

phate of zinc by the ioduret of barium in solution, filtering, crystallizing, and evaporating to dryness, or by heating a mixture of 20 parts of zinc with 170 parts of iodine to sublimation in a phial. It is then a salt, in white, deliquescent needles, very soluble in water, and of a styptic disagreeable taste.

Ointment of Ioduret of Zinc.

Dr. Ure (Dictionary of Chemistry) proposes to substitute this ointment for that of the hydriodate of potass: his formula is the following:—

Ioduret of zinc 1 gros.
Lard 1 once.

The weight of a *gros* to be used in friction once or twice a day.

BROMINE.

Bromine, discovered by M. Balard, has been found in saline mother-waters, in sea-water, and many springs, in aquatic animals and vegetables, and in a great number of marine substances.

It is obtained by passing a current of chlorine into the saline mother-waters and pouring a stratum of sulphuric ether on the surface of the liquor; the ether takes up the bromine. This solution shaken with potass gives a bromuret, which being collected, dried, mixed with peroxide of manganese, and treated with diluted sulphuric acid, gives out, on distillation, a vapour: this condensed is bromine.

Physical and Chemical properties of Bromine.

Seen by refracted light and in a thin layer, it is a hyacinthine red fluid; by reflected light it is blackish red.

It easily volatilizes in vapours and has a suffocating odour resembling that of oxide of chlorine; it stains the skin yellow, is heavier than sulphuric acid, has a density of 2,966, freezes at a cold of eighteen or twenty degrees, and is undecomposable by heat and electricity. It has a strong analogy with chlorine and iodine, and stands between them, being forced from its combinations by the former, while it displaces iodine from its compounds.

It gives two acids, with oxygen and with hydrogen, or bromic and hydrobromic acids. The latter affords various salts with bases; these are hydrobromates or bromurets.

Preparation of Bromurets.

Most of these are obtained by the bromuret of iron in solution.

Perbromuret of Iron.—Heat under water a mixture of one part of bromine and one of iron filings; on the fluid becoming greenish, filter, evaporate to dryness, and the reddish residue taken up by water and evaporated, gives the perbromuret, which is a brick-red salt, very soluble, deliquescent, and has an excessively styptic taste.

Bromuret of Calcium is procured in the same manner as ioduret of calcium, substituting bromuret of iron in solution for ioduret of iron. It is composed of silky, white, and very deliquescent needles, and has a hot taste like that of chloruret of calcium.

Bromuret of Magnesium.—Heat the solution of bromuret of iron with an excess of caustic magnesia, filter, and evaporate. The salt is in prismatic needles, which are deliquescent and bitter.

Bromuret of Barium is obtained in the same manner as ioduret of barium, and is in rhomboidal prisms, is less deliquescent than the preceding salts, and has a nauseous taste.

Deuto-Bromuret of Mercury is procured by the direct combination of bromine with mercury and by sublimation. *Proto-Bromuret of Mercury* is very volatile, exceedingly soluble, and crystallizes in silky, pearly needles.

The *Bromurets of Potassium and Sodium* are got, by decomposing bromuret of iron by the carbonates of potass and soda, filtering, and evaporating.

Medicinal employment of Bromine.

I have made many successful trials, founded on the analogy between the properties of iodine and bromine. I give bromine in cases where iodine does not appear to be sufficiently active, or where patients have become accustomed to the latter. In the hospital I employ it in scrofula, in amenorrhœa, and hypertrophy of the cardiac ventricles. The formulæ are:

Mixture of Hydrobromate of Potass.

Distilled lettuce water	3 ounces.
Hydrobromate of potass	12 grains.
Syrup of marsh mallow	1 ounce.

To be taken in twenty-four hours, in doses of five drachms.

Bromuret of Iron Pills.

Powdered bromuret of iron	12 grains.
Conserve of roses	18 grains.
Gum Arabic	12 grains.

Divide in twenty pills, and take two morning and evening.

Bromine Ointment.

Lard	1 ounce.
Hydrobromate of potass and soda.....	34 grains.

Mix well, and use it in friction on scrofulous swellings, in quantities of half a *gros* or a *gros*.

Ointment of the Bromuretted Hydrobromate of Potass.

Refined lard.....	1 ounce.
Hydrobromate of potass.....	24 grains.
Liquid bromine	6 to 12 gros.

To be used in friction.

Further researches will doubtless establish the great therapeutical properties of bromine.

 CHLORINE.

Guyton Morveau was the first to use chlorine as a disinfecting agent, and as such it has been and is in frequent use; but it is never used pure in medicine except in asphyxia from sulphuretted hydrogen gas. Chlorine in mixture with aqueous vapour is employed in the treatment of pulmonary consumption and other affections of the chest. At the temperature of 20° and under a pressure of 0,75m. water dissolves once and a half its own volume of chlorine.

To prepare the aqueous solution of Chlorine.

Mix one part of peroxide of manganese with five or six parts of a solution of muriatic acid in water, place them in a matras, to the neck of which a bent tube is affixed that passes into Wolf's apparatus of three or four bottles: the saturated water of the two last alone is to be used. Sixty *grammes* of oxide of manganese produce nearly twenty *litres* of chlorine.

It may be also made from one part and a half of common salt, one part of per-oxide of manganese, two parts of concentrated sulphuric acid, and two parts of water—to which mixture, heat is applied until no more chlorine is disengaged.

Chlorine water should be carefully preserved in small stopped bottles covered with black paper, and not