
BOOK REVIEWS

Flavor Chemistry of Fats and Oils

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REFERENCE: *Flavor Chemistry of Fats and Oils*, David B. Min and Thomas H. Smouse, Eds., Monograph #15, American Oil Chemists' Society, Champaign, Ill., 309 pp., \$55.00, ISBN 0-935315-12-8, 1985.

There has been an increasing demand for research in flavors, especially in the area of oils and fats and food containing them. This monograph, one of the very few books in this area, contains 14 chapters contributed by some well known professionals in the field. The first two chapters deal with the chemistry and mechanism of lipid oxidation with special reference to flavors. Extensive work done by the authors is discussed, and tables and schematic diagrams of breakdown products are shown. The next two chapters describe the factors affecting oxidation during processing of oils, such as the role of metals, degumming, refining, hydrogenation, and deodorization. These two chapters have again been written with consideration of flavors in mind. Chapter 5 is dedicated to the flavor reversion in soybean oil, a problem which is still puzzling many lipid chemists. This chapter contains extensive literature reviews on the subject and the theories behind them.

Three chapters are set apart for natural and synthetic antioxidants and their role in oil stability. Theories and mechanisms and their structures have been illustrated very elucidatively. The next two chapters deal with lipid enzymes and their effect on flavor stability. Systematic sequences of lipoxygenase reactions under aerobic and anaerobic conditions and their pathways are shown. A good description of the bitter substance formation caused by the enzymatic reaction is also given. Sensory evaluation of the flavor quality of oils is given a separate chapter. Effective analytical methods, sensory facilities, panel selection and training, flavor quality scales, and much more information are dealt with in detail. Analytical methods of measuring oil quality are presented in the last three chapters. Although the methods and other information in the last two chapters overlap each other, they are the most current practices available for obtaining volatiles from oils and concentrating and analyzing them.

Each chapter is very well written. There are ample references, ranging from the early 1940s to the mid 1980s. The book has been edited thoroughly, with no apparent errors.

This monograph will serve as an excellent reference for advanced students and scientists working in the field of lipids and related food flavor areas.

Electromagnetic Method of Nondestructive Testing

Reviewed by Lynette Starin, Engineering Standards Branch, SEPTA, Philadelphia, PA 19140.

REFERENCE: *Electromagnetic Method of Nondestructive Testing. Nondestructive Testing Monographs and Tracts, Vol. 3*, William Lord, Ed., Gordon and Breach, London, 1985.

This publication is the third and last volume in a series of nondestructive testing information. It is a narrative collection of electromagnetic testing methods and developments. The information provides testing procedures, apparatus, and raw data from several industrial applications encountered by the authors.

The references offered with each text are well recorded but in most cases somewhat outdated. The bulk of the text contains information about specific applications rather than suggestions for other applications, interpretations, implications of possible future developments, or conclusions. Many of the charts and graphs provided as a basis for discussion were difficult to read and therefore of no great value. At this time, electromagnetic methods of nondestructive testing are, in many cases, inconclusive due to the lack of a well defined interpretative foundation. Few solid correlations have been made between the test results and the actual magnitude of the damage. The methods detect a flaw but many times do not define its extent, and destruction of the object tested is needed for conclusive interpretation of the results to determine quality assurance limits. Only one paper in this volume, R. K. Stanley's "Basic Principles of Magnetic Flux Leakage Inspection Systems for the Evaluation of Oil Country Tubular Goods," offered a comprehensive comparison between nondestructive testing methods and semi-destructive pipe notch testing. Perhaps an intense study of nondestructive results should have been included so that the reader could interpret the results for application in his particular field of interest.