Guide to Good Hygiene Practice in the Vending Industry.

This guide is recognised by the Food Standards Agency as a Guide to Good Practice in Compliance with Regulation 852/2004

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Acknowledgements

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British Soft Drinks Association Dispensing and Vending Committee

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Part 1  Introduction

Regulation (EC) No 852/2004 on the hygiene of foodstuffs
The Food Hygiene (England) Regulations 2006 – Schedule 4
Guide to Compliance for the Vending and Dispensing Industry

This Guide is intended to provide practical guidance and advice on compliance with Regulation (EC) No 852/2004 on the hygiene of foodstuffs and the temperature control requirements of Regulation 30, Schedule 4 of the Food Hygiene (England) Regulations 2006 (and in similar legislation in Scotland, Wales and Northern Ireland), for those operating in the Vending and Dispensing Industry.

This is an official guide to the Regulations which has been developed in accordance with Article 8 of the aforementioned EC Regulation.

Whilst the contents are not legally binding, officers from food authorities must take into account the use of such guides established in accordance with Community legislation, when they enforce the Regulations.

The Guide was prepared by a working group of the Automatic Vending Association (AVA) comprising the AVA Technical Consultant, Director and two AVA Quality Co-ordinators, representatives from vending operating companies and vending machine manufacturers and the AVA/University of Wales Institute, Cardiff Knowledge Transfer Partnership associate. The AVA represents all sectors of the British refreshment vending industry - machine and component manufacturers, commodity suppliers and operators (those who site, fill, service and clean machines) - and has had assistance from the British Soft Drinks Association and the Biscuit Cake Chocolate and Confectionery Association.

It also covers businesses (such as shops and garages) which service or replenish vending machines provided for the benefit of staff or customers and any part of a catering business which is concerned with the operation of vending machines.

Vending is a worldwide industry with over 500,000 machines in the UK alone selling refreshment items with a total value of £1.5 billion annually. Machines are sited in, among other places, offices, factories, leisure centres, garages, schools, hospitals and airports. An increasing number of people have one meal a day provided through vending machines and some 8 million cups of coffee, 2 million cups of tea and millions of cans of soft drinks are vended every day alongside snacks and food.

This guide is designed to assist those responsible for replenishing and sanitising vending and dispensing machines including, among others, vending operators and caterers.
Scope

Food Businesses covered by this Guide

Vending and Dispensing operations cover a wide range of equipment. This Guide covers businesses which supply, service or replenish the following categories of equipment:

Ambient temperature machines vending wrapped snacks such as confectionery and crisps.
Temperature controlled machines vending perishable items such as sandwiches and milk in cartons and plated meals.
Temperature controlled machines vending individually wrapped ice creams.
Machines vending cans, bottles and cartons.
Machines vending hot chips, pizzas or toasted sandwiches, (these products are held frozen and served hot).
Machines vending both hot and cold beverages from powdered ingredients or syrups.
Machines vending fresh-brewed coffee.
Machines vending ice.
Post mix equipment dispensing through a python.

The preparation of food for sale in vending machines is covered by the Catering Industry Guide.

This guide looks at each relevant part of the Regulations in turn and provides guidance on compliance and good practice.

Article 6 of Regulation 852/2004 deals with official controls, registration and approval.

Article 6(2)
...every food business operator shall notify the appropriate competent authority, in the manner that the latter requires, of each establishment under its control that carries out any of the stages of production, processing and distribution of food, with a view to the registration of each such establishment.

In order to comply with this part of this article, all food businesses must inform their local authority (usually the environmental health department) of the nature of their operations. Vending operators should register the locations of their business premises but it is not necessary to register the location of individual machines.

It would be good practice to use the standard forms available from the local authority.

Food business operators shall also ensure that the competent authority always has up-to-date information on establishments, including by notifying any significant change in activities and any closure of an existing establishment.
In order to comply with this part of the article food business operators must inform their local food authority of any significant changes in their operations. Significant changes in this context would include increasing the range of products vended from ambient stable foods to chilled foods.

It would be good practice to discuss such changes with the authority at an early stage, particularly before equipment was purchased or installed.
Part 2  Food Safety – Controlling Food Hazards
Article 5 of Regulation (EC) No 852/2004

Legal Requirement

Article 5.1. Food business operators shall put in place, implement and maintain a permanent procedure or procedures based on the HACCP principles.

Article 5.4. Food business operators shall:

(a) provide the competent authority with evidence of their compliance with paragraph 1 in the manner that the competent authority requires, taking account of the nature and size of the food business;

(b) ensure that any documents describing the procedures developed in accordance with this Article are up-to-date at all times;

(c) retain any other documents and records for an appropriate period.

Objective of the Article

The Article is intended to encourage you to develop a systematic approach to food safety in your business. The basis for doing this is the use of the principles of the HACCP system, which are identified in the Article.

The process may seem complex but it is relatively straightforward and requires looking at the operation step by step to assess what controls are necessary to keep food safe. Many of these will be simple commonsense practices that have been used for years. The benefit of the HACCP system is that food safety is considered at every step of the business in a systematic fashion. It is important to understand that HACCP is a process that should be carried out in a business already operating within the requirements of Good Manufacturing Practice (GMP). The basic requirements of GMP with respect to vending are laid out in Part 4 of this Guide.
### Regulations

5.2. The HACCP principles referred to in paragraph 1 consist of the following:

(a) identifying any hazards that must be prevented, eliminated or reduced to acceptable levels;

(b) identifying the critical control points at the step or steps at which control is essential to prevent or eliminate a hazard or to reduce it to acceptable levels;

(c) establishing critical limits at critical control points which separate acceptability from unacceptability for the prevention, elimination or reduction of identified hazards;

(d) establishing and implementing effective monitoring procedures at critical control points;

### Guide to Compliance

Food Hazards: A hazard is anything that could cause harm to the consumer. There are three main hazards that may arise with food or drink from vending machines. These are contamination by: bacteria or other micro-organisms that cause food poisoning Chemicals, for example, cleaning materials or pest baits Foreign materials such as glass, metal or plastic

Within vending, food passes through many steps; delivery, storage, transport, filling and dispensing. Hazards can arise at any step. Critical control points are steps at which hazards must be eliminated or reduced to acceptable levels. When vending food which has to be kept chilled, such as sandwiches and plated meals, all steps are critical control points.

A critical limit is a measure which must not be exceeded if the food is to remain safe. Critical limits for chilled food are established by Regulation 30, Schedule 4 of the Food Hygiene (England) Regulations 2006 and/or, are subject to the food manufacturers’ recommendations, through Annex II Chapter IX (5) of Regulation 852/2004.

Temperatures must be monitored at critical control points to ensure that the limit is not exceeded. Vending businesses must establish ways of monitoring temperatures to reassure themselves that the limit is not exceeded.
(e) establishing corrective actions when monitoring indicates that a critical control point is not under control;

It is important to establish in advance what actions should be taken if critical limits were to be exceeded. Such actions may include disposing of food that has been exposed to unsafe temperatures.

(f) establishing procedures, which shall be carried out regularly, to verify that the measures outlined in subparagraphs (a) to (e) are working effectively;

It is not sufficient to just set up the procedures. Checks have to be carried out to ensure that they continue to be effective.

and

(g) establishing documents and records commensurate with the nature and size of the food business to demonstrate the effective application of the measures outlined in subparagraphs (a) to (f).

Sufficient records should be kept to be able to demonstrate compliance with the Regulations. The principle is that of “as little as possible and as much as necessary”

When any modification is made in the product, process, or any step, food business operators shall review the procedures and make the necessary changes to it.

It is important that the food safety management system is reviewed when new types of products are introduced, different vending machines are used, or new types of clients acquired.

5.4 Food business operators shall:
(a) provide the competent authority with evidence of their compliance with paragraph 1 in the manner that the competent authority requires, taking account of the nature and size of the food business;

The up-to-date results of the procedure referred to in paragraph 1 must be available for inspection by an Environmental Health Officer as required.

Charts such as the examples of generalised Food Safety Management Studies which follow will suffice when accompanied by supporting documents as appropriate.

(b) ensure that any documents describing the procedures developed in accordance with this Article are up-to-date at all times;

For businesses vending food that needs to be kept chilled for safety, documentary evidence that critical control points are being monitored, such as temperature records from delivery vehicles and vending machines, should be retained. There is no set period but 6 months will generally be regarded as sufficient.

(c) retain any other documents and records for an appropriate period.
The business of operating vending machines can be separated into three categories for food safety purposes. These are listed below. Typical food safety management studies based on HACCP principles follow, to cover each category.

It should be noted that there are no critical control points for category A and B foodstuffs. All controls are those of Good Manufacturing Practice.
Example Classifications

Safety Category | Products
---|---
A. Prepacked shelf stable foods/drinks (ready for use) | Cans, bottles
| Confectionery
| Bagged snacks: Potato crisps, extruded snacks
| Ambient stable bakery products: biscuits, flapjacks, etc.
| Fruit: apples, bananas
B. Drinks | Hot drinks made from powders: coffee, tea, hot chocolate cappuccino, soups
| Cold drinks, carbonated or still, ice cubes
C. Foods that must be kept chilled or frozen | Sandwiches: made with meat, salads etc.
| Salads: with meat, cheese, eggs etc.
| Frozen foods for reheating

It is important to note that certain foods, such as soft cheeses, must comply with microbiological criteria contained in Regulation 2073/2005. Guidance on this Regulation is available on the Food Standards Agency’s website www.food.gov.uk

Examples of generalised Food Safety Management Studies
(These may need to be adapted for individual business/ circumstances)

**Category A: Pre-packed shelf stable foods/drinks, ready for use**

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Hazards</th>
<th>Controls</th>
<th>Monitoring</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of products</td>
<td>Presence of micro-organisms, toxins or foreign matter</td>
<td>Buy from reputable supplier</td>
<td>Check supplier has accreditation from reputable audit organisation</td>
<td>Warn or change supplier</td>
</tr>
<tr>
<td>Delivery to warehouse</td>
<td>Presence of foreign materials</td>
<td>Visual check of delivery vehicle</td>
<td>Delivery record check</td>
<td>Reject delivery</td>
</tr>
<tr>
<td>Storage in warehouse</td>
<td>Pest infestation</td>
<td>Pest control in place</td>
<td>Pest control contract</td>
<td>Reject product</td>
</tr>
<tr>
<td>Transport to vending machine</td>
<td>Presence of foreign materials</td>
<td>Vans cleaned to schedule</td>
<td>Cleaning record</td>
<td>Reject product</td>
</tr>
<tr>
<td>Filling and cleaning machine</td>
<td>Chemical contamination</td>
<td>No cleaning chemicals used on food surfaces</td>
<td>Written work procedures</td>
<td>Retrain operator</td>
</tr>
<tr>
<td>Storage and dispensing</td>
<td>Pest contamination</td>
<td>Machine sited to minimise pest infestation</td>
<td>Completed site survey form in file</td>
<td>Reject product</td>
</tr>
</tbody>
</table>

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### Category B: Drinks made from powders or syrups

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Hazards</th>
<th>Controls</th>
<th>Monitoring</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of products</td>
<td>Presence of micro-organisms, toxins or foreign matter</td>
<td>Buy from reputable supplier</td>
<td>Check supplier has accreditation from reputable audit organisation</td>
<td>Warn or change supplier</td>
</tr>
<tr>
<td>Delivery to warehouse</td>
<td>Presence of foreign materials</td>
<td>Visual check of delivery vehicle</td>
<td>Delivery record check</td>
<td>Reject delivery</td>
</tr>
<tr>
<td>Storage in warehouse</td>
<td>Pest infestation</td>
<td>Pest control in place FIFO in the warehouse</td>
<td>Pest control contract, Warehouse check</td>
<td>Reject product, Review with contractor</td>
</tr>
<tr>
<td>Transport to vending machine</td>
<td>Presence of foreign materials</td>
<td>Vans cleaned to schedule</td>
<td>Cleaning record</td>
<td>Reject product, Review with driver</td>
</tr>
<tr>
<td>Filling and cleaning machine</td>
<td>Microbiological growth in machine</td>
<td>Operator trained to clean properly and with sufficient frequency</td>
<td>Operators audited</td>
<td>Retrain operator, Clean machine</td>
</tr>
<tr>
<td>Storage and dispensing</td>
<td>Microbiological contamination of water</td>
<td>Connect to a source of drinking water</td>
<td>Site survey form ensures water source is drinking water</td>
<td>Disconnect machine</td>
</tr>
</tbody>
</table>

