

Poisons.**THEIR SOURCE, USE, AND ANTIDOTES.**

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TABLE I. (*continued*)—ORGANIC ACIDS AND SALTS.*Prussic Acid.*

Hydrocyanic acid dilute, commonly called prussic acid (formula HCN), is an acid containing 2 per cent. by weight of pure hydrocyanic acid. The Pharmacopœia says it may be prepared by the interaction of dilute sulphuric acid and potassium ferrocyanide. Not only is this the official method, but commercially it is obtained in the same manner.

As early as the seventeenth century this acid was prepared by Scheel. About that time investigations on a recently discovered method of preparing a blue powder for use as a colour were occupying the attention of chemists, and, while engaged on a preparation to which they had given the name prussic blue, prussic acid was accidentally discovered by Scheel, and afterwards prepared in a pure state by him. Soon after this it received its name, and up to the present day it is still known by it, although when its chemical composition was better understood it had the scientific name given of hydrocyanic acid.

Scheel's method of preparing the acid was different to the one now employed for the official HCN, but one bearing his name is still made by much the same process. It contains about 4 to 5 per cent. of the pure HCN.

It can also be made by treating chloroform with ammonia.

It occurs in Nature in many substances—in bitter almonds, in cherry laurel leaves, in kernels of the peach, plum, and cherry, in the apple pip.

It is a very volatile liquid, with a characteristic odour. The vapour is as poisonous as the liquid itself, and should only be smelt with caution.

Hydrocyanic acid was known to the Egyptians, or at least the fact that the peach contained a poisonous substance, as on a papyrus was discovered a command, for the breaking of which the culprit was threatened with the punishment of "the peach," apparently proving also that the ancients knew of the art of distillation.

The dose of prussic acid is 2 to 4 min.

Cherry laurel water contains 1 per cent.—*i.e.*, one-tenth per cent. of HCN. The dose is $\frac{1}{2}$ to 2 drachms. Tincture chloroform and morphine contains prussic acid.

There is a vapour of HCN, but it was removed from the Pharmacopœia when the last edition was published.

All medicines containing HCN are always labelled "Shake the bottle," as it is so very volatile that it soon rises to the top, and consequently requires to be well shaken before use.

Prussic acid is used in the arts in galvanic silvering and gilding of metals. In medicine it is given as a sedative to allay vomiting and nervous cough; also in many cases of dyspepsia. It is sometimes ordered in preparations for external use, as lotions for skin trouble where there is great irritation.

In cases of poisoning by prussic acid, the action is so rapid that antidotes are of little use. Injections of atropine are used by medical men when practical. Cold affusions should be applied to the spine, inhalation of ammonia, artificial respiration, and the stomach-pump used.

The intensely poisonous nature of the vapour must be borne in mind, as deaths have occurred simply from inhaling it; if the acid comes in contact with a wound or broken skin it rapidly diffuses into the blood.

Of the deaths from poisoning that take place, a good proportion are from this acid.

Cyanide of Potassium and all Metallic Cyanides.

It is prepared by heating ferrocyanide at a red heat until gas ceases to be evolved, allowing the sediment to subside in the molten mass, and pouring off the clear liquid, which, when cold, becomes solid.

The purest cyanide of potassium is obtained by passing the vapour of hydrocyanic acid into a solution of caustic potash in absolute alcohol, when the cyanide is deposited in small crystals.

It is a white substance, seen in opaque masses; it has the odour of hydrocyanic acid; its formula is KCN. Among the metallic cyanides are the following:—cyanide of ammonia, barium, calcium, mercury, silver, and several others; but the potassium salt is the only one recognised by the British Pharmacopœia. There is no official dose or use for it, but until quite recently its official use was in the purification of bismuth.

Practically, it is a chemical of little importance in the medical world.

In times past it was more used, and prescribed internally in very minute quantities; the dose given would be about one-tenth of a grain. Its action is similar to that of prussic acid, and when prescribed, it would be for the same reason. Old writers considered in some cases of headache that the cyanide of potassium was more effective than the acid itself.

It can also be used for external purposes, when it relieves irritation; it may be ordered either in an ointment or as a lotion. It is a highly poisonous substance; great care should be observed in using it.

Commercially it is frequently employed for various different objects. In the laboratory it is used as a reducing agent, as it is capable of extracting oxygen from many oxides, itself being converted into potassium cyanate, KOCN. It is used in large quantities in mines. Used also in photography and electro-plating.

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