NEW CATIONIC SURFACTANTS FROM HEXAHYDROAZEPIN. S. Lippmann (VEB Fettchemie, Karl Marx-Stadt, Germany). *Tenside* 3, 181–2 (1966). Various methods for preparing tertiary aliphatic hexahydroazepins are discussed. A modified Leuckart-Wallach reaction is given for the synthesis of tertiary aromatic and heterocyclic hexahydroazepins. By quaternization with various aliphatic or aromatic agents one can prepare the corresponding quaternary hexahydroazepinium compounds from the tertiary amines. Optimum reaction conditions are given. These quaternary compounds were examined for their bactericidal and bacteriostatic activity. The effect of the alkyl chain and of substituents in the benzene ring was also studied.

EVALUATION OF THE TWO-PHASE TITRIMETRIC DETERMINATION OF ANIONIC SURFACTANTS. K. W. Han (Unilever Res. Lab., Vlaardingen, The Netherlands). *Tenside* 3, 265–9 (1966). A theoretical basis is presented for the usual methods of two-phase titration of anionic surfactants, of which the so-called Epton titration is probably the most widely used. Equations are given for the systematic titration errors which occur when heavy quaternary ammonium compounds are used to determine anionic surfactants. By proper choice of end-point indicator it is possible to reduce these errors to a minimum. The selective determination of individual surfactants and of anionic surfactant combinations in mixtures is discussed, with examples of the effect of various indicators on the determination of lower and higher molecular weight surfactants.

THE SYNTHESIS OF PHENYL DODECANE SULPHONATES, THEIR SURFACE ACTIVE PROPERTIES AND DETERGENT POWER OF THEIR SOLUTIONS. F. W. Newolin *et al.* (Inst. Fat Res., Leningrad, U.S.S.R.). *Tenside* 3, 186–7 (1966). The secondary phenyl dodecanes with the phenyl radical in the 1,2,3,4,5 and 6 position have been synthesized and sulfonated. Surface activity, wetting and detergent power of these compounds were determined as a function of the position of the phenyl radical in the alkyl chain. Surface activity and wetting power increase as the phenyl radical migrates toward the middle of the chain, while detergent power is best for the 1-, 2- and 3-isomers.

RAPESEED OIL AS STARTING MATERIAL FOR THE PRODUCTION OF SURFACE ACTIVE AGENTS. H. Tischer and P. Hahn (VEB Deutsches Hydrierwerk, Rodleben, Germany). *Tenside* 3, 184 (1966). The fatty alcohol produced by selected hydrogenation of rapeseed oil contains a high proportion of erucyl alcohol (C-22:1). The surface active agents produced by sulfation and by ethoxylation of this material have been studied and compared to other alcohol-derived surfactants of lower molecular weight. The detergent power of derivatives of pure erucyl alcohol is lower than that of the corresponding derivatives of oleyl alcohol. Mixtures of oleyl and erucyl alcohols, as are naturally obtained from rapeseed oil, produce materials with satisfactory surface active properties and appear to be a promising raw material for commercial applications.

THE ANALYSIS OF SURFACTANTS BY MEANS OF ALTERNATING CURRENT POLAROGRAPHY. P. Dietrich (Germ. Sci. Acad., Berlin, Germany). *Tenside* 3, 188–9 (1966). Alternating current polarography is based on the adsorption and desorption of surface active compounds on a dropping mercury electrode with variable direct current voltage and superimposed, constant alternating current. The alternating current resulting from this process is recorded or measured and this provides a means for determining almost all ionic and non-ionic surfactants by a single method, which can be applied to a concentration range of about 1–30 mg/l. Results obtained by the polarographic method are in good agreement with those obtained by a chemical method, such as a two-phase titration.

SOME DERIVATIVES OF SUCROSE III. APPLICATIONAL PROPERTIES OF SUCROSE-N-N-ALKYL URETHANES. W. Gerhardt (Berlin, Germany). *Tenside* 3, 141–4 (1966). Long chain sucrose-N-n-alkyl urethanes possess good surface activity, excellent soil suspending capacity and colloid stabilization. They are suitable for use as active ingredients in heavy duty detergent formulations, comparable to current commercial products. These actives foam only moderately and are therefore well suited for washing machine products. The optimum detergent power is observed at 60–80C and its is largely unaffected by water hardness. Best results are obtained with sucrose-N-n-dodecyl urethane and its C_{14} homologue.

INTERFACIAL AND VOLUME CHARACTERISTICS OF SURFACTANT SOLUTIONS. P. A. Rehbinder (Sci. Acad. of U.S.S.R., Moscow, U.S.S.R.). *Tenside* 3, 191–2 (1966). Several methods of char-

(Continued on page 39A)

• *New Members*

Active

Michael H. Brodnitz, Project Leader, International Flavor and Fragrances, New York, N.Y.

Ralph D. Ellefson, Research Chemist, Mayo Clinic, Rochester, Minn.

Peter J. Kass, Armour & Co., Chicago, Ill.

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Leo J. Monty, Engineer, Artisan Industries Inc., Waltham, Mass.

Norman Samuel Radin, Research Biochemist, University of Michigan, Ann Arbor, Mich.

Herbert L. Rothbart, Research Chemist, Eastern Regional Research Laboratory, Philadelphia, Pa.

Silloo Manek Vachha, Research Associate, Burnsides Research Laboratory, University of Illinois, Urbana, Ill.

Correction: Harold Russell, Research Section Manager, Unilever, Warrington, Lancashire, England.

Glycerine Producer's Report

According to the U.S. Department of Commerce, production of crude glycerine (including synthetic) for November 1966 totalled 33.2 million pounds, up 2.1 million pounds from October, and up 3.3 million pounds from November last year.

At the end of November, producers' stocks of crude and refined glycerine totalled 38.2 million pounds, down 0.3 million pounds from the end of October (revised), and down 11.9 million pounds from November, 1965.

A minor revision was made in the October crude glycerine stocks figure. This figure now stands at 16.1 million pounds versus the 15.9 million pounds originally reported, thereby, raising the crude and refined stocks total from 38.3 to 38.5 million pounds.

Exports of crude and refined glycerine in November 1966 totalled 4,307,526 pounds (100% basis). When import figures become available, the regular GL-1 report will be issued.

November
(Million Pounds)

Preliminary

	Factory Production		Producers' Stocks	
Glycerine 100% basis	Nov. 1966	% Change from Oct. 1966	End of Nov. 1966	% Change from Nov. 1966
Crude	33.2*	+6.8	14.2	−11.8
Refined All Grades	35.2	+8.6	24.0	+ 7.1
			38.2	− 0.8

* Includes synthetic glycerine