REACTION OF SULFUR TETRAFLUORIDE WITH PERFLUOROPINACOL

L. Yu. Kryukova, L. N. Kryukov, A. F. Kolomiets, G. A. Sokol'skii, and I. L. Knunyants

UDC 542.91 : 547.422.26'161 : 546.22'161

The reactions of SF<sub>4</sub> with organic compounds containing hydroxyl, carbonyl, and carboxylic groups are well studied and serve as the general method of producing compounds containing carbon and fluorine [1, 2].

We established that the reaction of SF<sub>4</sub> with perfluoropinacol is accomplished by another route: the original components react in a 1:2 ratio, and at  $20^{\circ}$ C the corresponding spirosul-furan (I) is formed with a yield of 85.4%:

 $2 \begin{array}{c|c} (CF_3)_2C - OH \\ 2 \\ (CF_3)_2C - OH \end{array} + SF_4 \rightarrow \begin{array}{c|c} (CF_3)_2C - O & O - C(CF_3)_2 \\ S \\ (CF_3)_2C - OH \end{array} \\ (CF_3)_2C - O & O - C(CF_3)_2 \end{array}$ 

Spirosulfuran (I) is identified by <sup>19</sup>F NMR spectrum (multiplets -8.75 and -10.89 ppm, inner standard CF<sub>3</sub>COOH) and by mass spectrum, obtained earlier (with a yield of 18-58% by condensation of SCl<sub>2</sub> with perfluoropinacol [3] or with its disodium salt [4]) and isolated in the form of crystals with mp 65.5-67°C and 51 5-53°C, respectively. We established that freshly prepared spirosulfuran (I) has a mp of 53-53.5°C, and upon standing is converted to some polymorphic form with a higher melting temperature (after 15 to 20 days the mp is 65-66°C).

## LITERATURE CITED

- 1. L. M. Yagupol'skii, L. I. Burmakov, and L. A. Alekseeva, Reactions and Methods of Investigation of Organic Compounds [in Russian], Khimiya, 22, 40 (1971).
- 2. G. A. Boswell, Jr., W. C. Ripka, R. M. Scribner, and C. W. Tullock, Org. Reactions, 21, 1 (1974).
- 3. G. Astrologes and J. C. Martin, J. Am. Chem. Soc., 98, 2895 (1976).
- 4. M. Allan, A. F. Janzen, and C. J. Willis, Can. J. Chem., 46, 3671 (1972).

Institute of Heteroorganic Compounds, Academy of Sciences of the USSR, Moscow. Translated from Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No. 8, p. 1913, August, 1979. Original article submitted April 10, 1979.