### Category C: Foods that must be kept chilled or frozen

<table>
<thead>
<tr>
<th>Process Step</th>
<th>Hazards</th>
<th>Control Measures</th>
<th>CCP</th>
<th>Monitoring</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase of products</td>
<td>Chemical, Physical, microbiological and undeclared allergens</td>
<td>Buy from audited supplier *</td>
<td>Yes</td>
<td>Audit certificate in file</td>
<td>Warn or change supplier</td>
</tr>
<tr>
<td>Transport to Vending Company</td>
<td>Microbiological growth during transport</td>
<td>Temperature controlled transport</td>
<td>Yes</td>
<td>Check temperature record chart</td>
<td>Reject delivery</td>
</tr>
<tr>
<td>Receipt and Storage</td>
<td>Microbiological growth during storage</td>
<td>Temperature controlled storage</td>
<td>Yes</td>
<td>Check warehouse temperature regularly</td>
<td>Reject product, Repair cooling system</td>
</tr>
<tr>
<td>Transport to machine</td>
<td>Microbiological growth during transport</td>
<td>Products transported in chilled containers</td>
<td>Yes</td>
<td>Occasional between pack temperature checks</td>
<td>Reject product, Review transportation to improve heat protection</td>
</tr>
<tr>
<td>Filling and Cleaning</td>
<td>Microbiological growth in product outside shelf life</td>
<td>Working practices require product to be removed before shelf life expires</td>
<td>Yes</td>
<td>Occasional checks on machine stock</td>
<td>Remove expired product, Retrain staff</td>
</tr>
<tr>
<td>Storage and Dispensing</td>
<td>Microbiological growth if machine temperature is not controlled below legal limit</td>
<td>Temperature display Machine stops vending when temperature is above permitted limit.</td>
<td>Yes</td>
<td>Record displayed temperature</td>
<td>Reject product, Repair machine</td>
</tr>
</tbody>
</table>
Where the vending machine is installed in an environment, such as a hospital, where product may be consumed by people who are more vulnerable to foodborne pathogens such as Listeria monocytogenes, the operator should consider carefully whether more stringent controls are required or whether certain foodstuffs should be sold at all.
Part 3    Food Hygiene supervision and instruction and/or training

Chapter XII of Annex II:

Food business operators are to ensure:
1. that food handlers are supervised and instructed and/or trained in food hygiene matters commensurate with their work activity;

2. that those responsible for the development and maintenance of the procedure referred to in Article 5(1) of this Regulation or for the operation of relevant guides have received adequate training in the application of the HACCP principles;

and

3. compliance with any requirements of national law concerning training programmes for persons working in certain food sectors.

A food handler is any person who handles or prepares food, including drink or ice, whether open (unwrapped) or packaged.

With the exception of fruit, all vended food is packaged. All food handlers in the vending industry should have a basic understanding of food and personal hygiene before starting work. This could be provided by a short course of around an hour at a national qualification level 1. Special arrangements may have to be made for persons whose first language is not English and/or persons with literacy or learning difficulties.

The Essentials of food and personal hygiene for vending are:

Keep yourself clean and wear clean clothing
Always wash your hands thoroughly after using the toilet, after every break, and before starting work on a site
Do not smoke or eat when handling food or cleaning machines
Keep chilled foods chilled
Ensure cuts and sores are covered with a waterproof and high visibility dressing.
Tell your supervisor before starting work if you are suffering from sickness or diarrhoea, fever or an infected wound

The AVA has published a booklet on the Essentials of Hygiene in Vending to support the course. It is good practice for others associated with the installation and maintenance of vending machines to receive similar basic hygiene training.

Supervisors should have training on Hygiene Awareness. A typical course would last 6 hours at National Occupational Standard level 2 and would include

Sources of harmful bacteria and their potential to cause illness
Cleaning and disinfection – materials, methods and storage of materials.
Personal health and hygiene, including reporting illness.
Cross contamination – causes, prevention.
The chill chain including protection of food from contamination.
Pest awareness and action to be taken.

Those preparing or handling unwrapped food should consult the Catering Guide for
guidance on levels of training.

Those responsible for the development of the food safety management plan based on the
principles of HACCP should have received adequate training in the application of
HACCP principles.
This would include an introduction to

The background to the HACCP system
The outline of the HACCP system
Good manufacturing practice
Physical, chemical and microbiological hazards
Critical control points
The steps of the vending process

Such training orientated specifically towards vending is available on the CD Food Safety
Management for Vending or could be provided in a short course of about an hour.

Training plan and records
It is good practice for a business to have training records to identify the training
undertaken by each member of staff. Refresher or update training may be necessary at
intervals. This training could take account of any changes in the business, including
changes in types of sites, types of machines and new types of products.

It is good practice for training to be delivered by people who themselves have been
trained in the skills needed for training.
Part 4   The “Rules of Hygiene”

Article 4.2 of Regulation (EC) No 852/2004 requires that food business operators carrying out any stage of production, processing and distribution of food after primary production shall comply with the general hygiene requirements laid down in Annex II.

Annex II is divided into 12 chapters, each dealing with a specific aspect of a food business. This section of the Guide will deal in turn with each of the chapters relevant to vending as described in the scope (Part 1). It is laid out in three columns identifying the legal requirement, the application to vending sufficient to fulfil the requirement and additional good practice advice.

This Guide does not cover the requirements for food businesses preparing food for vending or catering. These are covered in the Catering Guide. Vending companies which also prepare food should operate the food preparation part of their business according to the guidance in the Catering Guide.
**Chapter 1:** General Requirements for food premises (other than those specified in chapter III).

These general requirements relate to the storage facilities for a vending operation. Chapter III refers to specific requirements for the location of the machine itself.

<table>
<thead>
<tr>
<th>Legal requirement</th>
<th>Guide to compliance</th>
<th>Advice on good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <em>Food premises are to be kept clean and maintained in good repair and condition</em></td>
<td>The internal surfaces of premises in which food is handled or stored must be kept visibly clean and in a good state of repair. The surfaces must be maintained so that they can be cleaned. The building must be kept in sound condition.</td>
<td>It is good practice to have a maintenance programme that ensures that all surfaces including light fittings, grills and windows are regularly cleaned. Dry cleaning by brushing or vacuum cleaning is better than wet cleaning for food storage areas. The building as a whole should be maintained so that water cannot leak into the food storage area.</td>
</tr>
<tr>
<td>2. The layout, design, construction, siting and size of food premises are to:</td>
<td>Food areas of vending operations should be designed so that they can be cleaned and/or disinfected.</td>
<td>It is good practice to have food areas clear and uncluttered.</td>
</tr>
<tr>
<td>(a) permit adequate maintenance</td>
<td>Areas of vending operations in which food is handled or stored should be designed to allow them to be cleaned so that they are visibly clean.</td>
<td>It is good practice to store product on racking positioned such that building surfaces (floors, walls) can be cleaned. It is good practice to have storage that allows all foodstuffs to be off the floor with a sufficient gap to allow cleaning of the floor underneath.</td>
</tr>
<tr>
<td>cleaning and/or disinfection,</td>
<td></td>
<td></td>
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<tr>
<td>avoid or minimise air-borne contamination,</td>
<td>Locations of food premises must be selected such that air-borne contamination is minimised. In premises where air flow is controlled it must be designed so that contaminated air is not brought into food rooms.</td>
<td></td>
</tr>
<tr>
<td>and provide adequate working space to allow for the hygienic performance of all operations;</td>
<td>Work rooms must allow operations such as machine repair and parts cleaning to be carried out hygienically.</td>
<td>Machine repair facilities should have sufficient space for food (and water) contact parts to be stored and handled hygienically.</td>
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</tr>
<tr>
<td>(b) be such as to protect against the accumulation of dirt, contact with toxic materials, the shedding of particles into food and the formation of condensation or undesirable mould on surfaces;</td>
<td>The layout, design, construction, siting and size of premises must avoid the creation of places that are difficult to clean. Surface finishes should be such as to avoid shedding particles such as paint or plaster. Layout, design, construction and siting and size of premises must be such as to avoid the build-up of condensation.</td>
<td>It is good practice to design premises to eliminate nooks and crannies that are difficult to clean and where dirt can build up. Surface finishes should be chosen to avoid those which might flake off. Any growth of mould within the fabric of the building is undesirable. Avoidance of condensation and mould growth should be considered at all stages of planning and designing food premises to ensure adequate air movement.</td>
</tr>
<tr>
<td>(c) permit good food hygiene practices, including protection against contamination and, in particular, pest control; and</td>
<td>The layout, design, construction, siting and size of premises should allow food storage and other activities to be clearly separated. Premises must be designed and sited so as to minimise places where pests can hide or breed.</td>
<td>It is good practice for machine repair and maintenance and cleaning of parts to be carried out in rooms separate from food storage.</td>
</tr>
<tr>
<td>(d) where necessary, provide suitable temperature controlled handling and storage conditions of sufficient capacity for maintaining foodstuffs at appropriate temperatures and designed to allow those temperatures to be monitored and, where necessary recorded.</td>
<td>Where the vending company receives foods that need to be stored under specific temperature regimes, appropriate facilities must be provided. More information is provided in Part 5.</td>
<td></td>
</tr>
<tr>
<td><strong>Legal requirement</strong></td>
<td><strong>Guide to compliance</strong></td>
<td><strong>Advice on good practice</strong></td>
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</tr>
<tr>
<td>3. An adequate number of flush lavatories are to be available and connected to an effective drainage system. Lavatories are not to open directly into rooms in which food is handled.</td>
<td>Toilets must be provided. The numbers are laid down in paragraph 201 <em>et seq.</em> in the HSC Approved Code of Practice (L24) to the Workplace (Health, Safety and Welfare) Regulations 1992. Toilets must be connected to a drainage system through an effective trap. There must at least be an intervening ventilated space between toilets and areas in which food is handled or stored.</td>
<td></td>
</tr>
<tr>
<td>4. An adequate number of washbasins is to be available, suitably located and designated for cleaning hands. Washbasins for cleaning hands are to be provided with hot and cold running water, materials for cleaning hands and for hygienic drying. Where necessary, the facilities for washing food are to be separate from the hand-washing facility.</td>
<td>For vending operations dealing only with pre-packed food it is acceptable for hand washing facilities to be located in the toilet area. A supply of suitable soap should be provided for cleaning hands. Drying facilities may include: <em>Disposable paper</em> <em>Roller paper cabinet towels</em> <em>Washable fabric roller towels in cabinets</em> <em>Warm air dryers</em></td>
<td>It is good practice to have elbow or remote operation taps. It is good practice to use a bactericidal soap from a dispenser. Any towel on which the same part can be used more than once is not recommended.</td>
</tr>
<tr>
<td>5. There is to be suitable and sufficient means of natural or mechanical ventilation. Mechanical airflow from a contaminated area to a clean area is to be avoided. Ventilation systems are to be so constructed as to enable filters and other parts requiring cleaning or replacement to be readily accessible.</td>
<td>Natural or mechanical ventilation must be provided to ensure that heat and/or humidity do not build up to levels that could compromise the safety of food. Where mechanical ventilation is provided filters and other parts of the system must be accessible either directly or through access panels.</td>
<td></td>
</tr>
<tr>
<td>6. Sanitary conveniences are to have adequate natural or mechanical ventilation.</td>
<td>Mechanical ventilation systems must discharge away from rooms in which food is stored or handled.</td>
<td></td>
</tr>
<tr>
<td>Toilets must have either natural or mechanical ventilation to prevent aerosols or offensive odours permeating rooms in which food is stored or handled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Food premises are to have adequate natural and/or artificial lighting.</td>
<td>Lighting must be good enough to allow safe handling of food, effective cleaning and monitoring of cleaning standards.</td>
<td></td>
</tr>
<tr>
<td>Toilets must have either natural or mechanical ventilation to prevent aerosols or offensive odours permeating rooms in which food is stored or handled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Drainage facilities are to be adequate for the purpose intended. They are to be designed and constructed to avoid the risk of contamination. Where drainage channels are fully or partially open, they are to be so designed as to ensure that waste does not flow from a contaminated area towards or into a clean area, in particular an area where foods likely to present a high risk to the final consumer are handled.</td>
<td>Drains must have adequate fall to allow all solid and liquid waste to flow away.</td>
<td></td>
</tr>
<tr>
<td>Any changing facilities should be of sufficient size to allow for the hygienic changing of clothes and allow for the storage of day clothes so as not to have a hygiene risk in the food business.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Where necessary, adequate changing facilities for personnel are to be provided.</td>
<td>Glass lights should be covered with shatterproof diffusers or shrouds in all food areas. It is good practice to have a written procedure for cleaning up after a glass breakage.</td>
<td></td>
</tr>
<tr>
<td>10. Cleaning agents and disinfectants are not to be stored in areas where food is handled.</td>
<td>It is good practice to store stocks of cleaning agents and disinfectants in a separate part of the</td>
<td></td>
</tr>
</tbody>
</table>
warehouse from foodstuffs.
Part 4  The “Rules of Hygiene”

