



普通高等教育包装工程专业“十二五”规划教材



包装英语教程

(第三版)

Packaging English Course
(3rd edition)

金国斌 李蓓蓓 编著

 中国轻工业出版社

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内 容 提 要

本书是由中国包装联合会包装高等教材编审委员会组织编写的第三轮全国包装工程统编教材之一。

本书是对 2005 年 3 月版《新编包装科技英语》的修订, 更名为《包装英语教程》。本版基本采用了原书的模块化结构, 但对全书内容与编排方式作了适当的修改。主要吸收了之前二版书的教学经验, 参考了其他专业英语教程的特点, 充实了最新包装科技信息。

《包装英语教程》全书分三个部分, 第一部分为教学课文, 共有十四课, 每课含精讲课文和阅读材料。全书课文涉及的内容有: 包装基本原理、包装设计研究、包装材料、包装容器结构、食品包装、医药与智能化包装、包装设备与技术、包装动力学、物流运输包装、包装 CAD、包装印刷技术、包装测试、包装创新与标准化、包装管理与经济学等。第二部分为英语技术交流实用知识。第三部分为附录。

本书既可作为包装专业英语教材, 也可作为包装工程专业的双语教材。对于包装工程专业研究生和其他专业人员也是一本很好的参考书。

为了方便教学, 另外制有专用电子课件, 包括了书中材料的电子文档, 配有每篇课文的译文和习题答案。

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前 言

(第3版)

在经济全球化形势下,国际间经济技术交流日益频繁。同时,中国已经把技术创新作为立国之本,这对中国包装工程专业人才的基本素质提出了更高更新的要求,外语作为技术交流工具的重要性更加突出。

本书乃由中国包装联合会包装高等教材编审委员会组织编写的第三轮全国包装工程统编教材之一。

本书是中国轻工业出版社2005年3月出版的《新编包装科技英语》的再修订版,定名为《包装英语教程》。本版基本继承了《新编包装科技英语》原书的模块化结构;按新书的规范与要求,吸收了之前二版书的使用经验,并作了适当的修改与补充;充实了最新包装科技信息,并参考了其他专业英语教程的经验,使全书内容的涵盖面与内容编排更加合理,课文的广度与深度更为协调,有利于组织教学。

本书内容循序渐进,专业知识覆盖面广,并有一定的专业深度,适合于包装工程专业本科教学之用,既可作为包装专业英语课程教材,同时也可选为包装工程专业相关的双语教材,以适应新的教学形势。对于包装工程专业研究生和其他专业人员提高外语应用能力,深入了解包装工程知识,提高论文写作水平,也是一本很好的参考书。

希望本书的编写出版能为促进我国包装科技发展和提高包装工程技术人员的英语学习与交流能力作出更大的贡献。

全书分三部分,第一部分为教学课文,共有十四课,每课含精讲课文(Text)和阅读材料(R. M.)。课文涉及内容有:包装基本原理、包装设计研究、包装材料、包装容器结构、包装动力学、食品包装、医药与智能化包装、包装设备与技术、物流运输包装、包装CAD、包装印刷技术、包装创新与标准化、包装管理与经济学等。每篇课文后有生词表,难点注释,理解与练习等。第二部分为技术交流实用英语知识,包括申请书、求职信、简历、商务信函等的写作,科技论文的写作,国际科技会议交流等。第三部分为附录,包括所有阅读材料的参考译文,总词汇表和包装工程常用术语。

教师可根据本校规定的课时,选择书中全部或部分课文内容进行教学。教学中必须重视学生自学能力的培养,加强外语基本练习和交流训练。我们希望教师能够根据学生的实际水平与兴趣,加入其他合适的资料或内容,以丰富专业外语的教学活动。

