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专门用途英语系列教材

English
for
Chemical Engineering

化工英语

教育部《化工英语》教材编写组 编

高等教育出版社

内 容 提 要

专门用途英语系列教材是教育部规划的高等学校(包括高等专科院校和高等职业院校)专业英语阶段的英语教材,也可供电大、各类成人院校及广大专业人员学习专业英语、提高涉外业务交际能力使用。

《化工英语》是该系列教材之一,本书从专业人员实际工作的需要出发进行设计和编写。选材新颖、点面结合、内容丰富、语言规范;练习兼具实用性和针对性。

全书由10个单元组成,每单元包括专业文献阅读与翻译、涉外业务应用文模拟套写和听力与会话三部分。书后附有词汇表练习答案和课文参考译文。

本书配有录音磁带。

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前 言

专门用途英语系列教材是教育部规划的高等学校专业英语阶段的英语教材。本系列教材从高级应用人才培养的总体目标出发,结合学生毕业后的工作实际,力求向学生提供其未来工作所需要的专业英语知识和技能,培养学生使用涉外业务英语的能力。

本系列教材每册书都由10个单元组成,每单元包括阅读与翻译、模拟套写和听力与对话三部分。

本系列教材主要供高等学校(包括高等专科院校和高等职业院校)专业英语使用,也可供电大、各类成人院校及广大专业人员学习专业英语、提高涉外业务交际能力使用。

《化工英语》系专门用途英语系列教材中的一种,旨在提高化学工程专业的学生和从业人员在化学工程领域的涉外业务英语交际能力,其中包括专业阅读、翻译、写作和口头交际的能力。

《化工英语》共10个单元,每单元包括三个部分:

第一部分“阅读与翻译”(Reading and Translating),旨在培养学生阅读和翻译化学工程专业英语的能力。本部分收入了两类文章:第一类为专业技术性文章,用来培养学生阅读和翻译化学工程专业技术文献的能力,内容涉及化学工程学科专业知识、著名企业介绍、理想职业与就业技巧、最新产品介绍、电子化工商务、化工与环保、化工新技术、化工未来前景以及诺贝尔化学奖等;第二类为有关化学工程专业领域的实用性文章,内容涉及化学工程求学知识问答、求职应用技巧、职员评介公司、电子商务实用知识、化工广告欣赏、名家论坛、诺贝尔奖颁奖及演说等。每篇文章后均配有适量的阅读和翻译练习。

第二部分“模拟套写”(Simulated Writing),旨在培养学生参照范例用英语摹拟套写和翻译化学工程领域的涉外信函、业务单证、电子邮件以及产品使用说明和招标公告之类的实用性文献的能力。本部分提供了一定数量的化学工程专业领域的涉外应用文范文,同时还设计了必要的翻译、套写练习。

第三部分“听力与会话”(Listening and Speaking),旨在培养学生进行化学工程专业涉外口语交际的能力。内容涉及学术交流和进出口业务两大方面,主要包括求职求学、公关交际、面试录用、合同谈判、技术转让与合作、保险洽谈、代理业务、模拟演讲等。每单元配有四个情景对话,并编配了涉外业务口头交际的常用表达法,供学习者学习模仿,力求作到“学中用,用中学”。

本教程构思独特、实用性强,尤其突出了化学工程专业涉外业务的实际需要;选材新颖、点面结合、内容丰富、语言规范;练习的设计兼具实用性和针对性。为便于教学,各单元每一部分均注有生词和短语,书末还配有总词表。

《化工英语》的总主编为孔庆炎教授,主编为廖世敬副教授和王慧莉副教授。

由于编者水平有限,加之时间仓促,疏漏和不妥之处在所难免,恳请读者不吝指正。

编 者

2002年2月

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1 UNIT

Chemistry and Chemical Engineering

Part 1

Reading and Translating

Warming-Up Exercise

Here is a PROGRAM OF CHEMICAL ENGINEERING offered at Stanford University. Compare it with the one offered in your university.