Chapter II: Specific requirements in rooms where foodstuffs are prepared, treated or processed (excluding dining areas and those premises specified in Chapter III)
This does not apply to vending operations as no foodstuffs are prepared during vending.
**Part 4**  The “Rules of Hygiene”

**Chapter III:** Requirements for movable and/or temporary premises (such as marquees, market stalls, mobile sales vehicles), premises used primarily as a private dwelling-house but where foods are regularly prepared for placing on the market and vending machines

<table>
<thead>
<tr>
<th>Legal Requirement</th>
<th>Guide to compliance</th>
<th>Advice on good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Premises and vending machines are, so far as is reasonably practicable, to be so sited, designed, constructed and kept clean and maintained in good repair and condition as to avoid the risk of contamination, in particular by animals and pests.</td>
<td>Vending machines should be sited in clean areas that are free from pests, especially rodents and crawling insects.</td>
<td>It is good practice to inspect the proposed site for a machine to ensure that it is suitable. The site should be clean and well lit and free from excessive dust, odours or humidity. It is good practice to use a site survey form to check and record the site details. Attention should also be paid to the stability of the machine. It is good practice to provide access for cleaning underneath the machine or to seal the machine to the floor with a gasket. When machines are fitted into a housing they should be installed in such a way that they do not provide harbourage for pests.</td>
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<td></td>
<td>Machines should be designed and constructed to avoid angles, recesses and voids that would make them difficult to clean or provide harbourage for pests.</td>
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<td></td>
<td>Food contact surfaces must be cleaned regularly to avoid the build up of soil.</td>
<td>It is good practice to have written cleaning schedules. Cleaning of food contact parts can either be done on site or a removable hygiene kit can be used which enables removable food</td>
</tr>
</tbody>
</table>
contact parts to be replaced on site and the used parts taken away for cleaning in suitable facilities elsewhere. Removable parts from syrup dispense units should be cleaned by brushing in hand hot running water. Soaking in either warm water or soda water on its own is inadequate. Particular attention should be paid to the prevention of cross contamination from other sources eg. counter surfaces and equipment such as beer dispensers etc. See also Chapter V on the requirements for equipment.

2. In particular, where necessary
   (a) appropriate facilities are to be available to maintain adequate personal hygiene (including facilities for the hygienic washing and drying of hands, hygienic sanitary arrangements and changing facilities);

   It is good practice for those cleaning and replenishing vending machines to clean their hands either by washing or with hygienic wipes before starting work on site.

   (b) surfaces in contact with food are to be in a sound condition and be easy to clean and, where necessary, to disinfect. This will require the use of smooth, washable, corrosion-resistant and non-toxic materials, unless food business operators can satisfy the competent authority that other materials used are appropriate;

   Food and water contact parts in vending machines should be made from suitable materials. Materials which comply with the relevant British and European standards are listed in the WRAS Water Fittings and Materials Directory.

   It is good practice for parts to be replaced when they become crazed or pitted so that they are difficult to clean. See also Chapter V on the requirements for equipment.
| (c) adequate provision is to be made for the cleaning and, where necessary, disinfecting of working utensils and equipment; | A supply of hot and cold water must be available for cleaning machines which vend food or open drinks (products in Categories B or C of Part 2) | It is good practice to have the water source other than from a toilet facility. See also point 1 in this Chapter |
| (d) where foodstuffs are cleaned as part of the food business’ operations, adequate provision is to be made for this to be undertaken hygienically; | This is not applicable to vending. |
| (e) an adequate supply of hot and/or cold potable water is to be available; | Vending machines must be connected to a source of potable water. See also Chapter VII |
| (f) adequate arrangements and/or facilities for the hygienic storage and disposal of hazardous and/or inedible substances and waste (whether liquid or solid) are to be available; | Where appropriate drinks vending machines must be fitted with a waste tray or bucket. It must be possible to dispose of this waste appropriately.  
Spoiled or out of date stock must be removed from the machine and site for disposal.  
Out of date sandwiches are considered as “former foodstuffs” and are classified as Category 3 products in the Animal By-Products Regulations 2005. Provided they do not contain certain specified ingredients such as smoked salmon and Parma ham, they may be disposed of to landfill.  
It is good practice for drinks vending machines to have a cut out if the waste container is full.  
It is good practice to empty and clean the waste container as part of regular cleaning procedure.  
It is good practice to have a written procedure for keeping waste separate from fresh food.  
It is good practice to have a contract with a waste disposal company for the disposal of waste sandwiches. | Where carbon filters are fitted, they should be changed in accordance with the manufacturer’s instructions |
| (g) adequate facilities and/or arrangements for maintaining and monitoring suitable food temperature conditions are to be | See Part V |


| (h) foodstuffs are to be so placed as to avoid the risk of contamination so far as is reasonably practicable. | With the exception of fruit, all food sold from a vending machine will be wrapped. | It is good practice to protect food during replenishment to avoid the risk of contamination by other personnel on site, for example by coughing or sneezing. Food which needs to be chilled to prevent the growth of bacteria should be vended from a chilled food vendor. |
Part 4 The “Rules of Hygiene”

Chapter IV – Transport
Transport is an important facet of most vending businesses. Transporting foodstuffs provides an opportunity for contamination and possibly spoilage, if there is inadequate temperature control of relevant foods. Contamination can occur if foodstuffs are carried in dirty receptacles, are inadequately packaged or packaging is damaged due to improper handling. A further potential risk is introduced if the outside of food vehicles are allowed to become heavily soiled.

<table>
<thead>
<tr>
<th>Legal Requirement</th>
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</thead>
<tbody>
<tr>
<td>1. Conveyances and/or containers used for transporting foodstuffs are to be kept clean and maintained in good repair and condition to protect foodstuffs from contamination and are, where necessary, to be designed and constructed to permit adequate cleaning and/or disinfection.</td>
<td>Vehicles used for transporting foodstuffs to client’s premises must be kept clean inside and out. Vehicles, or the compartments within them used for carrying foodstuffs, should be designed so that they can be easily cleaned. Certain foods will be covered by temperature control requirements and transport equipment will need to be designed accordingly. More detail is given in provision 7 of this Chapter.</td>
<td>Vehicles and /or containers should be cleaned on a regular basis. Any internal compartments of vehicles should be made of materials that are smooth and without nooks and crannies that are difficult to clean.</td>
</tr>
<tr>
<td>2. Receptacles in vehicles and/or containers are not to be used for transporting anything other than foodstuffs where this may result in contamination.</td>
<td>Other materials, such as cleaning chemicals, may be carried with foodstuffs provided that every care is taken to prevent contamination</td>
<td>It is good practice to have designated food and non-food containers. It is recommended that strong smelling products (eg. air fresheners or some disinfectants) are not carried in vehicles carrying food because of the risk of tainting.</td>
</tr>
<tr>
<td>3. Where conveyances and/or containers are used for transporting anything in addition to foodstuffs or for</td>
<td>Food and non-food items may be carried providing that both are adequately separated and wrapped or</td>
<td>It is good practice to have vehicles fitted out internally, specifically for carrying all the necessary</td>
</tr>
<tr>
<td>Transporting different foodstuffs at the same time, there is, where necessary, to be effective separation of products.</td>
<td>Packaged so there is no risk of spillage or contact that may contaminate food. Where cup recycling is practised and used cups are returned to an operator’s premises in the route van, the cups should be contained within a sealed heavy duty plastic bag. Out of date foodstuffs should be returned to base in sealed containers or sealed heavy duty plastic bags.</td>
<td>Supplies for cleaning and replenishing machines, to ensure there is no contamination of foodstuffs. It is good practice to have containers for waste, either cups or foodstuffs, which can be sealed for transport. Where machinery and components are transported in the same vehicle as food they should be sealed inside packaging so that they do not contaminate the food.</td>
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<tr>
<td>4. Bulk foodstuffs in liquid, granulate or powder form are to be transported in receptacles and/or containers/tankers reserved for the transport of foodstuffs. Such containers are to be marked in a clearly visible and indelible fashion, in one or more Community languages, to show that they are used for the transport of foodstuffs, or are to be marked ‘for foodstuffs only’. This provision does not apply to vending.</td>
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<tr>
<td>5. Where conveyances and/or containers have been used for transporting anything other than foodstuffs or for transporting different foodstuffs, there is to be effective cleaning between loads to avoid the risk of contamination. If there has been a spillage so that there is a subsequent risk of contamination, the vehicle must be effectively cleaned before being used to carry foodstuffs.</td>
<td>It is good practice to have separate, designated containers for foodstuffs, other supplies and waste. See advice for sections 2 and 3.</td>
<td></td>
</tr>
<tr>
<td>6. Foodstuffs in conveyances and/or containers are to be so placed and protected as to minimise the risk of Fully wrapped/packaged food will generally meet this requirement. Unwrapped foods, such as fruit, must be carried in</td>
<td>It is good practice to ensure that all foodstuffs, with the exception of fruit, are wrapped before being dispatched from the</td>
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</table>
enclosed containers to prevent contamination either from other materials carried in the vehicle or from dust, dirt and fumes from traffic.

operator’s premises. It is good practice to transport food in sealed containers which can be secured in position in the van. Food grade plastic or stainless steel receptacles are recommended for the transport of high risk food such as sandwiches. See also section 7 and Part 5.

| 7. Where necessary, conveyances and/or containers used for transporting foodstuffs are to be capable of maintaining foodstuffs at appropriate temperatures and allow those temperatures to be monitored. | Where high risk food is to be vended chilled or frozen, the transport method must be able to maintain the required temperatures. Such food must be transported at or below the temperature at which it is to be vended since the vending machine is not designed to reduce the temperature rapidly; initially it will only maintain the temperature of chilled or frozen food, before reducing it very slowly. Insulated boxes containing frozen ice packs or eutectic plates may be suitable for transporting chilled food for short local journeys of two hours or less provided this maintains food at the correct temperature. Refrigeration equipment to cool the vehicle may be necessary for longer journeys or where there are many drop-offs. If the temperature of the food is a “critical control point” then monitoring is required. This could | Specific temperature requirements vary for different types of perishable food and specialist advice should be sought if required. See Part 5 for more detailed advice on temperature control. |
involve probing the food with a thermometer, taking a “between pack” temperature or checking readouts from thermometers mounted in vehicles or containers. Note that Regulation 30 Schedule 4, of the Food Hygiene (England) Regulations specifies food temperatures, not the temperature of the air or the pack so where air temperatures are monitored it is important to establish the relationship between the measured temperature and the temperature of the food. While there is no obligation under the Regulations to provide continuous monitoring throughout the journey checks need to be made from time to time to establish that the method of transport continues to be adequate for maintaining correct temperatures.
### Part 4  The “Rules of Hygiene”

