

Chemistry and compounds [edit]

Though it is the least reactive of the stable halogens, iodine is still one of the more reactive elements. For example, while chlorine gas will halogenate [carbon monoxide](#), [nitric oxide](#), and [sulfur dioxide](#) (to [phosgene](#), [nitrosyl chloride](#), and [sulfuryl chloride](#) respectively), iodine will not do so. Furthermore, iodination of metals tends to result in lower oxidation states than chlorination or bromination; for example, [rhenium](#) metal reacts with chlorine to form [rhenium hexachloride](#), but with bromine it forms only [rhenium pentabromide](#) and iodine can achieve only [rhenium tetraiodide](#).^[17] By the same token, however, since iodine has the lowest

ionisation energy among the halogens and is the most easily oxidised of them, it has a more significant cationic chemistry and its higher oxidation states are rather more stable than those of bromine and chlorine, for example in [iodine heptafluoride](#).^[19]

I₂ dissociates in light with an absorbance at 578 nm wavelength.

Halogen bond energies
(kJ/mol)^[19]

X	XX	HX	BX ₃	AlX ₃	CX ₄
F	159	574	645	582	456
Cl	243	428	444	427	327
Br	193	363	368	360	272
I	151	294	272	285	239