

PAS223:2011	
Name 名称	Prerequisite programmes on food safety for design and manufacture of food packaging 食品包装设计和生产的食品安全前提方案
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<p>Foreword 前言</p>	<p>This Publicly Available Specification (PAS) has been prepared by the British Standards Institution (BSI) to specify requirements for prerequisite programmes to assist in controlling food safety hazards.</p> <p>公共可用规范(PAS)是由英国标准机构制定，该项规范对应用与食品安全危害控制的管理体系提供了前提条件。</p> <p>This PAS is intended to be used in conjunction with BS EN ISO 22000 to support management systems designed to meet the requirements specified in BS EN ISO 22000.</p> <p>PAS应与BS EN ISO 22000配合使用来支持管理系统，以达到符合BS EN ISO 22000标准的要求。</p> <p>The development of this PAS was sponsored by SSAFE (Safe Supply of Affordable Food Everywhere).</p> <p>PAS的发展得益于SSAFE的大力支持。</p> <p>Publishing information 出版信息</p>

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制定在PAS中执行的条款将会适当委托给有资历和有经验的人来制定。

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The provisions of this PAS are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

PAS中的条款都是以罗马字体（即直立）呈现。其要求是在表达句子时采用助动词“应”。

	<p>Commentary, recommendations, explanation and general informative material are presented in smaller italic type, using the heading NOTE, and do not constitute normative elements.</p> <p>注释，建议，解释和一般的信息内容是以小的斜体字体呈现出来。所使用的标题说明，也没有构成规范性的条款</p> <p>Contractual and legal considerations 合约和法律事项</p> <p>This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application. 该规范没有声称包括所有必须的合同条款。但使用者有责任进行纠正使用。</p> <p>Compliance with this PAS does not in itself confer immunity from legal obligations. 遵守PAS并不意味着授予了法律义务的豁免权。</p>
<p>Introduction 介绍</p>	<p>BS EN ISO 22000 sets out specific food safety requirements for any organizations in the food chain. One such requirement is that organizations establish, implement and maintain prerequisite programmes (PRPs) to assist in controlling food safety hazards.</p> <p>BS EN ISO 22000 具体规定了组织在食品链中食品安全要求。这样的一个是：组织建立，实施和保持前提方案（PRP），以协助控制食品安全危害。</p> <p>This PAS is intended to be used by food packaging manufacturing organizations to support management systems designed to meet the requirements for PRPs specified in BS EN ISO 22000, and it sets out the detailed requirements for those programmes. PAS的目的是由包装材料生产组织用来支持管理系统设计以满足规定的要求符合BS EN 22000 ISO22000，并为这些方案制定了详细的规定。</p> <p>Requirements for design have been included in this PAS because of the potential food safety risk that can arise if the food packaging is not suitable for the intended use. It is essential that the proposed uses of the food packaging are fully understood so that any food safety risks can be identified and addressed through appropriate food packaging design. 如果食品包装不适合预期用途可能产生潜在的食品安全风险，PAS中包含了对食</p>

	品包装设计的要求。必须对对食品包装的预期用途充分了解后，通过适宜的包装设计对食品安全风险加以识别和处理。
1.	<p>Scope:范围</p> <p>This Publicly Available Specification (PAS) specifies requirements for establishing, implementing and maintaining prerequisite programmes (PRPs) and design requirements to assist in controlling food safety hazards in the manufacture of food packaging.</p> <p>公开可用规范（PAS）的具体规定建立，实施和保持前提方案（PRP）及设计的要求，以协助控制食品包装生产中的食品安全危害。</p> <p>This PAS is applicable to all organizations, regardless of size or complexities, that manufacture food packaging.</p> <p>PAS适用于生产食品包装的所有组织，无论其规模大小或复杂性，</p> <p>This PAS is not designed or intended for use in other parts of the food chain. PAS即不是事先设计的也不是准备用于食品供应链中的某个部分。</p> <p>Food packaging manufacturing organizations are diverse in nature, and not all of the requirements specified in this PAS apply to an individual organization. 食品包装制造业在本质上是多样化的，并不是所有在PAS中的具体要求都适用于每个企业或工序。</p> <p>Each organization is required to conduct a documented food safety hazard and risk assessment that includes each requirement. Where exclusions are made or alternative measures are implemented, these need to be justified by the food safety hazard and risk assessment.</p> <p>每个组织需要对每个要求进行一个文件化的食品安全和风险评估。如果剪裁或者实施替换措施，需要通过食品安全与风险评估进行。</p> <p>This PAS is not a management system standard and is intended to be used by food packaging manufacturing organizations that wish to implement PRPs in such away as to address the requirements specified in BS EN ISO 22000.</p> <p>PAS并不是一个管理体系标准，适用于食品包装生产组织希望执行PRP以符合BS EN 22000:2005中的具体要求。</p> <p>This PAS is intended to be used in conjunction with BS EN ISO 22000, not in isolation.</p>

	<p>PAS目的是要配合BS EN ISO22000使用，而不是独立存在的。</p> <p><i>NOTE For the purpose of this PAS, the term food includes beverages.</i> <i>注： 这个PAS中， 食品的定义包含了饮料。</i></p>
2.	<p>Normative references 参考标准</p> <p>The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. PAS的应用要查考下面的文件，这是必不可少的。其中过时的参考文献仅仅引用了版本适用。对于没有注明日期的查考文献则是最新版本适用（包括任何修改）。</p> <p>BS EN ISO 22000:2005, Food safety management systems – Requirements for any organization in the food chain. BS EN ISO 22000:2005, 食品安全管理系统-任何组织在食物链中的要求。</p>
3.	<p>Terms and definitions 术语和定义</p> <p>For the purposes of this PAS, the following terms and definitions apply. 为施行PAS，以下术语和定义适用。</p> <p>The terms and definitions given in BS EN ISO 22000:2005 also apply. 术语和定义在BS EN ISO22000:2005也适用。</p>
3.1	<p>certificate of analysis (CoA) 检验证书</p> <p>document provided by the supplier which indicates results of specific tests/analysis, including test methodology, performed on a defined lot of the supplier's raw material 证书由供应商提供，显示具体测试/分析的结果，包括测试方法，还有供应商产品检测的具体批次</p>
3.2	<p>certificate of conformance (CoC) 符合性证明</p> <p>document that confirms conformance to relevant specification or regulations. 证明符合相关规范和规则的文件。</p> <p><i>NOTE This is sometimes referred to as a certificate of compliance or declaration of compliance (DOC).</i></p>

	<p><i>注：有时指符合证书或者符合性声明。</i></p>
3.3	<p>Cleaning 清洁</p> <p>removal of solvents, grease or lubricant, ink residues or other objectionable matter. 清除土壤，食物残渣，灰尘，油或其他不该出现的物质。</p>
3.4	<p>Contaminant 污染物</p> <p>any biological or chemical agent, foreign matter or other substances not intentionally added to the product that may compromise food safety or suitability. 不是有意添加到产品中的生物或化学试剂，杂质或任何其他物质都有可能危及到食品的安全或者相合适。</p> <p>[Adopted from Codex Alimentarius, 2.3] [根据食品法典改编，2.3]</p> <p><i>NOTE Measures for prevention of malicious contamination are outside the scope of this PAS. For further information and guidance on approaches to the protection of food businesses from all forms of malicious attack, see PAS 96, Defending food and drink. Guidance for the deterrence, detection and defeat of ideologically motivated and other forms of malicious attack on food and drink and their supply arrangements.</i></p> <p><i>注 预防恶意污染的措施不在PAS的考虑范围之内。如需获得进一步信息和如何保护食品企业免受一切形式的恶意攻击的指导办法可以参见PAS96 .</i></p>
3.5	<p>Contamination 污染</p> <p>introduction or occurrence of a contaminant in food or food environment. 在食物或食物环境中，污染物的产生或引入</p> <p>[Adopted from Codex Alimentarius, 2.3] [根据食品法典改编，2.3]</p> <p><i>NOTE In the context of this PAS, “contamination” may also refer to the introduction of non-intentionally added substances (NIAS).</i> <i>注：PAS中，“污染”可能也涉及非预期添加的物质。</i></p>
3.6	<p>Establishment 设施</p> <p>any building or area in which raw materials, intermediate materials, chemicals or finished food packaging are handled, and the surroundings under the control of the same management</p>

