

# **ELECTRICAL AND DIELECTRIC PROPERTIES OF FOOD MATERIALS**

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**Bibliography and Tabulated Data  
Compiled by**

**M. KENT**

**A COST90bis Publication**

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**SCIENCE AND TECHNOLOGY PUBLISHERS**

# **ELECTRICAL AND DIELECTRIC PROPERTIES OF FOOD MATERIALS**

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Compiled by*

**M. KENT, M.Sc., Ph.D.**

Torry Research Station  
Aberdeen, Scotland

**A COST90bis Production**

**SCIENCE AND TECHNOLOGY PUBLISHERS  
ENGLAND**

A Bibliography compiled as part of the COST90bis Project on the physical properties of foods covering the period from the earliest known reference up to 1987.

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ELECTRICAL AND DIELECTRIC PROPERTIES  
OF FOOD MATERIALS

## OTHER BOOKS IN THE SERIES

*Sorption Isotherms and Water Activity of Food Materials*

W. Wolf., W. E. L. Spiess and G. Jung

Published

*Colour and Optical Properties of Foods*

M. Kent and D. B. MacDougall

In Preparation

*Solid Properties of Foods*

B. McKenna

In Preparation

*Diffusion Properties of Foods*

D. Vidal and Andree Voilley

In Preparation

*Liquid Properties of Foods*

B. McKenna

In Preparation

### **SERIES EDITOR**

Professor Ronald Jowitt, COST90bis Project Leader;

c/o South Bank Polytechnic, London, England.

## FOREWORD

This Bibliography is one of several produced as a result of collaboration under COST90bis, the second European Project on the Physical Properties of Foods.

The objectives of COST90bis and its predecessor, COST90, were: more reliable, more accessible, more useful — or just simply, *more* information on the physical properties of food materials, in particular, more precise and accurate quantitative data.

COST90/90bis coordinated the efforts of many individuals and organisations in some 15 participating states, which took various forms and had different outcomes. These are fully described in the Proceedings of the Final Seminars of COST90 and COST90bis, "Physical Properties of Foods" (Jowitt, R. *et al.*, 1983) and "Physical Properties of Foods—2" (Jowitt, R. *et al.*, 1987). In all the subject groups of COST90bis, however, a small, dedicated group of individuals undertook to produce at least comprehensive bibliographies on their subject along with, where feasible, quantitative data extracted from that literature. The first (Wolf, Spiess and Jung, 1985), on Sorption Properties of Foods, was well received by readers and it is felt that the complete collection of bibliographies will fill an important need and serve a valuable function in food engineering, technology and science.

Their colleagues are greatly indebted to the compilers—in this case Mike Kent—and their associates for their painstaking work and invaluable product.

Ronald Jowitt  
COST90/90bis Project Leader  
London, August 1987

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## INTRODUCTION

Not since Adam (1969) has an attempt been made to bring together references on electrical and dielectric properties of foodstuffs in a publication such as this. Since then substantially more has been published, much of it not readily available to those who need or wish to know about it. It is therefore time for a new collection to appear and it is appropriate that it should do so under the auspices of COST90bis.

In compiling this bibliography papers were assessed from complete copies or abstracts and only references containing quantitative electrical or dielectric data have been included; many publications on the subject describing techniques but containing no data have thus been excluded.

Certain references included are themselves reviews or bibliographies containing mainly previously published values. Some of the data quoted in them, however, are without reference to any other publication and appear to originate in the review concerned. Nevertheless, it is felt that they should be included in a bibliography such as this.

This bibliography was compiled as part of the collaborative work of COST90bis in the field of electrical and optical properties of foodstuffs. (COST stands for European Cooperation in Scientific and Technological and Research, subjects concerned with Food being designated by the first digit '9' physical properties—the first project in the food field by the second digit '0').

COST90bis, the second such project on the physical properties of foods was concerned with electrical and optical properties, mechanical properties and diffusion properties.

In section (1) the references are arranged in alphabetical order of first author's names and numbered sequentially. Section (2) then classifies them by number under various subject heads, notably food substances. Section (3) then groups the references by number into four measurement frequency ranges felt to be most convenient for readers. Finally, electrical and dielectric data on specific food materials from the publications listed are tabulated in Section 4.

The contributions of members of the COST subgroup dealing with electrical properties are hereby acknowledged and individual thanks go to the following:

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Section 1

**BIBLIOGRAPHY, ARRANGED ALPHABETICALLY  
ACCORDING TO FIRST AUTHOR'S NAME  
IN CHRONOLOGICAL ORDER;  
NUMBERED CONSECUTIVELY**

The letters in the right-hand margin refer to the language in which the original reference was published.

C—Czech  
E—English  
F—French  
G—German  
R—Russian  
Rum—Rumanian  
P—Polish  
S—Spanish  
J—Japanese



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