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NATIONAL BUREAU OF STANDARDS

BIBLIOGRAPHY OF SOME RECENT RESEARCH IN THE  
FIELD OF HIGH POLYMERS  
(Letter Circular LC922--Supersedes LC871 and Supplement)

by

Robert Simha and Mary Budge

Washington 25, D. C.  
October 7, 1948



U. S. DEPARTMENT OF COMMERCE

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#### INTRODUCTION

This bibliography contains a reference list of papers which appeared in American and foreign scientific periodicals. The former cover the period of January 1946 to June 1948 inclusive. The foreign journals are included as available up to June 30, 1948 in the Library of the National Bureau of Standards. English periodicals are incorporated from 1945, Russian periodicals from 1943, Japanese periodicals from 1941 and the remainder from 1944. In some cases older issues have been included.

This survey incorporates and extends the material presented in Letter Circular LC871, August 1947, and Supplement to LC871, February 1948.

The material described deals with fundamental investigations of the chemistry and physics of certain classes of natural and synthetic organic high polymers. It is believed that the very nature of this project makes completeness an almost impossible task. Furthermore, it is often difficult to draw the line between research of a so-called "fundamental" and "applied" character. Nevertheless, we hope that this bibliography will fulfill two purposes: First, to provide a source of reference for the active worker in the fields covered, and second, to allow those concerned with related fields to acquaint themselves with recent developments.

The material has been arranged according to the main lines of research on high polymers currently being pursued. In some sections of the first part dealing with physical properties of bulk materials, various classes of high polymers are treated separately. No such division is warranted in the remainder of the bibliography according to modern concepts of high polymeric compounds.

The preparation of monomers are not considered here. Strictly speaking, substances such as proteins or starches

should be included in such a review. The same would hold for articles dealing with leather or paper as such. However, some of the details of experimental techniques and theoretical approaches applied in these instances are different and research in the fields is sufficiently specialized to justify a separation for the purposes of this circular. It is realized that such a procedure may exclude researches which are of importance to polymer work in general.

Books and periodicals dealing exclusively with polymers are not covered in this bibliography since it is reasonable to assume that they will already be familiar to many, if not most, of the readers. Furthermore, to include them would greatly increase the bulk of the bibliography without correspondingly increasing its usefulness.

However, for the benefit of students and specialists in other fields who may be approaching the study of high polymers for the first time we are listing some examples of periodicals and abstract services dealing exclusively with high polymers. This list is neither complete nor highly critical, but should be representative of the current literature and does include many sources which will be found very useful.

#### General Periodicals

"Journal of Polymer Science" (formerly "Journal of Polymer Research"), published bimonthly by Interscience Publishers, Inc., 215 Fourth Avenue, New York 3, New York.

"Die Makromolekulare Chemie" published bimonthly by Karl Alber, Freiburg in Breisgau, Germany and Wepf & Company, Basel, Switzerland. The first issue, No. 1/2, appeared in September 1947.

#### Periodicals Devoting Special Issues to High Polymers

"Journal of Applied Physics" 17, No. 5 (1946), 18, No. 5 (1947), and 19, No. 5 (1948), published monthly by the American Institute of Physics, 57 East 55th Street, New York, New York.

"Journal de Chimie Physique" 44, No. 1, 2, and 3 (1947). (Colloquium on High Polymers in Strasbourg), published by the Societe Francaise der Physique, 10 Rue Vanquelin, Paris 5e, France.

A useful review of the physical chemistry of polymers has appeared in American Scientist 36, 75, 258 (1948) by R. M. Fuoss.

#### Periodicals Dealing with Specific Types of Polymers

##### Rubber

"Rubber Chemistry and Technology" reprints literature on rubber judged to be of permanent scientific value. Foreign papers are translated into English. Published quarterly by the Rubber Division of the American Chemical Society, C. W. Christensen, Secy.-Treas., 1012 Second National Bank Bldg., Akron 8, Ohio.

"Research Association of British Rubber Manufacturers. Summary of Current Literature". Scientific, technical, trade, and patent literature on rubber is thoroughly covered. Publications more difficult to obtain, such as Russian and Japanese are abstracted in detail to eliminate reference to the original articles. Published monthly by the Association, 105 Lansdowne Road, Croyden, England.

National Bureau of Standards Letter Circular LC626 (date of issue January 15, 1941) by A. T. McPherson, represents a guide to the literature on rubber.

##### Plastics

"Modern Plastics" covers current developments in the plastic industry and presents abstracts of papers. Published monthly by Modern Plastics, Inc., 122 E. 42nd St., New York, 17, N.Y.



"British Plastics" official organ of the Plastics Industry. Published monthly by the Iliffe and Sons, Ltd., Dorset House, Stamford St., London, England.

"Plastics (London)" covers papers dealing with the manufacture, uses, and potentialities of plastic materials. Published monthly by Temple Press, Ltd., London, England.

National Bureau of Standards Letter Circular LC802 (date of issue October 3, 1945) by G. M. Kline, contains references to a series of monographs and journals in the field of plastics.

### Textiles

"Textile Research Journal" covers fundamental and applied research and presents abstracts of papers. Official publication of Textile Research Institute, Inc. and The Textile Foundation. Published monthly by Lancaster Press, Ind., Lancaster, Pennsylvania.

"Journal of the Textile Institute", official journal for communications released for publication by various British research organizations. Abstracts are presented. Published monthly by the Textile Institute, St. Mary's Parsonage, Manchester, England.

"The Journal of the Society of Dyers and Colourists", official publication of the Society. Covers original work and presents abstracts of foreign papers and patents. Published monthly, 32 Piccadilly, Bradford, Yorkshire, England.

### Abstract Services

"Resins--Rubbers--Plastics". A loose-leaf abstract service covering chemical, physical, and technological aspects of these materials. Published monthly by the Interscience Publishers Inc., 215 Fourth Ave., New York 3, New York.

"Natural and Synthetic Fibers". A loose-leaf literature and patent abstract service covering chemical, physical, and technological aspects of these materials as well as patent applications. Issued monthly in cooperation with Milton Harris Associates, Washington, D. C. and the Polymer Research Institute, Polytechnic Institute of Brooklyn. Published by Interscience Publishers Inc., 215 4th Ave., New York 3, New York.



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