

PART THREE

2. MICROBIOLOGICAL CRITERIA

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2.1 WHY ARE MICROBIOLOGICAL CRITERIA IMPORTANT?

The aim of HACCP-based systems is to ensure that food is produced safely. This is achieved through the identification and effective control of food-borne hazards. It is generally recognised that the most significant food-borne hazards from fresh meat are bacteria which can cause disease in humans (pathogenic bacteria), such as *Salmonella*, *Campylobacter* and *E.coli* O157. Some of these, particularly *E.coli* O157, require only a few bacteria to cause food poisoning in humans. See Part One Chapter 6 (Hazards) and 2.2 below.

Bacteria cannot be seen by the naked eye. They cannot be detected at post-mortem inspection. The production of visually clean meat, monitored by visual inspection, is an important starting point for meat safety, but visual inspection can detect only gross faecal and other contamination. Although this gives a useful indication of the microbiological status of fresh meat, it is only by looking at samples after incubation on a suitable medium that the number of bacteria present on the surface of carcase meat or in processed meat can be assessed objectively.

Slaughter and dressing operations provide many opportunities for contaminating carcasses with bacteria. The further processing of meat can spread contamination as well as introduce it from equipment, handling or the environment and poor temperature control can lead to growth of dangerous bacteria. Testing against microbiological criteria provides a way of measuring how well the operator has controlled the slaughter, dressing and production processes to avoid and control contamination. The results of testing can be used to validate whether the operator's HACCP-based procedures are controlling food safety and verify they are being correctly applied.

2.2 GENERAL INFORMATION

- **Legal Basis for Microbiological Criteria**

The Microbiological Criteria Regulation 2073/2005¹ establishes microbiological criteria for certain micro-organisms and provides rules to be complied with by food business operators when implementing the general and specific hygiene measures referred to in Article 4² of Regulation (EC) 852/2004. Articles 4(3) and (4) of Regulation 852/2004 provide the legal basis for Regulation 2073/2005. Relevant definitions are set out at Article 2 of 2073/2005 and those relevant to meat are included for reference at PART ONE Chapter 8.6 of this guide.

- **Livestock**

All animals carry a very large number of bacteria in their stomachs and intestines, which are excreted in their faeces. Bacteria are also present on the skin, hide fleeces and feathers of animals, including those from direct contact with faeces or from indirect contact with the environment of the farm, transport vehicles or lairage.

The bacteria in or on animals may include those which can cause food poisoning in humans and which are recognised hazards from meat. Most of these bacteria do not cause illness in meat producing animals, which will appear healthy. Although ante-mortem inspection will enable clinically ill animals to be detected, it is not possible to identify healthy carriers of pathogenic organisms. It must therefore be assumed that all animals entering the slaughterhouse have the potential to carry pathogenic organisms in or on them.

- **Carcases**

Bacteria from the surface or digestive tract of an animal may be transferred onto the carcass or onto other carcasses during slaughter and dressing. This transfer may be caused by direct contact or through cross-contamination by slaughterhouse staff, equipment, surfaces, water or aerosols. The correct application of HACCP-based principles to the process aims to ensure that such transfer is minimised. Scientific research has shown that the cleanliness of animals at slaughter is an important control to minimise the risk of transfer of pathogens from the hide, fleece, skin or feathers to the carcass.

¹. Published in the Official Journal of the European Union on 22/12/05 – see www.ukmeat.org.

² (2) FBOs 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 and any specific requirements provided for in Regulation 853/2004.

(3) Food business operators shall, as appropriate, adopt the following specific hygiene measures: (a) compliance with microbiological criteria for foodstuffs; (e) sampling and analysis.

- **Carcase Testing**

When pathogenic bacteria are transferred to carcasses they are usually present in only small numbers and on a small area of the carcass. This means that a negative result from microbiological testing for pathogenic bacteria will not guarantee the absence of such organisms. A large surface area of a high proportion of carcasses needs to be tested to obtain a statistically valid result for many pathogenic bacteria. This is neither practical nor economically feasible and is why a criterion for *E. coli* O157 is not currently included in Regulation 2073/2005. This does not mean that this organism is unimportant but that control is best achieved by setting a criterion for an indicator group of micro-organisms.

- **Indicator Organisms**

Indicator organisms are larger groups of bacteria, including certain pathogenic bacteria, which are relatively easy to measure as a group and whose presence is likely to indicate the presence of pathogenic bacteria. Aerobic Plate Count (APC) is a general measure of the microbiological status of meat, but APC results and the number of pathogens present may not always be related. Testing for Enterobacteriaceae, a group of indicator organisms that live in the intestines of animals and the environment, will give a better indication of the likelihood of pathogenic organisms being present. Control measures that reduce the number of Enterobacteriaceae and the APC will reduce the risk of the presence of pathogenic bacteria on meat.

Although the *Salmonella* group of organisms does contain bacteria of significance in terms of human disease, there are also many *Salmonella* that may occur in animal production that are rarely associated with human disease. For these reasons the *Salmonella* criteria set for carcasses are, like Enterobacteriaceae and APC, process criteria. Failure to meet these does not in itself indicate the meat from the carcass tested or batch of carcasses tested will be unfit for human consumption but it does mean that investigations to find the cause of contamination to prevent a reoccurrence should take place.

- **Processed Meat**

The further processing of meat into minced meat, meat preparations and meat products provides an opportunity for any dangerous bacteria on the surface of the carcass meat to be spread throughout the product and also for new bacteria to be introduced from the environment, handling and processing.

In particular, bacteria will be spread into the centre of the food, where they will be less easily destroyed on cooking. If the production process does not contain a pathogen reduction step such as cooking then any bacteria on the carcass meat will be present in the processed meat. If the product is intended as a ready to eat food such as steak tartare then special care will need to be taken to ensure absence of *Salmonella* and the safety of the food. For minced meat and

meat preparations intended to be eaten cooked, absence of *Salmonella*, although ultimately desirable, is not practical with the current prevalence of *Salmonella* in animals. Mince is often an economical product containing trim as well as other surface parts of the carcase. Labelling the product with advice on cooking and safe handling in addition to hygienic production controls the risk to human health.

Although this point was made by the Agency and accepted by other member states during the negotiations, the criteria in the regulation for *Salmonella* in raw processed meat intended to be eaten cooked are food safety criteria. Failure to meet these means the meat must be removed from the market.

- **The Micro-organisms in the Meat Criteria**

- **Aerobic Colony count (ACC)** also known as *Aerobic Plate count (APC)* and *Total Viable Count (TVC)*

A measure of bacteria in the sample that can survive in the conditions on the surface of carcasses or in processed meat, be harvested by the sampling procedure used and grow in the presence of air on an agar plate. These bacteria include those arising both from animals and from the slaughterhouse or meat processing environment. Because the APC includes the organisms responsible for spoilage of meat, it will also give an indication of the keeping quality of the meat.

- **Enterobacteriaceae (ENT)**

*The name given to a group of bacteria that live predominantly in the intestines of animals. The group includes most of the major food-borne pathogens of animal origin such as *Salmonella*, *Yersinia* and *E.coli* O157.*

*The presence of these organisms on the surface of carcasses is an **indicator** of faecal and environmental contamination*

- **E. coli (EC)**

*A group of bacteria that live in the intestines and are shed in the faeces of man and food producing animals. Presence of *E.coli* is an **indicator** of faecal contamination. The test procedure does not specifically recover *E.coli* O157 but does indicate the risk of contamination with this and other dangerous faecally-derived bacteria.*

- **Salmonella species (Sal)**

*A group of bacteria that includes several pathogens of significance in human food poisoning disease. They mainly arise from faecal contamination but can also arise from the processing environment. Further analysis of the type of *Salmonella* can be useful in investigating and preventing the re occurrence of positive results as well as providing information that can be used in a risk analysis.*

- **Food Safety and Process Hygiene Criteria**

Two different classes of criteria are established in Regulation 2073/2005, namely food safety criteria and process hygiene criteria. The main difference between them is the additional action required when a food safety criterion is not met of removing the batch of food in question from the market. Failure to meet either class of criteria should always result in an investigation to find the cause of contamination and action taken to prevent contamination of future production.

