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SHORT COMMUNICATIONS

Synthesis of *N*-acryloyloxyethylacrylamide

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Compounds possessing two double bonds serve as initial compounds for preparation of polymeric ionites [1], hygrogels [2], vulcanizates, and varnishes [3, 4]. However the choice of the polyfunctional monomers available is limited.

This study concerns acylation of monoethanolamine (**I**) with a goal to prepare a compound with two remote double bonds separated by a fragment $CONHCH_2CH_2OCO$.

N-substituted (meth)acrylamides are known to form at acylation of aminoalcohols with (meth)acryloyl chlorides [5, 6]. Taking into account the presence in the molecule I of amino and hydroxy groups capable of acylation we carried out the reaction of compound **I** with a double excess of acryloyl chloride (**II**).

The composition and structure of *N*-acryloyloxyethylacrylamide (**III**) synthesized was proved by elemental analysis, IR and ^{1}H NMR spectra.

Since the amino group of compound **I** is more basic than the hydroxy group the acylation first occurs at the former. Experiments showed that at he deficit of the acylating agent or at insufficient stirring arose the monoacylated product, hydroxyethylacrylamide.

***N*-Acryloyloxyethylacrylamide (III).** To a soluion of 12.2 g f compound **I** in 20 ml of chloroform was added 27.6 g of potassium carbonate and 1 g of hydroquinone. At cooling while constant stirring was added a solution of 40.7 g of compound **II** in 50 ml of chloroform. The reaction mixture was left standing to the end of gas liberation. The liquid as separated from the precipitate, chloroform was istilled off, and the residue was distilled in a vacuum to furnish 20.2 g (60%) of compound **III**, bp 58–60°C (5 mm Hg), d_4^{20} 1.0454, n_D^{20} 1.4731. IR spectrum, cm^{-1}: 1640 (C=C), 1720 (C=O), 2800–3500 (CONH). ^{1}H NMR spectrum, δ, ppm: 3.5 m (2H, N–CH_2), 4.1 t (2H, O–CH_2), 5.5–6.5 m (6H, 2CH_2=CH), 7.9 m (NH). Found, %: C 56.60; H 6.80; N 8.12. $C_8H_{11}NO_3$. Calculated, %: C 56.80; H 6.50; N 8.28.

IR spectra were recorded on spectrometer Specord IR 75 from thin films. ^{1}H NMR spectra were registered on Varian XL-100-12 instrument from solutions in $CDCl_3$, internal reference HMDS.

REFERENCES

1. *Entsiklopediya polimerov* (Encyclopedia of Polymers), Moscow: Sovetskaya entsiklopediya, 1972.
2. Marek, O. and Tomka, M., *Akrilovye polimery* (Acrilic Polymers), Moscow, 1966.
3. Volodina, V.I., Tarasov, A.I., and Spasskii, S.S., *Usp. Khim.*, 1970, vol. 39, pp. 276–282.
4. Arbuzova, I.A., *Vysokomol. Soed.*, 1966, no. 8, pp. 926–929.
5. *Sintez novykh monomerov* (Synthesis of New Monomers), Askarov, M., Ed., Tashkent: Fan, 1973.
6. Jedlinski, Z. and Paportny, J., *Roczn. Chem.*, 1966, no. 9, pp. 40–46.

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