	<p>任何处理原料、中间产品、化学品或最终食品包装的建筑物或区域，以及周围的环境，必须要在相同的管理条件下进行控制。</p> <p>[Adopted from Codex Alimentarius, 2.3] [改编自食品法典，2.3]</p>
3.7	<p>finished food packaging 最终食品包装</p> <p>physical final output of any kind of production process that takes place in food packaging manufacturing organizations 食品包装制造组织的任何生产过程的物理上最终输出。</p>
3.8	<p>food packaging 食品包装</p> <p>any product to be used for containment, protection, handling, delivery, storage, transport and presentation of food. 用于容纳、防护、处理、交付、仓储、运输和盛放食品的任何产品。</p> <p><i>NOTE Food packaging may have direct, indirect and no contact with the food. Direct food contact surfaces or materials are in contact (i.e. physically touching the food or in contact with the headspace) or will be in contact with the food during normal use of the food packaging. Indirect food contact surfaces or materials are not in direct contact with the food during normal use of the food packaging, but there is the possibility for substances to transfer into the food. Non-contact surfaces or materials are not in direct contact with the food during normal use of the food packaging, and there is no possibility for substances to transfer into the food. Figure 1 illustrates this concept.</i></p> <p><i>注：食品包装可能直接的、间接的和不与食品接触。食品接触表面或食品接触材料(如物理性接触到食品或接触到顶部空间)于食品接触或在正常使用食品包装时与食品接触。间接食品接触表面或材料在正常使用食品包装时不直接接触食品,但有可能有物质转移到食品。非食品接触表面或材料在正常使用的食品包装时直接接触食品,也没有物质转入食品的可能性。图1阐明了这个概念。</i></p>
3.9	<p>food packaging withdrawal 食品包装回收</p> <p>removal of nonconforming food packaging from the market, trade warehouses, distribution centres or customer operations and warehouses because it does not meet specified food safety standards or requirements. 当食品不符合规定的标准时，应该从市场，仓库，配送中心以及客户的生产场所及仓库中移除不符合产品。</p>

<p>3.10</p>	<p>intermediate material 中间产品</p> <p>physical output of part of the production process that still requires further processing to create finished food packaging.</p> <p>部分生产过程的物理输出, 仍然需要进一步加工创造完成食品包装。</p> <p><i>NOTE For example, a plastic powder, granules or flakes (including “masterbatch”), ink, coating, adhesive, pre-polymer, any semi-finished material and article such as a film, sheet or laminate requiring further processing/reformulation steps to become a finished material or article. In short, this is any product that is not a basic chemical and not yet a finished material or article, and includes part-processed, semi-converted and converted materials.</i></p> <p>注: 例如, 中间产品可以是塑料粉末、颗粒或片状物(包括“色母”)、油墨、涂料、胶粘剂、预聚物等任何半成品材料和物品, 如膜材、片材, 需要进一步加工或者成型过程成为最终产品或物品。</p> <p>总之, 中间产品既不是基本的化学品也不是最终产品、或物品, 而是包括部分加工的、部分转变的或者转变的原料。</p>
<p>3.11</p>	<p>Label 标签</p> <p>printed matter that is, or is intended to be, part of the finished package conveying specific information about the contents of the package, the food ingredients and any storage and preparation requirements.</p> <p>印刷品, 是成品包装的一部分, 获将成为成品包装的一部分, 并且传达包装, 食品配料和储存以及使用前的要求等特定信息。</p> <p><i>NOTE This includes the package itself, printed matter that is, or is intended to be, attached to the package or a sticker used for over-labelling.</i></p> <p>注: 标签包括包装本身, 印刷品或者附在包装上的印刷品或粘贴。</p>
<p>3.12</p>	<p>Migration 迁移</p> <p>transfer of substances from an external source (e.g. packaging material, environment) to food.</p> <p>物质从外部 (如包装材料、环境) 转移到食品中。</p> <p><i>NOTE Transfer of substances can take place by migration through the substrate, by set-off to the reverse side and subsequent migration into food, or by gas phase transfer.</i></p> <p>注: 物质转移可能通过承印物转移, 通过对反面反印迁移至食品, 或者通过气相转移。</p>
<p>3.13</p>	<p>Non-intentionally added substance (NIAS) 非预期添加物质</p> <p>impurity in the materials used in, or a decomposition or reaction product formed</p>

	<p>during, the production process. 原材料中的杂质、生产过程中分解或者反应生成的杂质。</p>
3.14	<p>packing materials 包装材料 materials used to hold and protect food packaging during shipping, transport and storage. 在运送、运输和储存过程中盛放和保护食品包装的材料。</p>
3.15	<p>set-off 反印 transfer of substances from one side of a material or article to the other side through direct contact between these different sides caused by the stacking or reeling of the materials. 由于堆垛或者卷绕，材料或者物体的一面跟另一面直接接触，导致物质从一面到另一面的转移。</p>
3.16	<p>specification 规格 detailed description of the properties and requirements of a material or product, in particular its technical and specific suitability. 对原料或者产品的性质和要求的详细的描述，特别是技术的和特定的适用性。</p>
3.17	<p>Waste 废弃物 any substance or object which the holder discards or intends or is required to discard. 所有人丢弃的、准备丢弃的或者需要丢弃的任何物质和物体。</p>
4.	<p>Establishment 建筑物、厂房</p>
4.1	<p>General requirements 总要求</p> <p>Establishments shall be designed, constructed and maintained in a manner fit for the nature and purpose of the food packaging manufacturing operations to be carried out, the food safety hazards associated with those operations and the potential sources of contamination. 建筑的设计、建造和维护，应适合执行食品包装生产加工操作的特点和目的。应考虑和控制与这些操作相关的食品安全风险和来自工厂周围潜在的污染源。</p> <p>Buildings shall be of durable construction that presents no food safety hazard to the food packaging.</p>

	<p>建筑物必须经久耐用而且不会危及到成品。</p> <p>NOTE For example, roofs should be self-draining and not leak.</p> <p>注 例如屋顶要设置自动排水系统而且不会漏水</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed.</p> <p>对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>4.2</p>	<p>Environment 环境</p> <p>Consideration shall be given to potential sources of contamination from the local environment.</p> <p>当地的环境所存在的潜在资源污染需进行考虑。</p> <p>NOTE “Local environment” includes both internal and external areas.</p> <p>注：“当地环境”包括内部和外部区域。</p>
<p>4.3</p>	<p>Locations of establishments 厂房位置</p> <p>The boundaries of establishments shall be clearly identified.</p> <p>应明确厂区周界。</p> <p>All areas within the boundaries of establishments shall be kept in a condition that will protect against contamination.</p> <p>.厂区内所有区域都应该保持良好状态，以防污染。</p>
<p>5</p>	<p>Layout and workspace 厂房和工作场所的布局</p>
<p>5.1</p>	<p>General requirements 总要求</p> <p>Internal layouts shall be designed, constructed and maintained to facilitate good hygiene and manufacturing practices.</p> <p>工厂和厂房内部应良好地设计，建造和维护，以满足良好卫生和生产操作的要求。</p> <p>The movement patterns of materials, products and people and the layout of equipment shall be designed to protect against contamination sources and unintended mixing of materials or products.</p>

	<p>原料、产品和人员的移动方式及设备的布局设计应防护避免潜在污染源，以及防止原料和产品非预期混合。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed.</p> <p>为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
5.2	<p>Internal design, layout and traffic Patterns 内部设计、布局和运输方式</p> <p>Buildings shall provide sufficient space to allow a logical flow of materials, products and people through the production process. 建筑应提供足够的空间，确保整个生产过程中正确的物料流、产品流和人流。</p> <p>Openings intended for transfer of materials and products (e.g. transport hoses, conveyors) shall be designed to prevent entry of foreign matter and pests. 用于材料和产品的物流开口处（如输送管道，传送带）应尽可能防止外来异物和虫害的进入。</p>
5.3	<p>Internal structures and fittings 内部结构和设施</p> <p>Walls and floors shall be washable or cleanable, as appropriate for the food safety hazards associated with the food packaging production. 加工区域的墙和地面应耐洗并易于清洁，并且不会造成对食品包材生产的风险</p> <p>Standing water shall be prevented in areas where food safety may be impacted. 可能影响食品安全的地方，地面设计应避免积水。</p> <p>Drains shall be trapped and covered. 排水沟应设水漏和水封。</p> <p>Ceilings and overhead fixtures shall be designed to prevent build-up of dirt and condensation and shall be accessible for inspection and cleaning. .天花板和上方的设施从设计上应降低积灰和冷凝水的产生，并且便于检查和清洁。</p>