COURSE	Units/Quarter	Year
CHEMICAL ENGINEERING DEPT (52-53 UNITS)		
E 20: Introduction to Chemical Engineering	3S	Fr/So
ChE 100: Mathematical Methods in Chemical Engineering	3A	Jr
ChE 110: Equilibrium Thermodynamics	3W	Jr
ChE 120: Separation Processes	3S	Jr
ChE 130: Kinetics and Reactor Design	3W	Sr
ChE 140: Fluid Mechanics	4W	Jr
ChE 150: Energy and Mass Transport	4S	Jr
ChE 160: Chemical Engineering Plant Design	3S	Sr
ChE 170: Polymer Science & Engineering	3W	Sr
ChE 180AB ChE Lab (Satisfies "Writing within the Major" requirement)	3A 3W	Sr
Restricted Elective (选修课)*	3-4AWS	So/Jr/Sr
Chem 130: Theory and Practice of Identification	4A	Sr
Chem 171: Physical Chemistry	3A	Jr
Chem 173: Physical Chemistry	3W	Jr
Chem 175: Physical Chemistry	3S	Jr
ENGINEERING FUNDAMENTALS (5 COURSES MINIMUM)**	20-23AWS	
MATHEMATICS AND SCIENCE (56 UNITS)(Omitted)		

Note: E is short for Engineering, ChE for Chemical Engineering, Chem for Chemistry; A for autumn, W for winter, S for summer; Fr for freshman, So for sophomore, Jr for junior, and Sr for senior.



***STUDENTS MUST CHOOSE ONE COURSE FROM THE FOLLOWING LIST**

Engineering 104, 105, 120

Civil Engineering 101ABC, 161, 162, 163, 172, 180AB

Electrical Engineering 101, 102, 103, 111, 112, 113, 121, 122, 133, 141, 142, 182

Materials Science & Engineering 151, 152, 191, 192, 193, 194, 195, 196, 197, 198, 199

Mechanical Engineering 33, 111, 117, 118, 130, 131ABC, 161

Petroleum Engineering 121, 172

Computer Science 107, 108, 109AB, 110, 137

Note: To be accepted, ME 33 and CE 101B must be completed prior to ChE 140; Graduate courses in Engineering or Computer Science will be considered only by petition (申请).

****STUDENTS MUST CHOOSE FIVE COURSES FROM THE FOLLOWING LIST**

E 14: Applied Mechanics: Statistics and Deformables — 5 units or E15: Dynamics — 5 units

E 30: Engineering Thermodynamics — 3 units

E 40: Introductory Electronics — 5 units

E 50: Introductory Science of Materials — 4 units

E 60: Engineering Economy — 3 units or E 62: Introduction to Optimization — 4 units

E 70A: Programming Methodology — 5 units or E 70X: Programming Methodology and Abstractions — 5 units

Reading A

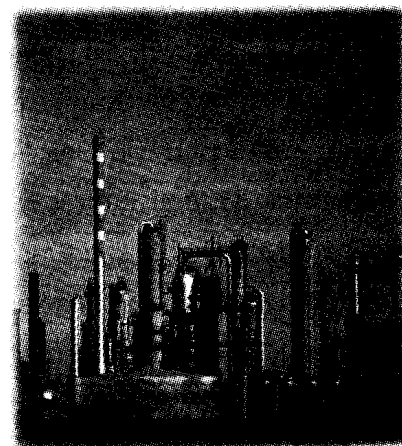
Chemistry and Chemical Engineering

What Is Chemistry?

Chemistry is a basic science whose central concerns are —

- the structure and behaviour of atoms (elements)
- the composition and properties of compounds
- the reactions between substances with their accompanying energy exchange
- the laws that unite these phenomena into a comprehensive system.

