Preface

This book deals with the formulation of industrial commodity products related to organic chemistry. The formulations range from the pharmaceutical industry to that of thermoplastic resin, also covering the food, cosmetic and elastomeric industries, as well as coating, paint and thermosetting resin.

Why should we formulate, and what does formulation mean in these professions? Commodity products can seldom be used pure. Formulation was an art, and has become the science of adding, distributing, and homogenizing various additives to the basic product, so as to optimize and stabilize its properties and eventually allow its realization and final usage.

Formulation includes both qualitative and quantitative descriptions of the products to be studied, and here we will look into the scientific advancement that allowed the notation. We will then consider the various methods, specific to each product. Although these methods bear similarities, there are nevertheless a number of differences, and the names used vary: *galenic* in the pharmaceutical industry, *food biochemistry* in the food industry, and *chemical formulation* in the other industries mentioned.

This book does not aim at listing extensively all the existing forms and methods of formulation in relation to the fields mentioned above (it would require a complete collection), but it aims at giving an overview of the approach, the notation and the implementation of formulations specific to

each of the above-mentioned industry[1]. To do so, examples and various explanatory scientific notions will be used: surface chemistry, viscosity, thermodynamics, rheology and reaction chemistry[2]. However, our demonstration will limit itself to the classic knowledge of each commodity.

This book is for people with a scientific background who cannot find a general book on formulation, and for students studying the subject or industrialists looking for solutions related to their profession.

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1 This book will deal with elastomers as defined previously; it will not take into account elastomers formed *in situ*, their application being, by their very nature, different. Neither will it deal with thermoplastics or elastomers whose constitutive equation is substantially different.
2 Average molar mass in number: this will be explained in Chapter 2.