本课程教师如需索取本书课文内容的电子版文档,可与出版社或作者联系。

上海大学金国斌,李蓓蓓参加全书修订,徐兰萍副教授负责第12课包装印刷技术的

修订, 金国斌负责最后统稿。

由于作者才疏学浅, 著述仓促, 难免会出现错误, 敬请读者不吝赐教。

衷心感谢全国广大《包装工程专业英语》和《新编包装科技英语》的读者和教学者, 并请继续试用《包装英语教程》, 提供宝贵意见与经验, 为提高我国包装工程专业教育质量共同努力。

金国斌

2011 年 8 月 20 日于上海大学

前 言

(第2版:新编包装科技英语)

出于振兴中国包装工业、发展中国新兴的包装工程教育和普及包装科技知识的殷切之情,中国轻工业出版社于1996年8月推出了我国包装工程领域第一本专业英语教材《包装工程专业英语》。该书问世后即得到全国包装工程界及教育界的关注与欢迎,被中国包装技术协会教育委员会正式推荐为全国通用教材,连年被列入全国高等学校教材征订目录,被许多院校选作包装专业英语教材。应该说,该书的编写出版为促进我国包装工程技术的发展和提高本专业学生及技术人员的学习交流能力作出了一定的贡献。

白驹过隙,八个年头很快过去了。我们欣喜地看到:这些年来大学生的基础外语水平较以前有了明显的进步,大学外语教育的“不断线”得到了普遍认同,专业外语教育得到强化。在原书出版后的八年中,中国整体经济实力和科技水平有了明显的提高,中国包装高等教育也得到迅速发展,设有包装工程专业的中国高等院校从当初的十几所发展到今天的近五十所。在以加入世贸组织为标志的中国商品经济全球化战略中,商品包装扮演着越来越重要的角色。国际间包装经济技术交流日益频繁,外语作为技术交流工具的重要性更加突出,新的形势对中国包装工程专业教育水平和包装职业人员的基本素质提出了更高的要求。

由于当时条件与水平的限制,原书《包装工程专业英语》留下不少遗憾之处,先后得到国内许多同仁的斧正与建议。鉴于原书1996年初印数有限,好几年前就已告售,当前包装工程界与教育界对于专业英语教材又有迫切需要,出版社与作者决定在短期内修订出版新一轮的包装工程专业英语教材。作者综合考虑了许多读者提出的宝贵的意见和建议,在保留原书中部分比较成功的内容的基础上,补充采选最新英语科技文献资料,从内容到形式都作了较大幅度的修订、更新与扩充。由于新版书以全新面貌出现,新增与改动的内容达百分之六十以上,故更名为《新编包装科技英语》。

本书修订编写时,充分注意了新版书的前瞻性,对原书中不足之处作了认真修改,补充了新的包装技术内容,课文后添加了解理解与练习,增加了技术交流英语知识。同时,保持了程度深浅适当,内容循序渐进,覆盖面广,方便实用的特点,使之既适合于高校本科生课堂教学,又能满足研究生的外语应用交流之需要,对于想提高外语水平和交流能力的职业人员也是一本很实用的参考书。

《新编包装科技英语》全书分三部分,第一部分为教学课文,共有十四课:每课含精讲课文和阅读材料。每篇课文后有生词表,难点注释,理解与练习等。课文涉及较多的包装工程分支内容,有包装概论、包装设计研究、包装材料与容器、包装工艺与方法、包装设备、包装动力学、运输包装、包装CAD、包装印刷、包装管理、包装经济与贸易等。

第二部分为技术交流实用英语知识,包括申请书、求职信、简历、商务信函等的写作,科技论文的写作,国际科技会议交流等。第三部分为附录,包括所有阅读材料的参考译文,总词汇表和包装工程常用术语。

从《新编包装科技英语》全书内容和教学要求来看,担任包装科技英语的主讲教师应该具有较高英语水平 and 丰富的包装专业知识。教师可以根据本校规定的课时,选择书中全部或部分课文内容进行教学。教学中必须重视学生自学能力的培养,加强外语基本练习和交流训练。我们希望教师能够根据学生的实际水平与兴趣,加入其他合适的资料或内容,以丰富专业外语的教学活动。

