

IV.—PROPERTIES.

A. bluish-white, very bright metal of medium hardness, malleable at a temperature between 100° and 150° but otherwise more or less brittle (so brittle at 200° can be powdered); melts at 423°, and begins to boil at a bright red heat, and burns with a bluish-green flame, giving off white fumes of Zinc Oxide, ZnO. Exposed to the air it loses its metallic glance—a thin coating of the oxide forming on its surface, which resists further action. Iron covered by it is said to be "galvanized." Brass is an alloy of one part Zinc and two Copper. German Silver is an alloy of Zinc, Nickel and Copper. Zinc dissolves in dilute Hydrochloric and Sulphuric acids with evolution of Hydrogen gas; in dilute Nitric acid with evolution of Nitrous Oxide N ₂ O; in more concentrated Nitric acid with evolution of Nitric Oxide, NO.	A reddish-white (whitish-grey), dull, very hard (scratches glass), brittle, difficultly fusible metal. It oxidizes rapidly in air; decomposes water at the ordinary temperature with the evolution of Hydrogen; must be kept under naphtha or in sealed tube. It has no use in the arts. An alloy of Manganese and Iron is used in the manufacture of Steel. Some of its oxides are used to evolve Chlorine from Hydrochloric acid and to tint glass a purple colour. It dissolves readily in acids forming Manganous Salts.	Nickel in the fused state is a yellowish-white (inclining to grey), hard, malleable, tenacious, difficultly fusible, strongly magnetic (losing this property when heated to 350° C) metal. It does not oxidize in the air at the ordinary temperature, it slowly oxidizes upon ignition. It slowly dissolves in Hydrochloric acid and dilute Sulphuric acid upon the application of heat with the evolution of Hydrogen gas. It dissolves readily in Nitric acid. The solutions contain Nickelous Salts.	Cobalt in the fused state is a steel-grey, hard, malleable, tenacious, difficultly fusible (infusible as iron), strongly magnetic metal which is susceptible of a fine polish. Same, but oxidizes at a red heat.	Metallic iron in the pure state, has a light, whitish-gray color. The metal is hard, lustrous, malleable, ductile, very difficultly fusible, crystallizable (cubes); is attracted by the magnet; has a granular or crystalline structure when uniformly hammered, a fibrous when rolled in bars. Long continued vibration changes the fibrous condition to the crystalline (cause of the sudden snapping of railway axles). It becomes soft before it melts, hence, two clean surfaces of the hot metal may be 'welded' if hammered together. In contact with air containing moisture, a coating of rust, Ferric Hydroxide Fe ₂ (OH) ₆ forms on its surface. Heated in air or plunged in oxygen gas, it burns, forming black ferrosferic
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