni 58.693	29 Cu 63.546	30 Zn 65.39	31 Ga 69.723	32 Ge 72.61	33 As 74.922	34 Se 78.96	35 Br 79.904	36 Kr 83.80	
5	37 Rb 85.468	38 Sr 87.62	39 Y 88.906	40 Zr 91.224	41 Nb 92.906	42 Mo 95.94	43 Tc 98.906	44 Ru 101.07	45 Rh 102.91	46 Pd 106.42	47 Ag 107.87	48 Cd 112.41	49 In 114.82	50 Sn 118.71	51 Sb 121.75	52 Te 127.60	53 I 126.91	54 Xe 131.29	
6	55 Cs 132.91	56 Ba 137.33	57 La 138.91	* 72 Hf 178.49	73 Ta 180.9	74 W 183.84	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.20	83 Bi 208.98	84 Po [209]	85 At [210]	86 Rn [222]	
7	87 Fr [223]	88 Ra [226]	89 Ac [227]	** 104 Rf [265]	105 Db [268]	106 Sg [271]	107 Bh [270]	108 Hs [277]	109 Mt [276]	110 Ds [281]	111 Rg [280]	112 Cn [285]	113 Uut [284]	114 Fl [289]	115 UUp [288]	116 Lv [293]	117 Uus [294]	118 Uuo [294]	

*	58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm [145]	62 Sm 150.36	63 Eu 151.96	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97
**	90 Th 232.04	91 Pa 231.04	92 U 238.029	93 Np [237]	94 Pu [242]	95 Am [243]	96 Cm [247]	97 Bk [247]	98 Cf [251]	99 Es [252]	100 Fm [257]	101 Md [258]	102 No [259]	103 Lr [262]

## Приложение 2

### Электрохимический ряд напряжений металлов

Li, Cs, Rb, K, Ba, Sr, Ca, Na, La, Y, Mg, Lu, Th, Be, U, Al, Ti, Mn, V, Zn, Cr, Fe, Cd, Co, Ni, Mo, Sn, Pb, (H), Sb, Bi, Cu, Hg, Ag, Pt, Pd, Au

### Растворимость солей, кислот и оснований в воде

анион катион	OH <sup>-</sup>	NO <sub>3</sub> <sup>-</sup>	F <sup>-</sup>	Cl <sup>-</sup>	Br <sup>-</sup>	I <sup>-</sup>	S <sup>2-</sup>	SO <sub>3</sub> <sup>2-</sup>	SO <sub>4</sub> <sup>2-</sup>	CO <sub>3</sub> <sup>2-</sup>	SiO <sub>3</sub> <sup>2-</sup>	PO <sub>4</sub> <sup>3-</sup>	CH <sub>3</sub> COO <sup>-</sup>
H <sup>+</sup>		P	P	P	P	P	P	P	P	P	H	P	P
NH <sub>4</sub> <sup>+</sup>	P	P	P	P	P	P	P	P	P	P	–	P	P
K <sup>+</sup>	P	P	P	P	P	P	P	P	P	P	P	P	P
Na <sup>+</sup>	P	P	P	P	P	P	P	P	P	P	P	P	P
Ag <sup>+</sup>	–	P	P	H	H	H	H	H	M	H	–	H	P
Ba <sup>2+</sup>	P	P	M	P	P	P	P	H	H	H	H	H	P
Ca <sup>2+</sup>	M	P	H	P	P	P	M	H	M	H	H	H	P
Mg <sup>2+</sup>	H	P	M	P	P	P	M	H	P	H	H	H	P
Zn <sup>2+</sup>	H	P	M	P	P	P	H	H	P	H	–	H	P
Cu <sup>2+</sup>	H	P	P	P	P	–	H	H	P	–	–	H	P
Co <sup>2+</sup>	H	P	P	P	P	P	H	H	P	H	–	H	P
Hg <sup>2+</sup>	–	P	–	P	M	H	H	–	P	–	–	H	P
Pb <sup>2+</sup>	H	P	H	M	M	H	H	H	H	H	H	H	P
Fe <sup>2+</sup>	H	P	P	P	P	P	H	H	P	H	H	H	P
Fe <sup>3+</sup>	H	P	P	P	P	–	–	–	P	–	–	H	P
Al <sup>3+</sup>	H	P	P	P	P	P	–	–	P	–	–	H	P
Cr <sup>3+</sup>	H	P	P	P	P	P	–	–	P	–	–	H	P
Sn <sup>2+</sup>	H	P	H	P	P	M	H	–	P	–	–	H	P
Mn <sup>2+</sup>	H	P	P	P	P	P	H	H	P	H	H	H	P

**Р** – растворимо      **М** – малорастворимо (< 0,1 М)      **Н** – нерастворимо (< 10<sup>-4</sup> М)      – не существует или разлагается водой