

THIRD EDITION



FOOD CHEMICALS CODEX

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FOOD CHEMICALS CODEX

COMMITTEE ON CODEX SPECIFICATIONS

Food and Nutrition Board
Division of Biological Sciences
Assembly of Life Sciences
National Research Council

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Through members of its liaison panels, technical input in aspects of nutrition, food safety, food technology, and food processing is provided.

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1—December 13, 1972; 2—March 14, 1973; 3—December 12, 1973; 4—March 14, 1975; 5—November 14, 1975; 6—June 3, 1976; 7—June 26-27, 1977; 8—November 30, 1977; 9—August 9-10, 1978; 10—February 7-9, 1979; 11—July 22-24, 1979; 12—January 16-17, 1980; 13—June 25-26, 1980

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1—Review of Policy on Fluoride Limits (March 11, 1973); 2—Toluenesulfonamides in Saccharin (a—October 15, 1973, b—November 1-2, 1973); 3—4-Methylimidazole in Caramel

*The listing of individuals herein, in connection with specific meetings and programs, does not indicate that their contributions were limited solely to the activities cited.

†Explanation of abbreviations: ACS, American Chemical Society; EPA, U.S. Environmental Protection Agency; FDA, U.S. Food and Drug Administration; NF, National Formulary (of the American Pharmaceutical Association); USP, United States Pharmacopeia.

(April 22–23, 1975); 4—Asbestos and Mercury in Caustics; Fluorides in Phosphates (October 11–12, 1976)

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SYMPOSIUM ON SPECIFICATIONS FOR FOOD CHEMICALS (March 14, 1975)

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Stephen J. Gullo	Peter P. Noznick	

WORKSHOP ON MICROBIOLOGICAL CRITERIA
(November 29, 1977)

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CONFERENCE ON NONPROPRIETARY NOMENCLATURE FOR FOOD, DRUG, AND COSMETIC INGREDIENTS

(Organized by the United States Adopted Names Council, with the cooperation of the Food Chemicals Codex, October 20, 1978)

Speakers

Joseph B. Jerome (<i>Presiding</i>)	John Andrako Durward F. Dodgen	Charles Kumkumian Howard Pippin
James M. Akerson	Heinz J. Eierman	

JOINT FCC/ACS/NF-USP TASK FORCE ON HEAVY METALS (1974-1976)

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John V. Bergen (NF)		
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JOINT FCC/USP TASK FORCE ON POLYETHYLENE GLYCOLS AND OTHER ETHOXYLATES

1—September 23, 1976; 2—April 4, 1977; 3—March 2, 1978; 4—November 6, 1978; 5—June 19, 1979; 6—November 5, 1980

Edward Aman 3	J. P. Fletcher 1-6	Fred A. Morecombe 1, 3, 4
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Raymond A. Chartier 1	Eloy Martinez 2	Gerald E. Stobby 1, 4
Henry M. Davis 6	John P. Modderman 6	Forest Sweet 4, 5

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George Schwartzman (USP)
5
Sy-rong Sun (USP) 5, 6

Edgar E. Theimer (USP) 3,
5, 6
Dorothy K. Wyatt (USP) 5,
6

JOINT FCC/EPA/FDA/USP AD HOC MEETING ON ACTIVATED CARBON (June 2, 1978)

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Joseph A. Cotruvo
J. A. T. de Muynk
Durward F. Dodgen
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Walter M. Schaefer

Richard L. Schauer
David Sharp
Patrick Siu
Samuel L. Torrence
T. Van Asbeck
Chieh Wu

FCC AD HOC MEETING ON CARRAGEENAN (June 16, 1978)

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James T. Elfstrum
Robert J. Fields
Richard M. Herman

Chifa Lin
Robert M. Miller
Dimitri J. Stancioff

FCC AD HOC MEETING ON HYDROCHLORIC ACID (March 18, 1980)

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Robert S. Bryant
George B. Butler, Jr.
Durward F. Dodgen
Robert J. Fields
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J. J. Gerulis
Dennis S. Hackett

Donald J. Iwinski
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FCC AD HOC MEETING ON POLYSORBATES (March 8, 1979)

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**FCC AD HOC MEETING ON SEAWEED-DERIVED HYDROCOLLOIDS
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Kenneth B. Guisely	Robert M. Miller	Dimitri J. Stancioff

**FCC AD HOC MEETING ON SILICATES
(June 2, 1976)**

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Eugene Coleman	Garnett Higginbotham	William E. Waxter
G. Coombs	R. J. Mitchell	Frank Witzel
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FCC AD HOC MEETINGS ON TOCOPHEROLS

1—May 23, 1975; 2—June 1, 1979; 3—May 23, 1979

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Harry Fisher 2, 3	L. Swicklik 2	

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**COLLABORATIVE STUDY ON L-LYSINE MONOHYDROCHLORIDE
(November 1974–August 1975)**

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**EVALUATION OF AMINO ACIDS, SELENIUM LIMIT TEST, AND FCC
REFERENCE STANDARDS (RS) BY DRUG STANDARDS LABORATORY (1972–
1973) AND BY DRUG RESEARCH AND TESTING LABORATORY (1975–1980)**

DRUG STANDARDS LABORATORY

1—Amino Acids; 2—Selenium Limit Test; 3—RS 2-*tert*-Butyl-4-hydroxyanisole; 4—RS 3-*tert*-Butyl-4-hydroxyanisole; 5—RS Disodium Guanylate; 6—RS Disodium Inosinate; 7—RS Ethyl Maltol; 8—RS Gibberellic Acid; 9—RS Maltol.