- **Food Safety Criteria**

Food safety criteria have been set for minced meat, meat preparations, meat products and mechanically separated meat and, if exceeded, indicate that the batch tested is unsatisfactory and should be removed from the market.

Demonstration of compliance with **food safety criteria** for meat and processed meat is required as follows:

- Absence of **Salmonella** in:
 - (a) minced meat and meat preparations intended to be eaten raw;
 - (b) minced meat and meat preparations intended to be eaten cooked;
 - (c) mechanically separated meat (MSM);
 - (d) meat products intended to be eaten raw
 - (e) meat products made from poultry meat intended to be eaten cooked.

- **Process Hygiene Criteria**

It is important to note that the purpose of testing against the process criteria that have been set for carcasses and certain processed meat is **not** to assess the fitness of individual carcasses or processed meat for human consumption. The results provide an indication of performance and control of the slaughter, dressing and production process at the time of sampling, and must be used accordingly. If the criteria are exceeded corrective action to improve future production must be initiated but there is no requirement to remove product from the market.

Demonstration of compliance with **process hygiene criteria** for meat and processed meat is required as follows:

Aerobic colony count and **Enterobacteriaceae** on cattle, sheep, goats, horses and pig carcasses; (below specified limits)

- **Salmonella** on cattle, sheep, goats, horses, pig, broiler and turkey carcasses; (Absence from a specified number of samples per 50 samples examined)
- **Aerobic plate count** and **E.coli** in minced meat and mechanically separated meat; (below specified limits)
- **E.coli** in meat preparations; (below specified limits)

- **Sources of Advice and Information**

Additional guidance may be found in:

- General Guidance for Food Business Operators on EC Regulation No. 2073/2005 on Microbiological Criteria for Foodstuffs
www.food.gov.uk/foodindustry/regulation/europeleg/eufoodhygieneleg/microbiolreg.
- BRC/CFA Guidance on the Practical Implementation of the EC Regulation on Microbiological Criteria for Foodstuffs (www.chilledfood.org/content/guidance.asp).
- The Public Health Laboratory Service (PHLS) (www.hpa.org.uk) - Guidelines for the Microbiological Quality of Some Ready-to-eat Food Sampled at the Point of Sale.
- The Institute of Food Science and Technology (IFST) (www.ifst.org) - Development and Use of Microbiological Criteria for Foods ISBN 0 905367 16 2.

- **FSA Website**

The Agency's website www.ukmeat.org provides information on the microbiological criteria regulations; guidance on taking samples (photographs are included); protocols; and information on taking corrective action when the criteria are not met, including a free typing facility for salmonella isolates from meat.

This site is also the home of the [Meat Test Results database](#). The database is a joint venture between the UK meat industry and the FSA. Plant operators enter their results into the database and trend information can be generated automatically. National summaries are generated for plants to compare their results with. There is a facility to help operators enter data, details of which are given on the home page and individual operator's data are password protected. The database exists only for research purposes and is not used for enforcement. UK meat plant operators are strongly encouraged to include their plants' test results to the database. The site also provides information on relevant meat hygiene research that has being undertaken by the FSA.

2.3.1 WHAT ARE THE LEGAL REQUIREMENTS FOR MICROBIOLOGICAL CRITERIA?

The following sections set out the microbiological criteria requirements of the regulations that apply to carcasses after slaughter and further processed meat.

A. DEMONSTRATION OF COMPLIANCE

A1. Food business operators shall ensure that foodstuffs comply with the relevant microbiological criteria set out in Annex I.

The food business operator at each stage of food production, processing and distribution, including retail shall take measures, as part of their procedures based on HACCP principles together with the implementation of good hygienic practice to ensure the following:

- that the supply, handling and processing of raw materials and foodstuffs under their control are carried out in such a way that the process hygiene criteria are met
- that the food safety criteria applicable throughout the shelf life of the products can be met under reasonably foreseeable conditions of distribution, storage and use.

2073/2005 Article 3 point 1

OPERATOR'S OBLIGATION - MICROBIOLOGICAL CRITERIA FOR MEAT

<ul style="list-style-type: none"> • Demonstrate compliance with the criteria at Annex I for meat and processed meat. <p>A1</p>	<p><i>The Regulation establishes two types of microbiological criteria and requires that food business operators take corrective action when these criteria are not met. These two types are:</i></p> <ul style="list-style-type: none"> ▪ Food safety criteria which should be used to assess the safety of a product or batch of foodstuffs; and ▪ Process hygiene criteria which should be used to ensure the production processes are operating properly. <p>Corrective actions – the actions required when the criteria are not met differ for each type of criterion and are explained in Section D.</p>
	FOOD SAFETY CRITERIA
<ul style="list-style-type: none"> • Annex I Chapter 1 	<p><i>The food safety criteria are absence of Salmonella in the samples as specified in the following sub-sections.</i></p> <p><i>When and how often to sample is covered at Section B.</i></p>
<ul style="list-style-type: none"> • 1.4 Minced meat and meat preparations intended to be eaten raw. 	<p><i>5 x 25g samples from a batch of minced meat or meat preparations intended to be eaten raw made from any species of meat e.g. steak tartare.</i></p>

<ul style="list-style-type: none"> • 1.5 Minced meat and meat preparations from poultry meat intended to be eaten cooked. 	<p>Until 31.12.2009 - 5 x 10g samples from a batch of minced meat or meat preparations made from poultry meat intended to be eaten cooked.</p> <p><i>Applies to poultry meat of all species including ducks, geese, turkeys and broilers e.g. minced chicken, turkey burgers, chicken sausages chicken and turkey escalopes.</i></p> <p>From 01.01.2010 - the criteria will change to 5 x 25g. This is to reflect the reduction in Salmonella expected to be achieved by the National Control Plans operating under the Zoonoses Regulation 2003/99.</p>
<ul style="list-style-type: none"> • 1.6 Minced meat and meat preparations from red meat intended to be eaten cooked. 	<p>5 x 10g samples from a batch of minced meat or meat preparations made from other species than poultry intended to be eaten cooked.</p> <p><i>Applies to all species of red meat including game e.g. minced meat for bolognaise sauce or shepherds pie, sausages, burgers.</i></p>
<ul style="list-style-type: none"> • 1.7 Mechanically separated meat. 	<p>5 x 10g samples from a batch of mechanically separated meat (MSM).</p>
<ul style="list-style-type: none"> • 1.8 Meat products intended to be eaten raw. 	<p>5 x 25g samples from a batch of meat products intended to be eaten raw e.g. air dried smoked duck, partially fermented sausages.</p> <p><i>Does not apply to products where the manufacturing process or the composition of the product will eliminate the Salmonella risk such as certain types of salami. Does not apply to fully cooked ready to eat meat products such as cooked ham.</i></p>
<ul style="list-style-type: none"> • 1.9 Meat products from poultry meat intended to be eaten cooked. 	<p>5 x 10g samples from a batch of meat products made from poultry meat intended to be eaten cooked e.g. turkey bacon and chicken nuggets (Note: some nuggets may be a meat preparation).</p> <p>From 01.01.2010 - the criteria will change to 5 x 25g. This is to reflect the reduction in Salmonella expected to be achieved by the National Control Plans operating under the Zoonoses Regulation 2003/99.</p> <p><i>Does not apply to meat products made from meat other than poultry meat intended to be eaten cooked such as bacon and gammon streaks.</i></p>
<ul style="list-style-type: none"> • Action required when food 	<p><i>If a food safety criterion is not met, this usually means the food business operator will not be able to place the foodstuff on the market or will need to</i></p>

