

# Preface

In accepting the invitation to submit a review on surface segregation, the question naturally arises regarding the extent and scope of the work. Some years ago, before the advent of computer based information systems, a complete, up-to-date and well-organised collection of all the work done in the field of surface segregation would have been a valuable contribution. However, such a task is now most suitably done by computer. Several excellent reviews[1,2,3,4,5,6] have also appeared over a period of years highlighting the industrial applications and the experimental setup required to study surface segregation, including the standard work *Interfacial Segregation* published by the American Society for Metals.

This work is therefore limited to the fundamental aspects of surface segregation theory. An attempt has been made to present the material in a self-contained manner and mathematical procedures are worked through in some cases. This is done to provide the reader with the necessary opportunity to (once again) realize the restrictions under which the expressions are valid. The approach is therefore two-pronged: in re-examining the basic assumptions the material should be of assistance to students (or researchers) starting in the field of surface segregation. On the other hand, several existing models that are used extensively in the field are shown to be inconsistent and active researchers may find this work valuable in re-assessing the macroscopic thermodynamical description of surface segregation as found in literature.

The author wishes to thank his colleagues for many stimulating discussions, especially dr F Bezuidenhout with whom he had shared many hours of experimental work, prof PE Viljoen and prof GN van Wyk first as study leaders and later as collaborators in recent work. The fruitful period of sabbatical leaves spent at the laboratories of dr JP Henon and dr E Taglauer and the their interest in the work is gratefully appreciated. Finally, financial assistance by the author's university and the Council for Scientific and Industrial Research is acknowledged.

