PRACTICAL ENGLISH WRITINGS FOR INTERNATIONAL CONSTRUCTION PROJECTS

国际工程实务英语

汪家树　编著

同济大学出版社
TONGJI UNIVERSITY PRESS

国际工程实务英语

PRACTICAL ENGLISH WRITINGS FOR INTERNATIONAL CONSTRUCTION PROJECTS

汪家树　编著

同济大学出版社
TONGJI UNIVERSITY PRESS

内容简介

本书介绍了国际工程建设中常用英语应用文的用途、篇章结构及语言特点。文体包括：可行性研究报告、标书文件、进出口工程合同、议定书、会议纪要、安装操作手册、技术讲座、施工方案、备忘录、现场工作日志等，全部为真实样例。本书可帮助大学理工科专业、国际贸易专业及英语专业本科生和研究生扩大国际工业贸易与工程技术知识面，掌握有关核心及常用英语词汇与习惯表达方式，提高跨文化交际技巧，以利于日后从事国际贸易、科技合作和相关英汉语口、笔译工作。本书也可供广大国际贸易业务人员、工程技术界涉外人员业余进修，或作为参加国际工程项目竞标、建设及管理工作之前的培训教材，以了解有关知识，提高英语理解与应用文写作水平。

图书在版编目(CIP)数据

国际工程实务英语/汪家树编著. —上海：同济大学出版社，2006.9

ISBN 7-5608-3360-8

Ⅰ.国 Ⅱ.汪… Ⅲ.对外承包—承包工程—英语—高等学校—教材 Ⅳ.H31

中国版本图书馆 CIP 数据核字(2006)第 100532 号

国际工程实务英语

汪家树 编著

责任编辑 朱振华 责任校对 徐春莲 封面设计 潘向蓁

出版发行	同济大学出版社
	(上海四平路 1239 号 邮编 200092 电话 021-65985622)
经销	全国各地新华书店
印刷	同济大学印刷厂
开本	787mm×1092mm 1/16
印张	13
字数	324 千
印数	1—4 100
版次	2006 年 9 月第 1 版 2006 年 9 月第 1 次印刷
书号	ISBN 7-5608-3360-8/H·405
定价	22.00 元

前　言

随着我国改革开放的深入发展和全球经济一体化，21 世纪理工科大学生毕业后将在世界各地的中外企事业单位参与愈来愈多的国际合作与竞争。了解当代科技英语实用文体的用途与语言特点将有助于实际工作中对此类文件与资料的阅读、翻译和写作，从而提高参与国际合作与竞争的能力。

以往我国理工科大学英语教学，在英语语言技能培养方面下的功夫很大，但在内容真实性与实用性方面重视不够，有不少内容仍属于虚应故事与科普文章，缺乏真实工作环境中经常接触或使用的“真枪实弹”的语言材料。此外，在理工科与文科相互渗透方面，我们也须进一步加强。21 世纪最受欢迎的将是复合型、国际性的人才。理工科大学生要不断提高英语实际运用能力，而对外经贸与英语专业的学生则应努力多了解一些基本的科学与工程技术知识。

基于上述认识，编者在承担教育部“新世纪高等教育改革工程”项目之一：“科技英语应用研究”时，从国内外有关国际贸易、国际工程建设等大型公司及企事业单位收集了各类常用科技英语应用文，并与涉外工程技术人员、管理人员和翻译座谈，了解了常用科技英语应用文的使用情况，以及学习与掌握此类应用文的经验，收集到相关材料近千万字。包括科技论文、工程技术标准与规范、专利书、公司年报、可行性研究报告、资格预审报告、招标投标文件、技术合作协议书、进出口工程项目合同、工艺流程说明书、设备安装使用手册、检验报告、技术讲座、会谈纪要、议定书、施工方案、备忘录、工作日志、竣工书等。

在项目研究中，通过调研，编者按照理工科大学生、对外经贸专业和英语专业本科生与研究生毕业后实际工作的需要以及社会上对外经贸与涉外工程技术人员的要求，并考虑到教学上的可操作性，将科技英语应用文的编写范围集中在进出口国际工程项目，编写出本教材。该教材的素材全部选自真实案例，按照国际工程立项、招标、投标、签约、施工、管理等建设的全过程，选取了最重要、最常用的 11 大类国际工程英语应用文。