#### Chapter V – Equipment requirements

<table>
<thead>
<tr>
<th>Legal requirement</th>
<th>Guide to compliance</th>
<th>Advice on good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>All food and water contact parts of vending machines are to be cleaned. For parts in contact with dry foodstuffs, this may involve merely brushing out. For parts in contact with water cleaning with a detergent solution will be necessary. On some occasions it may be necessary to carry out a rigorous cleaning including the use of a disinfectant.</td>
<td>Food contact parts of vending machines should be cleaned regularly according to a schedule. Staff carrying out cleaning should have adequate instruction, supervision and training to ensure they carry out their task safely and effectively. Precautions should be taken during cleaning to avoid contamination with cleaning chemicals.</td>
</tr>
<tr>
<td>(b)</td>
<td>Components should be made from materials such as stainless steel and food grade plastics, inspected regularly and replaced if they have become crazed or pitted making them difficult to clean.</td>
<td>While the vast majority of foods sold by vending machine are prepackaged this it is nevertheless good practice that surfaces upon which foods rest or are displayed are smooth and easy to clean. See also advice on Chapter III</td>
</tr>
<tr>
<td>(c)</td>
<td></td>
<td></td>
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<tr>
<td>(d)</td>
<td>It is good practice to inspect the intended site for a vending machine or block of machines to ensure that it can be kept clean. While cleaning of the site is the responsibility of the site owner, the vending operator should identify where siting constraints will make cleaning difficult.</td>
<td></td>
</tr>
<tr>
<td>2. Where necessary, equipment is to be fitted with any appropriate control device to guarantee fulfilment of this Regulation’s objectives.</td>
<td>This is not applicable to vending.</td>
<td>See also advice on Chapter III</td>
</tr>
<tr>
<td>3. Where chemical additives have to be used to prevent corrosion of equipment and containers, they are to be used in accordance with good practice.</td>
<td>This is not applicable to vending.</td>
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</table>
### Part 4  The “Rules of Hygiene”

#### Chapter VI – Food waste

<table>
<thead>
<tr>
<th>Legal Requirement</th>
<th>Guide to compliance</th>
<th>Advice on good practice</th>
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</thead>
<tbody>
<tr>
<td><strong>1. Food waste, non-edible by-products and other refuse are to be removed from rooms where food is present as quickly as possible, so as to avoid their accumulation.</strong></td>
<td>Food vending machines must be checked regularly to ensure food is removed before its shelf life expires. Such items must be removed from the site as soon as possible. The contents of any liquid waste bucket in a drinks vending machine must be emptied during routine cleaning.</td>
<td>It is not good practice to merely leave out of date food in a waste bin, it should be removed from site.</td>
</tr>
<tr>
<td><strong>2. Food waste, non-edible by-products and other refuse are to be deposited in closable containers, unless food business operators can demonstrate to the competent authority that other types of containers or evacuation systems used are appropriate. These containers are to be of an appropriate construction, kept in sound condition, be easy to clean and, where necessary, to disinfect.</strong></td>
<td>Out of date food, damaged food and food waste should be placed in a closable container for transport from the site for final disposal.</td>
<td>It is good practice to clean the waste bucket before replacing it and to place a bleach tablet or odourless sanitising agent in it at the end of the cleaning process.</td>
</tr>
<tr>
<td><strong>3. Adequate provision is to be made for the storage and disposal of food waste, non-edible by-products and other refuse. Refuse stores are to be designed and managed in such a way as to enable them to be kept clean and, where necessary, free of animals and pest.</strong></td>
<td>Waste containers at the operator’s premises should be secure and sealed to prevent access by animals and birds.</td>
<td>It is good practice to ensure that waste receptacles are lined with plastic liners which can easily be removed and secured so that the minimum of food waste comes into contact with the container. Where plastic cups are collected for recycling it is good practice to place a special cup collector adjacent to the vending machine. See also Chapter IV (3).</td>
</tr>
<tr>
<td><strong>4. All waste is to be eliminated in a hygienic and environmentally friendly</strong></td>
<td>Waste food should be disposed of in accordance with the Animal By-</td>
<td>It is good practice to ensure that all food waste placed in an outdoor receptacle is securely bagged up. Outdoor waste receptacles should be cleaned on a regular basis.</td>
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</table>
way in accordance with Community legislation applicable to the effect, and is not to constitute a direct or indirect source of contamination. | Products Regulations 2005 and similar Regulations in Scotland, Northern Ireland and Wales. See also Chapter III 2(f)
## Part 4: The “Rules of Hygiene”

### Chapter VII – Water

<table>
<thead>
<tr>
<th>Legal Requirement</th>
<th>Guide to compliance</th>
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</thead>
<tbody>
<tr>
<td>1. (a) There is to be an adequate supply of potable water, which is to be used whenever necessary to ensure that foodstuffs are not contaminated;</td>
<td>Potable water is water which is safe to drink. This will normally be water taken from a direct connection to the mains system. Possible other sources of water include tanks, bore holes and water bottles. Where there is any doubt that these or other sources of water are potable they must be checked before vending machines are connected to them. All water contact parts must be made of materials which will not contaminate the water. Potable water must be used wherever water is needed for testing machines, washing food or water contact parts of machines and for hand washing.</td>
<td>It is good practice to carry out a site survey before installing a drinks vending machine and ensure that the water supply is mains water. It is good practice to seek advice from the local Environmental Health Department before connecting to any water supply other than the mains system (such as a tank or bore hole). Microbiological results from a single sample would not be sufficient evidence that the water was safe to drink. It is good practice to ensure that the water supplied to a vending machine has spent the least possible time in the building’s distribution system, to avoid dead legs and long runs of pipe with low or intermittent flow and to avoid pipes passing through roof spaces where the temperature may rise above 25°C, since these conditions can give rise to a deterioration of water quality. Some buildings still have lead piping for mains water supplies. The limits for lead in water are low and in future will be reduced. While it is not forbidden to connect to lead piping if the water complies with the</td>
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quality standards, it is not good practice and both the AVA and the British Soft Drinks Association recommend that connection is not made to systems that include lead piping. Water conditioning devices such as softeners, carbon filters and UV lights may be used but care must be taken to comply with the manufacturer’s instructions in fitting and changing. Where the water source is within the vending machine, for example a water bottle, it is good practice to ensure that it is:
- Securely covered to prevent insect ingress or airborne contamination
- readily accessible and removable for inspection and cleaning
- designed to keep the water below 25ºC

Further detailed advice on this subject is contained in Appendix III
The mains water supply will, on rare occasions, become contaminated. Advice on what to do in this event is also provided in Appendix III.

| (b) Clean water may be used with whole fishery products. Clean seawater may be used with live bivalve molluscs, echinoderms, tunicates and marine gastropods; clean water may also be used for external washing. When such water is used, | This does not apply to vending |
| adequate facilities are to be available for its supply. | In some circumstances hoses for fire fighting may be connected to a supply of water that is not potable. In those cases, the supply should be clearly marked for fire fighting. Vending machines should not be connected to such a supply. |

| 2. Where non-potable water is used, for example for fire control, steam production, refrigeration and other similar purposes, it is to circulate in a separate duly identified system. Non-potable water is not to connect with, or allow reflux into, potable water systems. | Vending machines should only be connected to a source of potable water |

| 3. Recycled water used in processing or as an ingredient is not to present a risk of contamination. It is to be of the same standard as potable water, unless the competent authority is satisfied that the quality of the water cannot affect the wholesomeness of the foodstuff in its finished form. | |

| 4. Ice which comes into contact with food or which may contaminate food is to be made from potable water or, when used to chill whole fishery products, clean water. It is to be made, handled and stored under conditions that protect it from contamination. | All ice used in food and drink should be made from potable water. Parts of machines that come into contact with ice should be cleaned regularly and disinfected periodically. It is possible to use non-potable water, or other fluids, in sealed eutectic plates or packs that will be used for cooling food provided there is no direct contact between the liquid and the food. |

| 5. Steam used directly in contact with food is not to contain any substance that presents a hazard to health or is likely to contaminate | This does not apply to vending. |
the food.

| 6. Where heat treatment is applied to foodstuffs in hermetically sealed containers it is to be ensured that water used to cool the containers after heat treatment is not a source of contamination for the foodstuff. | This does not apply to vending. |
## Part 4  The “Rules of Hygiene”

### Chapter VIII – Personal Hygiene

<table>
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<tr>
<th>Legal Requirement</th>
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</thead>
<tbody>
<tr>
<td>1. Every person working in a food-handling area is to maintain a high degree of personal cleanliness and is to wear suitable, clean and, where necessary, protective clothing.</td>
<td>This guidance relates to every person who handles food. Thus both operators and maintenance engineers should be clean and tidy and wear a clean uniform or tabard.</td>
<td>The high standards required of operators include • Having short nails • Not wearing nail varnish • Having clean hair tied back • Washing hands appropriately • Wearing highly coloured wound dressings when necessary</td>
</tr>
<tr>
<td>2. No person suffering from, or being a carrier of a disease likely to be transmitted through food or afflicted, for example, with infected wounds, skin infections, sores or diarrhoea is to be permitted to handle food or enter any food-handling area in any capacity if there is any likelihood of direct or indirect contamination. Any person so affected and employed in a food business and who is likely to come into contact with food is to report immediately the illness or symptoms, and if possible, the causes, to the food business operator.</td>
<td>Since cleaning drinks vending machines involves handling parts that come into contact with the drink, this requirement applies to those cleaning machines as well as to those handling food directly.</td>
<td>It is good practice to instruct staff on appointment that they must tell their manager or supervisor if they suffer from any of the listed ailments and to do this in writing. In case of serious illness it is good practice to contact a medical practitioner for advice on the exclusion of a staff member from their normal duties and on their suitability to return after illness. See also Appendix I.</td>
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## Part 4

The “Rules of Hygiene”

### Chapter IX – Provisions applicable to foodstuffs

<table>
<thead>
<tr>
<th>Legal requirement</th>
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<tbody>
<tr>
<td>1. <strong>A food business operator is not to accept raw materials or ingredients, other than live animals, or any other material used in processing products, if they are known to be, or might reasonably be expected to be, contaminated with parasites, pathogenic microorganisms or toxic, decomposed or foreign substances to such an extent that, even after the food business operator had hygienically applied normal sorting and/or preparatory or processing procedures, the final product would be unfit for human consumption.</strong></td>
<td>Companies must ensure that the foods they buy and sell are not contaminated and are fit to eat. Food with an expired ‘Use by’ date must not be accepted. It should be returned or set aside and clearly marked for later disposal.</td>
<td>It is better to audit suppliers than to rely on testing occasional batches of product. However, few vending companies have the technical resources necessary to carry out a meaningful audit so it is good practice to buy from suppliers who have been audited by reputable third parties. For chilled foods, checks should be made to ensure that the food is delivered at the correct temperature as recommended by the manufacturer. For prepacked foods labelled with a ‘Use by’ date, the product should have enough residual life to allow the food to be used within the date.</td>
</tr>
<tr>
<td>2. <strong>Raw materials and all ingredients stored in a food business are to be kept in appropriate conditions designed to prevent harmful deterioration and protect them from contamination.</strong></td>
<td>Food products and ingredients used in vending must be kept clean and dry. Storage areas must be tidy to minimise the risk of foreign body hazards and prevent harbourage of pests. Chilled stores must be run at suitable temperatures to comply with the temperature control regulations. The temperature of the store Part used packs should be resealed to prevent contamination. Packaging and machine parts should be kept separate from food materials in clean and dry stores that are free from pests and other sources of contamination.</td>
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</table>
### Guide to Good Hygiene Practice in the Vending Industry

