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## Cosmetic Formulation of Skin Care Products

**Zoe Diana Draelos**

*Department of Dermatology, Wake Forest University School of Medicine,  
Winston-Salem, and Dermatology Consulting Services, High Point,  
North Carolina, U.S.A.*

### **INTRODUCTION: HOW TO UTILIZE THIS TEXT**

The formulation of skin care products requires a cross-disciplinary knowledge base, which can be difficult to obtain. How can any individual obtain the knowledge of a dermatologist, the expertise of a PhD biochemist, the experience of a cosmetic chemist, and the insight of a research and development scientist? There is not enough time in one lifetime to master all of these disciplines. It takes eight years after college to become a dermatologist, at least five years to obtain a PhD, 10 years to become an experienced cosmetic chemist, and 10 years to mature into a research and development scientist. Thus, after 33 years of work experience and schooling the cross-disciplinary knowledge base would be complete! This text aims to condense 33 years into 400 pages, allowing mastery of the field of skin care formulation by the exchange of knowledge.

In order to accomplish this goal, the text contains chapters written by dermatologists, PhD basic scientists, cosmetic chemists, and industry research and design (R&D) applied scientists. The book is organized sequentially in three sections: cutaneous formulation issues, formulation development and application, and active ingredients for skin treatment. Cutaneous formulation issues deals with the unique skin needs of each area of the body and the differences in skin response in various populations. This knowledge base comes from dermatology. For example, the skin care needs of the face and the hands are quite different. There are numerous sebaceous glands and small vellus hairs on the face, but none on the palms of the hands. This means that reactions to products and product design must be different for these two areas. Furthermore, a product that might perform well in fair skin might not meet the needs of persons of color. Titanium dioxide sunscreens are a good example. The titanium dioxide is not perceptible on the skin of a Caucasian individual, but causes unacceptable whitening in an African American individual. These first two chapters of the text are designed to offer specific ideas for skin care needs. The chapters can be read either in their entirety or by using the outline format to select on those body areas or special populations of interest.

The next section of the book discusses formulation development and application in the basic skin care areas: cleansers, toners, moisturizers, and antiperspirants. These chapters are all written by research and development scientists in industry with an understanding of how these products function. The chapters present the basic anatomy and physiology of the skin impacted by the product, ingredients, key considerations, and methods for product evaluation and testing. The dermatologic perspective on the use and selection of these skin care products is also presented.

Lastly, the book presents an up-to-date look at many of the active products that form the cosmeceutical arena to include: sunscreens, skin lightening agents, exfoliants, and anti-aging skin care products. The dermatologic perspective on each of these areas follows with a discussion of sunscreens in relation to skin cancer prevention, the impact of cosmeceuticals on the skin, medical therapies for skin lightening, and acne treatment methodologies. This approach allows the dermatologist to better understand how these products are constructed, but also helps the industry researcher to view products from a medical perspective that bridges the over-the-counter and prescription worlds. The text then looks at the world of botanicals, anti-inflammatories, and antioxidants. Specific raw materials are discussed by both industry researchers and dermatologists with an encyclopedic review of botanicals that are relevant to skin care.

Thus, the text presents skin care, formulation, and raw material selection issues pursuing a unique multidisciplinary approach to the topic. As part of the Marcel Dekker Cosmetic Science and Technology series, this text can serve as an introduction to some of the more product specific texts in the series that deal solely with moisturizers, cleansers, antiperspirants, etc. This text can provide the 33 years of knowledge necessary to understand skin care formulation.