Chemistry is not an isolated discipline, for it merges into physics and biology. The origin of the term is obscure. Chemistry evolved from the medieval practice of alchemy. Its bases were laid by such men as Boyle, Lavoisier, Berzelius, Dalton and Pasteur.



What Is Chemical Engineering?

Chemical Engineering is a discipline influencing numerous areas of technology. In broad terms, chemical engineers are responsible for the conception and design of processes for the purpose of

production, transformation and transport of materials. This activity begins with experimentation in the laboratory and is followed by implementation of the technology to full-scale production.

The large number of industries which depend on the synthesis and processing of chemicals and materials place the chemical engineer in great demand. In addition to traditional examples such as the chemical, energy and oil industries, opportunities in biotechnology, pharmaceuticals, electronic device fabrication, and environmental engineering are increasing. The unique training of the chemical engineer becomes essential in these areas whenever processes involve the chemical or physical transformation of matter. For example, chemical engineers working in the chemical industry investigate the creation of new polymeric materials with important electrical, optical or mechanical properties. This requires attention not only to the synthesis of the polymer, but also to the flow and forming processes necessary to create a final product. In biotechnology, chemical engineers have responsibilities in the design of production facilities to use microorganisms and enzymes to synthesize new drugs. Problems in environmental engineering that engage chemical engineers include the development of processes (catalytic converters, effluent treatment facilities) to minimize the release of or deactivate products harmful to the environment.

To carry out these activities, the chemical engineer requires a complete and quantitative understanding of both the engineering and scientific principles underlying these technological processes. This is reflected in the curriculum of the chemical engineering department which includes the study of applied mathematics, material and energy balances, thermodynamics, fluid mechanics, energy and mass transfer, separations technologies, chemical reaction kinetics and reactor design, and process design. These courses are built on a foundation in the sciences of chemistry, physics and biology.

Chemical Engineering at Stanford

The Department of Chemical Engineering at Stanford is young — in fact, it is barely 40 years old. Within a decade of its inception, however, the department achieved national and international standing in terms of both teaching and research, and is currently ranked among the finest chemical engineering graduate programs in this country. A broad range of research interests is represented in the department, including both traditional and emerging areas of chemical engineering. The excellence of our graduate program is reflected in the success of our graduates in both industry and academia. Several aspects of the Stanford Chemical Engineering program make it a special place to pursue a Ph.D. Unlike most of the other top programs in the United States, our department is relatively small with twelve faculty and about seventy Ph.D. students and thirty masters students. Partly because of our small size, we have been able to develop a strong sense of community within the department. The small student-to-faculty ratio and the mechanisms that we have established to support and monitor student progress assure that each graduate student receives strong mentoring throughout their time here. Our emphasis is on graduate training at the Ph.D. level, characterized by modern, forward-looking, and challenging research projects. Our research efforts are fundamental in nature, that is, each of our faculty focuses on understanding the basic chemical, physical, and biological phenomena that underlie the engineering research problem under consideration. Many of our graduate students work





on research projects that involve collaboration with researchers from other fields who come from other departments at Stanford or from industry. (666 words)