<table>
<thead>
<tr>
<th>3. At all stages of production, processing and distribution, food is to be protected against any contamination likely to render the food unfit for human consumption, injurious to health or contaminated in such a way that it would be unreasonable to expect it to be consumed in that state.</th>
<th>Food must be protected from contamination in store, during distribution and in the vending machine.</th>
<th>The food store should be clean and dry and good practice includes storing foods off the floor, keeping floors and walls clean, fitting lights with diffusers to stop broken glass falling onto the product or the floor, and rotating stock. Before placing vending machines the site should be assessed in order to ensure that products within the machine will not become damp or contaminated. Temperature controlled food machines should be placed so that they do not receive direct sunlight which may cause overheating.</th>
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<tr>
<td>4. Adequate procedures are to be in place to control pests. Adequate procedures are also to be in place to prevent domestic animals from having access to places where food is prepared, handled or stored (or, where the competent authority so permits in special cases, to prevent such access from resulting in contamination).</td>
<td>Pests include rodents, insects and birds. Domestic animals must not be permitted in the food store.</td>
<td>It is good practice to have a contract with a pest control company for the food store. Waste should be covered so that it does not attract birds or feral animals. Before placing vending machines the site should be assessed in order to check that it is unlikely to attract insects, particularly ants or cockroaches.</td>
</tr>
<tr>
<td>5. Raw materials, ingredients, intermediate products and finished products likely to support the reproduction of pathogenic micro-organisms or the formation of toxins are not to be kept</td>
<td>This regulation applies to food that will support the growth of pathogenic micro-organisms. This includes plated meals or sandwiches which contain cooked meat, paté, smoked or cured fish, soft cheese,</td>
<td>It is good practice to have procedures in place to ensure that foods are kept at less than 8 °C throughout their entire shelf life, including during transport from delivery vehicle to the vending machine.</td>
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</table>
at temperatures that might result in a risk to health. The cold chain is not to be interrupted. However, limited periods outside temperature control are permitted, to accommodate the practicalities of handling during preparation, transport, storage, display and service of food, provided that it does not result in a risk to health. Food businesses manufacturing, handling and wrapping processed foodstuffs are to have suitable rooms, large enough for the separate storage of raw materials from processed material and sufficient separate refrigerated storage.

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<thead>
<tr>
<th>6. Where foodstuffs are to be held or served at chilled temperatures they are to be cooled as quickly as possible following the heat-processing stage, or final preparation stage if no heat process is applied, to a temperature which does not result in a risk to health.</th>
<th>Foods such as sandwiches machine must be chilled to less than 8 °C before being loaded into a chilled food vending machine</th>
<th>Advice on temperature control of foodstuffs is provided in Part 5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. The thawing of foodstuffs is to be undertaken in such a way as to minimise the risk of growth of pathogenic microorganisms or the formation of toxins in the foods. During thawing, foods are to be subjected to</td>
<td>This does not apply to vending.</td>
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</table>
temperatures that would not result in a risk to health. Where run-off liquid from the thawing process may present a risk to health it is to be adequately drained. Following thawing, food is to be handled in such a manner as to minimise the risk of growth of pathogenic microorganisms or the formation of toxins.

8. Hazardous and/or inedible substances, including animal feed, are to be adequately labelled and stored in separate and secure containers.

| Cleaning chemicals including detergents, and oils and lubricants used for machines must be stored separately from foodstuffs. Chemicals used for cleaning machines must always be stored in labelled containers intended for the purpose. |
| It is good practice to have separate storage areas for machine components and consumables, and foodstuffs. Chemicals should never be decanted into bottles originally used for other purposes, for example beer or soft drinks bottles. |
### Part 4  The “Rules of Hygiene”

#### Chapter X – Provisions applicable to the wrapping and packaging of foodstuffs

<table>
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<tr>
<th>Legal requirement</th>
<th>Guide to compliance</th>
<th>Advice on good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Material used for wrapping and packaging are not to be a source of contamination.</td>
<td>Packaging for foodstuffs must be made from food grade materials.</td>
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</tr>
<tr>
<td>2. Wrapping materials are to be stored in such a manner that they are not exposed to a risk of contamination.</td>
<td></td>
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<tr>
<td>3. Wrapping and packaging operations are to be carried out so as to avoid contamination of the products. Where appropriate and in particular in the case of cans and glass jars, the integrity of the container’s construction and its cleanliness is to be assured.</td>
<td>Vending cups must be stored, transported and loaded in such a manner that they are not contaminated.</td>
<td></td>
</tr>
<tr>
<td>4. Wrapping and packaging materials re-used for foodstuffs is to be easy to clean and, where necessary, to disinfect.</td>
<td>Packaging used for transporting foodstuffs should be easy to clean.</td>
<td>It is good practice to ensure that containers, especially those for chilled foods or drinks powders, are cleaned out regularly.</td>
</tr>
</tbody>
</table>
Part 4    The “Rules of Hygiene”

Chapter XI – Heat treatment
This does not apply to vending
Part 5  Temperature Control

The control of temperature is essential in restricting the growth of bacteria and thus minimising the risk of food poisoning and deterioration and spoilage of food. For high risk foods in particular, keeping them chilled or hot is the single most important control in ensuring their safety.

Bacteria need warmth to live and multiply. Generally, at temperatures of 8°C or less their growth is inhibited and at 63°C or over most are killed. The range between these two temperatures is known as the danger-zone where bacteria will grow rapidly and therefore it is necessary to avoid keeping foods at these temperatures.

This section covers product held chilled or frozen and provides detailed advice on how to comply with the Food Hygiene (England) Regulations 2006 Schedule 4, similar regulations for Wales and Northern Ireland and the Food Hygiene (Scotland) Regulations 2006 Schedule 4. At the time of writing we are not aware of any vending machines that keep food hot.

The temperatures required in the Regulations refer to the temperature of the food itself. In vending it is often more practical for routine checks to measure air temperature and the relationship between the two needs to be understood and periodically checked.

This guide considers the specific aspects of vending chilled food. Food business operators producing chilled food should refer to the Catering Guide.
Section 1 England

<table>
<thead>
<tr>
<th>Legal requirement</th>
<th>Guide to compliance</th>
<th>Advice on good practice</th>
</tr>
</thead>
</table>
| 1. **This Schedule does not apply in relation to —**  
   (a) any food business operation to which Regulation 853/2004 applies; or  
   (b) any food business operation carried out on a ship or aircraft | Regulation 853/2004 applies to food of animal origin.  
   (a) vending operations are not covered by this exemption | (b) It is good practice to follow guidance in this section |
| 2. —(1) Subject to sub-paragraph (2) and paragraph 3, any person who keeps any food —  
   (a) which is likely to support the growth of pathogenic micro-organisms or the formation of toxins; and  
   (b) with respect to which any commercial operation is being carried out,  
   at or in food premises at a temperature above 8°C shall be guilty of an offence. | This regulation applies to food that will support the growth of pathogenic micro-organisms. Foods which will support the growth of pathogenic micro-organisms include cooked meat, paté, smoked or cured fish, soft cheese, and quiche, flan and pastries which are made with eggs or cheese. Some foods may have a sufficiently high sugar content, low water activity or be sufficiently acidic not to be covered by this regulation.  
   Where a food manufacturer recommends that particular foods should be kept at or below a temperature of less than 8°C for reasons of food safety, this recommendation must be followed. | Generally the division between foods that need to be stored chilled and those that can be kept at ambient temperatures is that foods covered by this regulation have a “Use By” date rather than a “Best Before” date. While the regulation requires these foods to be kept below 8°C, it is good practice, where possible, for example in storage fridges, for product to be kept at 5°C. It is important to note that chilled food vending machines are not designed to chill food rapidly from ambient temperatures to less than 8°C and it is good practice to ensure that all foods put into a machine are at a maximum of 8°C before being loaded into the machine.  
   It is good practice to have a thermal cut out device on vending machines serving chilled food so that the machine will not allow product to be vended if the temperature rises above |
It is good practice to site food vending machines out of direct sunlight where the temperature may be unacceptable during bright sunshine.

It is good practice to have a digital display fitted to chilled food vendors and to record the temperature each time the vendor is replenished.

Where foods are being taken some distance from manufacturing site or chilled store to the machine, it is important to have procedures and equipment that maintain the temperature of the foods at no more than 8°C and preferably at 5°C.

It is good practice to occasionally measure the temperature of the food with a digital probe thermometer. The thermometer probe should be disinfected before each reading.

It is good practice to keep written records of the readings and to monitor records to identify any potential problems.

See also Chapter IX (5).

| (2) Sub-paragraph (1) shall not apply in relation to any food which, as part of a mail order transaction, is being conveyed to the final consumer. |
| This guide does not cover mail order food. |

(3) Subject to paragraph 3, no person shall supply by mail order any food which
(a) is likely to support the growth of pathogenic micro-organisms or the formation of toxins; and

(b) is being or has been conveyed by post or by a private or common carrier to the final consumer,

at a temperature which has given rise to or is likely to give rise to a risk to health.

3. Sub-paragraphs (1) and (3) of paragraph 2 shall not apply in relation to —

(a) food which —

(i) has been cooked or reheated,

(ii) is for service or on display for sale, and

(iii) needs to be kept at or above 63°C in order to control the growth of pathogenic micro-organisms or the formation of toxins;

(b) food which, for the duration of its shelf life may be kept at ambient temperatures with no risk to health;

(c) food which is being or has been subjected to a process such as dehydration or canning intended to prevent the growth of

This regulation provides exemption from the need to hold at less than 8°C for certain foods or certain circumstances as described below:

(a) food intended to be served hot is covered by paragraph 6 of this schedule.

Much of the food sold through vending machines – confectionery, snacks and drinks is covered by this exemption.

Food which can be kept at ambient temperature for the duration of its shelf life will be marked with a “Best Before” date.
pathogenic microorganisms at temperatures, but not where
—(i) after or by virtue of that process the food was contained in a hermetically sealed container, and
(ii) that container has been opened;
(d) food which must be ripened or matured at ambient temperatures, but not when the process of ripening or maturation is completed;
(e) raw food intended for further processing (including cooking) before human consumption, but only if that processing, if undertaken correctly, will render that food fit for human consumption;
(f) food to which Council Regulation 1906/90 applies; and
(g) food to which Council Regulation 1907/90 applies.

This regulation covers the storage of cheeses for ripening. This is not applicable to vending.

| 4. —(1) In any proceeding for an offence consisting of a contravention of sub-paragraph (1) of paragraph 2, it shall be a defence for the accused to prove that—
| (a) a food business responsible for manufacturing, preparing or processing the food, including, where relevant, the accused, has |
| This paragraph allows food to be kept at a temperature between 8°C and ambient temperatures provided that a scientific assessment has concluded that it is safe to do so. |
| A vending operator wishing to use this provision for a specific food should have the advice from the manufacturer in writing. However, given that chilled food vending machines are factory set to run at 8 °C or less this provision will apply in only exceptional circumstances. |

These European Council Regulations do not apply to vending.
recommended that it is kept—
(i) at or below a specified temperature between 8°C and ambient temperatures, and
(ii) for a period not exceeding a specified shelf life;
(b) that recommendation has, unless the accused is that food business, been communicated to the accused either by means of a label on the packaging of the food or by means of some other appropriate form of written instruction;
(c) the food was not kept by the accused at a temperature above the specified temperature; and
(d) at the time of the commission of the alleged offence, the specified shelf life had not been exceeded.