在文体上，这些应用文包括：项目可行性研究报告，招标、投标文件，进出口工程项目合同，议定书，会谈纪要，设备安装、操作手册，技术讲座，施工方案，备忘录，现场工作日志等。在内容上，为了拓宽适用面与知识面，范围涉及到工业外贸、技术管理、土木工程、医药化工、机械仪表、交通运输、自动控制等领域。在语言文字方面，部分范文出自英美人士之手；部分来自其他国际人士；部分来自中方翻译人员。除了某些公司名称、人名、地名、经济与技术数据、时间，以及个别文字作了必要的技术性处理之外，均保持了原文风貌，未作改动。

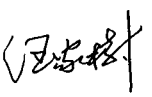
教材各章由文体简介、范文、词汇与用语以及练习等四部分组成。文体简介部分着重介绍该应用文的定义、用途、篇章结构及语言特点。范文原文如篇幅过长，则节选其中最具代表性和最核心的部分。词汇与用语部分主要针对工程技术与对外贸易词汇及背景知识，于首次出现时加以注释，以帮助读者理解原文。练习分为三部分：第一部分为词组汉译英，目的在于帮助读者复习并掌握该应用文中最重要与常用的英语词语及表达方法，答案从范文中可以找到。此部分其实也是范文中这些词语的汉译，自学时可作参考。第二部分为英译汉，取自范文中应用价值较高或有一定难度的片段，以提高读者的翻译能力并间接提高读者的实用英文写作技巧。第三部分为思考题，内容有关范文的功能、格式、主题、要点和写作技巧，以提高读者对该

应用文的总体把握，以及分析、讨论与连贯的英语口、笔头表达能力。

《国际工程实务英语》兼顾科技英语与国际贸易两门知识，可供理工科大学生作为英语教材，也适用于培养复合型国际经济贸易专业和英语专业的本科生与研究生。该教材将有助于扩大他们的国际贸易与工程技术知识面，了解并掌握相关的核心英语词汇与表达方法，以利于日后从事国际工业贸易、科技合作工作和相关英汉语口笔译工作，尤其是这些应用文的汉译英工作。此外，该教材也可供广大国际贸易业务人员，工程技术界涉外人员业余进修，或作为参加国际工程项目竞标、建设及管理工作之前的培训教材，以了解有关知识，提高英语理解与应用水平。

为便于读者自学，编者提供了练习部分的汉译英及英译汉参考答案，并希望借此让读者了解工程及外贸英汉语翻译中的一些常用技巧，如根据工程实际情况和译文读者的理解习惯而采用的意译法、增词法、省略法、转译法、分句法、合句法等。在教学中教师可与学生讨论它们其他可行的或更好的译法，也可另选片断作翻译练习，以进一步提高学生的翻译能力。

此教材在收集资料及编写过程中得到了中国技术进口总公司、中国土木工程集团公司、化工部第二设计院、铁道部第二勘测设计院、岳阳化肥厂工程建设指挥部等单位有关人士，以及同济大学外国语学院专门用途英语方向 1999－2004 级研究生的支持与协助。本书的出版得到同济大学教材、著作出版基金资助，特此一并致谢。由于编者水平有限，教材中不足与错误之处敬请读者指正，以便日后改进。



于同济新村

2006.2.18

目　次

CONTENTS

Ⅰ. 可行性研究报告
Feasibility Study Report

1 文体简介

可行性研究报告是工程项目正式立项前，对其技术、经济及社会效益等各方面进行的系统分析和综合评价。可行性研究的任务是对项目投资和经营提供决策依据，以减少建设的盲目性，避免出现重大失误和经济损失。可行性研究也普遍适用于科学技术课题研究，新产品开发和技术引进等许多方面。

可行性研究始于20世纪30年代的美国，当时是为开发田纳西流域的投资决策所作的一项大型综合性研究。第二次世界大战后，随着科学技术的发展和经济建设的需要，可行性研究的内容和方法不断完善，应用范围不断扩展，被众多发达国家所采用。联合国工业发展组织于1978年编制了《工业可行性报告编写手册》。中国从1982年开始，已将可行性研究列为新建、扩建和改造大中型工程项目决策和审批的一个重要程序。