NEW WORDS AND EXPRESSIONS

academia /ˌækə'di: miə/ <i>n.</i>	学术界, 学术环境
alchemy /ˈælkimi/ <i>n.</i>	炼金术
assure /ə'sʊə(r)/ <i>v.</i>	保证, 担保
behaviour /bi'heivjə(r)/ <i>n.</i>	行为, 举止; 习性; 性状
biotechnology /ˌbaɪəutek'nɒlədʒi/ <i>n.</i>	生物技术
catalytic /kætə'litik/ <i>a.</i>	接触反应的
characterize /'kærɪktəraɪz/ <i>v.</i>	表现…的特色
composition /kəm'pə'zɪʃən/ <i>n.</i>	成分, 构成物
compound /'kɒmpaʊnd/ <i>n.</i>	混合物; 化合物
comprehensive /kəm'pri'hensɪv/ <i>a.</i>	全面的, 广泛的
conception /kən'sepʃən/ <i>n.</i>	观念, 概念
curriculum /kə'rikjʊləm/ <i>n.</i>	课程
deactivate /di: 'æktiveɪt/ <i>v.</i>	使无效, 使不活动
discipline /'dɪsɪplɪn/ <i>n.</i>	学科
effluent /'efluənt/ <i>n.</i>	流出物, 污水
enzyme /'enzaim/ <i>n.</i>	酶
evolve /i'vɒlv/ <i>v.</i>	(使)发展, (使)进化
fabrication /fæ'bri'keɪʃən/ <i>n.</i>	制作, 构成
faculty /'fækəlti/ <i>n.</i>	全体教员; (大学的)系, 科
inception /ɪn'sepʃən/ <i>n.</i>	起初
investigate /ɪn'vestigeɪt/ <i>v.</i>	调查, 研究
isolated /'aɪsəleɪtɪd/ <i>a.</i>	隔离的, 孤立的
kinetics /k(a)'ɪnetiks/ <i>n.</i>	动力学
medieval /ˌmedi'i: vl/ <i>a.</i>	中世纪的; (贬)原始的
mentoring /'mentərɪŋ/ <i>n.</i>	导师; 指导
merge /mɜ:dʒ/ <i>v.</i>	结合, 融合
microorganism /ˌmaɪkrəʊ'ɔ: gənɪzəm/ <i>n.</i>	微生物
monitor /'mɒnɪtə(r)/ <i>v.</i>	监控
obscure /əb'skjuə(r)/ <i>a.</i>	模糊的; 晦涩的
optical /'ɒptɪkl/ <i>a.</i>	光学的
pharmaceutical /fɑ: mə'sju: tikl/ <i>n.</i>	药品
polymeric /pəli'merɪk/ <i>a.</i>	聚合的; 聚合体的
process /'prəuses/ <i>n.</i>	过程, 程序, 步骤
processing /'prəusesɪŋ/ <i>n.</i>	处理
pursue /pə'sju:/ <i>v.</i>	追赶; 继续, 从事

quantitative /kwɒntɪtətɪv/ *a.*synthesize /sɪnθəsaɪz/ *v.*thermodynamics /θə:məʊdaɪ'næmiks/ *n.*underlie /ʌndə'laɪ/ *v.*

数量的, 定量的

综合, 合成

热力学

位于...之下, 成为...的基础

build on

fluid mechanics

for the purpose of

merge into

process design

建立在...基础上

水力学, 流体力学

为了...的目的

融入

工艺流程设计

NOTES

Boyle /bɔɪl/

Lavoisier /lə:və'sjeɪ/

Berzelius /bə'zi:liəs/

Dalton /'dɔ:ltən/

Pasteur /pæs'tə/

波义耳(Robert, 1627—1691, 英国化学家、物理学家)

拉瓦锡(Antoine Laurent, 1743—1794, 法国化学家, 氧发现者)

柏济力阿斯(Jöns Jakob, 1779—1848, 瑞典化学家, 化学符号创制人)

道尔顿(John, 1766—1844, 英国化学家、物理学家)

巴斯德(Louis, 1822—1895, 法国化学家、细菌学家)

Check Your Understanding**Exercise 1 Mark the following statements with T (true) or F (false) according to the passage.**

- () 1 Chemistry, a basic science, is not isolated from other disciplines like physics and biology.
- () 2 Chemistry mainly concerns the structure and properties of atoms and compounds.
- () 3 Chemical Engineering is influencing numerous areas of technology.
- () 4 The term chemistry obviously originated from alchemy.
- () 5 Modern chemical engineers need unique training in modern industries.
- () 6 Chemical engineers studying biotechnology have responsibilities in synthesizing new drugs.
- () 7 The Department of Chemical Engineering at Stanford has a history of less than 40 years.
- () 8 The research projects at the Ph.D. level are modern, forward-looking, and challenging.