参加本书的编著者及其分工如下:

李蓓蓓老师负责第一课、第十四课的编译,全书(除第十一课)各篇课文(Lesson)后的理解与练习(Learning and Practice)的编写;

徐兰萍副教授负责第二课、第十一课的编译,第十一课理解与练习的编写;

张华良副教授负责第二课、第七课的编译;

沈黎明老师负责第三课的编译;

顾祖莉参加了第二课、第十一课等的译审修订工作。

金国斌教授负责除以上内容的其余各课的编译修订,第二、三部分内容的编写修订工作,以及全书的选材、统稿、审定。

作者希望并相信《新编包装科技英语》能成为包装工程专业外语的优选教材,成为包装工程及其他专业人士所欢迎的参考工具书。

在此,我要衷心感谢全国广大《包装工程专业英语》的读者和教学者,并请继续试用《新编包装科技英语》,提供宝贵意见与经验,为提高我国包装工程专业教育质量共同努力。

金国斌

2004年8月15日于上海大学

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PART 1 LESSONS

第一部分 教学课文

Lesson 1

Basic Principles of Packaging

TEXT: Packaging

1. 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.

2. 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. ⁽¹⁾ 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.

3. 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. ⁽²⁾ It allows a manufacturing firm *flexibility* in locating 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. ⁽³⁾ 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.

4. 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.⁽⁴⁾ 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.

5. 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.

6. 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.

7. 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.⁽⁵⁾ 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.⁽⁶⁾ The procedure should therefore be evaluated to determine the number of machines and personnel that would be needed to achieve this balance.

8. 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*.⁽⁷⁾ Packaging materials such as styrofoam *chips*, *thermoform polyethylene* and *polyurethane* foams, paperboard partitions, *air cushion* 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.

9. 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.

10. 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, 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. 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. ⁽⁸⁾

Today packaging performs many functions, some of which you, exporter or manufacturer, must pay special attention to:

Protect the product from *spoilage* and damage in transit.

Make product easy to use and store.

Conform to trade regulations and rules.

Identify the product and the quantity.

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

It must be strong enough to stand transportation hazards such as rough handling, corrosion, crushing and pilferage.

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, so that saving a few centimeters on the dimension of each packing case in a large shipment could make quite a difference in freight cost. ⁽⁹⁾ 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.

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* (*u.*) 有用, 实用, (*c.*) 公用设施
7. deliver *vt.* 投递, 传送
8. contribute *v.* 贡献, 促成
9. unit load *n.* 单位货物, 单位装载量, 货物单元
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, 固执, 归依
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 ethics *n.* 伦理学
19. deceptive labeling *n.* 欺骗性标贴
20. sensitivity *n.* 敏感性
21. rugged *a.* 不平的, 粗糙的, 坚固的
22. desired shelf life *n.* 预期货架寿命, 有效期, 保质期
23. from scratch 从头 (做起) scratch *n. v.* 抓, 涂, 写, 起点线
24. budget *n.* 预算, 一束 (捆)
25. universal product code 通用商品码 (UPC)
26. be kept in mind 重视, 牢记
27. fragile *a.* 易碎的, 脆性的 fragility *n.* 脆值
28. tray *n.* 浅盘
29. styrofoam mold *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. justify *v.* 证明……正当, 认为……合理, 为……辩护
34. thermoform *n.* 热成型
35. polyethylene *n.* 聚乙烯 (PE)
36. polyurethane *n.* 聚氨酯 (PU)
37. air cushion mat *n.* 空气缓冲垫
38. die-cut *n.* 模切
39. corrugated insert 瓦楞形衬条 (隔档)
40. enhance *vt.* 增加, 增强
41. child-proof package *n.* 儿童安全包装 (child resistant package)
42. ensure *v.* 保护, 保证
43. leakage *n.* 泄漏
44. spoilage *n.* 腐败

