

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
Washington

GMK:RM
VII-7

March 6, 1945

Letter
Circular
LC782

Replaces LC712

Information Section
National Bureau of Standards
Washington, D. C.

PLASTICS:

A Short List of Selected Publications.

The Bureau receives many requests for information about plastics. Often, the desired information is available in a published book or article. A short list of these publications has, therefore, been prepared. The list includes only a very few of the many books and articles in this field. The items are, however, believed to be representative and are the sources that have been found most useful by the Bureau in answering the inquiries received from Government agencies, industry, and the public regarding the preparation, properties, applications, and testing of plastics.

PUBLICATIONS ON PLASTICS

1. "Organic Plastics", by G. M. Kline, National Bureau of Standards Circular C411, 27 pages (May 1936). Superintendent of Documents, Government Printing Office, Washington, D. C., price 5 cents. A brief survey of commercially available plastics with two pages of bibliography.
2. "The Classification and Chemical Genetics of Organic Plastics", by G. M. Kline, Transactions of the Electrochemical Society, Vol. 74, pages 23-45 (1938). A general review of plastics from the viewpoint of the chemist.
3. "History of Plastics and Their Uses in the Automotive Industry", by G. M. Kline, Modern Plastics, Vol. 17 and 18 (July, Aug. and Sept. 1940). Breskin Publishing Corporation, 122 East 42nd Street, New York, N. Y. A review of properties and uses of plastics and various methods of molding.
4. "Plastics as Structural Materials for Aircraft", by G. M. Kline, N.A.C.A. Technical Note No. 628 (Dec. 1937). National Advisory Committee for Aeronautics, Dupont Circle, Washington, D.C. A discussion of the properties of plastics with respect to their use in aircraft construction.
5. "Study of Transparent Plastics for Use on Aircraft", by B. M. Axilrod and G. M. Kline, IBS Journal of Research, vol. 19, pages 367-400 (Oct. 1937). A survey of the properties of transparent synthetic resin and cellulosic plastics.
6. "Film-Forming Plastics", by F. W. Reinhart and G. M. Kline, Industrial and Engineering Chemistry, Vol. 31, pages 1522-1529 (Dec. 1939). Data on the effects of various solvents, diluents, and plasticizers on the properties of protective coating films based on synthetic resin and cellulose plastics are tabulated.
7. "Airplane Dopes", by F. W. Reinhart and G. M. Kline, Ind. and Eng. Chem., Vol. 32, pages 185-193 (Feb. 1940). The relation of tautness and weathering qualities to composition of airplane dopes as indicated by exposure tests on experimental dopes is reported.
8. "Accelerated Weathering of Transparent Plastics", by G. M. Kline, W. A. Crouse, and B. M. Axilrod, Proceedings American Society for Testing Materials, 1940, pages 1256-1272; Modern Plastics, Vol. 17, pages 49-57, 86, 88, (Aug. 1940). Experimental work with different types of ultra-violet and moisture sources used in the laboratory is

reported and a method is given for evaluating the resistance of transparent plastics to outdoor exposure.

9. "Sorpton of Water by Plastics", by G. M. Kline, A. R. Martin, and W. A. Crouse. Proceedings American Society for Testing Materials, 1940, pages 1273-1282; Modern Plastics, Vol. 18, pages 119-123, 152, 154 (Oct. 1940). Data on the rates of absorption and desorption of water and the accompanying dimensional changes of plastics are recorded.

10. "Resistance of Plastics to Chemical Reagents", by G. M. Kline, R. C. Rinker, and H. F. Meindl, Modern Plastics, Vol. 19, pages 59-66, and 88 (Dec. 1941). Data on the effects of acids, alkalies, salt solutions, and organic solvents on the various types of plastics in a 7-day immersion test are reported.

11. "Synthetic Resins and Their Raw Materials", United States Tariff Commission, Report No. 131, Second Series, 162 pages (1938). Superintendent of Documents, Government Printing Office, Washington, D. C., price 25 cents. A general review of synthetic resins and their raw materials together with data on production, exports and imports.

12. "Modern Plywood", by T. D. Perry (1942). Pitman Publishing Corporation, 2 West 45th Street, New York, N. Y. A review of the synthetic resin adhesives and their use in bonding and molding wood veneers into aircraft structures. The construction and properties of plywood used in aircraft designs are discussed.

13. "Industrial Plastics", by H. R. Simonds (1941). Pitman Publishing Corporation, 2 West 45th Street, New York, N. Y. A survey of the manufacture and application of plastics.

14. "Plastics in Engineering", by J. Delmonte (1942). Penton Publishing Company, Penton Building, Cleveland, Ohio. A discussion of plastic materials and their fabrication.

15. "Plastics for Industrial Use", by John Sasso (1942), McGraw-Hill Book Company, 330 West 42nd Street, New York, N. Y.

