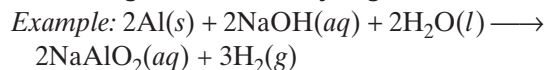
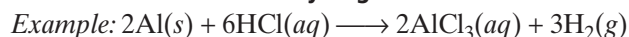


COMMON REACTIONS

The reaction chemistry of boron differs greatly from that of the other members of this family. Pure boron is a covalent network solid, whereas the other members of the family are metallic crystals in pure form. Boron resembles silicon more closely than it resembles the other members of its family.

With Strong Bases to Form Hydrogen Gas and a Salt

Ga also follows this pattern.

With Dilute Acids to Form Hydrogen Gas and a Salt

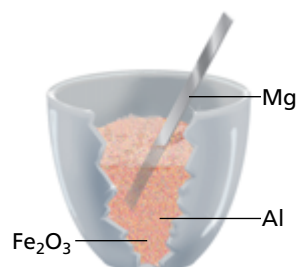
Ga, In, and Tl follow this pattern in reacting with dilute HF, HCl, HBr, and HI.

With Halogens to Form Halides

B, Al, Ga, In, and Tl also follow this pattern in reacting with F_2 , Cl_2 , Br_2 , and I_2 (except BF_3).

With Oxygen to Form Oxides

Ga, In, and Tl also follow this pattern.



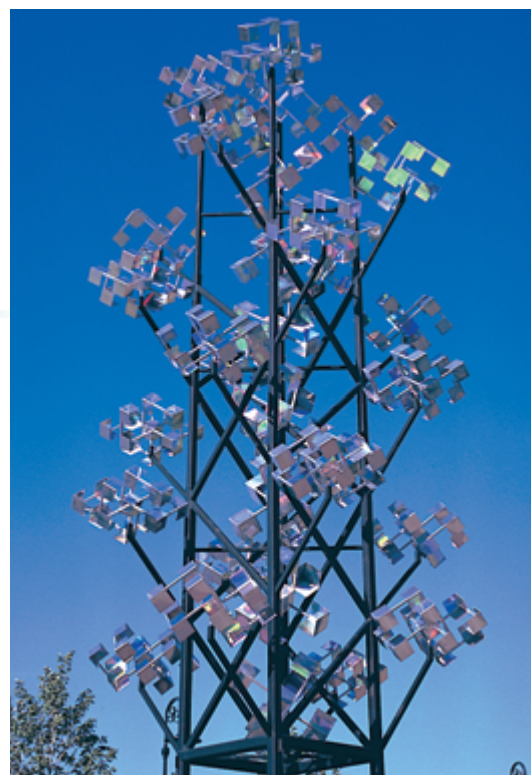
A mixture of powdered aluminum and iron(III) oxide is called thermite. Al reacts with Fe_2O_3 using Mg ribbon as a fuse to provide activation energy. The energy produced by the thermite reaction is sufficient to produce molten iron as a product.



ANALYTICAL TEST

Other than atomic absorption spectroscopy, there is no simple analytical test for all the members of the boron family.

The confirmatory test for the presence of aluminum in qualitative analysis is the red color formed by aluminum and the organic compound aluminon, $\text{C}_{22}\text{H}_{23}\text{N}_3\text{O}_9$.



Aluminum forms a thin layer of Al_2O_3 , which protects the metal from oxidation and makes it suitable for outdoor use.