45. conform *v.* 符合, 遵守
46. strike a balance 达到平衡
47. lay down *vt.* 制定
48. bale *n.* 包, 捆

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) ...is characterized by small unites of products handled in large numbers.
……其特点是产品单位量小但搬运量大。handled in..., 分词短语修饰 products。
- (5) ...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。
- (6) 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。
- (7) ...if the volume justifies.
……如果生产量合适的话(可以全自动化包装)。这里 volume 意为产量, 非指体积。
- (8) Poor packaging can damage the exporter's chance of success just as much as a bad product.
just as much as...为比较句式, 意为其影响程度不亚于一件坏产品。
- (9) ...with the freight charged by volume rather than by weight...
是以体积而不是以重量来计算运费。rather than 意为甚至, 与其...不如。

Learning and Practice

I. Building up your word power, testing your use of words

1. There are three major categories in packaging _____, _____ and _____.
2. Some packaging materials, such as _____, _____, _____, _____ can protect against shock damage.
3. Not broken, damaged, or spoiled, usually after something bad has happened: _____.
4. A soft light plastic material that prevents heat or cold from passing through it, using es-

pecially to make containers: _____.

5. To give the correct amount of importance or attention to two opposing things: _____.
6. This advertising campaign has _____ significantly _____ (对...作出贡献) success of the new car.
7. The type of material used for packaging is controlled by the protection needed for the product, such as _____ (敏感性) of the product, the method of shipping and handling, the _____ (预期货架寿命) of the material, etc.
8. Wilson Co. _____ (有助于) introducing new methods of production.

II. How much do you understand

Section A: Short-Answer Questions

1. What factors should be considered during the phase of production package?
2. What's the step of package designing?
3. What measures could be used to prevent fragile articles from damage during transportation?
4. How can ensure packaging safety?

Section B: Reading Comprehension

1. According to the article, package can play several roles except that _____.
 - (A) protect product from damage caused by handling or exposure to environmental conditions.
 - (B) conform the unit load and select the type of material-handling equipment.
 - (C) supply proper product labeling information and UPC.
 - (D) protect natural environment from pollution in chemical industry.
2. The meaning of 'the product manufacturing rate must be the minimum rate of packaging' is _____.
 - (A) to improve manufacturing rate.
 - (B) to decrease the number of machines and personnel during product manufacture.
 - (C) to make the balance of manufacturing and packaging cost.
 - (D) to get higher productivity and lower manufacturing cost.
3. The advantage of 'foam-in-place' is _____.
 - (A) light weight in inexpensive cost.
 - (B) easy shape thermoformed or die-cut.
 - (C) easy shape and good cushioning character, suited only for precision instrument.
 - (D) environmental protection.
4. The Poison Prevention Packaging Act considered the safety of several special product packaging in 1970, such as mainly _____.
 - (A) radioactive and dangerous chemicals packaging.
 - (B) food and medical product packaging.
 - (C) industrial retail packaging.
 - (D) sanitary articles.
5. The article mainly discusses _____.

- (A) packaging has promotional function during the consumer's purchase decision.
- (B) packaging methods should be ensured to protect consumers' safety and health.
- (C) the basic functions of packaging and the consideration of packaging design or manufacture.
- (D) the categories of packaging.

III. Writing

How do you realize packaging? Please write an article to express your idea. You can emphasize certain aspects in at least 150 words.

