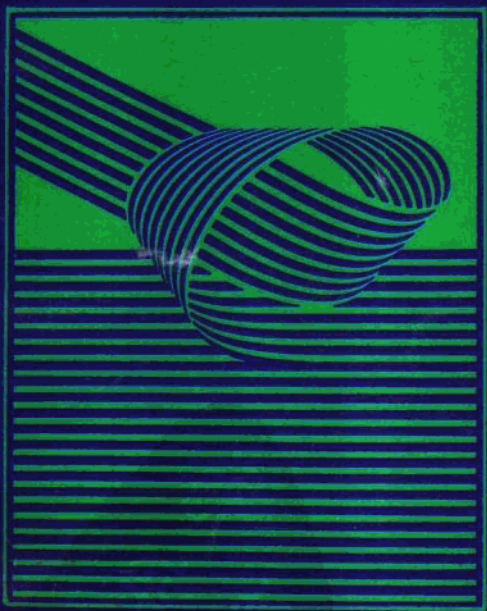


包 装 技 术 丛 书

# 包装工程专业英语

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PROFESSIONAL ENGLISH  
FOR PACKAGE ENGINEERING

### 内 容 简 介

本书取材于国外最新包装技术专著和期刊，内容丰富，题材广泛。本书努力体现包装技术的多科性与交叉性的特点，选编了与包装技术相关的材料、设计、动力学、工艺、设备、食品、医药、CAD、管理、创造学等方面文章 24 篇。全书共分 12 课，每课包含课文与阅读材料，文后列出新词汇和术语，并作难点注释。为便于读者学习，书后还附有全部参考译文和包装工程常用术语汇编。

本书反映了包装科技最新成果，深入浅出，循序渐进，可供高等院校包装工程专业及相关专业选作专业外语教材或辅助读物，对于包装科技人员进一步提高外语水平也是一本很实用的参考书。



## 前 言

随着中国经济的振兴和繁荣,我国包装工业和包装科技教育事业有了明显的进步。面对世界科技和经济的飞速发展的挑战,包装科技人员深感重任在肩,迫切地希望努力提高自己的能力与素质,更有效地学习和应用国外先进技术。

目前,我国许多高校的包装工程专业陆续开设了包装工程专业英语或专业外文文献阅读课程,这对巩固学生的基础外语水平,拓宽知识面,提高对国外技术资料的阅读应用能力起到很好的促进作用。遗憾的是,国内尚缺少内容新颖、程度适当、实用性强的包装工程专业英语教材或读本,影响了包装工程专业外语教学的水平提高及规范化。为此,笔者总结了多年的教学和工作实践经验,以曾经试用过的包装技术英语文献为基础,充实了能反映当今包装科技新水平的技术资料,编成这本《包装工程专业英语》。

本书编写中,注意做到程度深浅相宜,循序渐进,内容涵盖面广。考虑到包装技术的交叉性和多科性特点,课文内容涉及了与包装相关的材料、设计、工艺、设备、食品、动力学、CAD、管理、创造学等多方面的知识。

全书共12课,每课包含课文与阅读材料,为方便读者学习理解,每篇原文后列出文中出现的新词汇和术语,并对有难度的语言点和句子加以注释。书后还附有所有材料的参考译文、总词汇表和包装工程常用术语。译文中所有图省略。

本书既可作为包装工程专业的参考教材,也可作为在职技术人员提高专业水平和外语水平的学习参考书。

全书由上海大学金国斌副教授编译,并审校。

本书编写中曾广泛听取上海大学包装工程专业师生、上海轻工业学校包装专业师生的意见，得到有关专家的支持和帮助，在此深表感谢。

欢迎读者使用本书，并对书中谬误指正。

编者

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# LESSON ONE

## TEXT

### Packaging

Packaging is an important aspect in overall production and material handling and requires input from engineering, production, graphics, and advertising personnel. The specifications for the product package very much depend on the product design, and any change in design can cause a significant change in package requirements. It is therefore essential to consider packaging in the designing, production, and material-handling phases of the product.

Packaging also has a big role in a consumer's decision to purchase. If there are several varieties of the same basic product for about the same price, it is most likely that the one purchased will be the one that stands out the most.<sup>(1)</sup> The size, shape, and colors of the packaging can be very instrumental in product sales. Even for industrial or commercial products, packaging plays an important role in delivering the product intact at minimal additional cost.

Packaging mainly serves to protect a product from damage caused by handling or exposure to environmental conditions involving heat, moisture, light, and even electronic interference and radiation.<sup>(2)</sup> It allows a manufacturing firm flexibility in lo-



cating its facilities in a site that is most suitable in terms of production-oriented factors such as labor, raw materials, and utilities without having to be concerned with whether the finished product can be delivered safely to its customers.<sup>(3)</sup> The type of packaging also contributes to formation of the unit load, which is necessary in the selection and use of the type of material-handling equipment.

There are three major categories in packaging: consumer, industrial, and military. Consumer packaging, which can be subdivided into retail and institutional, is characterized by small units of products handled in large numbers. When the packaging is for retail purposes, its appearance should be emphasized. For institutional use, protection, cost, and convenience are much more important than appearance. Quite commonly, large-sized units of a product indicate industrial packaging. Military packaging is specified by the government.

