## HYDROXYMETHYLATION AND AMINOMETHYLATION

## OF 2-MONOHYDROPERFLUOROISOBUTANE

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It was shown by us that the gamut of the reactions of 2-monohydroperfluoroisobutane (I) involving the active methine group [1,2] can be expanded. Thus, the reaction of (I) with a slight excess of paraform and 0.2 mole of triethylamine (55 h, at 100°) gave perfluoro-tert-butylcarbinol (II), which was also synthesized from the methyl ester of perfluoropivalic acid (III); m.p. of (II) = 105°. Found %: C 24.00; H 1.23.  $C_5H_3F_9O$ . Calculated %: C 24.00; H 1.20. Phenylurethane, m.p.77.5-78.5° (hexane). Found %: F 46.18; N 3.79.  $C_{12}H_8 \cdot F_9NO_2$ . Calculated %: F 46.34; N 3.79.

$$\begin{array}{c} (\operatorname{CF}_3)_3\operatorname{CH} + (\operatorname{CH}_2\operatorname{O})_n \xrightarrow{(\operatorname{C}_2\operatorname{H}_5)_3\operatorname{N}} (\operatorname{CF}_3)_3\operatorname{CCH}_2\operatorname{OH} \xleftarrow{\operatorname{LiAlH}_4} (\operatorname{CF}_3)_3\operatorname{CCOOCH}_3 \\ (\operatorname{II}) & (\operatorname{III}) \end{array}$$

The reaction of (I) with excess hexamethylenetetramine in the presence of 1.1 moles of triethylamine for 27 h at 100° gave 1,3,5-tris-(perfluoro-tert-butyl)hexahydro-symm-triazine (IV) in 24% of the theoretical yield, m.p. 150-151° (CCl<sub>4</sub>). Found %: C 27.25; H 1.52; F 66.14; N 5.40.  $C_{18}H_{12}F_{27}N_3$ . Calculated %: C 27.58; H 1.53; F 65.52; N 5.36. NMR spectrum:  $\delta$  3.2 p.p.m. (singlet, CH<sub>2</sub> in the side chain),  $\delta$  3.6 p.p.m (singlet, CH<sub>2</sub> in the ring).

$$(CF_3)_3CH + \begin{pmatrix} CH_2 & CH_2 & CH_2 \\ CH_2 & CH_2 \\ CH_2 & CH_2 & CH_2 \\ CH_2 & CH_2 & CH_2 \\ CH_2 &$$

## LITERATURE CITED

- 1. L. Knunyants, S. T. Kocharyan, and E. M. Rokhlin, Izv. AN SSSR Ser. khim., 1966, 1057.
- 2. S. T. Kacharyan and G. D. Kolomnikova, Izv. AN SSSR, Ser. khim., 1966, 1288.

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