	<p>In areas where routine cleaning of overhead fixtures and structures is not feasible or practical, equipment shall be covered. 当对设备上方的设施或结构的日常清洁不方便或不可行时，应对设备加盖防护。</p> <p>External opening doors, windows, roof vents and fans in production and storage areas shall be closed or screened (e.g. insect screened, air curtains). 生产和储存区域的对外开放的窗户、屋顶通风管道和排风扇，应关闭或安装防虫网（如防虫网、风幕）。</p> <p><i>NOTE External openings should be avoided wherever possible. Where this is not possible, keeping these openings closed is the preferred option.</i> 注：对外开口应尽量避免，如果不能避免，尽量保持关闭。</p>
<p>5.4</p>	<p>Equipment 设备</p> <p>Equipment shall be designed and located to facilitate good hygiene and manufacturing practices and monitoring. 设备应适当地设计并摆放在适当的位置，以便于良好的卫生、操作规范和监控</p> <p>Equipment shall be located to permit access for operation, cleaning and maintenance. 设备的摆放应便于操作、清洗和维护。</p>
<p>5.5</p>	<p>Temporary/mobile structures 临时/移动结构</p> <p>Temporary structures shall be designed, located and constructed to prevent pest harbourage and contamination. 临时性的建筑物应设计、并安装在适当的位置，并结构适当，以防止虫害藏匿和污染。</p>
<p>5.6</p>	<p>Storage 储存</p> <p>Facilities used to store raw materials, intermediate materials, chemicals or finished food packaging shall provide protection from dust, condensation, drains, waste and other sources of contamination. 用来贮存原料、中间材料、化学品或最终食品包材的设施应加以防护，以避免灰层、冷凝水、排水、废弃物或其他污染源的污染。</p> <p>Internal storage areas shall be dry and well ventilated. 内部贮存区域应干燥并保持良好的通风。</p>

Monitoring and control of temperature and humidity shall be applied where necessary.

如有需要时应监视和控制温度和湿度。

If raw materials, intermediate materials, chemicals or finished food packaging are stored outside, measures shall be in place to manage contamination hazards.

如果原料、中间材料、化学品或最终食品包材储存在外部，应采取措施管理污染危害。

Storage areas shall be designed or arranged to allow segregation of raw materials, intermediate materials, chemicals and finished food packaging.

必须要对储存区域进行设计或安排以便安排原材料、中间材料、化学品和最终食品包材的隔离存放。

Raw materials, intermediate materials, chemicals and finished food packaging that are suitable for food contact shall be segregated from those that are not.

适宜与食品接触的和不适于与食品接触的原材料，中间材料、化学品和最终食品包材应隔离存放。

All raw materials, intermediate materials, chemicals and finished food packaging shall be stored off the floor and with sufficient distance from the walls to allow inspection.

所有的原材料，中间材料、化学品和最终食品包材应离地存放并与墙有充足的空间以便于检查及虫害控制活动。

Storage areas shall be designed to allow maintenance and cleaning and to prevent contamination and deterioration.

仓储区域应设计成允许充分的维护和清洁，防止污染和变质。

Chemicals and other hazardous substances shall be suitably labeled, secured in closed containers and **used in accordance with manufacturers' instructions.**

化学品和其它有害物质应适当地标识，放置于封闭容器并上锁，**并按照制造商说明进行使用。**

6.	Utilities 基础设施
6.1	<p>General requirements 总要求</p> <p>The provision and distribution routes for utilities to and around production and storage areas shall be designed to prevent contamination. 加工和贮存区域或周边的公用能源的供给及其流向，设计时应考虑预防污染。</p> <p>The effectiveness of measures taken to protect against potential contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
6.2	<p>Water supply 水供应</p> <p>The supply of potable water or water suitably treated to prevent contamination shall be sufficient to meet the needs of the food packaging production process. 应提供充足的饮用水，或者水应经适当处理以防污染，满足食品包装生产过程要求。</p> <p>The food packaging manufacturing organization shall establish requirements for water (including ice or steam) used for direct food packaging contact or cleaning and shall monitor accordingly. 食品包材生产组织应对与食品包材直接接触的水（包括冰或蒸汽）或清洁用水建立要求，并按要求监控。</p> <p>Non-potable water shall have a separate supply system, labelled, not connected to the potable water system and prevented from refluxing into the potable water system. 非饮用水应有一个单独的系统，标识，不与饮用水系统连接，并防止逆流到饮用水系统。</p>
6.3	<p>Air quality and ventilation 空气质量和通风</p> <p>The food packaging manufacturing organization shall establish requirements for air used for direct food packaging contact and shall monitor accordingly. 食品包材生产组织应该对与食品包材接触的空气建立要求并按要求监控。</p>

	<p>Suitable and sufficient ventilation (natural or mechanical) shall be provided to remove excess or unwanted steam, dust and odours. 应提供充分的通风（自然风或者机械通风）以去除额外的或不需要的蒸汽、灰尘和气味。</p> <p>Room air supply quality shall be controlled to prevent airborne microbiological contamination. 室内空气质量应加以控制以防止源于空气的微生物污染。 <i>NOTE Food packaging such as paper and board could potentially support microbiological growth if appropriate controls are not in place.</i> <i>注：如果现场没有适当的控制，纸质或木质食品包装会有助于微生物生长。</i></p> <p>Ventilation systems shall be designed and constructed such that air does not flow from contaminated areas to clean areas. 通风系统的设计和构造，应使空气不会从污染的或原料区域流向洁净区域。</p> <p>Ventilation systems shall be accessible for cleaning, filter changing and maintenance. 系统应便于清洗、滤网更换及维护。</p>
6.4	<p>Compressed air and other gases 压缩空气和其他气体</p> <p>Compressed air and other gas systems used in food packaging manufacturing shall be constructed and maintained so as to prevent contamination. 应建立和维护在食品包装生产中使用的压缩空气和其他气体系统以预防污染。</p> <p>The food packaging manufacturing organization shall establish requirements for gases used for direct food packaging contact (including those used for transporting, blowing or drying raw materials, intermediate materials, finished food packaging or equipment) and shall monitor accordingly. 食品包装生产组织应对直接接触食品包装的气体（包括用于气体输送、鼓风或用于原材料、中间产品、最终食品包装或设备）建立要求，并按要求进行监控。</p> <p>Oil used for compressors shall be food grade wherever there is a potential for contamination. 用于压缩机的油，如果存在潜在的污染，应使用食品级的油。</p>

	<p>Requirements for filtration, humidity and microbiology shall be assessed. Control and monitoring measures shall be applied as determined by the assessment.</p> <p>过滤、湿度（RH%）和微生物的要求应进行评估，并按照评估结果采取控制和监控措施。</p> <p><i>NOTE Filtration of the air should be as close to the point of use as is practicable.</i></p> <p><i>注：可行的话，空气的过滤应靠近使用点</i></p>
<p>6.5</p>	<p>Lighting 照明</p> <p>The lighting provided (natural or artificial) shall allow correct operation of the food packaging production process. 照明 (自然的或人工的)应能确保食品包装生产的正确操作。</p> <p><i>NOTE The intensity of the lighting should be appropriate to the nature of the operation.</i></p> <p><i>注：照明的强度应与操作的类型相适宜。</i></p> <p>Where there is a food safety risk, light fixtures shall be protected to ensure that raw materials, intermediates, packaging or equipment are not contaminated in the case of breakages. 如果有食品安全风险，应对照明设施进行防护，以确保打破时不污染原材料、中间产品、包装或设备。</p>
<p>7</p>	<p>Waste 废弃物</p>
<p>7.1</p>	<p>General requirements 总要求</p> <p>Systems shall be in place to identify, collect, remove and dispose of waste in a manner that prevents contamination. 应建立适当的体系来收集、整理和处置废弃物，以防止污染。</p> <p>The effectiveness of measures taken to protect against potential contamination of the food packaging shall be periodically reviewed. 为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>7.2</p>	<p>Containers for waste 盛放废弃物的容器</p> <p>Containers for waste shall be:</p>