<p>safety criteria are not met.</p>	<p><i>withdraw the food from the market (as required by Regulation 178/2002) and take steps to ensure future production meets the criterion. In certain circumstances, such as if the food is ready to eat, a recall of the food may also be required. Enforcement authorities will require sufficient evidence that the food business operator has taken the appropriate corrective action. See D1 for more information.</i></p>																
	<p>PROCESS HYGIENE CRITERIA</p>																
<ul style="list-style-type: none"> Annex I Chapter 2 	<p><i>The process hygiene criteria are detailed in the sub-sections below.</i></p> <p><i>When and how often to take samples is covered in Section B. Sampling methods are fully described at B8 to B13.</i></p> <p><i>Species for which criteria are not specified e.g. game, rabbits, ducks and geese, are not required to be sampled.</i></p>																
<ul style="list-style-type: none"> 2.1.1/2.1.3 Carcasses of cattle, sheep, goats and horses. 	<p><i>5 carcasses are required to be sampled per sampling session. 1 sample is from one carcass.</i></p> <p>Aerobic Colony Count (ACC) and Enterobacteriaceae (ENT) - the criteria are below a specified mean log level of the 5 samples. The limits given in the regulation are for an excision method, the limits for the swab or sponge method are lower and are given in () below after the figures for excision.</p> <p>Salmonella (Sal) - the criterion is = to or below a specified number of positives in 10 consecutive sampling sessions (that is 50 samples) using a sponge method.</p> <table data-bbox="480 1384 1300 1574"> <thead> <tr> <th></th> <th>APC</th> <th>ENT</th> <th>Sal</th> </tr> </thead> <tbody> <tr> <td>Unacceptable: mean log /number of positives is above</td> <td>5.0 (4.3)</td> <td>2.5 (1.8)</td> <td>2/50</td> </tr> <tr> <td>Acceptable : mean log below</td> <td>5.0 (4.3)</td> <td>2.5 (1.8)</td> <td></td> </tr> <tr> <td>Satisfactory: mean log / number of positives is = to or below</td> <td>3.5 (2.8)</td> <td>1.5 (0.8)</td> <td>2/50</td> </tr> </tbody> </table>		APC	ENT	Sal	Unacceptable: mean log /number of positives is above	5.0 (4.3)	2.5 (1.8)	2/50	Acceptable : mean log below	5.0 (4.3)	2.5 (1.8)		Satisfactory: mean log / number of positives is = to or below	3.5 (2.8)	1.5 (0.8)	2/50
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<ul style="list-style-type: none"> 2.1.2 / 2.1.4 Carcasses of pigs. 	<p><i>5 carcasses are required to be sampled per sampling session. 1 sample is from one carcass.</i></p> <p>Aerobic Colony Count (ACC) and Enterobacteriaceae (ENT) - the criteria are below a specified mean log level of 5 samples. The figures given are for the excision method, the figures for the swab or sponge method are lower and are given in () after the figures for excision.</p> <p>Salmonella (Sal) - the criterion is = to or below a specified number of positives in 10 consecutive sampling sessions (that is 50 samples), using a</p>																

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<ul style="list-style-type: none"> • 2.1.5 Carcasses of broilers and turkeys. 	<p><i>15 carcasses are required to be sampled per sampling session. 1 sample is composed of 3 pooled neck skins. The 15 carcasses sampled result in 5 samples for testing.</i></p> <p>Salmonella (Sal) the criterion is = to or below a specified number of positives in 10 consecutive sampling sessions (that is 50 samples)</p> <table> <thead> <tr> <th></th> <th>Sal</th> </tr> </thead> <tbody> <tr> <td>Unacceptable: number of positives is above</td> <td>7/50</td> </tr> <tr> <td>Satisfactory: number of positives is = to or below</td> <td>7/50</td> </tr> </tbody> </table>		Sal	Unacceptable: number of positives is above	7/50	Satisfactory: number of positives is = to or below	7/50										
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<ul style="list-style-type: none"> • 2.1.6 / 2.1.7 Minced meat and Mechanically separated meat. 	<p><i>5 samples must be taken from one batch per sampling session.</i></p> <p>Aerobic Colony Count (ACC) and E. Coli (EC) : the criteria relate to a specified number per gram:</p> <p>ACC: All 5 samples must be less than 5×10^6 cfu/g <u>and</u> 3 samples must be less than 5×10^5 cfu/g.</p> <p>EC: All 5 samples must be less than 500 cfu/g <u>and</u> 3 samples must be less than 50 cfu/g.</p>																
<ul style="list-style-type: none"> • 2.1.8 Meat preparations. 	<p><i>5 samples must be taken from one batch per sampling session.</i></p> <p>E. Coli (EC): the criterion relates to a specified number per gram:</p> <p>EC: All 5 samples must be less than 5000cfu/g <u>and</u> 3 samples must be less than 500cfu/g</p>																
<ul style="list-style-type: none"> • Action when process hygiene criteria are not met. 	<p><i>If a process hygiene criterion is not met, the meat can be placed or remain on the market, but the food business operator must review the production processes and improve process hygiene to ensure future production will meet the criteria. The actions should be included in the food safety management procedures, which should also include relevant actions specified in Annex I (Chapter 2) of the Regulation. Enforcement authorities will require sufficient evidence that the food business operator has taken the appropriate corrective action. See Section D for more information.</i></p>																

B. MICROBIOLOGICAL TESTING AGAINST THE CRITERIA

- B1.** Food business operators shall perform testing as appropriate against the microbiological criteria set out in Annex I when they are validating or verifying the correct functioning of their procedures based on HACCP principles and good hygiene practice.
- B2.** Food business operators shall decide the appropriate sampling frequencies except where Annex I provides for specific frequencies ... the sampling frequency shall be at least that provided for in Annex I.

2073/2005 Article 4

- B3.** The food business operators of slaughterhouses or establishments producing minced meat, meat preparations or mechanically separated meat shall take samples for microbiological analysis at least once a week. The day of sampling shall be changed each week to ensure that each day of the week is covered.
- B4.** As regards the sampling of minced meat and meat preparations for *E. coli* and aerobic colony count analyses and the sampling of carcasses for enterobacteriaceae and aerobic colony count analyses, the frequency may be reduced to fortnightly testing if satisfactory results are obtained for six consecutive weeks.
- B5.** In the case of sampling for *Salmonella* analyses of minced meat, meat preparations and carcasses, the frequency can be reduced to fortnightly if satisfactory results have been obtained for 30 consecutive weeks. The salmonella sampling frequency may also be reduced if there is a national or regional salmonella control programme in place and if this programme includes testing that replaces the above-described sampling. The sampling frequency may be further reduced if the national or regional salmonella control programme demonstrates that the salmonella prevalence is low in animals purchased by the slaughterhouse.
- B6.** However, when justified on the basis of a risk analysis and consequently authorised by the competent authority, small slaughterhouses and establishments producing minced meat and meat preparations in small quantities may be exempted from these sampling frequencies.

2073/2005 Annex I Chapter 3.2

OPERATOR'S OBLIGATION - WHEN AND HOW OFTEN TO TAKE SAMPLES

<ul style="list-style-type: none"> • Carry out testing against the criteria. <p><i>B1</i></p>	<p><i>Frequency of testing</i> - testing is one of the ways to demonstrate compliance with the criteria. It should be undertaken as part of the process of validating and verifying procedures based on HACCP.</p>
<ul style="list-style-type: none"> • Follow the specified sampling frequency for carcasses, minced meat, 	<p><i>The Regulation requires weekly sampling at slaughterhouses producing meat carcasses, and establishments producing minced meat, meat preparations and mechanically separated meat.</i></p> <p><i>The weekly sampling specified in the Regulation does not apply to small slaughterhouses and establishments producing minced meat and meat preparations in small quantities. The FSA has produced sampling</i></p>

