

Confectionery Fats Handbook

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Confectionery Fats Handbook

PROPERTIES, PRODUCTION AND
APPLICATION

RALPH E. TIMMS
Consultant, Lincoln, UK



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Preface

Confectionery fats are the prima donnas of the edible oils and fats world and are characterised by the archetypal confectionery fat, cocoa butter. The study of cocoa butter and the attempts to simulate its properties have been a driving force for the understanding of the chemical and physical properties of fats. Most of the research and development has taken place over the last fifty years, reaching a climax in the 1970s and 1980s when the modern analytical techniques of solid fat content determination by nuclear magnetic resonance spectroscopy and fatty acid and triglyceride analysis by gas chromatography were fully developed and perfected. The increasing use of computers made interpretation and manipulation of the data collected much easier. What took days or even weeks to achieve by a previous generation of workers could be achieved in minutes or hours.

My initiation into the mysteries of confectionery fats came when I joined Unilever Research as a young physical chemist at their Welwyn research laboratories.¹ Working in Hut 6 with colleagues who will be known to many readers (Mike Dallas, Wolf Hamm, David Illingworth, Shams Kheiri, Fred Padley, Geoff Talbot, David Tresser and David Waddington, to name only a few) was an exciting time. The basis for this book began then and indeed I am pleased to have been allowed to reproduce previously unpublished phase diagrams from that now long-distant, but not forgotten, time. After leaving Unilever, when the laboratory at Welwyn was about to close, my education in confectionery fats continued at the CSIRO Food Division's laboratory in Melbourne, Australia, and then at Kempas Edible Oil in Pasir Gudang, Malaysia. Since 1987, work as a consultant has broadened my knowledge of the oils and fats industry and of the confectionery fats industry in particular. In 1995, three colleagues and I founded a new confectionery fats company – Britannia Food Ingredients – thus bringing together and utilising my experience of the previous 25 years. When Peter Barnes, Publisher of the Oily Press, approached me to write this book, I therefore felt qualified for the task, although over-awed by the responsibility of trying to bring this vast and complex subject within the reach of readers in a readable and accessible form.

Assisting me in my task, several friends and former colleagues have kindly read through various sections. The book is immensely improved by their efforts

¹ The Frythe, Welwyn, Hertfordshire, UK, sadly now closed.

and I gratefully acknowledge the assistance of Colin Crews, Dave Cruickshank, Bob Eagle, Dick Hamilton, Wolf Hamm, Jens Kristott, Fred Padley, Kyo Sato and Ian Stewart. I am also grateful to my colleagues at Britannia Food Ingredients for assistance with some of the data and the information provided in the book. Other companies and individuals have also provided useful information and all have been acknowledged at the appropriate point.

This book would not have been published without the support of Peter Barnes. It has been much improved by the attentions of the editor, Beverley White. I thank them both.

My aim in writing this book is to provide a single source for all the information available about confectionery fats. Because the study of confectionery fats has laid the foundations of the physical and analytical chemistry of fats in general, I have included comprehensive coverage of the physical and analytical chemistry of confectionery fats which should prove useful to the more general reader. Similarly, the chapters on the production of confectionery fats exemplify the state of the art in technologies used to modify fats in general. The study of confectionery fats is not primarily an academic subject, although it is well founded on scientific principles. I have therefore included information about how to make chocolate and other confectionery. Legislation and government regulations have also been included, because the production and marketing of chocolate is subject to legal constraints in all countries. To enable the reader to keep up-to-date with technical and commercial developments in the future, appendixes are provided giving commercial and product information and web addresses of useful organisations.

In the first book in this Oily Press series, Bill Christie stated that the aim was to provide “practical and readable texts” which he hoped would “remain on the laboratory bench, not on the library shelf”. If I have achieved this aim, then I shall be well satisfied.

Finally, I thank my wife Mary for her constant support not just while writing this book, but during the more than thirty years of our ‘fat’ years together in many countries.

Ralph E. Timms
Nocton, Lincoln
November 2002

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