16. "Plastics", by J. H. DuBois (1942). American Technical Society, 850 East 58th Street, Chicago, Ill.

17. "The Chemistry of Synthetic Resins", by Carleton Ellis, two volumes (1935). Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y. A comprehensive

treatise covering the chemistry and processes of manufacture of synthetic resins. Numerous references to patents and the literature. Written for the chemist.

18. "Molding and Casting", by C. D. Clarke (1939). John D. Lucas Company, Baltimore, Md. Contains formulas for many plastic compositions for molding without heat and pressure.

19. "Plastic Molding", by D. A. Dearle (1941). Chemical Publishing Company, Inc., 236 King Street, Brooklyn, N. Y.

20. "Technology of Natural Resins", by C. L. Martell, C. W. Kopf, J. L. Curtis, and E. L. Rogers (1942). John Wiley and Sons, Inc., 440 Fourth Avenue, New York, N. Y.

21. "Chemical Formulary", by H. Bennett (5 vols.). Chemical Publishing Company, Inc., 236 King Street, Brooklyn, N. Y. A few formulas for plastic compositions are listed.

22. "Henley's Twentieth Century Book of Formulas, Processes, and Trade Secrets" (1937). W. W. Henley Publishing Company, 2 West 45th Street, New York, N. Y.

23. "Plastics in the School and ⁺⁺Home Workshop", by A. J. Lockrey (second edition, 1940). D. Van Nostrand and Company, 250 Fourth Avenue, New York, N. Y. Discusses fabrication of plastics by machining and casting.

24. "Casein and Its Industrial Applications", by E. Sutermeister and F. L. Browne (1939). Reinhold Publishing Corporation, 330 West 42nd Street, New York, N. Y. Contains a chapter on the manufacture of casein plastics.

25. "Lignin Plastics Created from Pulp Liquor Wastes", by G. C. Howard, Modern Plastics, Vol. 17, pages 96, 130, 132, 134, 136 (Nov. 1939). The preparation of lignin plastics commercially is described and the properties of the laminating and molding types are recorded.

26. "Plastics from Hydrolyzed Lignocellulose", by R. Katzen, A. O. Reynolds, and O. F. Othmer, Transactions of the American Institute of Chemical Engineers, Vol. 38 pages 735-760 (Aug. 25, 1942); Modern Plastics, Vol. 20, pages 91-97, 122-124 (Oct. 1942). A report on the use of hydrolyzed lignocellulose in plastic compositions.

27. "Plastics from Agricultural Materials", by O. R. Sweeney and L. K. Arnold, Iowa Engineering Experiment Station

Bulletin No. 154, 52 pages (Feb. 1942). The production of experimental plastics from soybean meal, corncobs, oat hulls, and cornstalks is described.

28. "Industrial Cold Adhesives", by R. Dulac, translated by J. L. Rosenbaum (1937). J. B. Lippincott Company, Washington Square, Philadelphia, Pa. Problems involved in the formulation and utilization of adhesives are reviewed.

29. "Adhesives and Coments", by E. E. Halls. *Plastics*, Vol. 4, pages 264-268 (Dec. 1940); Vol. 5, pages 5-8, 31-33, 48-50, 73-75, 102-104, 123-124 (Jan. to June 1941). Published by Temple Press, Ltd., Bowling Green Lane, London, E. C. 1, England. A discussion of modern "glues" based on synthetic plastics.

30. "A.S.T.M. Standards. 1944. Part III. Nonmetallic Materials, General". American Society for Testing Materials, 260 South Broad Street, Philadelphia, Pa. Standard methods for testing plastics are published in this book.

31. "Federal Specification for Plastics, Organic: General Specifications (Methods of Tests). L-P-406a" (Jan. 24, 1944). Superintendent of Documents, Government Printing Office, Washington, D. C., price 15 cents.

32. "Modern Plastics", a monthly journal covering current developments in the plastics industry, published by the Breskin Publishing Corporation, 122 East 42nd Street, New York, N. Y.

33. "Plastics Catalog 1945", an encyclopedia of the plastics industry, is published by the Plastics Catalogue Corporation, 122 East 42nd Street, New York, N. Y. This publication comprises a review of the materials, processes, and equipment employed in the plastics industry and contains charts of the properties of plastics, solvents, plasticizers, and synthetic rubbers, and of the chemical formulas of plastics and synthetic rubbers.

34. "Plastics World", a monthly journal presenting market news and brief descriptions of new applications of plastics, published by Cleworth Publishing Co., Inc., 551 Fifth Avenue, New York 17, N. Y.

35. "Advances in Plastics During 1944" by G. H. Kline, *Modern Plastics*, Vol. 22, pages 93-96, 186, 188, 190, 192 (January 1945).

36. "Industry Expansion", *Modern Plastics*, Vol. 22, pages 97-102, 202, 204 (Nov. 1944). Statistics on plastics production and molding press capacity.

