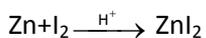


What happens when zinc, iodine and acidified water are mixed? Is there a reaction? If a reaction does take place, will the chemical and physical properties of the new substance be the same or different from iodine and zinc?

Answer:



The appearance of ZnI_2 is white powder different from iodine (dark brown crystals) and zinc (light grey granule or grey powder).

The anhydrous form is white and readily absorbs water from the atmosphere.

The structure of crystalline ZnI_2 is unusual, and while zinc atoms are tetrahedrally coordinated, as in ZnCl_2 , groups of four of these tetrahedra share three vertices to form "super-tetrahedra" of composition $\{\text{Zn}_4\text{I}_{10}\}$, which are linked by their vertices to form a three dimensional structure. These "super-tetrahedra" are similar to the P_4O_{10} structure.

The melting point and boiling point for ZnI_2 are 446 °C and 1150 °C decomp. respectively. ZnI_2 is well soluble in water 450 g/100mL (20 °C), different I_2 weak soluble in water.