IV. Translate into English/Chinese

1. 包装的主要作用是保护产品免受流通环境中由热、潮湿、电磁干扰、射线等因素而引起的损害。
2. 所谓“包装技术”是指为了保护商品，使之能经受运输的考验，并进一步提高商品价值的一种商品化技术手段。
3. 通用商品码作为产品的一种固定标签，通过电子商务手段可反映商品的类别、厂商、重量、金额、出厂日期等多种信息。
4. It is obvious that the package design function, whatever its form, act as a central clearing point and a vital communication channel through which ideas are assembled and evaluated and a consensus established.
5. No packaging study should be undertaken without first considering the environmental issues. This is necessary not only on the grounds of pure environmental principles, but also to meet legislative requirements and deal with consumer awareness. Happily, the days are long gone when packaging the product in a green box was considered to constitute environmental soundness.
6. Packaging has assumed a high profile within the environmental debate, partly because of the high level of visibility of packaging litter, and partly as a result of media attention to what is effectively an easy target that the public can relate to. After all, packaging is an everyday experience for most consumers, and they all have an opinion to express about it. In the domestic situation, packaging presents tangible environmental problems as people struggle to stuff their bins with discarded packs which resist every attempt to compress them, and prevent the closing of the lid. Bulging black refuse sacks outside front doors on bin day bear testament to the public's involvement with packaging.

READING MATERIAL

Packaging Principles

What packaging should do

1. At the most basic level, product packaging must contain the product, protect the product from degradation, and identify its contents (see Figure 1.1). This may seem elementary,

but many packs fail in at least one of these areas. By containment of the product, what we are really trying to achieve is efficient integrity of the package, so that the product does not leak, or fail out of or otherwise part company with its pack before it is supposed to. Remember too that the containment period may extend beyond purchase by the customer into actual product use. Once opened, a carton of milk, for example, should contain the product, and not *squirt* it around the kitchen.

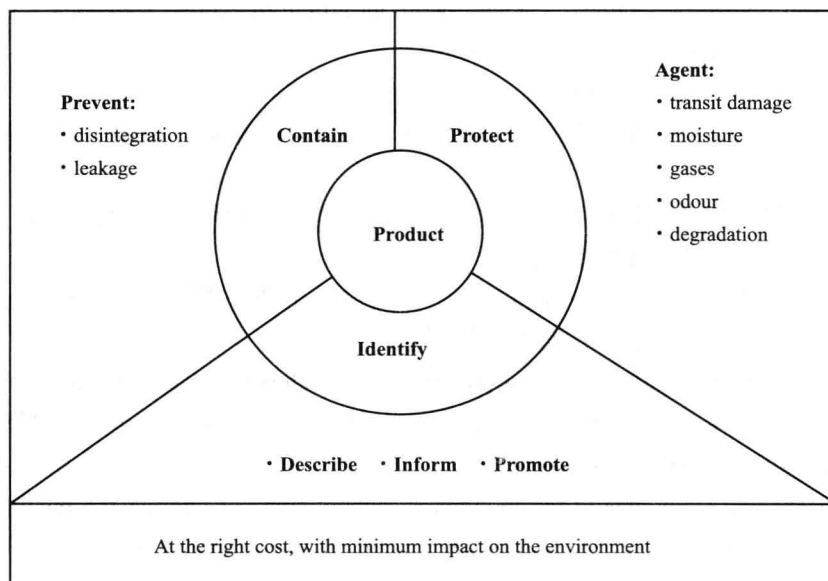


Figure 1.1 What packaging should do

2. The packaging has an essential role of protection to perform. It must protect the contents from degradation due to adverse conditions of, for example, moisture, gases, temperature, radiation, odour, *infestation* and mechanical damage through handling and transit. The pack and the product must be compatible while this role is fulfilled. The third basic element is the identification of the product. For some products this simply consists of a description of the contents. In most instances, there is information about the product and its use, or a legally required text. The identification role may be extended to include promotion, where the pack not only identifies the contents, but actively promotes them. These basic tasks must be carried out at the right cost with the minimum impact on the environment.

Containment

3. To explore what packaging can achieve, we need to expand the basic functions described above. If we take containment as a function, we can expand this to include dispensing, for example. The toothpaste dispenser not only contains the product, but offers a means of supplying it in a convenient and effective way. The pack has moved forward from the task of containment to becoming a vital part of the product. This can be taken further to cases in which the product itself cannot exist without the pack. *Asthma sufferers* and others whose medication includes the use of *inhalers* appreciate a packaging system which delivers the required dosage of the product in the