DRUG RESEARCH AND TESTING LABORATORY

10—RS Diketopiperazine; 11—RS Mono-*tert*-Butyl-*p*-benzoquinone

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3–10
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Preface to the Third Edition

The historical events and developmental work leading to the publication of the first edition of the *Food Chemicals Codex* in October 1966, under the direction of Dr. Justin L. Powers, are summarized in the *Preface to the First Edition*, reprinted herein on pages xxix–xxxi.

ORGANIZATION

From its inception in 1961 until 1979, the *Food Chemicals Codex* project was under the administrative supervision of the Committee on Food Protection of the Food and Nutrition Board. An advisory panel was formed in 1961, during the first year of the project, to set general policy and to develop guidelines to be followed in the preparation of the first edition, and a Committee on Specifications of the Advisory Panel was organized as the working group to develop the monographs and general test procedures. Both of these groups continued to operate until 1970, when the Advisory Panel, having served its function in guiding the project through the first edition, was released. After publication of the second edition in 1972, the name of the working group was changed to Subcommittee on Codex Specifications, to indicate more appropriately its relationship to the parent committee. This arrangement continued until July 1979, when the Subcommittee was made a full committee of the Food and Nutrition Board. During the period 1973–1976, advice was sought from the Committee on Food Protection and its Subcommittees on Food Toxicology and Nonnutritive Sweeteners on several matters related to purity criteria (see page vi).

SCOPE

The scope of the second edition was broadened slightly over that of the first edition, and that of the third edition has continued to expand. Substances included in the first edition were limited largely to chemicals added directly to foods to perform some desired function, whereas for the second edition many substances not added directly to foods but that come into contact with foods, such as food processing aids (e.g., extraction solvents, filter media), were included. Furthermore, a number of substances that are not considered to be “chemical additives” in the conventional sense were

included in the second edition; examples are the modified food starches, the masticatory substances used in chewing gum base, and pectin. For the third edition, specifications have been prepared for such ingredients as dextrose and fructose, which are more generally regarded as foods than as additives. Thus the word *Chemicals* in the title of the book—though retained for reasons of historical continuity—is in some measure inappropriate.

With few exceptions, all of the 639 monographs from the second edition, plus the 28 monographs added via the three supplements to that edition, have been incorporated in the third edition. The exceptions are as follows: *Aluminum Sulfate Solution* was deleted because it appears to be no longer used in foods and is not commercially available for such use; and *Papain* and *Pepsin* were subsumed by the monograph on *Enzyme Preparations*, which was published initially in the second supplement to the second edition. In addition, the monograph on *Sodium Metaphosphate* was in effect deleted, because it was expanded to three separate monographs (*Sodium Metaphosphate, Insoluble*; *Sodium Polyphosphates, Glassy*; and *Sodium Trimetaphosphate*). The addition of 113 completely new monographs not previously published brings to 776 the total number of monographs in the third edition. The number of substances for which specifications are provided exceeds 800, however, because several monographs provide specifications for a number of individual substances belonging to a homologous series, e.g., *Enzyme Preparations* covers 27 different enzymes; *Modified Food Starches*, 21 starches; *Natural Masticatory Substances*, 19 substances; and *Spice Oleoresins*, 6 different resins. (NOTE: Although the second edition monographs on flavor aromatic chemicals and isolates have been transferred to a separate tabular section for this edition, as discussed below, each set of specifications is regarded as an individual “monograph.”)

DESIGN, FORMAT, AND MONOGRAPH CONTENTS

The design and format of the third edition are substantially different from those used for the first two. Whereas the larger page size and two-column format may be the most obvious physical changes, the Committee on Codex Specifications also reorganized the contents of the monographs for various technical reasons. The monograph section previously entitled *Specifications* was changed to *Requirements*, and the section on *Identification*, which was previously an independent section (not part of the *Specifications* section), was made part of the new *Requirements* section. Any tests that served for identification purposes but that were previously part of the *Description* sections were also transferred to the *Requirements* section as part of *Identification*. Thus, it was the Committee's intention to show that all previous tests for identification, whether occurring under an *Identification* section (which the Committee regarded as *Requirements*) or under a *Description* section (which, by definition in the *General Provisions* of the second edition, were not *Requirements*), should be part of the new *Requirements*.

Specifications for the flavor aromatic chemicals and isolates have been transferred from the general monographs section of the book to a separate tabular section, where the various physical constants and other *Requirements* may be readily compared. The tabular format also lends itself to easy accommodation of additional specifications on