The important aspects of a package include its structure, aesthetic appeal, style, ability to communicate information to the user, and adherence to legal specifications. The development of a package follows steps similar to those of product design. First, the design should determine whether the packaging is for industrial or retail use to get a sense of the appropriate size and weight of a single package. Then the pallet size for shipping and how high the pallets can be stacked without damage will dictate a load.

The packaging personnel must be very familiar with the product to develop a proper package. This includes its physical specifications, how it is to be used, and details of its promotional information. They must also maintain high ethical standards by

not using deceptive labeling and should pay attention to consumer needs, which can be identified through market research.

The type of material used for packaging is controlled by the protection needed for the product, which in turn depends on factors such as the sensitivity of the product (electronic instruments are very sensitive, while refrigerators and appliances are moderately rugged), the weight of the product, the method of shipping and handling, the desired shelf life of the material, and whether the packaged material is to be stored indoors or out. There are different materials to be used depending on the protection desired, for example, protection against breakage, moisture, or heat.

In designing the individual package, an existing design that fills all the packaging needs could be used, or the package could be designed entirely from scratch if no suitable modification to the existing design can be made.<sup>(4)</sup> In any case, customer appeal, the packaging budget of the company, proper product labeling information, and the universal product code number should all be considered.

When the package is ready to be put into use, several production aspects must be kept in mind. The product manufacturing rate must be the minimum rate of packaging.<sup>(5)</sup> The procedure should therefore be evaluated to determine the number of machines and personnel that would be needed to achieve this balance.

Shock from handling and transportation can be damaging to products, especially fragile objects. Formed plastic trays or styrofoam molds, which are lightweight and can be shaped to fit the object, can be helpful. Foam-in-place is very versatile, a light

and inexpensive method of packaging that can be partly or fully automated if the volume justifies. Packaging materials such as styrofoam chips, thermoform polyethylene and polyurethane foams, paperboard partitions, air cushion mats, and die-cut corrugated inserts are other means of protecting against shock damage. Packaging the product in large units can help hold each individual unit in its place. Human error in handling that results in damage to the product can be reduced through training or the use of automated handling.

Federal and state regulations and company ethics require that packaging methods enhance the safety of the consumer. Potentially hazardous materials should be properly packaged and handled. In 1970 the Poison Prevention Packaging Act allowed for the formation of the Consumer Product Safety Commission. Among the services provided by this commission is the publication of a list of products requiring child-proof packaging. Products containing dangerous chemicals or even radioactive substances should be packed to ensure that no leakage will occur during the roughest handling.

### Words and Expressions

1. phase *n.* 阶段, 状态, 相
2. decision *n.* 决定, 决策
3. purchase *vt.* 购买, *n.* 购买 (物)
4. instrumental *a.* 有帮助的, 起作用的
5. flexibility *n.* 灵活性, 柔度
6. utility *n.* (uc.) 有用, 实用, (c.) 公用设施
7. deliver *vt.* 投递, 传送
8. unit load *n.* 单位货物, 单位装载量, 货物单元

9. contribute *v.* 贡献, 促成
10. retail *n.* 零售
11. institutional *a.* 机构的, 集团性的
12. be characterized by 以……为特征的
13. aesthetic appeal *n.* 美感, 美学要求
14. adherence *n.* 坚持, 忠实性
15. pallet *n.* 托盘, 垫板
16. stack *n.* 堆, 垛; *vt.* 堆码
17. promotional information *n.* 促销信息
18. ethical *a.* 伦理的, 道德的
19. deceptive labeling *n.* 欺骗性标贴
20. desired shelf life *n.* 预期货架寿命, 有效期
21. sensitivity *n.* 敏感性
22. rugged *a.* 不平的, 粗糙的, 坚固的
23. budget *n.* 预算
24. universal product code 通用商品码 (UPC)
25. from scratch 从头 (做起)
26. be kept in mind 重视, 牢记
27. fragile *a.* 易碎的, 脆性的
28. tray *n.* 浅盘
29. styrofoam molds *n.* 发泡聚苯乙烯模盘
30. foam-in-place 现场发泡
31. versatile *a.* 非常有用的, 多功能的
32. chip *n.* 衬条, 芯片
33. thermoform *n.* 热成型
34. polyethylene *n.* 聚乙烯 (PE)
35. polyurethane *n.* 聚氨酯 (PU)
36. air cushion mats *n.* 空气缓冲塑料草
37. die-cut *n.* 模切

38. corrugated inserts 瓦楞形衬条 (隔档)  
 39. enhance *vt.* 增加, 增强  
 40. child-proof package *n.* 儿童安全包装  
 41. ensure *v.* 保护, 保证  
 42. leakage *n.* 泄漏

