ELEMENTARY COMBINATIONS

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In school and college, we learnt that chemical elements combine with each other to form new substances, compounds, in very well-defined ways, obeying certain scientific rules. For example, we learned that two atoms of hydrogen and one atom of oxygen combine to form a molecule of water, and that one atom of sulfur combines with four atoms of oxygen to form a sulphate radical with electrical charge –2. In chemistry these rules of combination were explained in terms of valence and bonds, and in physics the rules were explained in terms of rings of electrons and the numbers of electrons in the outermost shells of the elements.

In the world of logology, chemical elements are able to combine in other ways. For example, take ARGON and TIN. In the real world, these can't combine, since argon is an inert element, but in our logological world these two elements combine to form the English word IGNORANT.

How many other pairs of element names can combine in this way, forming valid English words, names and phrases? We have managed to unearth 25 examples—have we missed any?

actinium + lead	adminiculate W2
aluminum + gold	aluminum gold W2
argon + caesium	graminaceous W3
argon + tin	ignorant W3
arsenic + lead	calendarise Chambers
arsenic + neon	nonincrease W2
arsenic + tin	carnitines W2
astatine + tin	instantiate W3
boron + lead	bandolero W2
calcium + iron	Acroclinium W3, Alcicornium W3
carbon + lead	Carbondale Random House Dict
cesium + tin	un-Semitic W2
germanium + tin	mint geranium W3
gold + iron	drooling W3
gold + tin	dolting W2
indium + lead	adlumidine W3
iron + lead	Irondale Random House Dict
lead + radium	radium lead W2
lead + silver	Silverdale Times Index-Gazetteer
lead + tin	landtie New Oxford Dict of English
lead + uranium	uranium lead W3
neon + silver	nonservile W2
radon + tin	ordinant W3
silver + tin	silver tin Random House Dict

However, four of these are trivial transpositions, involving no letter rearrangements.

How about three-way combinations? So far we have only been able to discover three examples:

copper + neon + tin	nonperception W2
iron + lead + tin	internodial W2
lead + neon + tin	nonentailed W2

How about near-misses involving two different element names plus one additional letter? For example, NEON and TIN plus an extraneous C make INNOCENT. These near-misses are somewhat analogous to chemical radicals with their associated electrical charges, caused by a shortage or surfeit of electrons.

actinium + iron	anticlinorium W3
actinium + iron	inclinatorium W2
americium + iron	microminiature W3
antimony + argon	antimony orange W2, organoantimony W2 add
argon + arsenic	organoarsenic W2 add
argon + astatine	station-manager Chambers
argon + bismuth	organobismuth W2 add
argon + boron	organoboron W2 add
argon + cerium	neurogrammicW3
argon + chlorine	organochlorine W3
argon + gold	organogold W2 add
argon + iron	organoiron W2 add
argon + lead	organolead W2 add
argon + lithium	organlithium W2 add
argon + magnesium	organomagnesium W2 add
argon + mercury	organomercury W2 add
argon + nickel	law-reckoning W2
argon + phosphorus	organophosphorus W2 add
argon + silicon	organosilicon W2 add
argon + silver	organosilver W2 add, revalorizing W3 (has –ize ending)
argon + sodium	monadigorous W2, organosodium W2 add
argon + tin	antinegro W2, organotin W2 add
argon + zinc	organozinc W2 add
arsenic + holmium	aluminothermics W3
astatine + cerium	quasi remittance W2
bromine + lead	modernizable W2
caesium + tin	insectarium W3
calcium + neon	uncompliance W2, uneconomical W3
cerium + lead	unreclaimed W3
cerium + tin	centumviri W3
chlorine + tin	antichlorine W2
cobalt + iron	beta-orcinol W2
cobalt + tin	bolt action W3
copper + tin	perception W3
gallium + iron	anguilliform W3
gold + lead	dodge ball W3
gold + neon	long-nosed W3
gold + radon	loading-rod OED
hydrogen + lead	wrongheadedly W3
indium + tin	diminuting W2, diminution W3

iodine + tin	definition W3
iodine + zinc	nicotinized W3
iron + neon	non-joiner OED
iron + nickel	unicornlike W2
iron + nitrogen	reconnoitring W3
iron + tin	triunion W2
iron + zinc	zirconian W2
lead + neon	nondealer W2
lead + niobium	unmodifiable W3
lead + radon	handloader W3
lead + sodium	duodecimals W3, modularized W3 (has –ize ending)
lead + strontium	ultramodernist W3
lead + terbium	resublimated Random House Dict
lead + thorium	rheumatoidal W2
neon + radium	endocranium W3
neon + radon	ordonnanceW3
neon + tin	innocent
neon + titanium	intermountain W3
niobium + tin	incumbition W2
nitrogen + tin	nonintegrity W2
oxygen + tin	antioxygen W3
platinum + tin	multipinnate W2
potassium + tin	assumptionist W3
radium + tin	miniatured W3
radon + silver	dorsiventral W3
rhodium + tin	Dinotherium W3
selenium + tin	multiengines Random House Dict, untimeliness W3
silicon + lead	delocalising Random House Dict, colonialised RHD
silicon + tin	inflictions W3

What about near-misses involving three different element names and an additional letter? In addition to IRON + LEAD + TIN yielding INORDINATELY and NONEDITORIAL, there is:

argon + iron + tin	nonirrigation W2
argon + lead + tin	degranulation W3
arsenic + gold + tin	reconsolidating W3
caesium + lead + tin	eudaemonistical W2
cesium + lead+ tin	eudemonistical OED
erbium + lead + tin	denumerability OED
lead + lutecium + tin	multidenticulate W2
lead + lutetium +tin	multidenticulate W2
lead + radon + tin	intraduodenal W2
neon + silver + tin	nonserviential W2

Finally, what about words using the names of four or more different elements? The best we have been able to unearth is LEAD + NEON + TIN + ZINC which with three extraneous letters yields UNCONVENTIONALIZED. Can readers supply additional examples that use dictionary words?