Crazy Dave's Periodic Table

Dave is about to discover a new element: Ka-blamium!

(Color code signifies recommended stabilizing acid for dilute solutions.)

3/4	Atomic Number
Ka	Chemical Symbol
Ka-blamium	Chemical Name
999.99	Atomic Weight

- HNO_3
- HCl
- $HCl + HNO_3$
- HF

1 H Hydrogen 1.01																	2 He Helium 4.00
3 Li Lithium 6.94	4 Be Beryllium 9.01											5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18
11 Na Sodium 22.99	12 Mg Magnesium 24.31											13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 39.95
19 K Potassium 39.10	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.88	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69	29 Cu Copper 63.55	30 Zn Zinc 65.39	31 Ga Gallium 69.72	32 Ge Germanium 72.61	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80
37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybdenum 95.94	43 Tc Technetium (97.9)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.91	46 Pd Palladium 106.42	47 Ag Silver 107.87	48 Cd Cadmium 112.41	49 In Indium 114.82	50 Sn Tin 118.71	51 Sb Antimony 121.76	52 Te Tellurium 127.60	53 I Iodine 126.90	54 Xe Xenon 131.29
55 Cs Cesium 132.91	56 Ba Barium 137.33	57 La Lanthanum 138.91	72 Hf Hafnium 178.49	73 Ta Tantalum 180.95	74 W Tungsten 183.85	75 Re Rhenium 186.21	76 Os Osmium 190.23	77 Ir Iridium 192.22	78 Pt Platinum 195.08	79 Au Gold 196.97	80 Hg Mercury 200.59	81 Tl Thallium 204.38	82 Pb Lead 207.20	83 Bi Bismuth 208.98	84 Po Polonium (209)	85 At Astatine (210)	86 Rn Radon (222)
87 Fr Francium (223.02)	88 Ra Radium (226.03)	89 Ac Actinium (227.03)															
				58 Ce Cerium 140.12	59 Pr Praseodymium 140.91	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 152.97	64 Gd Gadolinium 157.25	65 Tb Terbium 158.93	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93	68 Er Erbium 167.26	69 Tm Thulium 168.93	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.97
				90 Th Thorium 232.04	91 Pa Protactinium (231.04)	92 U Uranium 238.03	93 Np Neptunium (237.05)	94 Pu Plutonium (244)	95 Am Americium (243.06)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252.08)	100 Fm Fermium (257.10)	101 Md Mendelevium (258)	102 No Nobelium (259.10)	103 Lr Lawrencium (260)

These are general guidelines, and may not apply to all elements or sample matrices.

Our lawyer

Common Digestion Solutions

Reagent	Uses
Hydrochloric acid 37 wt%, boils at 110 °C	Solvent for metal oxides and certain metals; forms soluble chloro complexes with many metal ions.
Hydrofluoric acid 49 wt%, boils at 112 °C	Primarily used to attack and dissolve silicate minerals and refractory elements such as tungsten and titanium.
Hydrogen peroxide 30 wt%, boils at 107 °C	Oxidizing properties increase as acidity increases; may be used to remove trace amounts of color.
Nitric acid 70 wt%, boils at 121 °C	Oxidizing solvent for metals and alloys except aluminum and chromium.
Perchloric acid 72.4%, boils at 203 °C	High boiling point accelerates decomposition by dehydration and oxidation of organic compounds.
Phosphoric acid 85 wt%, boils at 150 °C	Used for complexing geological elements.
Boric acid	Complexing agent for hydrofluoric acid. Commonly used to complex excess fluoride and resolubilize Group IIA and rare earth elements.
Sulfuric acid 98.3 wt%, boils at 339 °C	High boiling point accelerates dissolution of metallics and minerals. Also decomposition by dehydration and oxidation of organic compounds.

Digestion Mixtures	Uses
Aqua regia (3 parts hydrochloric acid to 1 part nitric acid)	Oxidizing agent. Forms nitrosyl chloride, used to dissolve metals, especially platinum and gold.
Caro's acid Addition of hydrogen peroxide to sulfuric acid	Forms persulfuric acid used to oxidize organic samples.
Sulfuric/phosphoric	Commonly used for dissolution of alumina and materials containing alumina such as ceramics, catalysts, slags, and ores. Provides high temperature at low pressure.
Nitric/sulfuric	Combination used to enhance decomposition of organic samples.
Addition of bromine or hydrogen peroxide to mineral acids	Used to increase dissolution and oxidation of organic samples.

"The Ka-blamium Effect"

CEM

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