工业项目可行性研究报告的主要内容包括：

1）项目提出的背景、投资的必要性和经济意义；

2）需求预测和拟建规模；

3）资源、原材料、燃料及公用设施情况；

4）建厂条件和选址方案；

5）设计方案；

6）环境保护；

7）企业组织、劳动定员和人员培训；

8）项目实施进度建议；

9）投资估算和资金筹措；

10）项目经济效果评价。

可行性研究通常要将技术方案和经济效益结合起来进行综合研究，因此技术性和经济性是可行性研究报告的最大特色。此外，可行性研究还应遵循独立性、客观性、准确性、系统性、选优性、预测性等原则。

可行性研究报告语言属于正式书面语。用词较为严谨、规范，经常使用一些源于拉丁语和法语的“大词”，有关技术和经济的专业词汇与术语也较多。在语句结构方面，长而正式的复合句较多，名词的前置与后置修饰成分也较多。为体现客观性，无人称句和被动语态出现的频率较高。在语义方面，可行性研究报告的编写以真实性、严谨性和科学性为基本要求，所以带有主观感情色彩的词语和修辞格在报告中很少出现，而客观准确的非言词表达方式，如图表，数据等则很丰富。在篇章方面，可行性研究报告的编写重视逻辑性与说理性，遵循一定的格式，一般用数字标注章节顺序，以便查找，同时使得篇章具有条理性和系统性。

2 TEXT

Feasibility Study Report

A Plant Producing X0,000 MTPA Sodium Citrate and Other Pharmaceuticals for a Joint Venture Company

(Excerpts)

Taihua Engineering Company

Class A Engineering Design Certificate: XX60146

August, 19XX

Contents

Drawings Attached

1. Regional Location Drawing	9936.4.300-01
2. General Layout Plan	9936.4.300-02
3. Water Balance Drawing	9936.4.300-03
4. Power Supply System Drawing	9936.4.300-04

1. General

1.1 Brief Description

1.1.1 Project name, promoter's name, character of the enterprise and its chairman of the

board of directors

1.1.1.1 Project name

X0,000t/a Sodium Citrate & Pharmaceutical Products Project jointly invested by Menxi City, Henan Province, China and Pharmaceutical Engineering Company, Milan, Italy.

1.1.1.2 Promoter's name

Samico Pharmaceutical & Chemical Co., Ltd. China

1.1.1.3 Character of the enterprise

Sino-foreign joint venture

1.1.1.4 Chairman of the board of directors

Chairman (General Manager): Eng Ennio Pasquion

Vice-Chairman (Vice General Manager): Li Shouzhu

1.1.2 Compilation basis and principle of the feasibility study report

1.1.2.1 Compilation basis

(1) "Environmental Impact Report for the X0,000t/a Sodium Citrate & Pharmaceutical Products Project jointly invested by Menxi City, Henan Province, China and Pharmaceutical Engineering Company, Milan, Italy." compiled by China Meteorological Scientific Research Institute.

(2) "Feasibility Study Report for the X0,000 t/a Sodium Citrate Project in Menxi City, Henan Province" compiled by China Taihua Engineering Company.

(3) Contract entrusting Taihua Engineering Company to compile the feasibility study report for the "Sodium Citrate & Pharmaceutical Products Project" by China Samico Pharmaceutical & Chemical Co., Ltd.

(4) Relevant technical documents provided by Pharmaceutical Engineering Company, Milan, Italy.

(5) Basic data provided by Menxi Transportation Service Center.

1.1.2.2 Compilation principle

(1) In order to strengthen the enterprise's market competitive edge and the capability against risks, the products to be selected should be those which are reasonable in price and well received and stay long in the international market.

(2) In order to enhance the scale effect and obtain high economic benefit, proper production capacity should be defined according to the market demand and technology source.

(3) Through careful studies and various scheme comparisons, the process to be selected should be internationally advanced in its technology, good in product quality, lower in operation cost, safe and reliable in plant operation, and least in pollutants discharge.

(4) The State industrial policy shall be well understood. Such construction principles as integrated plant arrangement, unenclosed production units, light architectural structures, localization of the imported technologies and socialization of the utilities shall be strictly implemented.

(5) The national laws of environmental protection, labor safety and hygiene requirement will be strictly abided by to ensure the safety and health of the workers during the production. Treatment of "Three wastes" shall be timely and thorough. The pollutants will not be discharged until they have been strictly treated and up to the discharge standard.

