

# 《化学》

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## 前言

随着经济全球化、教育国际化趋势的逐渐增强，迫切需要既精通专业知识又精通外语的高素质人才。化学是自然科学的“中心学科”，高等化学教育应面向世界，适应时代的需要，吸收国外先进的教学理念和教育教学形式，培养学生适应国际形势需要的综合素质。为反映国外化学类教材的最新内容和编写风格，同时也为提高学生阅读专业文献和获取信息的能力，为高等学校使用英文原版教材进行双语教学服务，我们精选了国外优秀的化学类教材，组成“国外高校优秀化学教材——影印版”，本书即为其中的一册。所选教材均在国外广泛采用，多数已再版，书中不仅介绍了有关概念、原理及应用，给出了丰富的实例和数据，还反映了作者不同的学术观点。我们希望这套丛书的出版能对高等学校师生有所帮助，并对我国高等化学教育的发展做出贡献。

# 《化学》

## 内容概要

希尔、麦克里里、科尔布编著的《化学：时代行进中的科学（第12版影印版）》适合非化学专业的学生学习化学知识。全书通过当今人们感兴趣的议题来介绍化学原理，将化学问题与日常生活紧密联系，突出化学用于解决环境污染、放射性、能源以及人类健康等问题的实际应用，使学生认识到化学在现实世界的重要性。并注重培养学生掌握科学的方法，能够以批判的眼光来学习，培养对科学的兴趣。全书内容丰富生动，语言清晰易懂。

《化学：时代行进中的科学（第12版影印版）》主要内容包括：化学，原子，原子结构，化学键，化学计算，气液固态与分子间力，酸和碱，氧化与还原，有机化学，高分子，核化学，地球化学，空气，水，能源，生物化学，食品，药物，化学与健康，化学与农业，日用化学品，有毒物质。

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## 章节摘录

**To the Student** Welcome to Our Chemical World! Chemistry is fun. Through this book , we would like to share with you some of the excitement of chemistry and some of the joy of learning about it. You do not need to exclude chemistry from your learning experiences. Learning chemistry will enrich your life-now and long after this course is over-through a better understanding of the natural world , the technological questions now confronting us , and the choices we must face as citizens within a scientific and technological society.

Learning chemistry involves thinking logically , critically , and creatively. Skills gained in this course can be exceptionally useful in many aspects of your life. You will learn how to use the language of chemistry: symbols , formulas , and equations. More important , you will learn how to obtain meaning from information. The most important thing you will learn is how to learn. Memorized material will quickly fade into oblivion unless it is arranged on a framework of understanding.

**Chemistry Directly Affects Our Lives** How does the human body work? How does aspirin cure headaches , reduce fevers , and perhaps lessen the chance of a heart attack or stroke? Is ozone a good thing or a threat to our health? Are iron supplement pills poisonous? Is global warming real? If so , did humans contribute to it , and what are some of the possible consequences? Why do most weight-loss diets seem to work in the short run but fail in the long run? Why do our moods swing from happy to sad? Can a chemical test on urine predict possible suicide attempts? How does perucillin kill bacteria without harming our healthy body cells? Chemists have found answers to questions such as these and continue to seek the knowledge that will unlock still other secrets of our universe. As these mysteries are resolved , the direction of our lives often changes-sometimes dramatically. We live in a chemical world-a world of drugs , biocides , food additives , fertilizers , fuels , detergents , cosmetics , and plastics. We live in a world with toxic wastes , polluted air and water , and dwindling petroleum reserves. Knowledge of chemistry will help you better understand the benefits and hazards of this world and will enable you to make intelligent decisions in the future.

**Chemical Dependency** We are all chemically dependent. Even in the womb we depend on a constant supply of oxygen , water , glucose , and a multitude of other chenucals. Our bodies are intricate chemical factories. They are durable but delicate systems. Innumerable chemical reactions that allow our bodies to function properly are constantly taking place within us. Thinking , learning , exercising , feeling happy or sad , putting on too much weight or not gaining enough , and virtually all life processes are made possible by these chemical reactions. Everything that we ingest is part of a complex process that determines whether our bodies work effectively or not. The consumption of some substances can initiate chemical reactions that will stop body functions. Other substances , if consumed , can cause permanent disabilities , and still others can make living less comfortable. A proper balance of the right foods provides the chemicals and generates the reactions we need in order to function at our best. The knowledge of chenustry that you will soon be gaining will help you better understand how your body works so that you will be able to take proper care of it. ....

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