(2) A food business responsible for manufacturing, preparing or processing food shall not recommend that any food is kept
(a) at or below a specified temperature between 8°C and ambient temperatures; and
(b) for a period of not exceeding a specified shelf life, unless that recommendation is supported by a well-founded scientific assessment of the safety of the food at the specified temperature.

This paragraph requires a well-founded scientific assessment to provide the basis for a recommendation to keep food at a temperature of more than 8°C. It is unlikely that a small food business such as a vending company would have the resources to carry out such an assessment.
5. —(1) In any proceedings for an offence consisting of a contravention of sub-paragraph (1) of paragraph 2, it shall be a defence for the accused to prove that the food—
(a) was for service or on display for sale;
(b) had not previously been kept for service or on display for sale at a temperature above 8°C or, where a recommendation has been made pursuant to sub-paragraph (1) of paragraph 4, the recommended temperature; and
(c) had been kept for service or on display for sale for a period of less than four hours.

(2) In any proceeding for an offence consisting of a contravention of sub-paragraph (1) or paragraph 2, it shall be a defence for the accused to prove that the food—
(a) was being transferred—
(i) from premises at which the food was going to be kept at or below 8°C or in appropriate circumstance the recommended temperature to a vehicle used for the purposes of a food business, or
(ii) to such premises from such a vehicle; or
(b) was kept at a temperature above 8°C or, in appropriate circumstances, the

This defence allows food to be kept at more than 8°C for the purpose of display for sale for a limited period up to 4 hours. Only one such period is permitted, no matter how short.

This defence takes account of the possibility that the temperature of food may rise above 8°C in certain circumstances. The acceptable limits for such an occurrence will obviously depend on the combination of time and temperature.

It is good practice to ensure that food in a vending machine is always at 8°C or less.

It is good practice to have the food in a temperature controlled environment for the whole of its shelf life from production to sale. If refrigerated vehicles are not available, insulated boxes with eutectic plates are recommended for transporting pre-chilled foods for short periods of time. The maximum time period above 8°C is not specified but a single period of up to 2 hours is unlikely to be questioned. However, it is important to note that this period includes the time necessary for the vending machine to cool down after refilling. Chilled food
| **recommended temperature** for an unavoidable reason, such as— (i) to accommodate the practicalities of handling during and after processing or preparation, (ii) the defrosting of equipment, or (iii) temporary breakdown of equipment, and was kept at a temperature above 8°C or, in appropriate circumstances, the recommended temperature for a limited period only and that period was consistent with food safety. | vending machines are designed to maintain safe temperatures but not to rapidly chill products from ambient. If product temperature is greater than 8°C when loaded it will typically take around 2 hours to cool the product down below 8°C. |

6. Any person who in the course of the activities of a food business keeps at or in food premises at a temperature below 63°C any food which — (a) has been cooked or reheated; (b) is for service or on display for sale; and (c) needs to be kept at or above 63°C in order to control the growth or pathogenic micro-organisms or the formation of toxins, shall be guilty of an offence. This applies to product which is held hot before serving. This does not apply to vending machines. |

7. In any proceedings for an offence consisting of a contravention of paragraph 6, it shall be a defence for the accused to prove that — (a) a well-founded scientific assessment of the safety of the food at temperatures below 63°C This does not apply to vending machines. |
<p>| has concluded that there is no risk to health if, after cooking or re-heating, the food is held for service or on display for sale— (i) at a holding temperature which is below 63°C, and (ii) for a period not exceeding any period of time specified in that scientific assessment; and (b) at the time of the commission of the alleged offence, the food was held in a manner which was justified in the light of that scientific assessment. |
| (2) In any proceedings for an offence consisting of a contravention of paragraph 6, it shall be a defence for the accused to prove that the food — (a) had been kept for service or on display for sale for a period of less than two hours; and (b) had not previously been kept for service or on display for sale by that person. |</p>
<table>
<thead>
<tr>
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<th>Advice on good practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. (1) Subject to sub-paragraph (2), this Schedule applies in relation to any person to whose food business operations Regulation 852/2004 applies but Regulation 853/2004 does not apply.</strong></td>
<td>Regulation 853/2004 applies to food of animal origin. Vending operations are not covered by this exemption</td>
<td>(2) It is good practice to follow guidance in this section.</td>
</tr>
<tr>
<td><strong>(2) This Schedule does not apply to food business operations on any ship or aircraft.</strong></td>
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<tr>
<td><strong>2.—(1) Subject to sub-paragraph (2), any person who keeps food with respect to which any commercial operation is being carried out at or in food premises otherwise than—</strong></td>
<td>This regulation applies to food that will support the growth of pathogenic micro-organisms. Foods which will support the growth of pathogenic micro-organisms include cooked meat, paté, smoked or cured fish, soft cheese, and quiche, flan and pastries which are made with eggs or cheese. Some foods may have a sufficiently high sugar content, low water activity or be sufficiently acid not to be covered by this regulation.</td>
<td>While the regulation does not specify a temperature, it is good practice to set storage fridges at a target temperature of 5°C. It is important to note that chilled food vending machines are not designed to chill food rapidly from ambient temperatures. It is good practice to ensure that all foods put into a machine are at a maximum of 8° before being loaded into the machine. (The British Sandwich Association Code of Practice recommends that sandwiches are kept below 5°C at point of sale). It is good practice to have a thermal cut out device on vending machines serving chilled food so that the machine will not allow product to be vended if the temperature rises above 8°C. It is good practice to have a digital display fitted</td>
</tr>
<tr>
<td><strong>(a) in a refrigerator or refrigerating chamber or in a cool ventilated place; or</strong></td>
<td></td>
<td></td>
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<tr>
<td><strong>(b) at a temperature above 63°C, is guilty of an offence.</strong></td>
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</table>
to chilled food vendors and to record the temperature each time the vendor is replenished. Where foods are being taken some distance from manufacturing site or chilled store to the machine, it is important to have procedures and equipment that maintain the temperature of the foods at no more than 8°C. It is good practice to occasionally measure the temperature of the food with a digital probe thermometer. The thermometer probe should be disinfected before each reading. It is good practice to keep written records of the readings and to monitor records to identify any potential problems. See also Chapter IX (5).

<table>
<thead>
<tr>
<th>(2) Sub-paragraph (1) shall not apply to any food—</th>
<th>Food does not have to be kept cold or above 63°C in certain circumstances. The only one of these that applies to vending is if the product is shelf stable.</th>
<th>Generally the division between foods that need to be stored chilled and those that can be kept at ambient temperatures is that foods that need to be kept chilled have a “Use By” date rather than a “Best Before” date.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) which is undergoing preparation for sale;</td>
<td>(b) which is exposed for sale or has been sold to a consumer whether for immediate consumption or otherwise;</td>
<td>(c) which, immediately following any process of cooking to which it is subjected or the final processing stage if no cooking process is applied, is being cooled under</td>
</tr>
</tbody>
</table>
hygienic conditions as quickly as possible to a temperature which would not result in a risk to health;

(d) which, in order that it may be conveniently available for sale on the premises to consumers, it is reasonable to keep otherwise than as referred to in sub-paragraph (1);

(e) which , for the duration of its shelf life, may be kept at ambient temperatures with no risk to health;

(f) to which Council Regulations (EEC) N0. 1906/90 on certain marketing standards for poultry, as last amended by Council Regulation (EC) No. 1101/98 applies; or

(g) to which Council Regulation (EEC) No. 1907/90 on certain marketing standards for eggs, as last amended by Council Regulation (EC) No. 2052/2003 applies.

| f) & g) These European Council Regulations do not apply to vending. |

| 3. — (1) Food which in the course of a commercial operation has been heated and which is thereafter reheated before being served for immediate consumption or exposed for sale shall, on being reheated, be raised to a temperature of not less than |

| This provision applies to food which has received its primary cooking in the same commercial operation. It does not apply to food prepared by third parties, for example cook-frozen prepared foods and thus it does not apply to vending. |
82°C.

(2) Any person who contravenes the provisions of sub-paragraph (1) is guilty of an offence.

(3) In any proceedings for an offence under sub-paragraph (2), it shall be a defence for the accused to prove that the food could not have been raised to a temperature of not less than 82°C without a deterioration of its qualities.

4. In this Schedule, “shelf life” means —

(a) in relation to food with respect to which an indication of minimum durability is required in accordance with regulation 20 of the Food Labelling Regulations 1996 (form of indication of minimum durability), the period up to and including the date required to be included in that indication;

(b) in relation to food with respect to which a “use by” date is assigned in the form required in accordance with regulation 21 of the Food Labelling Regulations 1996 (form of indication of “use by” date), the period up to and including that date; and
(c) in relation to food which is not required to bear an indication of minimum durability or a “use by” date, the period for which the food can be expected to remain fit for sale if it is kept in a manner which is consistent with food safety.
APPENDIX I

ADVICE ON FITNESS TO WORK

Operators who clean and refill vending machines have the potential to contaminate the machine and its contents if they do not follow good hygiene practices. This is particularly true when they are suffering from stomach upsets, diarrhoea or vomiting.

In Chapter VIII, (2) the first part of this section states:

“No person suffering from, or being a carrier of a disease likely to be transmitted through food or afflicted, for example, with infected wounds, skin infections, sores or diarrhoea is to be permitted to handle food or enter any food-handling area in any capacity if there is any likelihood of direct or indirect contamination.”

Some causes of gastroenteritis, such as the norovirus, are very contagious and the guidance given by the Health Protection Agency is that those who handle unwrapped food should not work while they have symptoms of gastroenteritis and should not return to work until 48 hours after they have recovered and their symptoms have ceased. Operators who clean vending machines are handling the water contact parts of the machine including the mixing bowls and nozzle. If they contaminate these parts then those who consume the drink could fall ill. The guidance on food handlers thus applies to them and they should not work while they have gastroenteritis and for 48 hours after their symptoms have ceased. For some illnesses such as VTEC E coli., Typhoid, Paratyphoid, Shigella species and Hepatitis A, food handlers should obtain clearance from medical personnel before returning to work.

Whatever the cause of the illness, good adherence to personal hygiene, especially hand washing, at all times is very important in preventing further illness or illness to others. Operator training should reinforce the need good hygiene practices and should emphasise that those in the food industry suffering from gastroenteritis must report this to their manager.

The second part of Chapter VIII (2) states:

“Any person so affected and employed in a food business and who is likely to come into contact with food is to report immediately the illness or symptoms, and if possible, the causes, to their food business operator”.
APPENDIX II

PRE-EMPLOYMENT MEDICAL QUESTIONNAIRE

Questions to be asked of a candidate for a job as a food handler

1. Have you now, or have you over the last seven days, suffered from diarrhoea and/or vomiting?

2. At present, are you suffering from:
   i) skin trouble affecting hands, arms or face?
   ii) boils, styes or septic fingers?
   iii) discharge from eye, ear or gums/mouth?

3. Do you suffer from:
   i) recurring skin or ear trouble?
   ii) a recurring bowel disorder?

4. Have you ever had, or are you known to be a carrier of, typhoid or paratyphoid?

5. In the last 21 days have you been in contact with anyone, at home or abroad, who may have been suffering from typhoid or paratyphoid?

If the answer to any question is Yes, the individual should not be employed as a food handler until medical advice has been obtained.
APPENDIX III

WATER

Mains Water
Water is a major ingredient in drinks from beverage vending machines. The quality of water supplied to and from vending machines is, therefore, of paramount importance.

The quality of water provided to buildings is specified by Directive 98/83EC on the quality of water intended for human consumption, which is implemented in England by the Water Supply (Water Quality) Regulations 2000, in Wales by the Water Supply (Water Quality) Regulations 2001 (Wales) and in Scotland by the Water Supply (Water Quality) (Scotland) Regulations 2001. These Regulations require that water provided for human consumption shall be wholesome and clean. It defines water which is wholesome and clean as that which:

- is free from any micro-organism and parasite and from any substance which, in value or concentration, constitutes a potential danger to human health;
- complies with standards laid out in Schedule I parts A and B, which lists a large number of potential chemical contaminants and two microbiological ones. The microbiological contaminants identified in the Schedule are Escherichia coli (E. coli) and Enterococci species, both of which are required to be absent in a 100ml sample.

