The Acid Sulphate of Hydroxylamine.

By

Edward Divers, M, D., F. R. S. *Prof.*

Imperial University.

It is somewhat remarkable that although several hydrochlorides of hydroxylamine have been described by Lossen, the acid sulphate seems never to have been obtained.

It is well known that if more sulphuric acid is present in an aqueous solution of hydroxylamine than is sufficient to constitute the normal salt, the addition of alcohol will cause this and not the acid salt to crystallise out, just as when added to acid ammonium sulphate it will precipitate the normal sulphate. Without this addition of alcohol, a too-acid solution of hydroxylamine sulphate often refuses to deposit anything. By attention, however, to a few details, it can be brought to yield crystals of the acid sulphate.

Solid hydroxylamine hydrochloride is to be treated with, as near as may be, the quantity of sulphuric acid calculated to form the acid salt, $(NH_3O)HSO_4$. The mixing is effected in a dish sufficiently large to avoid loss by frothing over, and this is heated for some hours on the water bath until all hydrochloric acid has been expelled. The resulting clear solution becomes viscid when cold. It refuses to yield the normal sulphate when a particle of this salt is dropped on its surface, and slowly dissolves it. But left to stand uncovered in a dry cold atmosphere, and the vessel occasionally moved about, crystallisation suddenly sets in and the solution becomes traversed by long prisms

which almost fill it. Left in a desiccator for a couple of days more, it becomes a translucent cake of damp crystals. The crystals are very deliquescent and, after crushing and pressure between porous tiles, yield results on analysis which prove them to be the acid sulphate of hydroxylamine.

The analysis of the salt was effected by titrating it with sodium hydroxide, with methyl orange as indicator, since to this the normal sulphate is neutral. The sulphuric acid was weighed as barium sulphate.

	Calc.	Found
Hydroxylamine	25·19	24·02
Sulphuric acid	74·81	72·68
	100·00	96·70