<p>meat preparations and MSM.</p> <p>B2</p>	<p>frequencies for small slaughterhouses and establishments producing minced meat and meat preparations in small quantities.</p> <p>Species for which criteria are not specified e.g. game, rabbits, ducks and geese, are not required to be sampled.</p>
	<p>RED MEAT SLAUGHTERHOUSES</p>
<ul style="list-style-type: none"> Take weekly samples at slaughterhouses producing red meat carcasses. <p>B3, B4, B5, B6</p>	<p>Take 5 samples once a week for all specified species in a sampling session.</p> <p>Specified species are cattle, sheep, goats, pigs and horses of all ages. See Table 1 for details. The day of the week that sampling is carried out must be alternated. Sampling frequency can be reduced following satisfactory results as detailed in Table 1.</p> <p>Small quantities of the specified species - the weekly frequency does not apply to small quantities - see Table 1 for the throughput for small quantities on a per species basis and the sampling frequencies to be followed. These frequencies will be reviewed in early 2007.</p>
	<p>POULTRY SLAUGHTERHOUSES</p>
<ul style="list-style-type: none"> Take weekly samples at slaughterhouses producing poultry carcasses. <p>B3, B4, B5, B6</p>	<p>Take samples once a week for all specified species in a sampling session.</p> <p>Specified species are broilers and turkeys. See Table 2. The day of the week that sampling is carried out must be alternated. Sampling frequency can be reduced following satisfactory results as detailed in Table 2.</p> <p>Small quantities of the specified species - the weekly frequency does not apply to small quantities - see Table 2 for the throughput for small quantities on a per species basis and the sampling frequencies to be followed. These frequencies will be reviewed in early 2007.</p>
	<p>ESTABLISHMENTS PRODUCING MINCED MEAT, MEAT PREPARATIONS & MECHANICALLY SEPARATED MEAT</p>
<ul style="list-style-type: none"> Take weekly samples at establishments producing minced meat, meat preparations 	<p>Take samples from one batch of minced meat or meat preparations or mechanically separated meat per producing establishment per week.</p> <p>All species of meat minced or processed into meat preparations or mechanically separated meat are included.</p> <p>Small quantities - the weekly frequency does <u>not</u> apply to small quantities - establishments producing an average of less than 2 tonnes a week of</p>

<p>and mechanically separated meat.</p> <p><i>B3, B4, B5, B6</i></p>	<p>product intended to be eaten cooked are considered to be small quantities and are not required to undertake testing. This will be reviewed in early 2007.</p> <p>All establishments producing products intended to be eaten raw or undercooked irrespective of production volume must undertake weekly testing.</p> <p>Batch - see definition and more information below at 'ADVICE –Batches'.</p>
<p>ESTABLISHMENTS PRODUCING MEAT PRODUCTS</p>	
<ul style="list-style-type: none"> Decide an appropriate sampling frequency for meat products. <p><i>B2</i></p>	<p>The Regulation does not stipulate how often to take samples from an establishment producing meat products to demonstrate compliance with the criteria for Salmonella.</p> <p>Determine the frequency of sampling and hence testing according to the specific local risk (see advice below).</p>
<p>ADVICE- MEAT PRODUCTS</p>	
<p>Meat Products - Key Manufacturing Process Stages</p>	<p>The following information is provided to assist a food business operator when deciding the frequency for sampling meat products.</p> <p>HACCP principles must be applied when manufacturing all products. The management of the microbiological risks at each stage of manufacturing process must be considered.</p> <p>Key stages include:</p> <ul style="list-style-type: none"> ▪ Ingredients/ raw material ▪ Factory - design, hygiene of equipment and people ▪ Manufacturing process targeting appropriate organism/s ▪ Packaging ▪ Storage temperature and shelf life ▪ Intended use ▪ Food Safety Studies related to similar products <p>Microbiological testing may be appropriate at certain stages to validate/ verify that the procedures based on HACCP principles are adequate, operational and effectively in control. Monitoring raw materials and factory hygiene may also be important. Final product microbiological testing against the criteria can be used to verify that the overall process is in control.</p>

	<p><i>As the HACCP based procedures becomes more established and more satisfactory test results are obtained the frequency of testing may be able to be reduced based on the historical data obtained.</i></p> <p><i>If anything significant is changed in the production of the product such as raw material source, formulation or processing, the HACCP based procedures must be reviewed and it may be appropriate to increase test frequency.</i></p>
<p>Manufacturing Process Key Stage - Example: Raw materials</p>	<p><i>When deciding the frequency of microbiological tests required against the criteria the following should be considered for raw materials.</i></p> <ul style="list-style-type: none"> ▪ <i>The microbiological hazards and risks associated with the raw material.</i> ▪ <i>Knowledge and confidence in the supplier/ producer of the raw material.</i> <i>The more confidence you have in the raw material supplier/ producer the less testing is required. Confidence can be achieved by:</i> <ul style="list-style-type: none"> - <i>auditing the supplier/ producer and their HACCP including their microbiological checks, and/ or</i> - <i>increasing the frequency of checks until sufficient historical data is available.</i> ▪ <i>The risk associated with the volume of the raw material used.</i> ▪ <i>Historical data.</i> ▪ <i>The supplier/ producer of the raw material should be producing using HACCP principles, which should minimise the risks, associated with the raw materials.</i> <p><i>A similar approach should be taken for other key stages.</i></p>

SAMPLING PLANS AND METHODS

B7. The analytical methods and the sampling plans and methods in Annex I shall be applied as reference methods

2073/2005 Article 5

Sampling Rules for Red Meat Carcasses

B8. The destructive and non-destructive sampling methods, the selection of the sampling sites and the rules for storage and transport of samples are described in standard ISO 17604.

B9. Five carcasses shall be sampled at random during each sampling session. Sample sites should be selected taking into account the slaughter technology used in each plant.

B10. When sampling for analyses of enterobacteriaceae and aerobic colony counts, four sites of each carcass shall be sampled. Four tissue samples representing a total of

20 cm² shall be obtained by the destructive method. When using the non-destructive method for this purpose, the sampling area shall cover a minimum of 100 cm² (50 cm² for small ruminant carcasses) per sampling site.

B11. When sampling for *Salmonella* analyses, an abrasive sponge sampling method shall be used. The sampling area shall cover a minimum of 100 cm² per site selected.

B12. When samples are taken from the different sampling sites on the carcase, they shall be pooled before examination.

Sampling Rules for Poultry Carcasses

B13. For the *Salmonella* analyses, a minimum of 15 carcasses shall be sampled at random during each sampling session and after chilling. A piece of approximately 10g from neck skin shall be obtained from each carcase. On each occasion the neck skin samples from three carcasses shall be pooled before examination in order to form 5 x 25g final samples.

2073/2005 Annex I Chapter 3

OPERATOR'S OBLIGATIONS - SAMPLING OF CARCASSES

- **Follow the sampling plans in Annex I Chapters 1 & 2 and the sampling rules in Chapter 3 for slaughterhouses**

B7

Take 5 samples per sampling session from each of the specified species per slaughterhouse and send to a testing laboratory. See Tables 1 and 2 for species and when to take samples.

Training - *the person undertaking the sampling needs to be trained in microbiological sampling. The testing laboratory or the OV can provide training.*

Supplies - *the testing laboratory will be able to supply the equipment and consumables necessary for sampling.*

OPERATOR'S OBLIGATIONS - SAMPLING OF RED MEAT

- **Take samples from red meat carcasses.**

B8 – B12

Take 5 sponge samples per sampling session from carcasses after dressing but before chilling. 1 sponge sample is from one carcase.

The reference sampling method for Salmonella on red meat carcasses is using an abrasive swab covering a minimum of 100 cm² per site.

For ENT and APC four sites of the carcase should be sampled using excision or a non-destructive method.