Schedule 2 provides a further list of “indicator parameters”, which includes coliform bacteria and colony count at 22°C and 37°C. Monitoring of a public supply has to include these as indications of the quality of the supply and the integrity of the mains supply network. Coliforms should be absent in a 100ml sample and there should be no abnormal change in the colony count at either incubation temperature.

The Regulations specify that the point at which compliance is determined is the consumer’s tap. Water supply companies in England, Wales and Scotland take approximately 300,000 samples each year for analysis and, while they are not responsible for the condition of the supply system within buildings, they must report on this if samples they take are found to fall below the standard.

Microbiological Testing of Water from Vending Machines
Testing of water from vending machines for compliance with the Regulations would include E. coli, coliforms and colony count. The importance of the testing for measuring the quality and safety of the water and the adequacy of the cleaning of a vending or dispensing unit will be outlined below.

The standards for vending machines are essentially those of the Regulations. However, it is important to note that while the Regulations define water which is wholesome, samples
which give results above those in the Regulations do not necessarily imply that the water is unsafe to drink.

Aerobic Heterotrophic Colony Count

The Aerobic Colony Count (also reported as Total Viable Count (TVC) or simply colony count) at a given temperature only represents the bacteria and fungi which are able to grow at the set temperature in the culture media under an aerobic environment. This is likely to represent only a small proportion of the total number of microorganisms present in the sample. The count is reported as colony forming units (cfu) in a given weight or volume of sample. Tests are carried out at 22°C and 37°C and it is because there is no evidence on the harmful nature of the general bacterial population that grows at either of these temperatures that limits have not been set for these parameters. The Regulations specify no abnormal change in this parameter. This is because any change could indicate a disturbance within the distribution system. Paragraph 6.25(v) of the DWI guidance to the Regulations* makes it clear that the base for measuring abnormality of change is the count from the given outlet over a period of time, not whether an individual count is elevated.

The microbial count at 22°C in UK mains water arriving at a premises is usually less than 100 cfu per ml. However, a number of factors could adversely affect the count in water depending on the storage and distribution system within the building. Low usage of water, allowing a long residence time in the pipe, high temperature, dead legs, and storage tanks will all tend to increase the count. Microbial growth will also continue inside a vending machine. Levels of $10^5$ cfu per ml (10,000 per ml) in water from a vending machine are not uncommon. However, if levels above $10^7$ are found it would be good practice to sample from the stopcock and the end of the inlet hose to identify where growth might be occurring.

Coliforms

Coliforms and E. coli., a member of the coliform group, are occasionally found at low levels in samples of mains water taken from consumers’ taps. Their presence must generate an investigation by the water supplier since it could indicate a break in the integrity of the mains network.

The main cause of the presence of coliforms or E. coli. in water samples from vending or dispensing machines is known to be human contact with the dispense head. The first action should be thorough cleaning or replacement of the dispense point.

Detection after cleaning or initial levels of coliforms greater than $10^3$ cfu per 100ml are both unusual and the remedial action should be taken. Regular detection of coliforms in a machine or group of machines cleaned by a particular operator would suggest the need for a review of the cleaning procedures and operator training. As with all measures of indicator bacteria (rather than specific pathogens), the importance is not so much in the individual result, but in the result set in context with other results. Paragraph 6.25(iv) of the DWI guidance on the Regulations* makes it clear that low numbers of coliforms (in the absence of other faecal indicators) do not represent a risk to health, but indicate
further investigations are necessary. It should be noted that it would be highly unlikely that the presence of these bacteria would result in ill health of those who have been consuming the water.

The presence of *E. coli* in 100ml of sample water would be very unusual and should be investigated. The cause is usually contamination of the dispense point, but might be because of ingress of contamination at other points in the system. The first action would be thorough cleaning or replacement of the dispense point. It would be good practice to check that this cleaning had been effective.

**Pseudomonas aeruginosa**

*Pseudomonas* species are frequently present in the mains water, but at such low levels that they may not be detected in routine samples. However, they grow in cold water systems. It is not uncommon to detect *Pseudomonas* in the water from a vending machine. There is one report in the literature that if large numbers are allowed to grow within drinks vending machines, they may affect quality and may cause an adverse taste. In the unlikely event of such an occurrence the procedure would be to isolate the machine from the water supply and replace or thoroughly clean the cold-water tubing.

*Pseudomonas aeruginosa* is recognised as an opportunistic pathogen in wounds but there is no evidence that *Pseudomonas aeruginosa* is harmful when ingested and it is for this reason that there are no agreed standards for this bacterium in mains water.

**Cryptosporidium**

Cryptosporidium is a protozoan parasite that can occur in water and gives rise to symptoms similar to food poisoning. The control of cryptosporidium in mains water is now reinforced by Government Regulations and water undertakers with a high risk of cryptosporidium in their source of supply now have to take special measures. Normal filters will not remove this parasite from the water supply. The presence of cryptosporidium at levels that pose a risk to health would give rise to a “Boil Water Notice”. (See Appendix IV)

**Filters**

Activated carbon filters are often used to improve the taste of water by removing organic materials and halogens (often chlorine), which are initially introduced into the water supply to control bacterial growth. Ion exchange units are used to remove calcium, partly to decrease scale build-up on hot water tanks and partly to improve the appearance and taste of tea. Both these units provide sites for bacterial growth. Sometimes activated carbon is treated with silver to inhibit growth but this is not always effective. The management of these units is important and they should be maintained and changed in line with the manufacturer’s recommendations. Their presence should be taken into account when sanitising machines and tubing.

**Contamination of mains water supplies**

Should the mains water supply become contaminated, the water undertaker will generally make consumers aware through the media. If the source of contamination is
microbiological, a “Boil Water Notice” is usually issued. Detailed advice on the action to take in these circumstances is provided in Appendix IV.

Occasionally water supplies are subject to chemical contamination which, if sufficiently serious will result in the water undertaker advising consumers not to use water for drinking and cooking. In these cases it is likely that all machines will need to be taken out of service. Once the water undertaker has resolved the problem the machine should, as a minimum, be thoroughly flushed with mains water, cleaned with a sanitising solution and then thoroughly flushed again using mains water. Further advice may be issued by the water undertaker.

**Legionnaires Disease**

Since Legionnaires disease has a connection with water, some users of vending machines have asked for the dispensed water to be tested on a regular basis for the presence of *legionella* bacteria. Most testing for hazardous substances is based on an estimate of the risk of the substance being present and its potential for causing harm. In the case of *legionella*, the bacterium is widely distributed in the environment and may, on very rare occasions, be present in low numbers in the water supply. However, its mode of transmission is through the inhalation of droplets of contaminated water. Thus, in the case of a hot-drinks vending machine, the heat would kill any *legionella* bacteria present. Where cold water is dispensed, even if carbonated, the temperature would need to be >20°C to allow growth of the organism. The chances of this occurring are considered to be so small as to be negligible and the routine sampling of water from vending machines to detect the presence of *legionella* bacteria is not recommended.

**Immunocompromised People**

It has been recommended by a working group of experts that certain immunocompromised people should boil and cool their drinking water whatever its source including tap and bottled water. They should also use boiled, cooled water to make ice cubes.**

It is recommended that within hospitals machines are not sited in ward areas with patients at particular risk from environmental bacteria, these would include wards such as intensive care, neonatal, AIDS and transplant units.

*Guidance on the Water Supply (Water Quality) Regulations 2000 (England) and the Water Supply (Water Quality) Regulations 2001 (Wales), Drinking Water Inspectorate May 2005*

**Cryptosporidium in water and the immunocompromised, CDR weekly, vol 9. No.33 of 13 August 1999.*
APPENDIX IV

Post water contamination procedures for vending machines

Introduction
Where there has been contamination of mains water supplies with material that is potentially infectious and the water supplier has indicated that it is unsafe to drink (Boil Water or Do Not Drink notices) the following procedures should be introduced. This advice is directed to vending machine operators, end users of post mix beverage machines and water coolers in buildings where the mains water supply has been affected.

Where the room where the vending machine is located has been flooded
Where either the room where the vending machine is located, or the machine itself has been exposed to floodwater, it is unsafe to use, whether or not the water supply is affected. The machine needs to be thoroughly cleaned, disinfected and serviced, including replacement of the inlet hose and filter if fitted, before it can be brought back into use.

When the water is unsafe
After notification that the water supply is unsafe without boiling (e.g. contamination by Cryptosporidium oocysts), is unfit to drink (e.g. contains possible chemical and microbial contaminants) or has been disconnected, ensure that the water supply to the machine is turned off at the stop cock until a safe water supply is re-introduced.

When a safe supply is restored
During the period where the water supply is unsafe and the vending machine is disconnected there will be the possibility for bacterial growth inside pipework and the stagnant water will need to be cleared before water is used for drinking.

If the supply has been cut off, for example due to flooding, once the treatment works is working again there will be a period where the water supplier will be preparing the system and checking to ensure that the water is safe to drink. In this eventuality it is recommended that the water only be used for flushing toilets and washing. It is important that vending machines are not reconnected until the water supplier is confident that water quality in all the mains system is back to normal and is safe to drink.

When the water supplier has notified consumers that the water is safe to drink the machine can be reconnected using the following procedure:

With the machine disconnected run water from the stopcock into a bucket until it runs clear and cold and then for a further 5 litres. Replace the inlet hose and any water filter (if fitted) with new items. For machines dispensing cold drinks or cold water, sanitise the water pipework and chiller using the normal operating procedure. Drain the hot tank. Flush all machines through with 10 litres of clean water. No hot drinks should be taken until the boiler has been at temperature for over 5 minutes.
APPENDIX V

TRACEABILITY

Articles 18 and 19 of Regulation (EC) No 178/2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety requires food businesses to be able to trace the source and destination of their products, to keep records and to be able to withdraw product from the market if it is found to be unsafe. Specifically Article 18 states that:

1. The traceability of food, feed, food producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution.
2. Food and feed business operators shall be able to identify any person from whom they have been supplied with a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed. To this end, such operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand.
3. Food and feed business operators shall have in place systems and procedures to identify the other businesses to which their products have been supplied. This information shall be made available to the competent authorities on demand.
4. Food or feed which is placed on the market or is likely to be placed on the market in the Community shall be adequately labelled or identified to facilitate its traceability, through relevant documentation or information in accordance with the relevant requirements of more specific provisions.

Thus vending operators must be able to identify the company who supplied the products they sell. If the products are provided to another company for onward sale, the vending company must be able to identify that customer. Vending companies must have systems and procedures in place to allow this information to be made available to relevant authorities upon request.

In practice this means that vending companies must have a list of suppliers and must record when deliveries are received. It is also good practice to note the quantity of product received and any batch code on the product. Authorities may require to look at these records for a period up to 5 years in the case of shelf stable products and 6 months for chilled food.

Because vending is selling to the final consumer, operators do not have to record which products are placed in which machines.
Article 19 states:

1. If a food business operator considers or has reason to believe that a food which it has imported, produced, processed, manufactured or distributed is not in compliance with the food safety requirements, it shall immediately initiate procedures to withdraw the food in question from the market where the food has left the immediate control of that initial food business operator and inform the competent authorities thereof. Where the product may have reached the consumer, the operator shall effectively and accurately inform the consumers of the reason for its withdrawal, and if necessary, recall from consumers products already supplied to them when other measures are not sufficient to achieve a high level of health protection.

2. A food business operator responsible for retail or distribution activities which do not affect the packaging, labelling, safety or integrity of the food shall, within the limits of its respective activities, initiate procedures to withdraw from the market products not in compliance with the food safety requirements and shall participate in contributing to the safety of the food by passing on relevant information necessary to trace a food, cooperating in the action taken by producers, processors, manufacturers and/or the competent authorities.