1.1.3 Background of the project, necessity of the project investment and its economic significance

Background of the project

Menxi City is located in the west part of Henan Province, at the border area of the three provinces of Henan, Shanxi and Shaanxi. To the east of it lies Luoyang city; and to the south, Nanyang city. It borders Shaanxi province in the west and is separated from Shanxi province by the Yellow River. In history it is the economic and cultural center of the border area of Yu (Henan), Shaan(Shaanxi) and Jin(Shanxi) provinces. With the construction of the first dam in the Yellow River and with nearly 40 years hard work of the local people, Menxi City has rapidly grown into a new prosperous city. Now Menxi City includes one district (Hubin), two sub-cities (Yima, Lingbao) and three counties (Mianchi, Lushi and Shaanxian), having a population of 2.13 million. In 1995 the gross national product (GNP) of Menxi City amounted to 9.5 billion. Based on comparable price, it is a 98.6% increase than that in 1990.

Menxi is very rich in resources, with its considerable reserves of gold, bauxite and coal being famous in China. After many years of construction, the city industry of Menxi has developed to certain scale now, of which electric power and metallurgical industry are comparatively more advanced, especially its power supply is very sufficient. Menxi is one of the key power industry bases in Central China. With the Menxi reservoir having a capacity of 9.6 billion cubic meters and an annual regulating storage capacity of 1.8～2.0 billion cubic meters, Menxi City has rich water resource which can supply sufficient water to the construction of projects concerning energy and chemical industries. Besides, Menxi is also very convenient in transportation, with Lanzhou-Lianyungang Railway passing through from the east to the west, 310 (Lianyungang-Tianshui) and 209 (Hohhot-Beihai) national trunk-highways crisscrossing the City, and Menxi Yellow River Highway Bridge connecting Yu (Henan) and Jin (Shanxi) provinces. The transport and communication lines link up all parts of this area.

Ever since the opening to the outside world and reform, Menxi has sped up the infrastructure construction in the City. Service facilities, business, finance and tourism are getting better and better. Science and education, hygiene and communication have developed rapidly. Menxi City has taken on a new look.

To sum up, having the conspicuous advantages of resources, favorable geographical conditions and sound infrastructure facilities, Menxi is the ideal location to build up the joint venture.

Menxi Transportation Service Center was established in 1990, having over 300 staff members at present, among whom 40 are technicians. Under this Center there are seven economic entities such as Menxi Passenger/cargo Transportation Company, Menxi Cargo

Transportation Check Center, Menxi Mobile Examination Center, Menxi Chemical Plant and Railway Freight Station. The fixed assets are over 40 million Yuan.

For many years, Pharmaceutical Engineering Company, Milan, Italy has been engaged in research, development and engineering design on pharmaceutical products. It also has a production plant for pharmaceutical products and chemical medicine intermediates. Its pharmaceuticals production technology, especially the antibiotic and ferment technology is particularly advanced. It has solid economic strength and very good business reputation. The plant for production of spiramycin, which was jointly built up by Pharmaceutical Engineering Company, Milan, Italy with its technology and the Second Pharmaceutical Plant, Wuxi was successfully put into operation in Feb. 16, 19XX. Besides, Pharmaceutical Engineering Company, Milan, Italy has also transferred its technology for production of antibiotic products to Harbin Pharmaceutical Plant and the First Pharmaceutical Plant, Wuxi; it also offered some partial equipment for the medium-sized nitrogen renovation project in Xuanhua and other four fertilizer plants; the company has participated in nearly 100 chemistry integrated complexes constructions throughout the whole world and established its fine reputation.

For the further development of the enterprise and to broaden the company's business scope, Pharmaceutical Engineering Company, Milan, Italy determined to look for new cooperation partners in China. In 19XX, through Pakistan embassy, the company held a talk with the Ministry of Chemical Industry and intended to build up a joint venture factory for the production of Sodium Citrate with a capacity of X0, 000 t/a in China. With the help of the related departments, Pharmaceutical Engineering Company, Milan, Italy has had many contacts and talks with Menxi Transportation Service Center. On the principle of equality and mutual benefit the two parties have reached a cooperation agreement in 19XX, in which they are to invest together and manage jointly the factory and share the benefit together. The content to be studied and discussed in this report is the feasibility to utilize the sodium citrate equipment to produce lovastatine, cyclosporine A and gibberellic acid GA4.

1.1.3.1 Necessity of the project investment and its economy significance

Lovastatine is an antihypercholesterolemic mainly used to reduce cholesterol levels. It can be used for patients with primary hypercholesterolaemia to lower the cholesterol levels and low density lipoprotein (LDL) cholesterol levels and to increase high density lipoprotein (HDL) cholesterol, when the response to non-pharmacological measures has proved inadequate.