The carcase sponge swab method:

- *is an abrasive sponge*
- *is a non-destructive method,*
- *covers 4 sites*
- *covers a minimum of 100 cm² per site*

	<p>and so can be used for all three tests.</p> <p>Wet and dry swabbing or excision can be used for ENT and APC (note method not described in this guidance) but <u>not</u> for salmonella testing.</p> <p>Operators are encouraged to use the simple sponge sampling method described below for all three tests</p>
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ADVICE - SAMPLING OF RED MEAT	
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Apparatus	<p>Sterile dry abrasive sponge swabs (10 x 10 cm or 5 x 10 cm, folded in half) in sterile plastic sample bags (waffle style cellulose sponge dishcloths and stomacher bags).</p> <p>Details on how to purchase and prepare sponge swabs is available at www.ukmeat.org/Sponges.htm .</p> <p>Diluent: sterile 0.9% unbuffered sodium chloride solution.</p>
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Sampling Method	<ul style="list-style-type: none"> ▪ Rehydrate the sponge in the sample bag with approximately 10ml diluent. The sponges should be damp without excess diluent in the bag. Alternatively, sponges can be rehydrated, stored frozen and defrosted prior to use. ▪ Grasp the sponge through the bag folding the bag back over the hand. ▪ Avoid allowing the sponge, diluent, or the internal surface of the bag to come into contact with other surfaces. ▪ Randomly choose one side of a randomly chosen carcass after inspection and before chilling. ▪ Wipe the sponge with a firm pressure and a slight side to side movement down one side of the carcass starting at the back leg and moving across the carcass. Use a firm consistent pressure. The length of the wipe should be approximately 1000 cm for adult sheep, goats and pigs and 1500 cm for adult cattle and horses. The pictures at www.ukmeat.org.RedSampling.htm show the direction and path the sponge swab should follow. ▪ Refold the bag over the sponge and secure the bag with a closure.
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OPERATOR'S OBLIGATIONS - SAMPLING OF POULTRY	
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<ul style="list-style-type: none"> • Take samples from poultry 	<p>Take 5 samples from broilers and turkeys. 1 sample is 3 neck skins, so 15 carcasses are required to be sampled. Collect samples from carcasses after</p>
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carcasses. <i>B13</i>	<i>chilling.</i>
ADVICE - SAMPLING OF POULTRY	
Apparatus	<i>Gloves, clean sharp scissors, alcohol wipes, sample bags, labels</i>
Sampling Method	<ul style="list-style-type: none"> ▪ <i>Put on pair of gloves then wipe the surfaces of the gloves with alcohol wipes to kill any bacteria that may be present.</i> ▪ <i>Wipe the scissors with an alcohol wipe.</i> ▪ <i>Grip the plastic bag at the bottom and fold back over the gloved hand. Avoid the internal surface of the bag or the scissors contacting other surfaces.</i> ▪ <i>Grasp the neck skin through the bag and cut off approximately 10g with the clean scissors, repeat with two further neck skins to make a total of three in one bag.</i> ▪ <i>Fold the bag back over the sample and tie to secure the neck skin samples inside.</i> ▪ <i>Clean gloves and scissors with alcohol wipes and repeat.</i> <p><i>See pictures of the sampling process at www.ukmeat.org/WhiteSampling.htm</i></p>
ADVICE - HANDLING OF SAMPLES	
Labelling carcass samples	<p><i>Label the bag and record the following information:</i></p> <ul style="list-style-type: none"> ▪ <i>Date of sampling</i> ▪ <i>Species</i> ▪ <i>Origin of animal (farm postcode, slaughtering reference)</i> ▪ <i>Length of wipe for red meat: an estimate is sufficient</i> ▪ <i>Width of wipe for red meat (normally 10cm).</i>
Temperature Control During Storage and Transport	<p><i>Sponge and neck skin samples should kept cool and delivered to the laboratory within 2 hours. If longer than two hours the samples should be placed into an insulated coolbox containing frozen freezer blocks or crushed ice. Keep the samples cold but do not allow them to freeze.</i></p> <p><i>Sample testing should commence within 24 hours of sampling.</i></p> <p><i>Further information on taking samples is included in the ISO standard 17604 (see below).</i></p>
OPERATOR'S OBLIGATIONS - SAMPLES OF PROCESSED MEAT	

<ul style="list-style-type: none"> • Take and send to the testing laboratory samples from establishments producing minced meat, meat preparations, MSM and meat products. <p><i>B7</i></p>	<p><i>Take a sufficient sample to enable the laboratory to take 5 x 10g or 5 x 25g test portions for Salmonella and 5 x 25g test portions for EC and ACP from one batch per producing establishment of</i></p> <ul style="list-style-type: none"> ▪ <i>Minced meat or meat preparations: once a week</i> ▪ <i>Mechanically separated meat: once a week</i> ▪ <i>Meat products: at the frequency decided and recorded by the producer as part of the HACCP- based plan.</i> <p>Note: <i>minced meat and meat preparation establishments producing on average less than 2 metric tonnes per week of product (minced meat and meat preparations combined production) intended to be eaten cooked are not required to take samples. This will be reviewed in 2007.</i></p>
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<ul style="list-style-type: none"> • Definition of 'Batch' <p><i>2073/2005 Article 2</i></p>	<p><i>"Batch" means a group or set of identifiable products obtained from a given process under practically identical circumstances and produced in a given place within one defined production period.</i></p>
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ADVICE - BATCHES OF PROCESSED MEAT

<p>Batches</p>	<p><i>A batch is defined as product produced under near-identical production conditions. The product in the batch must be able to be identified and located and the information on how to do this must be recorded. It is the ability to describe and identify batches of production that will determine the batch size and this will differ under different production conditions.</i></p> <p><i>The following information is provided to assist food business operators in identifying a batch and how to take the 5 samples.</i></p>
<p>Minced meat</p>	<p><i>A batch could be one hopper load of meat after mincing. If the meat is then packed into retail packs, 5 packs should be selected throughout the batch of packs produced from the hopper and either sent to the laboratory or a sample may be taken from each pack. Samples may also be taken from the hopper attempting to sample as randomly as possible or from one large pack if the meat is stored in bulk.</i></p>
<p>Meat preparations / Meat products</p>	<p><i>For comminuted products such as burgers, sausages or salami, a similar approach should be taken as for minced meat.</i></p> <p><i>For meat preparations/ products made with large pieces of meat then the description of batch will determine when and how 5 units to sample are</i></p>

	<i>selected.</i>
Mechanically Separated Meat	<i>The production process will influence the definition of batch. This must be recorded and the product in a batch must be able to be identified and differentiated from product in other batches.</i>
Sample information	<p><i>Information about the batch of processed meat samples must be recorded on a sample form. This should include</i></p> <ul style="list-style-type: none"> ▪ <i>Name and species of product e.g. beef burger, turkey mince, pork kebabs</i> ▪ <i>Pack description e.g. retail 500g pack</i> ▪ <i>Physical state e.g. fresh or frozen</i> ▪ <i>Details of any modified atmosphere packaging (MAP)</i> ▪ <i>Date of production</i> ▪ <i>Source of meat (slaughterhouse, farm), traceability code</i>
OPERATOR'S OBLIGATIONS - LABORATORY PRACTICE	
<ul style="list-style-type: none"> • The laboratory testing the samples must use the specified. ISO methods Alternative methods and modifications can be agreed with the CA. <p><i>B7</i></p>	<p><i>The laboratory undertaking testing for the food business operator should use the organism-specific method.</i></p> <ul style="list-style-type: none"> ▪ <i>For Salmonella this is EN/ISO 6759</i> ▪ <i>For Enterobacteriaceae this is ISO 21528-2</i> ▪ <i>For E.coli this is ISO 16649-1</i> ▪ <i>For Aerobic Colony count this is ISO 4833.</i> <p><i>Modifications to the methods such as the use of single plates for ACC can be used as long as the laboratory is accredited for the modified procedure.</i></p> <p>Official Controls - <i>if the testing is undertaken under official control procedures the laboratories must be accredited by UKAS www.ukas.com</i></p>
<ul style="list-style-type: none"> • Laboratory test portions - processed meat <p><i>B7</i></p>	<p><i>The test portion size for minced meat, mechanically separated meat, meat preparations and meat products is specified in the Regulation for Salmonella as either 25g or 10g.</i></p> <p><i>The laboratory test portion weight for minced meat, mechanically separated meat or meat preparations for ACC and EC examination is not specified in the Regulation so the ISO standard (6887-2) should be followed which specifies a 25g sample.</i></p> <p><i>The laboratory must be able to obtain both test portions from each sample</i></p>