3. A food business operator shall immediately inform the competent authorities if it considers or has reason to believe that a food which it has placed on the market may be injurious to human health. Operators shall inform the competent authorities of the action taken to prevent risks to the final consumer and shall not prevent or discourage any person from cooperating, in accordance with national law and legal practice, with the competent authorities, where this may prevent, reduce or eliminate a risk arising from a food.

4. Food business operators shall collaborate with the competent authorities on action taken to avoid or reduce risks posed by a food which they supply or have supplied.
APPENDIX VI

CLEANING

1. Need for cleaning

The water and food contact parts of hot drinks vending machines require regular cleaning in order to minimise cross over of flavours between drinks and to reduce bacterial growth on surfaces.

The purpose of this routine cleaning is the same as that of washing up, to remove food particles and leave surfaces looking clean. Where there is a particular need to reduce levels of bacteria a more rigorous cleaning procedure using disinfectants can be used. For advice on bacteria in water and in the cold water system of a drinks machine see Appendix III.

2. Potential hazards

A thorough risk assessment carried out on drinks vending machines has concluded that they pose no threat to health when they are cleaned regularly. This is supported by the fact that there have been no validated reported cases of people becoming ill after consuming a drink from a machine. The level of bacterial growth in machines is sufficiently low that cleaning with normal detergents is quite adequate; disinfectants are not needed. However, inadequate cleaning of cloths during use and between machines could give rise to cross contamination so an assessment should be made on whether disposable cloths should be used.

The greatest potential hazard is from the personal hygiene practices of the operator. In particular operators should wash their hands before starting work. For a mobile operator this is before starting on the first machine in a building; for a static operator, at the beginning of the morning or afternoon. It is essential that all operators wash their hands after a work break and after using the toilet.

3. Areas that need cleaning

The only food contact parts that need wet cleaning are the nozzle and the mixing bowls. All other parts should be brushed off or wiped with a clean damp cloth using freshly prepared detergent solution.

4. Routine cleaning procedure

All machines should be cleaned according to a written cleaning procedure that details the materials to be used and the order in which to clean.

The following is an example of a routine cleaning procedure:
Use the detergent provided, adding one capful to half a bucket of warm water
Refill cups and canisters, wipe over canisters
Remove mixing bowls and brush thoroughly to remove deposits of ingredients.
Clean the dispense area with a clean damp cloth and brush the nozzle thoroughly
Clean the inside of the machine with a clean damp cloth
Replace parts and flush through with hot water
Remove, empty and clean the waste bucket
Clean inside the base of the machine and replace the waste bucket
Ensure the machine is put back into use and operating correctly
Clean the cleaning materials/equipment and store appropriately

5. Supervision

It is good practice to audit the performance of operators by occasional observation and inspection.

6. Special cleaning procedure

Normal cleaning procedures are effective for routine cleaning of machines but occasionally they fail to reduce bacterial counts to levels that are considered acceptable. In these rare situations this cleaning procedure has proved to be effective. It is focussed on cleaning the dispense head as this is the part of the machine most likely to be affected by high counts, but the method is applicable to all parts of the machine. The method consists of six stages: Preclean, Main Clean, Rinse, Disinfect, Final Rinse, Dry

1. Pre clean using damp clean disposable cloth soaked in warm water (45°C). Soak cloth in cleaning agent solution and remove excess water. Separate the components of the dispense head and clean with the cloth

2. Main clean using a clean brush
Brush all parts of the dispense head to dislodge any dried-on material until all parts are visibly clean.

3. Rinse
Rinse the parts of the dispense head whilst wiping with a new disposable cloth soaked in warm water (45°C) until all soil and cleaning agent residues have been removed.

4. Disinfection
Now that the parts of the dispense head are visibly clean disinfection will be more effective.
Soak a fresh disposable cloth in disinfectant solution and wipe it over all parts of the dispense head. Ensure that all dispense nozzles have been wiped. Leave for 10 minutes.
5. Rinse
Thoroughly rinse off disinfectant using a clean disposable cloth that has been soaked in clean warm water (45°C).

6. Dry
Dry the dispense head with disposable towel and reassemble.
## Glossary

<table>
<thead>
<tr>
<th>Glossary</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>The temperature of the surrounding environment. Commonly used to mean room temperature.</td>
</tr>
<tr>
<td>Bacteria</td>
<td>A group of single cell living organisms. Some may spoil food and some may cause illness.</td>
</tr>
<tr>
<td>Bactericide</td>
<td>Literally “bacteria killer”. In practice, the same as disinfectant.</td>
</tr>
<tr>
<td>Best before date</td>
<td>Date mark required on longer life foods that are NOT subject to microbiological spoilage. This date mark relates to food quality rather than food safety.</td>
</tr>
<tr>
<td>Carrier</td>
<td>A person who had been ill with food poisoning and now shows no sign of illness, but may still be carrying food poisoning bacteria in their gut. They are capable of transmitting these bacteria to other people.</td>
</tr>
<tr>
<td>Cleaning</td>
<td>The removal of food residues, dirt, grease, and other undesirable residues.</td>
</tr>
<tr>
<td>Cleaning schedule</td>
<td>A written document outlining how a piece of equipment is to be cleaned. It will include details of how each part is to be cleaned, the cleaning product to be used, the person responsible for carrying out the cleaning, the standard of cleanliness required, the frequency of cleaning and any Health and Safety precautions to be taken when handling the cleaning products. Everyone should be made aware of their individual responsibilities and a responsible person should check that the cleaning schedule is followed.</td>
</tr>
<tr>
<td>Contamination</td>
<td>The introduction or occurrence in food of any microbial pathogens, chemicals, foreign material, spoilage agents, taints, unwanted or diseased matter, which may compromise its safety or wholesomeness.</td>
</tr>
<tr>
<td>Control measures</td>
<td>The actions to be taken to remove an identified hazard or to reduce it to a safe level.</td>
</tr>
<tr>
<td>Critical points</td>
<td>Points at which hazards can be controlled (see Part 2).</td>
</tr>
<tr>
<td>Curtilage</td>
<td>The point at which mains water enters a building. It is important because the responsibility for water quality changes.</td>
</tr>
</tbody>
</table>
**Detergent**
Material for removing dirt during cleaning. Detergents and soaps differ in their composition but have similar action. They do not destroy micro-organisms.

**Disinfection**
The reduction of microbial contamination to safe levels.

**Disinfectant**
Product which, when used according to instructions, will deliver disinfection. To be able to be sold as a disinfectant, products must be able to reduce the numbers of certain germs by 99.999% in standard test conditions.

**Dispensing**
The delivery by drawing off (which may involve processing, mixing or treating) from storage an open food product intended for immediate consumption.

**Food poisoning**
Illness transmitted by food. Caused either by infection or intoxication. Symptoms commonly include diarrhoea or vomiting.

**HACCP**
Hazard Analysis, Critical Control Points. A management tool that gives a structured approach to identification and control of hazards.

**Hazard**
Anything that may cause harm to a person who eats the food.

**Food Safety cut-out device**
A device which automatically prevents food from being dispensed if a storage or process temperature has an adverse influence on food; for example, for a chilled vending machine, if the internal temperature exceeds that which is safe.

**High Risk Foods**
Ready to eat foods. These are foods which have gone through most or all of their preparation steps. They will be “High Risk” if these are contaminated or allowed to deteriorate because there are no further preparation steps or appropriate chilled storage to control the hazard. Examples are sandwiches, prepared salads or cook-chill dishes.

**Hygiene kit**
A set of clean exchange components provided by machine manufacturers for use by operators. Existing components which are in contact with both water and product (including mixing bowl and dispensing tubes) are removed from the
<table>
<thead>
<tr>
<th><strong>Induction training</strong></th>
<th>Training given to new employees. Includes information on how the employee is to carry out their work hygienically. May be adequate in the short term and may precede more formal training.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Micro-organism</strong></td>
<td>Any small living organisms especially bacteria, yeasts, moulds and viruses.</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td>Regular checks to ensure a system is working properly. The results of monitoring are usually recorded in writing.</td>
</tr>
<tr>
<td><strong>Mould</strong></td>
<td>A microscopic plant which grows in damp conditions and on the surface of food but actually penetrates the food.</td>
</tr>
<tr>
<td><strong>Operator company</strong></td>
<td>The company employing the food handler who is responsible for filling and cleaning of vending or dispensing machines.</td>
</tr>
<tr>
<td><strong>Operator</strong></td>
<td>The food handler who fills and cleans the machine.</td>
</tr>
<tr>
<td><strong>Pathogen</strong></td>
<td>Any micro-organism that may cause illness.</td>
</tr>
<tr>
<td><strong>Pest</strong></td>
<td>Any animal life unwelcome in food premises. Especially insects, birds, rats, mice and other rodents capable of contaminating food directly or indirectly.</td>
</tr>
<tr>
<td><strong>Post mix systems</strong></td>
<td>Those where a liquid concentrate and water are mixed at the point of dispense.</td>
</tr>
<tr>
<td><strong>Potable</strong></td>
<td>Usually related to water. Safe to drink and acceptable for use in food preparation.</td>
</tr>
<tr>
<td><strong>Python</strong></td>
<td>The insulated bundle of plastic tubes which carry concentrates and water to the dispense point.</td>
</tr>
<tr>
<td><strong>Refrigerated (also known in the industry as chilled) unit</strong></td>
<td>The machine has a refrigeration system capable of maintaining internal temperatures in accordance with the Food Hygiene (England) Regulations 2006 – Schedule 4 (and similar regulations for Scotland, Wales and Northern Ireland) for the products it contains. Units are fitted with a temperature readout and a health safety cutout. The units may be used for the storage of High Risk foods.</td>
</tr>
<tr>
<td><strong>Sanitiser</strong></td>
<td>A product which cleans and disinfects at the same time.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>Stock rotation</td>
<td>The practice of making sure that older supplies of food are used before new stock.</td>
</tr>
<tr>
<td>Toxin</td>
<td>Poisonous substance. May be contamination from external sources or produced by growth of micro-organisms.</td>
</tr>
<tr>
<td>Use By date</td>
<td>Date mark required on microbiologically perishable pre-packed foods. Under the Food Labelling Regulations 1996 it is an offence to sell food after its ‘Use By’ date.</td>
</tr>
<tr>
<td>Vending machine</td>
<td>Any mechanical, electrical or electronic device designed to deliver a food automatically or by self service operation.</td>
</tr>
<tr>
<td>Virus</td>
<td>Microscopic particle which may be transmitted by food and may cause illness. Viruses cannot multiply or grow in food.</td>
</tr>
<tr>
<td>Yeasts and moulds</td>
<td>Microscopic organisms. Some are desirable in food and are important to its characteristics, for example bread fermentation and the ripening of cheese. Others may spoil food and a few may cause illness.</td>
</tr>
</tbody>
</table>
References and contacts

References


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British Sandwich Association Code of Practice and Minimum Standards for Sandwich Manufacturers, November 2001, British Sandwich Association, 8 Home Farm, Ardington, Oxford OX12 8PN


Guidance on the Water Supply (Water Quality) Regulations 2000 (England) and the Water Supply (Water Quality) Regulations 2001 (Wales), Drinking Water Inspectorate May 2005


Contacts

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The British Sandwich Association, Association House, 18c Moor Street, Chepstow, NP16 5DB. www.sandwich.org.uk

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The Biscuit, Cake, Chocolate and Confectionery Association, 6 Catherine Street, London WC2B 5JJ. Tel: 020 7420 7200, office@bccca.org.uk, www.bccca.org.uk

LACORS (Local Authorities Coordinating Office on Regulatory Affairs), Local Government House, Smith Square, London, SW1P 3HZ. Tel: 020 7665 3888, www.lacors.gov.uk

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