Exercise 2 Give brief answers to the following questions.

1 What does chemistry focus on according to the passage?

2 Generally speaking, what do chemical engineers do?

3 Why are the chemical engineers greatly demanded?

4 In what areas is the unique training of the chemical engineer essential?

5 What can chemical engineers do in environmental engineering?



- 6 What does the curriculum of the chemical engineering department include?

- 7 How is Stanford Chemical Engineering department different from most of the other top Ph.D. programs in the U.S.?

- 8 What is the advantage of the small student-to-faculty ratio?

Build Up Your Vocabulary

Exercise 3 Translate the following phrases into English or Chinese.

English	Chinese
1 _____	原子的行为特征
2 the composition of compounds	_____
3 the reactions between substances	_____
4 _____	将这些现象纳入到统一体系中
5 _____	融入物理和生物
6 to carry out these activities	_____
7 _____	化学品的合成与加工处理
8 the chemical transformation of matter	_____
9 _____	聚合体的合成
10 _____	赢得了国内外的声誉
11 the engineering research problem under consideration	_____
12 _____	攻读博士学位
13 _____	物料的转换与运输
14 implementation of the technology	_____
15 _____	师生比率小

Exercise 4 Complete the following sentences by translating the Chinese given in the brackets.

- 1 As a basic science, _____
(化学主要关注的是四个方面). (concern)
- 2 Chemistry is a discipline _____
(融入到物理学和生物学之中). (merge into)
- 3 The bases of chemistry _____
(是由下列著名化学家打下的) Boyle, Lavoisier, Berzelius, Dalton and Pasteur. (lay)
- 4 Chemical Engineering is _____
(一门影响众多技术领域的学科). (discipline)
- 5 The large number of chemical industries _____
_____ (使对化学工程师的需求大增). (place ... in great demand)
- 6 _____ (这就要求不仅注意聚合物的合成而且注意) the flow and forming processes necessary to create a final product. (synthesis)

- 7 _____ (这些课程是建立在…的基础上) in the sciences of chemistry, physics and biology. (foundation)
- 8 _____ (我们的重点是博士研究生的培养), characterized by modern, forward-looking, and challenging research projects. (emphasis)

Exercise 5 Translate the following sentences into English.

- 1 化学是一门基础科学,但是它不是一门孤立的学科,因为它融入了物理学和生物学。
- 2 通常化学工程师要处理环境工程方面的问题。
- 3 斯坦福大学化学工程系目前排名处于本国最佳化学工程研究生点之列。
- 4 我们有许多研究生与斯坦福大学其他专业的或来自工业界的研究人员合作搞研究项目。

Exercise 6 Fill in the blanks with the words or expressions given below. Change their forms where necessary.

deal with	biochemical	mechanism	apply to
underlie	involve in	be involved with	independent
biochemistry	be essential to	microorganism	living organisms

Biochemistry

Originally a subdivision of chemistry but now an _____ 1 _____ science, biochemistry includes all aspects of chemistry that _____ 2 _____ living organisms. Thus, photochemistry _____ 3 _____ (directly) photosynthesis and physical chemistry with osmosis ... two phenomena that _____ 4 _____ all plant and animal life. Other important chemical mechanisms that apply directly to _____ 5 _____ are catalysis, which takes place in _____ 6 _____ systems by the agency of enzymes; nucleic acid and protein constitution and behaviour, which is known to control the _____ 7 _____ of genetics; colloid chemistry, which _____ 8 _____ (in part) the nature of cell walls, muscles, collagen, etc; acid-base relations, _____ 9 _____ the pH of body fluids; and such nutritional components as amino acids, fats, carbohydrates, minerals, lipids and vitamins, all of which _____ 10 _____ life. The chemical organisation and reproductive behaviour of _____ 11 _____ (bacteria and viruses) and a large part of agricultural chemistry are also included in biochemistry. Particularly active areas of _____ 12 _____ are nucleic acids, cell surfaces (membranes), enzymology, peptide hormones, molecular biology, and recombinant DNA.

