

BIBLIOGRAPHY OF SOME RECENT RESEARCH IN THE FIELD
OF HIGH POLYMERS. SUPPLEMENT TO LETTER CIRCULAR LC871

This supplement contains a reference list of papers which appeared in American and foreign scientific periodicals. The former cover the period from April 1947 to December 1947 inclusive. Foreign journals are included as available from May 1947 to December 31, 1947 in the Library of the National Bureau of Standards. The foreign literature has been covered in general for the period following the conclusion of the preceding circular. In some cases older issues have been included. Books and periodicals dealing exclusively with polymers have not been covered in this bibliography. The introduction to LC871 may be consulted for general information on the purpose and scope of this survey.

General Periodicals

"Die Makromolekulare Chemie" published by Karl Alber, Freiburg in Breisgau, Germany and Wepf & Company, Basel, Switzerland. The first issue appeared in September 1947.

Periodicals Devoting Special Issues to High Polymers

"Journal of Applied Physics" 18, No. 5 (1947), published monthly by the American Institute of Physics, 57 East 55th Street, New York, New York

Colloquium on High Polymers in Strasbourg. "Journal de Chimie Physique" 44, No. 1 and No. 2 (1947), published by the Société Française de Physique, 10 Rue Vanquelin, Paris 5^e, France.

I. Physical Properties of Bulk Materials

A. Rubbers

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James, H. M., "Statistical properties of networks of flexible chains", J. Chem. Phys. 15, 651 (1947)

James, H. M. and Guth, E., "Theory of increase in rigidity of rubber during cure", J. Chem. Phys. 15, 669 (1947)

Kubo, R., "Statistical mechanics of chain substances. I. A model consideration of the elasticity of rubber", J. Phys.-Math. Soc. Japan 17, 273 (1943)

Kubo, R., "Statistical theory of rubber-like substances", J. Colloid Sci. 2, 527 (1947)

Kuhn, W. and Künzle, O., "Experimental determination of the dynamic viscosity, elasticity, and the relaxation-time spectrum of rubber", Helv. Chim. Acta 30, 839 (1947)

Kuhn, W., Künzle, O., and Preissmann, A., "Distribution of relaxation times, elasticity and viscosity of rubber. I.", Helv. Chim. Acta 30, 307 (1947); II. 30, 464 (1947)

Kuhn, W., Pasternak, R., and Kuhn, H., "Mechanical and optical properties of swollen rubber", Helv. Chim. Acta 30, 1705 (1947)

Lukin, B. V. and Kasatochkin, V. I., "X-ray investigation of the crystallization of vulcanized rubber on stretching", J. Tech. Phys. (U.S.S.R.) 16, 1383 (1946)

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Treloar, L. R. G., "The photo-elastic properties of rubber. I. Theory of the optical properties of strained rubber", Trans. Faraday Soc. 43, 277 (1947); II. Double refraction and crystallization in stretched vulcanized rubber", Trans. Faraday. Soc. 43, 284 (1947)

B. Plastics

Daletskii, G. F., "Anisotropy phenomena in polystyrene with an oriented distribution of particles", Compt. rend. acad. sci. U.R.S.S. 54, 311 (1946)

Gloor, W. E., "Low temperature impact strength of cellulosic plastics", Ind. Eng. Chem. 39, 1125 (1947)

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Oakes, W. G., "Intrinsic electric strength of polythene", Nature 159, 29 (1947)

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Nickerson, R. F. and Habrle, J. A., "Cellulose intercrystalline structure", Ind. Eng. Chem. 39, 1507 (1947)

2. Synthetic Fibers

Fuchino, K. and Sakurada, I., "Studies of synthetic polyamides by means of x-rays", Sci. Papers Inst. Phys. Chem. Research (Tokyo) 40, 125 (1942)

Navarra, V., "The elastic properties of nylon 66", Materie plastice 13, 9 (1947)

3. General

Castillo, E. B., "Physicochemical study of cellulose, viscose, and fibers. IV.", Anales fis. y quim. (Madrid) 42, 149 (1947)

Rowen, J. W. and Blaine, R. L., "Sorptions of nitrogen and water vapor on textile fibers", Ind. Eng. Chem. 39, 1659 (1947)

Sakurada, I. and Fuchino, K., "Röntgenographic studies of synthetic high molecular compounds in fiber form", Sci. Papers Inst. Phys. Chem. Research (Tokyo) 39, 78 (1941)

D. General

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Flory, P. J., "Effects of cross-linking and branching on the molecular constitution of diene polymers", J. Am. Chem. Soc. 69, 2893 (1947)

Glatt, L. and Ellis, J. W., "Infrared dichroism in aligned polythene and 'parowax'", J. Chem. Phys. 15, 884 (1947)

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Pullman, B., "Electronic structure of polyethylene hydrocarbons", Compt. rend. 225, 61 (1947)

Taylor, W. J., "Average square length and radius of unbranched long-chain molecules with restricted internal rotation", J. Chem. Phys. 15, 412 (1947)

Thompson, H. W., "The study of macromolecules by infrared spectroscopy", J. Chem. Soc. 1947, 289

West, C. D., "Structure-optical studies. I. X-ray diffraction by addition compounds of halogens with hydrophilic organic polymers", J. Chem. Phys. 15, 689 (1947)

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Halsey, G., "Non-linear viscous elasticity and the Eyring shear model", *J. App. Phys.* 18, 1072 (1947)

Kuhn, W., "Relaxation-time spectrum of systems represented by any large number of elastic and frictional mechanisms acting partly in series and partly in parallel", *Helv. Chem. Acta* 30, 487 (1947)

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II. Solutions and Gels

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Hildebrand, J. H., "Entropy of solution of molecules of different size", *J. Chem. Phys.* 15, 225 (1947)

Münster, A., "Some properties of chain molecules in solution. III. Solvation of chain molecules: (Theory of solutions of high polymers. IV)", Z. Naturforschung 2a, 284 (1947)

Orr, W. J. C., "Statistical treatment of polymer solutions at infinite dilution", Trans. Faraday Soc. 43, 12 (1947)

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Waltz, J. E. and Taylor, G. B., "Determination of the molecular weight of nylon", Ind. Eng. Chem. Anal. Ed. 19, 448 (1947)

2. Osmotic Pressure

Castillo; E. B., "Macromolecular compounds; determination of their molecular weight", Ion 7, 310 (1947)

Doty, P. and Mishuck, E., "The temperature dependence of the osmotic pressure of polyvinyl chloride solutions", J. Am. Chem. Soc. 69, 1631 (1947)

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B. Oxidation and Degradation

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D. Other Reactions

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