	<p>盛放废弃物和不可食用或有危害的物质的容器应该是：</p> <p>a. a) clearly identified for their intended purpose; 清楚地标识他们的用途</p> <p>b) located in a designated area; 放置在指定的区域</p> <p>c) constructed of impervious material that can be readily cleaned; 使用合适的、不渗透的材料，并易于清洗和消毒</p> <p>d) closed when not in immediate use, and locked if hazardous. 不立即使用时关闭，如果有害应上锁。</p>
<p>7.3</p>	<p>Waste management and removal 废弃物管理和清除</p> <p>Provision shall be made for the segregation, storage and removal of waste. 应规定相应的制度以隔离、贮存和清除废弃物。</p> <p>Waste shall not be allowed to accumulate in production or storage areas. 在食品处理或储存区域不允许废弃物的积累。</p> <p>Food packaging designated as waste shall be disfigured or destroyed so that trademarks or food ingredient information cannot be reused. Removal and destruction shall be carried out by approved disposal contractors. The food packaging manufacturing organization shall retain records of destruction. 对于废弃的食品包材，应破坏或销毁以确保商标不能再使用。如破坏或销毁由第三方进行，应选择认可承包商来执行。组织应保留销毁的记录。</p>
<p>7.4</p>	<p>Drains and drainage 排水沟和排水</p> <p>Drains shall be designed, located and constructed prevent contamination. 排水沟的设计、建造和位置应避免造成污染。</p>
<p>8</p>	<p>Equipment suitability and maintenance 设备的适宜性和维护</p>
<p>8.1</p>	<p>General requirements 总要求</p> <p>Equipment shall be designed to prevent contamination. 设备在设计时应考虑防止污染产品。</p> <p>The effectiveness of measures taken to protect against potential contamination of the food packaging shall be periodically reviewed.</p>

	<p>对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
8.2	<p>Hygienic design 设计卫生</p> <p>All parts of equipment coming into contact with food packaging shall be designed and constructed to facilitate cleaning and maintenance. 设备设计和建造时应确保与食品包装接触的所有部件便于清洁和保养。</p> <p>Equipment shall meet established principles of hygienic design, including: 设备应满足设计卫生原则，包括：</p> <p>a) smooth, accessible, cleanable food packaging contact surfaces; 设备表面应光滑，可接近的，可清洁，</p> <p>b) self-draining (for wet processes); 有自排水（在湿加工过程）。</p> <p>c) use of construction materials compatible with the intended food packaging, lubricants and cleaning or flushing agents. 使用材料应与预期食品包装、润滑剂和清洁或冲洗剂相容。</p> <p>Piping and ductwork shall be cleanable and drainable and shall not cause condensation or leakage that could contaminate food packaging. 管道和管道系统应易清洁的、易排水，不会导致冷凝水或泄露污染产品。</p> <p>Valve connections and controls shall have fail-safes to prevent contamination. 阀门链接和控制应有自动防故障系统来预防污染。</p> <p>Equipment components containing metals of known toxicity (e.g. mercury) shall not be allowed where they could compromise the food safety of the food packaging. 含有毒金属（如汞）的设备部件如果危害包材的食品安全，不允许使用。</p>
8.3	<p>Food packaging contact surfaces 食品包装接触面</p> <p>Food packaging contact surfaces shall be constructed from materials suitable for the intended use, to prevent contamination. 食品包装的接触面应使用适于预期使用目的的材料制造，以防污染。</p>
8.4	<p>Testing and monitoring equipment 测试和监视设备</p>

	<p>Inline and online test facilities shall be controlled to prevent food packaging contamination. 连线及在线检测设备应加以控制，以防对食品包装造成污染。</p> <p>Equipment used for irradiation processes shall meet the provisions given in relevant food packaging specifications. 辐照过程的设备应符合相关食品包装规范的规定。</p> <p>The effectiveness of equipment used for control of food safety criteria in the production process shall be monitored and documented. 用于控制食品安全标准的生产设备的有效性，需要进行监控并文件化。</p>
8.5	<p>Preventive and corrective maintenance 预防性和纠正性维护:</p> <p>A preventive maintenance programme shall be in place. 应有预防性维护 (PM)方案。</p> <p>The preventive maintenance programme shall include all equipment used to monitor and control food safety hazards. 预防性维护方案应包括所有的用于监视或/和控制食品安全危害的设备。</p> <p><i>NOTE Examples of such devices include screens and filters (including air filters), magnets, metal detectors and X-ray detectors.</i> <i>注：装置包括纱网、过滤器（包括空气过滤器）、磁铁、金属探测器和X射线探测仪。</i></p> <p>Corrective maintenance shall be carried out in such a way as to prevent contamination of raw materials, intermediate materials or finished food packaging on adjacent equipment. 进行纠正维护时采用的方式，应对相邻设备的原材料、中间材料或最终食品包装不会产生污染的风险。</p> <p>Maintenance requests that impact the food safety of the food packaging shall be given priority. 影响产品安全的维护要求应优先进行。</p>

	<p>Temporary fixes shall not compromise the food safety of the food packaging. A request for replacement by a permanent repair shall be included in the maintenance schedule.</p> <p>临时性的修理不应该危害食品包装的食品安全。维修计划中应尽快用永久性维修措施来替代临时性措施。</p> <p>The procedure for releasing maintained equipment back into production shall include clean-up and pre-use inspection.</p> <p>经过维护的设备重新投入生产使用前，应进行清理和使用前检查。</p>
<p>9</p>	<p>Purchased materials and services 材料和服务采购</p>
<p>9.1</p>	<p>General requirements 总要求</p> <p>Purchasing of materials, services and subcontracted activities that may impact food safety of food packaging shall be controlled such that the suppliers used have the capability to meet the specified requirements.</p> <p>应控制可能影响食品包材的食品安全的材料、服务和分包活动的采购，确保使用的供应商的能力满足规定的要求。</p> <p><i>NOTE Services may include (but are not limited to) third-party storage and rework by subcontractors.</i> <i>注：服务包括（但不限于）第三方仓储和由分包方进行的返工。</i></p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审</p>
<p>9.2</p>	<p>Selection and management of suppliers 供应商的选择和管理</p> <p>There shall be a defined process for the selection, approval and monitoring of suppliers, including:</p> <p>应规定供应商的选择、批准和监视的流程，应包括：</p> <p>a) assessment of the suppliers' ability to meet food safety requirements; 应评估供应商的能力是否能满足食品安全的要求。</p> <p>b) description of how suppliers are assessed. The method used shall be</p>

	<p>justified by hazard assessment, including the potential food safety hazard to the food packaging; 应描述如何评估供应商；使用的方法应经过危害评估，包括评估对食品包装的潜在的食品安全危害。</p> <p>c) assessment by competent persons; 评估人员应具备充分的能力。</p> <p><i>NOTE Examples of a description of how suppliers are assessed include:</i> <i>a) audit of the supplying site prior to accepting materials for production;</i> <i>b) appropriate third-party certification.</i> <i>注：如何评估供应商包括：</i> <i>a) 接收材料用于生产之前对供应商场所的审核。</i> <i>b) 适当时第三方认证</i></p> <p>d) monitoring the performance of the supplier to verify continued approval status. 供应商业绩的监视，确保持续批准状态。</p> <p><i>NOTE Monitoring may include conformance to specifications, meeting CoA requirements and satisfactory audit outcomes.</i> <i>注：监视可包括规格的符合性，满足COA要求或满意的审核结果。</i></p>
<p>9.3</p>	<p>Incoming raw materials 进料要求</p> <p>Loads on delivery vehicles shall be checked prior to, and during, unloading to verify that food safety and safety of raw materials has been maintained during transit (e.g. seals are intact). 在卸货之前和卸货过程中应该检查车辆上货物，以验证原料的食品安全和安全在运输过程中得到维护(如密封完整性)。</p> <p>Where tamper-evident seals are used, a verification process shall be in place to verify conformance to relevant customer or regulatory requirements. 当使用防拆封密封条时，应建立现场验证程序，以验证是否符合客户和法规要求。</p> <p>Raw materials shall be inspected, tested or covered by</p>