■ Reading B**Graduate Frequently Asked Questions**

The M.S. program is available for students who wish to pursue one year of **post-baccalaureate** study before beginning their professional careers. Although this degree can be awarded without a formal research **thesis** requirement, and can be completed within one year, a six-month research project remains an option. Students in this program take four courses (12 units) from the core graduate chemical

学士学位后
论文





engineering program, plus an additional 33 credits from department-approved graduate or advanced undergraduate courses in the basic or applied sciences and engineering. Each student develops a personal masters program proposal with a thematic focus at the beginning of the first quarter of graduate work. The elective courses must satisfy one or more themes to be selected **in consultation with** the MS program advisor in the Chemical Engineering department. 与...磋商

Here are some of the more frequently asked questions regarding graduate admissions. If you have either a general question about the program or a **procedural** question about Stanford policies, please send them to Jeanne Cosby apply@chemeng.stanford.edu. Questions regarding academic issues, specific research activities, etc. should be sent to the Graduate Admissions Committee chemegac@chemeng.stanford.edu and one of the committee members will respond. Undergraduate questions should be directed to Jeanne Cosby at cosby@chemeng.stanford.edu. 程序上的

Question: What kinds of financial aid are available? 经济资助

Answer: These are the main ways in which we support graduate students: external **fellowships** (NSF, various foundations, etc.); university fellowships (Stanford Graduate Fellowship), School of Engineering and Departmental Fellowships, and Research and Teaching Assistantships. They all carry both a tuition benefit and a stipend or salary, but in differing amounts. 奖学金

Question: What are my chances of getting financial aid?

Answer: We offer financial aid to **approximately** the top 20% of the Ph.D. applicants, and we support virtually all the first year Ph.D. students in the Department. Once Ph.D. students pass their preliminary qualifying examinations in the first year, they are supported by their research advisors. 大约

Question: When will I find out about the status of my application?

Answer: There are four major components required to complete your application file: the application itself with its statement of purpose, your GRE scores, three or more letters of recommendation, and your **official transcripts**. The Admissions Committee begins its assessment of the applications just as soon as they are complete. However, final decisions are not made for Ph.D. applicants until after January 15th, in order that the entire pool can be considered. Decisions on M.S. applicants are made immediately afterwards. If you haven't heard from us regarding your application by the end of February, please contact Jeanne Cosby at cosby@chemeng.stanford.edu. All decisions will be communicated to you in writing just as soon as they are made. 正式的成绩单

Question: What kinds of jobs do Ph.D.s get and where?

Answer: There is a saying that a chemical engineer can do anything, and the range of employment and career options available to our students demonstrates this. Most (approximately 2/3) of our Ph.D. students find challenging jobs in funda-

mental or applied research either in industry or national laboratories. There is no further generalization possible — they find careers in areas as diverse as the information technology companies, biotechnology, the oil industry, the chemical process industry, and private consulting. A smaller fraction (approximately 1/3) go into teaching as a profession. See the 'Recent Ph.D. Graduates Page' for a listing of where some of our more recent graduates are today. (559 words)

信息技术

部分

NOTES

M.S. program	理科硕士课程
Graduate Admissions Committee	研究生招生委员会
NSF (National Science Foundation)	国家科学基金会
Teaching Assistantships	助教奖学金
preliminary qualifying examinations	预选资格考试

Exercise 7 Complete the following note-taking according to the passage.

- 1 The M.S. Program is available for those who wish to _____. The Master's Degree of Science can be awarded without _____ and can be completed _____.
- 2 If you have _____ regarding graduate admissions, please write to Jeanne Cosby at the e-mail address of _____. If you have questions regarding _____, etc. write to the _____ by e-mail at chemegac@chemeng.stanford.edu. _____ should be directed to Jeanne Cosby at cosby@chemeng.stanford.edu.
- 3 From the questions most frequently asked by the applicants we learn that the issues they concern most are _____ and _____.
- 4 The financial aid packages usually carry _____.
- 5 According to this passage, most Ph.D.s get their jobs in _____.

