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analytical artifacts

GC, MS, HPLC, TLC and PC

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PREFACE

From ghosties and ghoulies and long-leggety beasties
and things that go bump in the night

May the good Lord deliver us

Analytical chemists should, perhaps, modify this traditional Cornish prayer to invoke protection from Murphy's Law. There is a veritable plethora of pitfalls and problems waiting to ensnare the novice and experienced analyst alike. Most analytical chemists maintain a personal "sin bin" of data relating to artifacts, contaminants, and similar no-nos. This volume represents a catalog of the author's own analytical indiscretions and a compilation of those gleaned from the literature.

This is not the place to elaborate on specific artifacts. However, it should be appropriate to give some indication of the types of problem which are considered:

- Plasticizers are present in many materials and can leach into a sample, contaminating it. Most analysts realize that they should use glass rather than plastic containers, but few of them would anticipate the possibility of plasticizer residues on glassware washed using detergent from a plastic bottle.

- A recent article in a respected journal claimed that the identity of the pheromone emitted by bitches in season to attract male dogs had been determined. What they detected was a widely-used antimicrobial agent.

- A male colleague once discovered (to his consternation) that skin oils collected from his forehead contained estrogens (female sex hormones). He was relieved to discover that they were from the hand lotion of the technician who swabbed his skin.

This book contains a wealth of similar cautionary tales, which will be related in the hope that other analysts can profit from these misadventures, and is dedicated to the innumerable scientists who made mistakes, used impure chemicals and solvents, suffered the consequences of unanticipated side-reactions, and were otherwise exposed to mayhem yet were not too embarrassed to publish their findings. Contributions to a sequel will be gratefully received.

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