Cyclosporine A is a powerful immunosuppressant. Its principle use is in solid organ transplantation, to prevent or treat allograph rejection, and in bone marrow transplantation, for the prevention and treatment of graft versus host disease and to prevent allograph rejection.

Another use of cyclosporine A is in non-organ transplantation, such as: severe aplastic anaemia, renal syndrome, myasthenia gravia, dermatomyositis, atonic dermatitis, biliary cirrhosis, diabets mellitus, thrombocytopenic purpura, Huppert's disease and rheumatoid arthritis. Moreover, new indications for psoriasis have been approved in some countries. Other areas under examination include ophthalmic use and multiple-drug resistance modification in cancer therapy.

Gibberellic acid GA4 is a kind of important plant growth regulator, which can promote growth of plants, esp. the growth of seedlings and cormophyte, promoting them to put forth buds and to blossom earlier. It has been indicated clearly in the examination that the use of gibberellic acid GA4 has obviously increased the yield of the seedless grapes and improved the size and weight of the fruits. In addition, when using gibberellic acid GA4, plants such as potato, tomato, rice, wheat, cotton, bean and fruit trees have been obviously increased in yield.

All the above three products described in this study report: lovastatine, cyclosporine A and gibberellic acid GA4 will be exported. According to the world market investigation and predication to the three products by Pharmaceutical Engineering Company Italy, they will have a very prosperous market and stable price. The economy benefit is great. Moreover, since the key technology and equipment of the project, esp. the zymophytes are the license of Pharmaceutical Engineering Company Italy, there is no necessity to look for another technology cooperation partner. Products produced from this company's bacterium have the character of stable quality, high activity productivity and low material cost. The project is to be implemented in Menxi City, which will take full advantage of its materials, resources and transportation.

1.1.4 Study scope

The following are the working scope of this study report:

(1) Process production plant

Fermentation process

Filtration, extraction process

Concentration, crystallization process

Solvents recovery process

(2) Utilities

Plot plan and transportation

Water supply and drainage

Power supply and telecommunications

Heating

Plant area process and heat supply inter-unit piping system

Plant area water supply and drainage piping system

Environmental protection, fire fighting and security

(3) Auxiliary production facilities

Waste water treatment station

Central laboratory

Compressing station

Refrigeration station

Maintenance and storage warehouse

Office building

Service facilities

1.2 Study Conclusion

(1) According to the project financing evaluation, the internal rate of return (after income tax) will be about 108.83% and the rate of return on investment will be 166.54%, with an investment recovery period of 2.64 years (after income tax). The level of investment return is higher than the average of the same line of business with some capability to gain profit; the break-even point of the investment will be 19.6%. It indicates that the project has certain capacity against risk. Therefore, the project is feasible.

(2) The product market of this project is very promising with the product scheme being sound, production materials being easy to get and 100% products being exported.

(3) The project is to adopt the world advanced production process and technology, which has the advantage of better product quality, less material and energy consumption, less discharge of "three wastes" and easy treatment. This can improve the competitive edge of the enterprise.

(4) With the advanced technology and less discharge of three wastes, and with the more advanced imported water treatment equipment, the project will have less effluence to the environment after establishment.

(5) The project will be implemented in Menxi City, which has advantages in geography, communication and land. After being put into operation, the plant will be a base for the production of pharmaceutical materials with considerable capacity and realize good returns on investment.

Attachment: List of major techno-economics

List of Major Techno-Economic Figures

Ser. No.	Item	Unit	Quantity	Remark
Ⅰ	Plant capacity	t/a	X6,558	
Ⅱ	Product scheme			
1	LOVASTATINE (In accordance with American Pharmacopoeias, 23th edition)	t/a	X2,587	
2	CYCLOSPORINE A (In accordance with American Pharmacopoeias, 23th edition)	t/a	X7,504	
3	GIBBERELLIC ACID GA4	t/a	X,467	
Ⅲ	Consumption of main feedstock			
1	Lactose	t/a	X,527	
2	Fructose	t/a	X34	
3	Soya meal	t/a	X08	
4	Yeast	t/a	X5	
5	Amino acids	t/a	X9	
6	Others	t/a	X24	
Ⅳ	Consumption of the utilities			
1	Fresh water	m^3/h	X93	
2	Recycling water	m^3/h	X,550	
3	Electricity	kW	X0,526	

Cont'd

Ser. No.	Item	Unit	Quantity	Remark
	In which 6,000V	kW	X,022	
	380V	kW	X,504	
4	Steam	t/h	X3.92	
5	Compressed air for process and Instrument	m^3/h	X7,974	
6	Refrigeration	kJ/h	$X,790 \times 10^4$	
V	Plot plan and transportation			
1	Floor area of plant	m^2	X10,500	
2	Total transportation	t/a	X05,932	
	In which: Input transportation	t/a	X1,503	
	Output transportation	t/a	X4,429	

...