	<i>it receives. Test portions should be taken from throughout the sample including the surface and the interior. Preparation of the initial suspension for meat and meat products is described in ISO 6887-2.</i>
ADVICE - LABORATORY PRACTICE	
Laboratory methods	<p><i>Ideally, the laboratory undertaking testing for the food business operator should be accredited by UKAS www.ukas.com for the examinations required in meat samples.</i></p> <p><i>As a minimum it should take part in a recognised proficiency testing scheme for the examinations required e.g. FEPAS www.csl.gov.uk/fepas.cfm.</i></p> <p><i>If contracting a laboratory to undertake microbiological testing, ask to see the accreditation schedule and the proficiency test results ideally for the two previous years.</i></p>
Pooling of samples	<p><i>For Salmonella examinations the 5 test portions can be pooled to give one 50g test portion (5 x 10g) or one 125g test portion (5 x 25g) saving on examination costs. These test portions must then be enriched in a 10 fold dilution of BPW.</i></p> <p>Note: <i>if the derogation is applied then pooling of test portions cannot be undertaken - see Section C3.</i></p>
Samples from cattle, sheep, horses, pigs and goats	<p><i>Sponges from red meat carcasses are to be examined for Salmonella, ENT and ACC.</i></p> <ul style="list-style-type: none"> ▪ <i>Add 90 mls of Buffered Peptone Water (BPW) to the swab to make a total of 100 mls (taking into account the 10mls added previously).</i> ▪ <i>Agitate the sample using a peristaltic homogeniser taking care to minimise foaming.</i> ▪ <i>Remove 10mls of BPW for ACC and ENT enumeration and follow the ISO method incubate the remainder with the sponge for 16-20 hours at 37°C and proceed with salmonella determination as per the ISO method.</i>
Samples from turkeys and broilers	<p><i>Neck skins are to be examined for Salmonella.</i></p> <p><i>Compose a 25g sample from 3 approximately 10g neck skins. Aim to include material from all three skins avoiding fat.</i></p> <p><i>Follow the ISO method for Salmonella by adding the 25g neck skin sample to 225ml BPW.</i></p>

OPERATOR'S OBLIGATIONS - REPORTING RESULTS	
<ul style="list-style-type: none"> Reporting results for ENT & ACC <p><i>B7, B1</i></p>	<p><i>Results for red meat carcasses for ENT and ACC must be calculated as the log number of organisms per area of carcass tested.</i></p> <p><i>The mean log value of the 5 carcasses sponged per sampling session can then be calculated by adding the 5 individual log results together and dividing by 5. The mean log is then compared with the criteria.</i></p>
<ul style="list-style-type: none"> Reporting results for Salmonella <p><i>B7, B1</i></p>	<p><i>Results for Salmonella for red meat carcasses must be reported as absence or presence in the area sponged.</i></p> <p><i>Results for Salmonella on poultry carcasses must be reported as presence or absence in 25g of neck skin sample.</i></p>
ADVICE - REPORTING RESULTS	
Results database	<p>Enter results into the meat data base at www.ukmeat.org .</p> <p>The home page provides details of how to obtain a plant specific password and there is currently a resource facility to assist producers with entering results. The site contains information to help with calculation, expression and interpretation of results.</p>

B14 Samples shall be taken from processing areas and equipment used in food production when such sampling is necessary for ensuring the criteria are met. In that sampling the ISO standard 18593 shall be used as a reference method.

2073/2005 Article 5 point 2

OPERATOR'S OBLIGATIONS - PROCESSING ENVIRONMENT	
<ul style="list-style-type: none"> Undertake sampling and testing of the processing environment <p><i>B14</i></p>	<p><i>Sampling the process environment can be useful to validate and verify the cleaning procedures.</i></p> <p><i>When the criteria for carcasses or processed meat are not met, sampling of the processing environment MUST BE CONSIDERED as part of your investigatory action.</i></p> <p><i>The ISO standard 18593 provides useful information and should be used as the reference method.</i></p>
ADVICE - PROCESSING ENVIRONMENT	
Rapid methods	<i>Rapid methods can also provide valuable information on the effectiveness of</i>

cleaning.

Further information is available at www.ukmeat.org.

C. LABELLING REQUIREMENTS

C1. When the requirements for Salmonella in minced meat, meat preparations and meat products intended to be eaten cooked of all species set down in Annex I are fulfilled, the batches of those products placed on the market must be clearly labelled by the manufacturer in order to inform the consumer of the need for thorough cooking prior to consumption.

2073/2005 Article 6

OPERATOR'S OBLIGATIONS - COOKING INFORMATION

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| <ul style="list-style-type: none"> Label minced meat, meat preparations and meat products intended to be eaten cooked to inform the consumer of the need for thorough cooking prior to consumption. | <p><i>Food business operators responsible for the production of raw minced meat, meat preparations and meat products intended to be cooked before consumption, for which there is a Salmonella criterion, must label products to be sold at retail with cooking information.</i></p> <p><i>For such food made from poultry meat this requirement expires on 1.1.2010 because Salmonella is expected to be controlled in poultry flocks as a result of national control programmes (under the Zoonoses Regulation 2003/99).</i></p> <p><i>The Agency has taken advice from the Advisory Committee on the Microbiological Safety of Food, and considers that it will be sufficient to indicate clearly that the food requires cooking aided by cooking times and temperatures where appropriate for example for burgers and sausages.</i></p> |
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C1

ADVICE

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| <p>Best Practice</p> | <p><i>The wording should not include internal temperatures, as these are not easily measured by the consumer. Symbols can be used, as long as they are used in conjunction with appropriate wording.</i></p> <p><i>The FSA's Safer Food Better Business advice pack provides guidance www.food.gov.uk/foodindustry/hygiene/implementstrategy/enforcertoolkit/</i></p> <p><i>Examples of good practice are:</i></p> <ol style="list-style-type: none"> <i>Cook in a hot (x °C) oven for x minutes until piping hot in the centre</i> <i>Grill for x minutes per side until piping hot in the centre</i> <i>Raw meat requires cooking.</i> |
| <p>Guidance</p> | <p><i>Guidance produced for caterers may be helpful:</i></p> <p><i>For information about 'Safe Food, Better Business' produced by FSA England see http://www.food.gov.uk/foodindustry/hygiene/sfbb/</i></p> |

	<p>For information about 'CookSafe' produced by FSA Scotland see http://www.food.gov.uk/foodindustry/hygiene/cooksafe/</p> <p>For information about 'Safe Catering' contact FSA Northern Ireland e-mail: esther.chartres@foodstandards.gsi.gov.uk or phone 028 9041 7737.</p> <p>For information about guidance materials in Wales contact the Environmental Health Department of the local county borough council or FSA Wales – e-mail: keith.blake@foodstandards.gsi.gov.uk or phone 029 2067 8902.</p>
Safe Handling	<p>In addition to cooking information, label raw meat and products containing raw meat appropriately to give the following safe handling advice:</p> <ul style="list-style-type: none"> ▪ Store raw meat separately from cooked meat and other ready to eat foods ▪ Wash hands and preparation utensils after handling raw meat ▪ Keep refrigerated UNTIL USE.

