

0.001 *M* cadmium in 0.1 *M* potassium chloride (0.01% gelatin), and oxygen in 0.1 *M* potassium chloride (0.01% gelatin). A hand fabricated capillary (1.63 mg.^{3/4} sec.^{-1/2}) and marine barometer tubing (2.05 mg.^{3/4} sec.^{-1/2}) were used. The current time curves were approximately one-third order parabolas with a slight discontinuity after about the first 0.3 sec. (drop time 0.4 sec.). The log *i* vs. log *t* plot was approximately a straight line in each case. The average slope was 0.29 and not 0.17 as required by Ilkovič. The ratio of maximum current to average current (determined graphically) had a mean value of 1.29 instead of 1.17. It is of interest to note that Schulman, Battey and Gelatis⁴ using a much slower recorder obtain a value of 1.25 for this ratio. Assuming the new current time relationship, the author was now able to accurately calculate the average current for a given applied e. m. f. and large series resistance.

In this preliminary communication, it is not possible to discuss the theoretical aspects of this study.

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The above work forms part of the programme of Food Preservation Investigations of the Council.

(4) J. H. Schulman, H. B. Battey and D. B. Gelatis, *Rev. Sci. Instruments*, **18**, 226 (1947).

COUNCIL FOR SCIENTIFIC AND
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PHOTOBROMINATION OF METHYLSILOXANE FILMS ON GLASS SURFACES

Sir:

Methylchlorosilanes¹ are used for the production of hydrophobic films on glass and ceramic surfaces. It is supposed that molecules of the type Si(CH₃)₂Cl₂ are hydrolyzed to form a coating consisting of one or several layers of —Si(CH₃)₂—O—Si(CH₃)₂— chains with an exposed surface of —CH₃ groups.²

We have speculated that it should be possible to bring about photobromination, photochlorination or other reactions of the —CH₃ groups on the surface. Following halogenation still different functional groups might be introduced by processes such as the Friedel-Crafts reaction, thus altering the surface properties to meet specific requirements.

Our initial tests have demonstrated that the silicone surface can be photobrominated.

(1) Obtained for this work from the General Electric Co. under the designation Dri-Film 9987.

(2) Francis J. Norton, *Gen. Elec. Rev.*, **47**, no. 8, 6 (1944); Eugene G. Rochow, "Introduction to the Chemistry of the Silicones," John Wiley and Sons, Inc., New York, N. Y., 1946.

Test samples consisted of Pyrex and soft glass surfaces rubbed with the liquid silicone on a cotton swab. These specimens were exposed to radiobromine³ vapor at a pressure of about 10 mm. The air pressure in the flask was less than a millimeter; some water vapor was present. The samples were illuminated for one hour by a 1000-watt Mazda bulb placed about two inches from the flask. The surfaces treated with silicone picked up ten to thirty times the amount of bromine required for the monobromination of each methyl group in an estimated monolayer.³ Very little pickup occurred in the absence of illumination or with glass which was not coated. Rubbing with a dry towel after exposure reduced the bromine on the surface to a difficultly removable residue equivalent to approximately one monobrominated monolayer, but prolonged washing with water or carbon tetrachloride had relatively little effect. Illumination in the presence of chlorine gas for one hour removed a large fraction of the bromine. Dilute sodium hydroxide solution removed 50% of the bromine from some samples in fifteen minutes but showed much slower attack when the equivalent of only one or two monobrominated monolayers was left on the surface.

These results suggest the potentialities of radiohalogens as tools for investigating silicone films and furnish preliminary evidence that it may be possible to alter siloxane surfaces to meet specific requirements by substitution reactions, after the application of the silicone to the surface.⁴

This work was supported in part by the Research Committee of the Graduate School from funds supplied by the Wisconsin Alumni Research Foundation.

(3) Item No. 11 United States Atomic Energy Commission Radioisotopes Catalog No. 2. The specific activity when received was sufficient to give 20,000 counts per minute from one square inch of sample covered by an estimated monomolecular film of 5×10^{-9} moles of silicone² if each of the —CH₃ groups was converted to a —CH₂Br group.

(4) A more complete discussion of these experiments is contained in the senior thesis of G. L. Vandervort filed with the library of the University of Wisconsin in June, 1948.

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THE CONFIGURATION OF STREPTOSE

Sir:

Crystalline ethyl N-acetyldihydrothiostreptobiosaminide¹ was demercaptalated with aqueous mercuric chloride and the product hydrogenated with Raney nickel catalyst at 95° and 100 atm. for seven hours to yield the crystalline N-acetyl-tetrahydrostreptobiosamine, m. p. 78–80°, $[\alpha]^{26}_D$ —104° (*c* 0.838, water).

(1) F. A. Kuehl, Jr., E. H. Flynn, N. G. Brink and K. Folkers, *This Journal*, **68**, 2096 (1946).