	<p>CoA/CoC to verify conformance to specified requirements prior to acceptance or use. The method of verification shall be documented. 材料接收或使用前应先检验、检测或验证原材料的COA/CoC以证实符合规定要求。验证的方法应文件化。</p> <p>Where incoming raw materials are from a recycled source, measures shall be in place to verify food safety and traceability requirements are met prior to acceptance. 当原材料是回收料时，接收之前应验证原材料满足食品安全和追溯性要求。</p> <p>Where recycled materials, plant-based materials or functional (e.g. nanotechnology) additives are used, there shall be sufficient data to enable hazard assessment for food contact and safety and conformance to applicable regulatory requirements, and all claims shall be documented. 在使用回收材料、植物材料或功能性(如奈米科技)添加剂,必须有足够的数据,来进行食品接触和安全的风险评价以确保符合适用的法律法规的要求,和所有的证明应形成文件。</p> <p><i>NOTE The inspection frequency and scope may be based on the hazard presented by the material and the hazard assessment of the specific suppliers.</i> <i>注： 检验频次和范围可以建立在材料带来的危害和特定供应商风险评估</i></p> <p>Raw materials that do not conform to relevant specifications shall be handled under a documented procedure that prevents their unintended use. 应有书面的程序规定如何处理不合格的原材料，确保防止非预期使用。</p> <p>Access points to bulk raw materials receiving lines shall be identified, capped and secured. Discharge into such systems shall take place only after approval and verification of the raw materials received. 散装材料接收线的入口点应标识，加盖并上锁。仅在接收材料被批准和验证合格后才能卸入接收系统。</p>
<p>10</p>	<p>Contamination and migration 污染和迁移</p>
<p>10.1</p>	<p>General requirements 总要求</p> <p>Programmes shall be in place to prevent, detect and control contamination and</p>

	<p>allergens. Measures to prevent microbiological, physical and chemical contamination shall be included. 应制定方案来预防、发现和控制污染和过敏原。措施应包括防止物理性、化学性和微生物性污染的措施。</p> <p>Where external product testing is required, it shall be carried out by an accredited test facility or one that follows international test facility guidelines. Where in-house testing is carried out, calibration of equipment shall be carried out against national standards or other accurate means. 当产品需要外部检测时，检测需要由经过认可的检测机构，或者遵循国际检测机构指南。如果是内部检测，设备应按照国家标准或者其他精确方法进行计量。</p> <p>Mixing of raw or intermediate materials shall be prevented where hazard assessment reveals a food safety hazard. 当危害评估发现原材料或者中间材料混合存在食品安全危害时，应防止混合。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>10.2</p>	<p>Microbiological contamination 微生物性污染</p> <p>Where there is a potential for microbiological contamination, measures shall be implemented to prevent or control the hazard. 存在潜在的微生物性污染时，应采取措施防止或控制该危害。</p>
<p>10.3</p>	<p>Physical contamination 物理性污染</p> <p>Where glass and brittle material are used (for applications other than the food packaging production itself) in production or storage areas, periodic inspection requirements and defined procedures in case of breakage shall be put in place. 当生产或仓储区域使用玻璃和/或易碎塑料时（除食品包装生产自身外），应定期检查，并制定程序规定一旦破损如何处理。</p> <p>Glass breakage records shall be maintained where relevant to food safety. 跟食品安全相关时，保留玻璃破损记录。</p> <p><i>NOTE Glass and brittle materials (such as hard plastic components in equipment, sight glasses on storage vessels) should be avoided where</i></p>

	<p><i>possible.</i> <i>注：玻璃和易碎塑料（如设备的硬塑料部件，储存罐上的透视孔）如可能，应尽量避免。</i></p> <p>The use of loose fastenings (e.g. drawing pins and staples) shall not be allowed in production and storage areas. 生产和仓储区域应禁止使用不牢固的紧固件（如图钉和订书钉）。</p> <p>Other potential sources of physical contamination (e.g. wooden pallets, tools, rubber seals, personal protective clothing and equipment, knife blades, hard plastic) shall be considered. <i>其它潜在的物理性污染源（如木栈板、工具、橡皮密封垫、个人防护服和设备、刀片、硬塑料）也应考虑。</i></p>
<p>10.4</p>	<p>Chemical contamination 化学性污染</p> <p>Only approved chemicals shall be permitted on site. 现场只允许使用经过批准的化学品。</p> <p>All chemicals on site shall be suitable for the intended use and shall be controlled to prevent contamination. 现场使用的所有化学品应符合预期用途，并且加以控制防止交叉污染。</p> <p>A register of hazardous materials shall be maintained, and measures shall be in place to prevent cross- contamination between materials that are suitable for food contact. 危险材料应登记在册并保留，并采取措施避免与食品接触材料交叉污染。 <i>NOTE Hazardous materials should include hazardous chemicals or components with contamination potential.</i> <i>注：危险材料包括危险化学品或有潜在污染的部件。</i></p>
<p>10.5</p>	<p>Chemical migration 化学性迁移</p> <p>Printed and coated materials shall be handled and stored in their intermediate and finished states in such a manner that transfer of substances to the food contact side via set-off or other mechanism is reduced to a safe level appropriate for these materials as defined by hazard assessment. 印刷的和涂布的材料的中产品和最终产品储存时，应按照危害评估，将有害物</p>

	<p>质通过反印或其它方式转移到食品接触面的量降低到安全级别。</p> <p>Packing materials (e.g. pallets) shall be made of suitable material and be clean, dry and free from chemicals that could potentially contaminate the food packaging (such as insecticides, fungicides, pesticides or other chemicals)</p> <p>包装物（如栈板）应使用合适的材料制成，并保持干净、干燥、不含可能污染食品包材的化学品（如杀虫剂、除草剂、农药或者其他化学品）。</p> <p><i>NOTE In some cases, treatment of pallets may be necessary to meet regulatory or customer requirements.</i></p> <p><i>注：某些情况下，对栈板的处理必须符合法律法规或者客户的要求。</i></p> <p>Where there is a potential food safety hazard due to migration or other transfer mechanism, controls shall be implemented to prevent or control the hazard.</p> <p>当有由于迁移或者其他转移方式引起的潜在的食品安全隐患时，应采取措施预防或控制该危害。</p>
<p>10.6</p>	<p>Allergen management 过敏源管理</p> <p>Where a potential for contamination from allergens has been identified, controls shall be implemented to prevent or control the hazard and to record and label accordingly.</p> <p>当识别存在潜在的过敏原污染时，应采取措施对危害进行预防或控制，并记录和加标签标示。</p> <p><i>NOTE Components such as inks and oils can sometimes contain or be derived from allergenic material.</i></p> <p><i>Information should be available from the relevant supplier to identify any such risks.</i></p> <p><i>注：部件如油墨和油有时含过敏原，有时从过敏原产生出来，应该从相关的供应商获取信息来识别这些风险。</i></p>
<p>11</p>	<p>Cleaning 清洗</p>
<p>11.1</p>	<p>General requirements 总要求</p> <p>Cleaning programmes shall be established to maintain the production equipment and environment in a hygienic condition.</p> <p>应建立清洗方案，确保食品加工设备和环境保持一个合适的卫生状态。</p>

	<p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed.</p> <p>为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
11.2	<p>Cleaning agents and tools 清洗剂和清洗工具</p> <p>Equipment shall be maintained in a condition that facilitates cleaning. 应使设备处在便于清洗的状态下。</p> <p>Cleaning agents shall be clearly identified, stored separately and used only in accordance with manufacturers' instructions. 清洗剂应清楚标识，并单独存放和仅根据制造者的说明书使用。</p> <p>Cleaning tools shall be of hygienic design and maintained in a condition that does not present a potential source of contamination. 清洗工具应设计卫生，并良好地维护使之不会导致潜在的污染。</p>
11.3	<p>Cleaning programmes 清洗方案</p> <p>Cleaning programmes shall specify, as a minimum: 清洗程序至少应规定：</p> <ul style="list-style-type: none"> a) areas and items of equipment to be cleaned; 清洗的区域及要清洗的设备 b) responsibility for the cleaning tasks specified; 规定任务的职责 c) cleaning method(s) and frequency; 清洗方法和频率 d) monitoring and verification arrangements for the cleaning. 监视和验证的安排
11.4	<p>Monitoring cleaning programme effectiveness 监视清洁方案的有效性</p> <p>Cleaning programmes shall be monitored, at frequencies specified by the food packaging manufacturing organization, to assess their continuing suitability and effectiveness. 食品包装生产组织应以规定的频率监视清洗程序，确保持续适宜性和有效性。</p>
12	<p>Pest control 虫害控制</p>
12.1	<p>General requirements 总要求</p>