<p>C2. A transitional derogation is granted until 31 December 2009 as regards compliance with the value set in Annex I for Salmonella in minced meat, meat preparations and meat products intended to be eaten cooked placed on the national market of a Member State.</p> <p>The Member States using this possibility shall notify the Commission and other Member States thereof. The Member State shall:</p>	
<p>C3. (a) Guarantee that the appropriate means, including labelling and a special mark which cannot be confused with the identification mark provided for in Annex II, Section I to Regulation (EC) No 853/2004, are in place to ensure the derogation applies only to the products concerned when placed on the domestic market, and that products dispatched for intra-Community trade comply with the criteria laid down in Annex I.</p> <p>(b) Provide that the products to which such transitional derogation applies shall be clearly labelled that they must be thoroughly cooked prior to consumption.</p> <p>(c) Undertake that when testing against the Salmonella criteria pursuant to Article 4, and for the result to be acceptable as regards the transitional derogation, no more than one out of five sample units shall be found to be positive.</p> <p><i>2073/2005 Article 8</i></p>	
OPERATOR'S OBLIGATIONS - TRANSITIONAL DEROGATION	
	Salmonella in Minced Meat, Meat Preparations and Meat Products
• Decide whether the minced	Transitional derogation - until 1.1.2010, the 'removal from the market' action need not always be taken when the criteria for Salmonella in minced

<p>meat, meat preparation or meat product is only to be sold on the UK home market and is intended to be eaten cooked.</p> <p>C2</p>	<p><i>meat, meat preparations and poultry meat products intended to be eaten cooked are not met. Under the derogation, absence of Salmonella in at least 4 out of 5 sample units taken (rather than in all 5) would allow the product to remain on the market in the UK provided that the special mark shown in C3 is applied.</i></p> <p><i>This derogation does not apply to food produced in the UK that is exported to another Member State. Food produced under the derogation may with the agreement of the importing country be exported to a destination outside the EU.</i></p> <p><i>The Agency has notified the Commission that UK food business operators may apply the derogation.</i></p>
	<p>Special Identification Mark</p>
<p>• Label with the special national mark.</p> <p>C3</p>	<p><i>Manufacturers will need to comply with the requirement to clearly label all such products with the national special mark (indicating it is marketed under the derogation).</i></p> <p><i>In the UK the ‘special mark’ is an oval touching the four sides of a surrounding oblong. It is not acceptable for the outer part of the special mark to be ‘implied’ by the border of a label applied to packaging.</i></p> <p>The special mark</p> <div data-bbox="711 1240 1096 1469" data-label="Image"> </div> <p><i>There is no size or pack position requirement.</i></p> <p><i>Within the oval ,the letters UK, the approval number of the premises of manufacture / production, and the letter N to denote that the product is for the national market only, must be clearly displayed.</i></p> <p><i>The general requirements for identification marks in Regulation 853/2004, Annex II Section I, paragraph B5 must be met, i.e. the special mark must be: clearly displayed; legible; in indelible ink; and the characters must be easily decipherable. (The mark is not to be confused with the oval identification mark required by Article 5 (1)(b) of Regulation 853/2004 - see</i></p>

	<i>PART TWO Chapter 11).</i>
<ul style="list-style-type: none"> • Decide whether to manufacture under the derogation. <p>C2</p>	<p><i>The decision to manufacture under the derogation should take into consideration the prevalence of Salmonella in the product. Applying the derogation may result in fewer batches having to be withdrawn from the market and lower cost for the producer.</i></p> <p><i>Food business operators may produce a range of products at an establishment not all of which are produced under the derogation and need to be marked. The details of which products the food business operator wishes to produce under the derogation and needs to apply the special mark to should be detailed in their HACCP based procedures.</i></p> <p><i>The decision to apply the derogation should be made in advance of manufacture of a product line.</i></p>
<ul style="list-style-type: none"> • Place only on the UK market. <p>C2</p>	<p><i>Meat marked with the special mark can only be sold in the EU on the market of the Member State where it was produced.</i></p>
<ul style="list-style-type: none"> • Label with cooking information <p>C2</p>	<p><i>Clearly label that the product must be thoroughly cooked prior to consumption. The cooking information applied for product produced under the derogation should not be different to that required to inform the consumer of the need for thorough cooking (see C1).</i></p>
ADVICE - TRANSITIONAL DEROGATION	
Derogation	<p><i>The meat produced under the derogation may not be any different to meat that is not derogated. The difference is in the action required concerning withdrawal of product.</i></p> <p><i>However, as only a small percentage of batches are tested (1 batch a week per establishment is estimated to be less than 1% of total UK production) the effect on the consumer risk of exposure to a contaminated product is only minimally effected by applying the derogation.</i></p> <p><i>It is important to understand that consumer protection is not achieved by the withdrawal of product but by the corrective actions for future production that are required if a product is found to contain Salmonella both derogated and non derogated (D1).</i></p>

D. UNSATISFACTORY RESULTS

D1. When the results of testing against the criteria set out in Annex 1 are unsatisfactory the food business operator shall take the measures laid down in paragraphs 2 to 4 of this article together with other corrective actions defined in their HACCP based procedures and other actions necessary to protect the health of consumers. In addition they shall take measures to find the cause of the unsatisfactory results in order to prevent the recurrence of the unacceptable microbiological contamination

When testing against food safety criteria provides unsatisfactory results the product or batch of foodstuffs shall be withdrawn or recalled from the market in accordance with Article 19 of Regulation (EC) No 178/2002. However products that are not yet at retail may be subject to further processing by a treatment eliminating the hazard.

2073/2005 Article 7

OPERATOR'S OBLIGATIONS - ACTION WHEN CRITERIA HAVE NOT BEEN MET

	FOOD SAFETY CRITERIA
<ul style="list-style-type: none"> Take the action specified in the last column of Annex I together with other actions specified in a food safety management plan when the criteria have not been met. <p><i>D1</i></p>	<p><i>Salmonella in minced meat, meat preparations MSM and meat products.</i></p> <p><i>The batch tested must be removed from the market if one or more of the 5 samples is positive for Salmonella (2 or more if produced under the derogation see C3). If the test portions have been combined into a single test portion for examination then this action is triggered if the combined test portion is positive (B7).</i></p> <p><i>If the product is produced under the derogation, test portions need to be examined separately to take advantage of only withdrawing batches where 2 or more of the 5 samples are confirmed as positive for Salmonella (B7).</i></p> <p><i>If the product is at retail and intended to be cooked it must be withdrawn. If the product is ready to eat a recall is required. Regulation 178/2002 provides the legal basis for these actions and the requirements for providing point of sale notices and informing the Food Standards Agency must be followed. For product intended to be cooked, the Agency would not normally place this information on its website. However in appropriate circumstances (such as an ineffective withdrawal) the Agency may decide to inform consumers.</i></p> <p><i>In all cases when the criteria have not been met and Salmonella has been detected in one or more of the 5 samples action should be taken to improve future production and improve consumer protection. This should include a review of the source of meat and on-farm action plans for control of Salmonella.</i></p>

	<i>Note this corrective action is triggered when one or more processed meat samples is positive for meat produced under the derogation. It is only the withdrawal from the market that is triggered when 2 or more samples are positive.</i>
	PROCESS CRITERIA
<ul style="list-style-type: none"> • Take the action specified in the last column of Annex I tables together with other actions specified in a food safety management plan when the criteria have not been met. <p><i>D1</i></p>	<p><i>When the process criteria have not been met, Annex I to the Regulation requires that a review of the hygiene of production is undertaken. Additionally for Salmonella on poultry and pig meat carcasses, review the biosecurity procedures of the farm of origin.</i></p>
ADVICE – CORRECTIVE ACTION	
Food Safety and Process Criteria corrective action	<p><i>Useful information for producers can be found in</i></p> <ul style="list-style-type: none"> ▪ <i>Defra codes of practice for producing poultry and pigs</i> ▪ <i>ZAP 13 point action plan for pig producers</i> ▪ <i>FSA guidance on biosecurity for poultry production</i> ▪ <i>FSA red meat safety information booklet</i> ▪ <i>FSA producing beef for slaughter a guide for producers</i>
ADVICE – SALMONELLA TYPING	
Serotyping Salmonella Isolates	<p><i>Serotyping Salmonella isolates will provide information that can be useful in pinpointing the source and also provide information on the significance of the Salmonella detected in terms of human disease.</i></p> <p><i>The Agency has established a typing and anti-microbial resistance facility for Salmonella isolates from meat carcasses and processed meat.</i></p> <p><i>Instruct the testing laboratory to retain the records of presumptive Salmonella isolates at the end of the ISO procedure and follow the</i></p>

