

## THE PRODUCTS OF SO<sub>2</sub> INTERACTION WITH AQUEOUS SOLUTIONS OF METHYLAMINE, BENZYLAMINES, 1,2-DIAMINES AND MORPHOLINE

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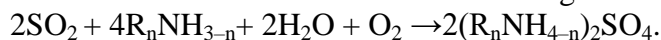
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The new method of preparation of sulphur oxoanions “onium” salts via interaction in the SO<sub>2</sub>-L-H<sub>2</sub>O-O<sub>2</sub> systems (L is methylamine, benzylamines, 1,2-diamines, and morpholine) has been developed. “Onium” sulfates have been obtained from methylamine, benzylamine, α-phenylethylamine, N,N-dimethylbenzylamine, dibenzylamine, 1,2-ethylenediamine, morpholine, N,N,N',N'-tetramethylethylenediamine; sulphites monohydrates – from piperazine and N-(hydroxyethyl)ethylenediamine; dithionate – from piperazine and N,N,N',N'-tetramethylethylenediamine. The compounds were characterized by elemental analysis, X-ray diffraction, IR, Raman spectroscopy, mass spectrometry, and differential thermal analysis.

The crystal structures of new salts methylammonium sulphate (I), α-phenylethylammonium sulfate (II), piperazinium sulphite monohydrate (III) and dithionate (IV), morpholinium sulphate monohydrate (V) have been determined by X-ray diffraction. The structures I – V are stabilized by numerous H-bonds NH···O, OH···O. New examples of stabilization of sulfate anion in the form of alkylammonium salts prepared in the SO<sub>2</sub>-L-H<sub>2</sub>O-O<sub>2</sub> systems (L were amines) have been demonstrated. The formation of “onium” sulfates is the result of interaction following the formal scheme:



The fact the structurally studied organic sulfites are exhausted by tetramethylguanidinium hydrosulfite (I) [1] and aminoguanidinium sulfite monohydrate [2], N-(2-hydroxyethyl)ethylenediammonium sulfite monohydrate [3] seems to be due to the ease for the sulfites to convert into dithionates and sulfates as a result of “autooxidation” [4].

1. D.J. Heldebrant, C.R. Yonker, P.G. Jessop, L. Phan, *Chem.-Eur. J.* 15, 7619 (2009).

2. R.E. Khoma, V.O. Gelmboldt, V.N. Baumer, et al., *Russ. J. Inorg. Chem.* 58, 843 (2013).

3. R.E. Khoma, V.O. Gelmboldt, O.V. Shishkin, et al., *Russ. J. Inorg. Chem.* 59, 541 (2014).

4. R.E. Khoma, A.A. Ennan, V.O. Gelmboldt, et al., *Russ. J. Gen. Chem.* 84, 637 (2014).