	<p>Cleaning, inspection and monitoring procedures shall be implemented to prevent creating an environment conducive to pest activity. 应实施清洁、检验和监视程序，避免创造一个有助于虫害活动的环境。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>12.2</p>	<p>Pest control programmes 虫害控制方案</p> <p>The food packaging manufacturing organization shall have a designated person to manage pest control activities or deal with appointed expert contractors. 公司应指定人员管理虫害控制活动和/或处理与选定的专业的承包商的事项。</p> <p>Pest management programmes shall be documented and shall identify target pests, and address plans, methods, schedules, control procedures and, where necessary, personnel training requirements. 虫害管理方案应文件化，规定虫害布局图、方法、日程安排和控制程序，必要时包括员工培训要求。</p> <p>Programmes shall include a list of chemicals that are approved for use in specified areas of the organization. 方案应包括批准使用于公司规定区域的化学品清单。</p>
<p>12.3</p>	<p>Preventing access 防止虫害进入</p> <p>Establishments shall be maintained in good repair. Holes and other potential pest access points shall be sealed. 建筑物应维护良好，应密封洞和其他潜在的虫害入口点。</p> <p>External doors, windows or ventilation openings shall be designed to prevent entry of pests. 对外的门、窗或开放的通风设施，设计应防止虫害进入。</p>
<p>12.4</p>	<p>Harbourage and infestations 虫害藏匿地和出没处</p> <p>Raw materials, intermediate materials or finished food</p>

	<p>packaging found to be infested shall be handled in such a way as to prevent contamination of other raw materials, intermediate materials, finished food packaging or the establishment.</p> <p>应适当处理滋生虫害的原材料、中间材料或最终食品包装，处理方式应预防其它原材料、中间材料、最终食品包装或设施受到污染。</p> <p>Potential pest harbourage (e.g. burrows, undergrowth, stored items) shall be removed.</p> <p>应清除潜在的虫害藏匿地(如 洞穴、灌木丛、贮存物品)。</p> <p>Where external space is used for storage, stored items shall be protected from weather and pest damage (e.g. bird droppings).</p> <p>当外部空间用来贮存时，应保护防止贮存物受天气或虫害毁坏 (如鸟粪)。</p>
12.5	<p>Monitoring and detection 监视和探测</p> <p>Pest monitoring programmes shall include the placing of detectors and traps in key locations to identify pest activity.</p> <p>虫害监视方案应包括在重要地方布置探测器和诱捕装置来识别虫害活动；</p> <p>A map of detectors and traps shall be maintained.</p> <p>应良好地维护探测器和诱捕装置布局图；</p> <p>Detectors and traps shall be designed and located to prevent contamination of raw materials, intermediate materials, finished food packaging and equipment.</p> <p>探测器和诱捕装置设计和布置时，应防止对原材料、中间产品、最终食品包装或设施的潜在污染。</p> <p>Detectors and traps shall be of robust, tamper-resistant construction. They shall be appropriate for the target pest.</p> <p>探测器和陷阱装置应该坚固，不易破坏，对于目标虫害是适宜的。</p> <p>Detectors and traps shall be inspected at a frequency intended to identify new pest activity.</p> <p>应按规定频率检查探测器和诱捕装置，以识别新的虫害活动。</p>

	<p>The results of inspections shall be analyzed to identify trends in pest activity. 应分析检查的结果来识别虫害活动趋势。</p>
12.6	<p>Eradication 根除害虫</p> <p>Eradication measures shall be put in place immediately after evidence of infestation is reported. 发现有虫害出没后应立即（迅速地）采取措施根除害虫。</p> <p>Pesticide application shall be restricted to trained personnel and shall be controlled to prevent food safety hazards. 杀虫剂的应用应限于受过培训的人员，并且受控制以防止产品安全危害。</p> <p>Records of pesticide use shall be maintained to show the type, quantity and concentrations used; where, when and how applied; and the target pest. 应保留杀虫剂的使用记录，包括杀虫剂类型、数量和浓度；哪里、何时、如何应用和目标虫害。</p>
13	<p>Personnel hygiene and facilities 个人卫生和设施</p>
13.1	<p>General requirements 总要求</p> <p>Requirements for personal hygiene and behaviour proportional to the hazard posed to the food packaging shall be established and documented. 公司应建立文件化的个人卫生和行为要求，标准的制定应与对食品包装形成的危害相一致。</p> <p>All personnel, visitors and contractors shall be required to comply with the documented requirements. 所有人员、访客和承包方应遵守该要求。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
13.2	<p>Personnel hygiene facilities and toilets 个人卫生设施和洗手间</p> <p>Personnel hygiene facilities shall be available to maintain the degree of</p>

	<p>personal hygiene required by the food packaging manufacturing organization. The facilities shall be located close to the points where hygiene requirements apply and shall be clearly designated.</p> <p>员工卫生设施应能确保食品包装制造组织所要求的人员卫生程度得到维护；卫生设施应就近布置，并应清楚地指定。</p> <p>According to their size and complexity, food packaging manufacturing organizations shall: 按照食品包装组织的大小和复杂性，组织应</p> <p>a) provide an adequate number and location of means of washing, drying and, where required, sanitizing hands (including wash basins, supply of hot and cold or temperature-controlled water, and soap or sanitizer); 提供足够的洗手和干手设施、适当的位置和洗手和干手方法，需要时，双手消毒杀菌(包括盥洗池，冷、热水或温控水，肥皂、消毒剂)。</p> <p>b) provide an adequate number and location of toilets of hygienic design, each with hand washing and drying facilities; 应适当的卫生设计，提供充足数量的洗手间，每个盥洗室应配备洗手和干手设施。</p> <p>c) have toilet facilities that do not open directly onto production areas; 员工卫生设施，不能直接对准生产区域。</p> <p>d) have adequate changing facilities for personnel; 员工有充足的更衣设施。</p> <p>e) provide lockers for all personnel who work in production, laboratory and storage areas. 应对生产、实验室和仓储区域的所有员工提供带锁储物柜。</p>
13.3	<p>Staff canteens and designated eating areas 员工餐厅和指定的用餐区域</p> <p>Staff canteens and designated areas for food storage and consumption shall be situated and appropriately managed to prevent contamination of production areas.</p> <p>员工餐厅和指定的食品贮存消费区域位置合理，应能够防止对生产区域造成污染。</p>

13.4	<p>Work wear and protective clothing 工作服和防护服</p> <p>Personnel who work in or enter into production or storage areas shall wear work clothing that is fit for purpose, clean and in good condition. 员工在工作或进入生产或仓储区域应穿工作服，工作服应保持良好的状态以符合使用目的、保持清洁和良好状态</p> <p>Work clothing shall not be used for any other purpose and shall not be stored in the same locker as personal clothing. 用于食品防护或卫生管理的工作服不得用于其它目的，且不能与员工个人衣物放在同一储物柜。</p> <p>Work clothing shall provide coverage so that hair, perspiration and loose items cannot contaminate raw materials, intermediate materials, finished food packaging or equipment based on a food safety hazard assessment. 工作服应充分覆盖，以确保如头发、汗水和不牢固的部件等按照食品安全危害评估，不会污染原料、中间产品、最终食品包装和设备。</p> <p>Where gloves are used for food packaging contact, they shall be clean and in good condition. 当手套用来与产品接触，它们应清洁并处于良好的状态。</p> <p>Personal protective equipment, where required, shall be designed to prevent contamination and shall be maintained in hygienic condition. 如有需要，应设计个人防护用品，用来防止产品污染。并应保持良好的卫生状态。</p>
13.5	<p>Illness and injuries 疾病和受伤</p> <p>Personnel, visitors and contractors shall be required to report relevant infections, conditions or diseases in accordance with the food packaging manufacturing organization's requirements. 食品包装制造组织应要求员工、访客和分包方申报有关传染病、健康状况或疾病情况。</p>

	<p>People known or suspected to be infected with, or carrying, a disease or illness transmissible through food shall be prevented from handling food packaging. 已知的、或怀疑已经受感染或携带疾病或流行病的员工，应避免处理食品包装。</p> <p>In production areas, personnel with wounds or burns shall be required to cover them with specified dressings. Any lost dressing shall be reported to the direct supervisor immediately. 在生产区域，患有割伤、碰伤的工作人员，如允许他们继续工作，则应将伤口处进行包扎。任何丢失的包扎物应立即报告给主管。</p>
<p>13.6</p>	<p>Personal cleanliness 个人清洁</p> <p>Personnel who are working in production areas shall be required to wash their hands: 应要求在食品生产区域的员工洗手，</p> <ul style="list-style-type: none"> a) before starting any food packaging handling activities; 在开始处理任何食品包装活动之前； b) immediately after using the toilet, eating, smoking or drinking (other than water); 去洗手间后、吃东西后、吸烟后、喝饮料后（除了喝水）应立即； c) immediately after handling any potentially contaminated material. 在处理任何潜在的被污染的材料之后应立即。 <p><i>NOTE Hand-cleaning products suitable for food safety (e.g. odourless) should be used.</i> <i>注： 应使用适于食品安全的洗手产品（如无味的）。</i></p> <p>Personnel shall be required to refrain from sneezing or coughing over raw materials, intermediate materials or finished food packaging. Spitting (expectorating) shall be prohibited. 应要求员工克制对着材料或产品上打喷嚏或咳嗽，禁止吐痰。</p> <p>Fingernails shall be kept clean and trimmed. 指甲应保持干净和修剪整齐。</p>
<p>13.7</p>	<p>Personal behaviour 个人行为举止</p>

A documented policy shall describe the behaviour required of personnel in **production** and storage areas.