	<p><i>procedure for arranging typing.</i></p> <p><i>See www.ukmeat.org for details on how to request a bio bottle and a prepaid label to forward the isolate to one of four national laboratories. Isolating laboratories may also claim a small fee to cover the costs involved with processing the isolate.</i></p> <p><i>Results of the typing will be available at www.ukmeat.org protected by password for individual operators and as freely accessible nationally compiled data. The data from typing will be made available for the risk assessment to be undertaken by the EU to assess the proportionality of the Salmonella criteria on raw meat.</i></p>
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D2. Food business operators shall analyse trends in test results	
<i>2073/2005 Article 7</i>	
OPERATOR'S OBLIGATIONS – ANALYSIS OF TRENDS	
<ul style="list-style-type: none"> • Use trends in results to inform future production <p><i>D2</i></p>	<p><i>Trends in results may reveal unwanted developments in the manufacturing process enabling the food business operator to take corrective actions before the process is out of control.</i></p> <p><i>Results must be expressed in a format that allows trends to be seen.</i></p>
ADVICE	
FSA meat database	<p><i>Using a chart showing the results of testing for the previous 12 months will allow trends to be seen easily.</i></p> <p><i>Trend information can be generated automatically by the FSA's meat database accessible at www.ukmeat.org. The database facility has been developed to assist in the interpretation of individual business's results as well as providing accessible national data sets on a UK wide basis.</i></p> <p><i>Individual operator's data are password protected. There is currently a resource facility to help operators enter data, details of which are given on the home page.</i></p>

2.3.2 WHAT ARE THE OFFICIAL CONTROL REQUIREMENTS?

The competent authority shall verify compliance with the rules and criteria laid down in this Regulation in accordance with Regulation EC No 882/2004.

2073/2005 Article 1

Audits of HACCP-based procedures shall verify that food business operators apply such procedures continuously and properly, having particular regard to ensuring that the procedures provide the guarantees specified in Section II of Annex II to Regulation (EC) 2004. They shall, in particular, determine whether the procedures guarantee, to the extent possible, that products of animal origin: (a) comply with microbiological criteria laid down under Community legislation.

854/2004 Article 4 point 5a

2.3.3 APPLYING PROCEDURES CONTINUOUSLY AND PROPERLY

The operator is responsible for food safety in the food business.

852/2004 Article 1 point 1a

Food ... business operators at all stages of production, processing, and distribution within the businesses under their control shall ensure that foods [] satisfy the requirements of food law which are relevant to their activities and shall verify that such requirements are met.

178/2002 Article 17

	<i>Operator Responsibilities for Microbiological Criteria</i>
<ul style="list-style-type: none"> Operator responsibility includes applying and verifying the company's procedures for complying with microbiological criteria. This will include any microbiological sampling and testing procedures, keeping relevant records and the taking of corrective action if those procedures fail. 	<p><i>Operator Responsibility</i> includes maintaining and monitoring procedures for complying with microbiological criteria and taking corrective action if there is a failure. <i>These procedures should be based on HACCP principles</i> - see <i>PART THREE Chapter 1 (Application of HACCP Principles)</i>.</p> <p><i>Delegation</i> – responsibility for applying and verifying the company's products comply with microbiological criteria may be delegated to a nominated person. The HACCP based procedures would require microbiological problems to be reported to that person, who must have authority to ensure that corrective action is taken when necessary.</p> <p><i>Verification</i> – undertake regular management checks to check if company procedures are being followed regarding the compliance with microbiological criteria.</p>

Frequency of verification – this will depend on the likelihood of a problem being found. Once a month may be sufficient for checking experienced staff who are following established procedures and if microbiological test results are generally acceptable/satisfactory and corrective action has not been required. The work of new or temporary people who are less familiar with the procedures and premises may need to be monitored more frequently.

Records – keep an accurate, dated account (e.g. in the Food Safety Management diary) of the date and result of the periodic verification checks, test results and of any corrective action taken. Test results should also be entered into the FSA database for meat food business operators at www.ukmeat.org (see 2.2. General Information).

Corrective action - take action when there is evidence of non-compliance with criteria. Further action may be necessary if there has been a failure to initiate corrective action or the planned corrective action fails to prevent a re occurrence this may include:

- Investigating the hygiene of slaughter, dressing and or processing;
- Investigations in relation to the laboratory service; and
- Improving staff instructions and training.

TABLE 1 - SAMPLING FREQUENCY FOR RED MEAT CARCASSES

Category		Annual throughput per species per year	Sampling frequencies	
			Initial Frequency <i>(may include pre-11.1.06 tests*)</i>	Reduced Frequency if results are satisfactory
Standard	1	Over: 20,000 cattle or horses; 100,000 pigs or sheep or goats. <i>(>400 or 2,000/week)</i>	<u>Enteros and APC:</u> 5 carcasses once a week for 6 weeks for each species <i>(6 x 5 = 30 samples / species)</i>	<u>Enteros and APC:</u> 5 carcasses once every 2 weeks.
			<u>Salmonella:</u> 5 carcasses once a week for 30 weeks for each species <i>(30 x 5 = 150 samples / species)</i>	<u>Salmonella:</u> 5 carcasses once every 2 weeks.
Small	2	Below 20,000 but over: 7,500 cattle or horses; Below 100,000 but over 37,500 pigs or sheep or goats. <i>(>150 or 750/week)</i>	<u>Enteros and APC:</u> 5 carcasses once a week for 2 weeks for each species <i>(5 x 2 = 10 samples / species)</i>	<u>Enteros and APC:</u> 5 carcasses once every 4 weeks.
			<u>Salmonella:</u> 5 carcasses once every 4 weeks for each species.	<u>Salmonella:</u> no reduction
	3	Below 7,500 but over 1,500 cattle or horses; Below 37,500 but over 7,500 pigs or sheep or goats. <i>(>30 or 150/week)</i>	<u>Enteros and APC:</u> 5 carcasses once a week for 2 weeks for each species. <i>(5 x 2 = 10 samples/ species)</i>	<u>Enteros and APC:</u> 5 carcasses on one day every 12 weeks.
			<u>Salmonella:</u> not required	
	4	Below 1,500 but over 500 cattle or horses; Below 7,500 but over 2,500 pigs or sheep or goats. <i>(>10 or 50/week)</i>	<u>Enteros and APC:</u> 5 consecutive carcasses for each species <i>(5 samples/ species)</i>	<u>Enteros and APC:</u> 5 consecutive carcasses 1 year after last satisfactory series.
			<u>Salmonella:</u> Not required	
5	Below 500 cattle or Horses or 2,500 pigs or sheep or goats. <i>(<10 or 50/week)</i>	<u>Enteros and APC:</u> Not required		
		<u>Salmonella:</u> Not required		

* Tests undertaken pre 11.01.06 can be used to qualify for reduced frequency testing. For enterobacteriaceae and aerobic plate count the tests carried out for the Meat (HACCP) Regulation may be used. For salmonella the sampling and testing method must be as specified in this chapter.

TABLE 2 - SAMPLING FREQUENCY FOR POULTRY MEAT CARCASSES

Category		Annual throughput of turkeys or broilers	Sampling frequencies (One sample is three neck skins)	
			Initial Frequency (may include pre-11.1.06 tests**)	Reduced Frequency if results are satisfactory
Standard	1	Over 7,500,000 (>150,000/week)	<u>Salmonella:</u> 5 samples once a week for 30 weeks for each species (30 x 5 = 150 samples)	<u>Salmonella:</u> 5 samples once every 2 weeks
	2	Below 7,500,000 but over 1,000,000 (>20,000/week)	<u>Salmonella:</u> 5 samples once every 4 weeks for each species	<u>Salmonella:</u> No reduction
Small	3	Below 1,000,000 (<3,000/week)	<u>Salmonella:</u> Not required	

** Tests for salmonella undertaken pre 11.01.06 can be used to qualify for reduced frequency testing providing the sampling and testing method was as specified in this chapter.