### Notes

- (1) it is most likely that the one purchased will be the one that stands out the most.  
 代表最优秀水平的产品最可能被选中购买。it is……that……为强调句型, 后一个 that 引出定语从句。
- (2) to protect a product from damage caused by handling or exposure to……。  
 保护产品免受由……引起的损害。exposure to 意为暴露于, 经历于。
- (3) ……without having to be concerned with whether……。  
 不必担心……是否能……。having to be concerned with……为动名词短语, whether 引出的从句是介词 with 的宾语。
- (4) ……an existing design that fills all the packaging needs could be used, ……。  
 可采用能满足所有包装要求的现成的设计方案。that 引出定语从句修饰 design。
- (5) The product manufacturing rate must be the minimum rate of packaging.  
 manufacturing rate 意为生产效率, minimum rate of packaging 意为包装工序的低成本。

## READING MATERIAL

### Package in International Trade

Packaging is the design and production of physical container for a product, which in fact becomes a part of total utility of the product. The consumer sees often the package and the contents as a whole,<sup>(1)</sup> and his purchase decision is influenced by the package. For example, the consumer may not be able to differentiate between two similar perfumes, but he or she will choose one in the more attractive package. Packaging was a production-oriented activity performed mainly to obtain the benefits of protection and convenience. In recent years, the marketing significance of packaging has been increasingly recognized by enterprises. Today packaging has truly become a major competitive force in the struggle for markets domestically and abroad. Poor packaging can damage the exporter's chance of success just as much as a bad product.<sup>(2)</sup> Today packaging performs many functions, some of which you, exporter or manufacturer, must pay special attention to:

- (1) Protect the product from spoilage and damage in transit.

Many food stuffs need to be packed in airtight containers to keep the goods from contamination. If food stuffs soak up a taste or smell from other substances they will be spoiled. Liquid must be kept from evaporating. Fragile goods must be protected from being crushed during the course of transportation and handling.

- (2) Make product easy to use and store

Packaging like aerosol containers will improve the product and undoubtedly attract more customers. A new package may help create a new market share. A good package, to a consumer, means easy to use, open, re-seal, handle and store.

(3) Conform to trade regulations and rules

Special marketing and packing must be considered for product destined for foreign markets because all countries have some import regulations for goods and containers. Noncompliance can result in severe penalties. The exporter should be particularly careful that all marking on the container conforms exactly to the data in export document because discrepancies are often interpreted by customs officials as an attempt to defraud.

(4) Identify the product and the quantity

Nutritional and ingredient labels are often voluntarily added by export manufacturers as a valuable service to consumers. While underpackaging costs money for damage claims or poor sales, overpackaging also costs money which is spent for no or little benefit.<sup>(3)</sup> The exporter should be conscious of materials used and the weight in order to be economical.

Packaging must be attractive, so that it can serve as a good advertisement. Whatever kind of package the exporter uses, it should be attractive so it catches customer's eyes, pleasing so that the customer likes looking at and having it, convenient so that he finds it easy to use, and interesting so that he can remember it and come back to it.<sup>(4)</sup> The first is to bring product to customer's attention in product presentation. It is of no use if

you have a well-designed and well-wrapped product but none chooses it simply because people do not know the product exists. <sup>(5)</sup>The exporter should, through good packaging and promotional activities, make the product known to target market. Exporters should seek out packaging ideas by reviewing foreign products. Whatever mode of transport is adopted, the product will require packing, but details for particular product intended for export will depend on a number of factors:

- Feature of the transit;
- Nature of cargo;
- Value of cargo;
- Size, weight and fragility of cargo;
- Variation in temperature during the transportation course;
- Compliance with customs or statutory requirement;
- Ease of handling and stowage;
- Insurance acceptance conditions;
- Marketing considerations;
- Facilities available at the terminals.

On the whole, packaging for transit has to strike a balance between two considerations:

- (1) It must be strong enough to stand transportation hazards such as rough handling, corrosion, crushing and pilferage.
- (2) It must be as light and compact as possible to keep freight costs down.

Estimates show that the majority of cargo is shipped with the freight charged by volume rather than by weight. <sup>(6)</sup> so that saving a few centimetres on the dimension of each packing case in a large shipment could make quite a difference in freight cost.



For a number of commodities, the packing should meet the specifications laid down in the customer's country and should carry certain markings. Take, for instance, such commodities as coffee bags, tea cases and cotton bales. The packing is subject to detailed international agreements, and many shipping lines and insurance companies expect goods to be packed according to such requirements.

Basically, packing depends primarily on the nature of a product as well as the mode of transport. For instance:

- (1) Small products are usually packed in standard-sized wooden or cardboard boxes.
- (2) Machinery or other heavy goods may need to be transported in a crate, or it may only be necessary for certain parts to be protected.
- (3) Bags or sacks are generally considered ideal for packing commodities like sugar and coffee.
- (4) Metal products may need protective paint or grease against corrosion but no actual covering.

### Words and Expressions

1. production-oriented activity *n.* 生产定位活动
2. spoilage *n.* 腐败
3. stuff *n.* 材料, 素材
4. airtight *a.* 气密性的
5. contamination *n.* 污染, 污损
6. soak *v.* 吸收
7. evaporate *v.* 蒸发, 蒸汽化
8. crush *v.* 拥挤, 挤压
9. course *n.* 方向, 路径, 课程