The policy shall, at a minimum, cover:

应制订文件化的政策规定在生产和贮存区域的员工的行为要求。政策至少应包括:

a) permissibility of smoking, drinking (other than water), eating and chewing in designated areas only;

仅允许在指定区域抽烟、喝饮料（除喝水）、咀嚼或吃东西。

a) control measures to **prevent** hazards presented by permitted jewellery;
制订控制措施防止首饰带来危害。

NOTE Permitted jewellery includes specific types of jewellery that may be worn by personnel in processing and storage areas because of religious, ethnic, medical and cultural imperatives.

注：考虑到宗教信仰、医疗、种族风俗的特例，有时在生产和储存区域的员工允许佩戴特定类型的首饰。

c) permissibility of having personal items, such as smoking materials and medicines, in designated areas only;

个人物品，如香烟和药品，仅允许放在指定区域。

d) prohibition of the use of nail polish, false nails and false eyelashes;
避免使用指甲油、假指甲和假睫毛。

e) control measures to restrict writing implements or loose items in areas where they could contaminate raw materials, intermediate materials or finished food packaging;

对书写工具或者非固定物品加以控制，以防污染原料、中间产品或最终食品包装。

f) maintenance of personal lockers so that they are kept free from rubbish and soiled clothing;

维护个人储物柜清洁，不能放垃圾和脏衣服。

	<p>g) prohibition of storage of food packaging contact tools in personal lockers. 禁止将与食品包装接触的工具贮存放在个人储物柜内。</p>
<p>14</p>	<p>Rework 返工</p>
<p>14.1</p>	<p>General requirements 总要求:</p> <p>Rework shall be stored, handled and used in such a way that the food safety performance of food packaging, quality, traceability and regulatory compliance are maintained. 返工产品应适当地储存、处置及使用，以保持食品包装的食品安全性能、质量、可追溯性和法规符合性。</p> <p><i>NOTE In this PAS, the term “rework” includes materials intended for onsite processing.</i> <i>注：在这个 PAS 里面，术语“返工”包括用于现场加工的材料。</i></p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>14.2</p>	<p>Storage, identification and traceability 贮存、标识和可追溯性</p> <p>Stored rework shall be segregated and protected against contamination. 应保护贮存的返工产品，以防污染。</p> <p>Rework shall be clearly identified and labelled to allow traceability. Traceability records for rework shall be maintained. 返工应清楚地识别和/或在标签标识以便于可追溯性，应保留返工的可追溯性记录。</p> <p>The rework classification or the reason for rework designation shall be recorded (e.g. finished food packaging name, production date, shift, production line of origin). 返工分类或返工的原因应记录(如最终食品包装名称、生产日期、班次、原来生产线)。</p>

<p>14.3</p>	<p>Rework usage 返工产品的使用</p> <p>Where rework is to be incorporated back into the production process, the acceptable quantity, type and conditions of rework use shall be specified. The method of addition, including any necessary preprocessing stages, shall be defined.</p> <p>当返工产品添加回生产过程中时，应规定返工使用的数量、类型和返工使用的条件。应规定添加的方法，包括任何必须的前处理阶段。</p> <p>Measures shall be in place to prevent rework processes allowing raw materials, intermediate materials or finished food packaging to be contaminated with materials not intended for food contact.</p> <p>返工过程中应采取措施防止原材料、中间产品或最终食品包装被非食品接触材料污染。</p> <p>Validation records shall be kept to demonstrate that conformance to regulatory and customer requirements is maintained by following the specified rework process.</p> <p>须保留确认记录证明返工过程符合法律法规和客户要求。</p>
<p>15</p>	<p>Withdrawal procedures 撤回程序</p>
<p>15.1</p>	<p>General requirements 总要求</p> <p>Systems shall be in place to identify, locate and remove, from all necessary points of the supply chain, food packaging failing to meet required food safety standards.</p> <p>应建立体系确保当食品包装被确定未达到食品安全标准要求时从供应链的所有必要的环节被识别、确定并转移。</p> <p><i>NOTE Refer to BS EN ISO 22000, Clause 7.10.3, “Handling of potentially unsafe products”, and Clause 7.10.4, “Withdrawals”.</i></p> <p><i>注：参照 BS EN ISO22000, 7.10.3 “潜在不安全产品的处置”，和 7.10.4 “撤回”。</i></p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed.</p>

	<p>对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
15.2	<p>Withdrawal requirements 产品召回要求</p> <p>A list of key contacts in the event of a withdrawal shall be maintained and shall be accessible at all times. 应保持撤回事件中关键联系人清单，联系人在任何时间均可联系到。</p> <p>A procedure shall be in place to notify affected customer(s) immediately of withdrawal situations. 应建立程序确保撤回发生时，能立即通知受影响的客户。</p> <p>Where food packaging is withdrawn due to immediate health hazards, the food safety of other food packaging produced under the same conditions shall be evaluated. 因紧急健康危害而撤回产品时，应评估在相同生产条件下生产的其他食品包装的安全性。</p>
16	<p>Storage and transport 仓储和运输</p>
16.1	<p>General requirements 总要求</p> <p>Raw materials, intermediate materials and finished food packaging shall be stored in clean, dry, well-ventilated spaces protected from dust, condensation, fumes, odours or other sources of contamination. 原材料、中间材料和最终食品包装应贮存在干净的、干燥的、通风良好的场所，避免灰尘、冷凝水、烟气、臭味或其他污染源的污染。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
16.2	<p>Warehousing requirements 仓库贮存要求</p> <p>Effective control of warehousing temperature, humidity and other environmental conditions shall be provided where required by food packaging or storage specifications. 当食品包装或者储存规范有要求时，应有效控制温度、湿度或其他环境条件。</p>

	<p>Waste and chemicals (cleaning products, lubricants and pesticides) shall be stored separately. 废弃物和化学品（清洁剂、润滑油和杀虫剂）应分开存放。</p> <p>A separate area or other means of segregating food packaging materials identified as nonconforming shall be provided. 当出现不合格时，应提供单独的区域或其他隔离方法标识不合格品。</p> <p>Specified stock rotation systems that meet customer, food safety and regulatory requirements shall be observed. 仓储周转系统应遵循客户、食品安全和法律法规的要求。</p> <p>Stock shall be used in the correct order and within the allocated shelf-life. 库存物品使用应按照正确顺序并在有效期内使用。</p>
16.3	<p>Vehicles, conveyances and containers 车辆、运输工具和容器：</p> <p>Vehicles, conveyances and containers shall be maintained in a state of repair, cleanliness and condition consistent with requirements given in relevant specifications and contracts. 车辆、运输工具及容器都要按照规范和合同要求，保持在良好的清洁、维护和工作状态。</p> <p>Vehicles, conveyances and containers shall provide protection against damage or contamination of the food packaging. 车辆、运输工具及容器应提供充分的保护，避免食品包装的毁坏或污染。</p> <p>Control of temperature and humidity shall be applied, recorded and accessible where required. 组织需要时，应对温度和湿度实施控制并记录并易获取。</p> <p>All delivery vehicles and shipping containers shall be subject to a documented hygiene and integrity check prior to loading. 所有运输工具和装运容器在装运前应按照文件规定检查卫生和完好性。</p> <p>Food packaging shall be protected from contamination during loading</p>

