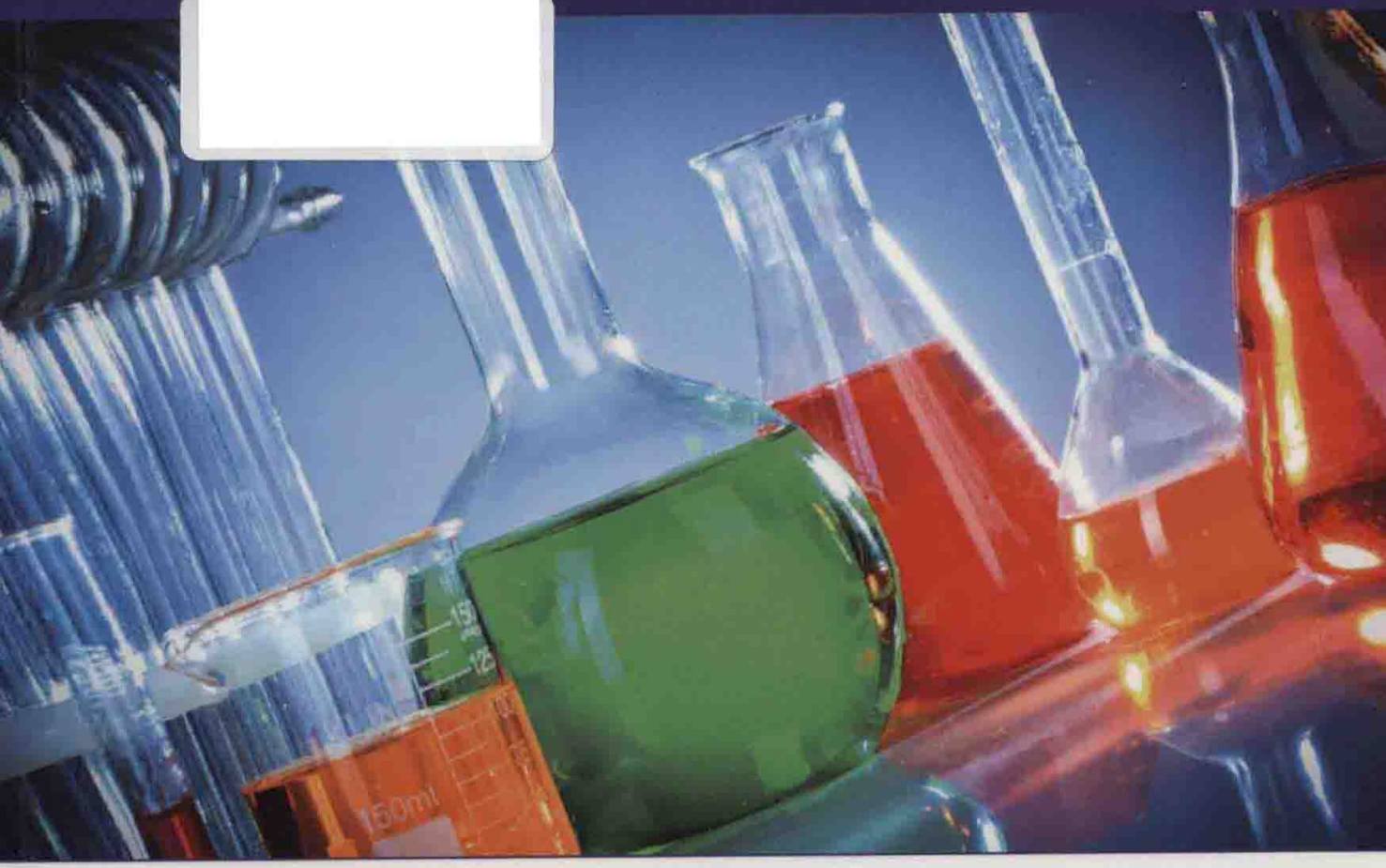

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Hosam El-Din M. Saleh (Ed.)

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Using Inductively Coupled Plasma Mass Spectrometry

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Trace Elements and Isotopic Analysis of Natural Samples

Preface

Trace elements concentration and isotopic ratios are very precious data in the analysis of rocks and minerals. In this book, we are concerned with the solid material of the Earth. The application of modern instrumental methods of analyses to analyze rocks and minerals is one of the fastest growing branches in analytical chemistry. Determination of the trace and ultra-trace elements (at the μg/L and ng/L levels respectively) helps to elucidate the processes governing their distribution in various natural phases of the earth and in exploration for new raw materials and ores. It is essential to improve methods of trace analyses by recognizing the limitations of the methods employed and understanding the quality control mechanism upon which the analyses depend, if objective and reliable conclusions are to be drawn from these data.

The goal of the present study is to develop reproducible and accurate methods for the trace and ultra-trace element analysis of rocks and minerals, as well as for the measurement of stable radiogenic isotopes of Sr and Pb in geologic samples, using inductively coupled plasma mass spectrometry (ICP-MS) instrumentation. Ion chromatography (IC) and energy dispersive scanning electron microscope (EDSEM) will be used as additional support when seems necessary.

This book includes four main parts as follows:

1- Introduction

2- Limitations and Merits

3- Optimization of Operation Parameters

4- Applications

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