6. Plant Construction Conditions and Plant Location Scheme

6.1 Plant Construction Conditions

6.1.1 Geologic location, topography and landforms of the plant site

Menxi lies in the west of Henan Province, marching with Shanxi Province and Shaanxi Province. It is adjacent to Luoyang City in the east, Nanyang City in the south and Shaanxi Province in the west and faces Shanxi Province across the Yellow River in the north. It is the economic and cultural center in the boundary area of Henan, Shanxi and Shaanxi Provinces. It now governs 3 counties (Mianchi, Lushi and Shanxian), 2 sub-cities (Yima and Lingbao) and 1 district (Hubin). It has a total area of 10,500km^2 and a population of 2,130,000 while the area and population of the constructed city are 24.4km^2 and 35,800 respectively.

The plant will be located in the southwest of the Qinglongjian River, Hubin District, Menxi City. No. 310 national road and Qinglongjian River lie on the north of the plant site. To its west is a gold smelting plant, and Menxi Aluminum Plant is 0.5 km away from it on the northeast.

The plant site belongs to the first class terrace of the bank of Qinglongjian River, where the topography is even with the sea elevation of 372～379m. The site is now farm land and apple yard, and a few houses there need to be pulled down. The area of the applicable land is $1527.5 \times 904m^2$.

6.1.2 Engineering geology and seismic intensity

6.1.2.1 Engineering geology

Since the engineering geological prospect of the plant site has not been carried out yet, the engineering geological prospecting information of the Gold Smelting Plant on the west side of the proposed plant site can be taken as reference, from which the soil layer under the terrene is as follows:

(1) Alluvial soil layer

It has a small amount of 1～2mm small holes and very few 3mm big holes, containing a few white soluble salts, entraining a small amount of crushed bricks/tiles and coal cinder, etc., slightly wet, hard, slightly dense, with a thickness of 0～0.7m and the allowed bearing

capacity of 12N/cm^2.

(2) Yellow clayey soil

It has 1～2mm small holes, containing a few white soluble salts, entraining a small amount of drab clayey soil lumps, slightly wet, rigid to plasticity, loose to slightly dense, with a thickness of 0.5～2.4m and the allowed bearing capacity of 9N/cm^2.

(3) Yellow light loam

It has a few 1～2mm small holes, containing a small amount of white soluble salts, slightly wet, plasticity to rigid, loose to slightly dense, with a thickness of 0～0.8m and the allowed bearing capacity of 7N/cm^2.

(4) Sandy cobble layer

The cobble content is about 70%～80% of the layer. The diameter of most cobbles is 3～5cm and the maximum 20cm. 20%～30% of the layer is filled in by sand and clay. It is slightly dense. The prospecting well with a depth of 5m is drilled without getting the bottom of the layer. The allowed bearing capacity is 30N/cm^2.

The soil property analysis shows that the site belongs to class A self-weight, non-collapse soil layer. The shallow foundation is to be adopted for the main building while sandy cobble layer is used as the bearing stratum.

The site investigation shows that the ground water is below the prospecting well with a depth of 5m.

6.1.2.2 Seismic intensity

According to China National Seismic Intensity Division (1990), the basic seismic intensity of Menxi City is 8 degree.

6.1.3 Meteorological conditions

Located in the inland at the middle latitude, Menxi belongs to the temperate continental climate with four obvious seasons, and its meteorological data are as follows:

(1) Ambient temperature	
Annual average	13.8℃
Extreme max.	43.2℃
Extreme min.	−14.7℃
Average in the hottest month	26.5℃
Average max. in the hottest month	31.6℃
Average in the coldest month	−0.5℃
(2) Atmospheric pressure	
Annual average	698.9mPa
(3) Humidity	
Annual average relative	64%
Average relative from Jun. to Aug.	50%
Monthly average relative min.	70%
(4) Rainfall	
Annual average	566.9mm