	<p>operations. Where required by the food packaging manufacturing organization, bulk containers shall be dedicated to a specified food packaging material. 装载过程中，应保护食品包装免受污染，当食品包装制造组织有要求时，散装容器应只能装运指定的食品包装材料。</p> <p>Where specified by regulatory or customer requirements, outer wrapping and delivery vehicles shall be equipped with unique non-toxic, supplier- identifiable, tamper-evident seals to indicate any violation or attempted violation. 当法律法规或者客户有要求时，外部包装或运载工具应配备唯一的无毒的、供应商标识的、防破坏密封条，以防任何破坏或蓄意破坏。</p>
<p>17</p>	<p>Food packaging information and consumer awareness 食品包装信息/消费者意识</p>
<p>17.1</p>	<p>General requirements 总要求</p> <p>Where food packaging is printed with food safety information, measures shall be in place to prevent misprinting and verify that the information is compliant with all customer and regulatory requirements. 当食品包装印刷了食品安全信息时，现场应采取措施防止印刷错误，并验证信息符合所有客户和法律法规要求。</p> <p><i>NOTE Food safety information includes (but is not limited to) ingredient lists, allergen statements, identification codes and instructions for use.</i> 注：食品安全信息包括（但不限于）配料表、过敏原声明、标识码和使用指南。</p> <p>Controls shall be in place to prevent the use of obsolete printing media (e.g. preprinted material, printing plates). 应采取措施防止使用过期的印刷媒体（如预览资料、印刷版等）。</p> <p>Manufacturing, rework, storage and distribution processes shall be designed and implemented to prevent mixing of food packaging with different food safety information within a given batch. 食品包装的制造、返工、仓储和配送过程的设计和应防止在给定批次中混入不同的食品安全信息。</p>

	<p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>18</p>	<p>Food defence, biovigilance and bioterrorism 食品防护、生物警报和生物反恐</p>
<p>18.1</p>	<p>General requirements 总要求</p> <p>Each food packaging manufacturing organization shall assess the hazard posed by potential acts of sabotage, vandalism or terrorism and shall put in place proportional protective measures. 所有的食品包装制造组织应评估由潜在阴谋破坏、肆意破坏或恐怖行为引起的对产品的危害，并因此建立相应的防护措施。</p> <p><i>NOTE 1 This should include consideration of transport and distribution, as well as onsite activities. It should include points such as:</i> <i>注 1 应考虑运输、配送和现场活动，如应包括：</i></p> <ul style="list-style-type: none"> <i>a) building and infrastructure design to prevent unauthorized entry;</i> <i>建筑物和设施设计上应防止非许可进入。</i> <i>b) reference checks for personnel;</i> <i>员工背景调查。</i> <i>c) control of confidential information;</i> <i>机密信息控制。</i> <i>d) security of storage and production areas;</i> <i>仓储和生产区域安保。</i> <i>b) management of security incidents.</i> <i>安全事件管理。</i> <p><i>NOTE 2 For further information and guidance on approaches to the protection of food businesses from all forms of malicious attack, see PAS 96, Defending food and drink. Guidance for the deterrence, detection and defeat of ideologically motivated and other forms of malicious attack on food and drink and their supply arrangements.</i> <i>注 2 注：为避免各种对食品的蓄意破坏，有关产品防护的进一步信息和指导见 PAS 96 (Defending Food and Drink,)</i></p>

	<p>The site security assessment shall be kept up to date. 现场安全评估应及时更行。</p> <p>Personnel shall be trained in site security measures. 应对员工提供现场安全措施培训。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>
<p>18.2</p>	<p>Access controls 进入控制</p> <p>Potentially sensitive areas (e.g. production areas, utility services) within the establishment shall be identified, mapped and subjected to access control. 公司内部潜在的敏感区域（如生产区域，公共设施服务）应识别、图示标出，并控制进入。</p> <p><i>NOTE Where feasible, access should be physically restricted by use of locks, electronic card key or alternative systems.</i> 注：可行时，进入控制应通过使用锁、电子门禁或其他系统等物理性限制方法。</p> <p>Trademarked packaging, promotional materials and/or graphics shall be secured when not in use. 带商标的包装、促销品和/或 图案不用时应妥善保管。</p>
<p>19</p>	<p>Food packaging design and development 食品包装设计和开发</p>
<p>19.1</p>	<p>General requirements 总要求</p> <p>All applicable food safety requirements from regulatory authorities and any additional customer requirements shall be identified and addressed in the design process. 设计过程应识别并满足所有适用的跟食品安全相关的法律法规的要求和客户附加的要求。</p> <p>The effectiveness of measures taken to protect against contamination of the food packaging shall be periodically reviewed. 对为防止食品包材污染采取的措施的有效性应定期进行评审。</p>

19.2	<p>Communication and change control 沟通和变更控制</p> <p>The food packaging manufacturing organization shall have in place a procedure to obtain the information necessary to design food packaging suitable for its intended use.</p> <p>食品包装制造组织应建立程序，确保获得必要的信息使食品包装设计满足预期的使用要求。</p> <p>There shall be a process in place to verify that changes in requirements are communicated along the food packaging supply chain.</p> <p>组织应建立程序验证更改的要求在食品包装供应链中得到沟通。</p> <p><i>NOTE Figure 2 illustrates an example of information flows along the food packaging supply chain.</i></p> <p><i>注：图 2 是表述了食品包装供应链中信息流的例子。</i></p> <p>New technology and new manufacturing processes that may impact the food safety performance of the food packaging shall not be introduced without notification of the affected customer(s) in accordance with contractual obligations.</p> <p>可能影响食品包装的食品安全性能的新技术和新的制造过程，如果没有按照合同约定通知受影响的客户之前，不能采用。</p>
19.3	<p>Design 设计</p> <p>Complete and accurate supporting documents confirming the suitability of the materials for the intended application shall be available for all intermediate materials used to manufacture the food packaging.</p> <p>对于用于生产食品包装的中间材料，应提供完整的和准确的支持文件以确认所使用的材料适合预期的应用。</p> <p>Intermediate material composition, finished food packaging composition and migration data (where applicable) shall be available to demonstrate conformance to relevant food safety regulatory and customer requirements in the countries where the end product is intended to be used, where known.</p>

	<p>应提供中间产品组成、最终食品包装组成和迁移资料（适用时），证明成品符合已知的预期使用的国家的相关食品安全法规和客户的要求。</p> <p>Compliance data (e.g. migration data) shall include the intended conditions under which the food packaging is to be used.</p> <p>符合性资料（如迁移资料）应包括食品包材在预期使用条件下的情况。</p>
<p>19.4</p>	<p>Specifications 规范</p> <p>Food safety requirements and specifications shall be developed and maintained, and a process shall be in place to verify that these specifications are agreed by the food packaging manufacturing organization and the customer(s).</p> <p>应该建立和维护食品安全要求和规范，并建立程序来确保规范在食品包装制造组织和客户间达成一致。</p> <p>Specifications shall include all food safety-relevant parameters.</p> <p>规范应包含所有食品安全相关的参数。</p>
<p>19.5</p>	<p>Process validation 过程确认</p> <p>Validation data (e.g. information from production trials or testing) shall be available to demonstrate that the manufacturing process is capable of producing food packaging to accepted specifications and that the specified transport conditions to the customer(s) do not compromise the food safety or functionality of the food packaging.</p> <p>应提供确认资料（如试产信息或测试信息），以证明制造过程能够保证生产的食品包装符合接受的规范，证明到客户的运输条件不会危害食品安全或者食品包装的功能性。</p> <p><i>NOTE Previous validation data may be used for new food packaging and processes if they are similar to existing ones.</i></p> <p><i>注：如果新的食品包装和过程和已有的类似，可以采用以前的确认资料。</i></p>
<p>Bibliography</p>	<p>For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.</p>

Standards publications

PAS 96, *Defending food and drink. Guidance for the deterrence, detection and defeat of ideologically motivated and other forms of malicious attack on food and drink and their supply arrangements*

BS EN 15593, *Management of hygiene in the production of packaging for foodstuffs*

Other publications

Codex Alimentarius, *Recommended international code of practice – General Principles of Food Hygiene*

WHO, *World Health Organization – Guidelines for drinking water quality*

Further reading

BIP 2078, *Managing food safety the 22000 way*

BIP 2128, *ISO 22000 Food safety – Guidance and workbook for food manufacturers*

BS EN ISO 22005, *Traceability in the feed and food chain – General principles and basic requirements for system design and implementation*

ISO/TS 22003, *Food safety management systems – Requirements for bodies providing audit and certification of food safety management systems*

ISO/TS 22004:2005, *Food safety management systems – Guidance on the application of ISO 22000:2005*