Exercise 8 Translate the following phrases into English or Chinese.

- | | |
|--|-------------|
| 1 _____ | 硕士学位课程 |
| 2 one year of post-baccalaureate study | _____ |
| 3 _____ | 职业生涯 |
| 4 a formal research thesis requirement | _____ |
| 5 _____ | 系里认可的高级本科课程 |
| 6 the core graduate chemical engineering program | _____ |
| 7 _____ | 为期六个月的研究项目 |
| 8 the elective courses | _____ |
| 9 _____ | 具体的研究活动 |
| 10 preliminary qualifying examinations | _____ |
| 11 _____ | 研究生录取 |



12 financial aid

13

校奖学金

14 official transcripts

15

推荐信

16 fundamental or applied research

Exercise 9 Complete the following sentences by translating the Chinese given in the brackets.

1 _____ (硕士学位可以授予学生) who wish to pursue one-year post-baccalaureate study without a formal research thesis requirement.

2

(有关学术问题、具体的研究活动等的问题可发往研究生招生委员会).

3

_____ (如果您在二月末还未得到有关你入学申请的回信), please contact Jeanne Cosby at cosby@chemeng.stanford.edu.

4

_____ (我们的博士生中大约2/3) find challenging jobs in industry or national laboratories.

Part 2

Simulated Writing

English Letter Writing

在现代生活中, 无论求学求职还是学术交流都表现出明显的国际化趋势, 英语应用文的写作十分常见。其中最常用的是各类英语信函, 其基本格式大致如下:

信头(Letterhead)、日期(Date)、信内地址(Inside Address)、收件人(Attention)、称呼(Salutation)、事由(Subject or Reference)、正文(Body)、客套结语(Complimentary Close)、签名(Signature); 有时还包括附件(Enclosure)、附言(Postscript)、抄送(c.c.)等。

Sample Reading 1: The Format

Binhai College of Technology
Chemical Engineering Department
Binhai 806023, CHINA

June 2, 2002

Mr. S. Hammer, Professor
 Chemical Engineering Department
 The University of Sydney
 NSW 2000, Australia

Attn.: Admission Office

Dear Mr. Hammer,

This letter is to express interest in joining your research group when a suitable position becomes available.

I am completing my bachelor's degree of Chemical Engineering at Binhai College of Technology. As an excellent undergraduate, I have been impressed by the nationwide popularity of your productive group. I am keen to begin a career in chemical engineering with your staff, leading on to master's degree by research, and I would like to have the opportunity to join your research group. Over the past four years I have had a lot of reading about your recent research.

My résumé is enclosed and, should a position become available, I look forward to the opportunity to discuss this with you.

Yours faithfully,

(Signature)

Qiang Hao

Enclosures:

- 1) One application form
- 2) One résumé — Qiang Hao

Postscript: If your e-mail is provided, it will frequently be used to send you the missing items. Please check it.

滨海理工学院化工系
中国滨海 (邮编: 806023)

Hammer教授

澳大利亚新南威尔士州 2000

悉尼大学化工系

收件人: 招生办

Hammer教授:

本人十分有兴趣在贵单位有合适岗位之时到你们的研究课题组去工作。

我即将取得滨海理工学院的化学工程学士学位。我是一名优秀的大学生, 对你们卓有成就的小组在全国的知名度印象极深。我非常希望能够同你们的员工一起开始我的化工生涯, 同时通过参加科研拿到研究性硕士学位。我希望有机会到你的研究课题组工作。在过去四年里我拜读过您的不少新近研究成果。

现附上我的个人简历一份。如有工作机会, 我将十分愿意与您探讨此事。

此致

敬礼

郝强 (签字)