Alternative systems on the disinfection of tools: guidance for Slaughterhouses, Approved Game Handling Establishments and Cutting Plants

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Revision history

Revised	Purpose of revision and paragraph number	Revised by
12 June 2019	Version 1	Laureano Garcia-Munoz
01 May 2021	Version 2	Laureano Garcia-Munoz
29 July 2021	Version 3	Miriam Diaz Galvan
13 August 2021	Dual branding, FSA & FSS throughout.	Elena Gafenco
04 October 2021	FSA NI	Billy Armstrong

Summary

Intended audience:

- Food Business Operators at slaughterhouses, approved game handling establishments (AGHE) and cutting plants
- Enforcement officers

Which UK nations does this cover?

England, Scotland, Wales and Northern Ireland.

Purpose:

This Guidance is intended to help food business operators and enforcement officers to understand the validation and verification procedures on the use of alternative systems for the disinfection of tools with an equivalent effect to the use of water at not less than 82˚C.

Legal Status:

This guidance contains advice in order to comply with domestic legislation, retained EU legislation (in England Scotland and Wales) and EU legislation (in Northern Ireland).

Key words:

- Food law, monitoring and controls
- Validation and verification
- Hygiene and food safety
- Disinfection of tools
- Sterilisation and sanitation
- Alternative systems
- Equivalent effect

Review Date:

May 2023

Contents

Intended audience

1. This guidance is principally intended for food business operators (FBOs) in Slaughterhouses, Approved Game Handling Establishments (AGHE) and Cutting Plants.

2. This guidance will also be useful to the competent authority when carrying out official controls in these premises.

Purpose of guidance

3. This guidance sets out the process for implementing the use of alternative methods for the disinfection of tools in a Slaughterhouse, AGHE or Cutting Plant in England, Scotland, Wales and Northern Ireland. It provides an overview of the assessment processes for Officials and FBOs, including details of their roles and responsibilities. The guidance is not intended to detail all possible alternative disinfection methods or highlight how certain methods could be used on the wide variety of tools available.

4. It is ultimately the responsibility of the FBO to provide information on the method, the tools that will be disinfected, the validation data, the verification controls post- implementation and the standard operating procedure (SOP) for the use of the alternative method equivalent to the use of water above 82˚C.

5. FSA and FSS operations (and DAERA on behalf of FSA in Northern Ireland), in consultation with their Science colleagues, will assess the suitability of the alternative system and the validity of the SOP, when required.

Legal status of guidance

6. To note that EU Regulations continue to directly apply in Northern Ireland therefore any reference to retained regulations in this guidance will apply only to England, Scotland and Wales. These guidance notes have been produced to provide advice about the development of procedures for the

safe disinfection of tools in approved premises. You are **not** required by law to follow this advice.

7. These guidance notes have been produced to explain the FSA and FSS understanding of the legal requirements of the general food law in particular Article 14 of retained Regulation 178/2002; and the food hygiene regulations, in particular the requirements established in retained Regulation (EC) No 853/2004.

8. They cannot cover every situation and you may need to consider the relevant legislation itself to see how it applies in your circumstances. If you follow the guidance notes they will help you to comply with the law. Businesses with specific queries may wish to seek advice from the Competent Authority.

Background

9. Annex III of retained Regulation (EC) No 853/2004 lays down specific hygiene rules for food of animal origin. It requires that Slaughterhouses, AGHE and Cutting Plants, *"must have facilities for disinfecting tools with hot water supplied at not less than 82°C, or an alternative system having an equivalent effect."*

10. Slaughterhouses and AGHEs use a variety of cutting tools and a growing number of Cutting Plants not only use similar cutting tools but also use automatic cutting equipment such as slicers, filleting machines and dicers that require cleaning and subsequent disinfection.

11. As new chemicals, equipment and processes are being developed for the cleaning and disinfection of tools, interest by FBOs has grown as they are seen as safer, cleaner, more cost effective, consistent and easier to maintain than hot water sterilisers.

12. Alternative disinfection techniques such as Ultra Violet (UV) cabinets/devices, large range of food grade chemicals or other systems, are slowly coming onto the market and are being widely used.

13. The European Commission adopted an Opinion of the Scientific Committee on Veterinary Measures relating to Public Health on The Cleaning and Disinfection of Knives in the Meat and Poultry Industry in June 2001.

14. The conclusions and recommendations made in that Opinion have been used as a basis for this paper. The Opinion is available from the Commission website

15. One of the difficulties faced by the Competent Authority in considering a request for an alternative system of disinfection that has an equivalent effect to the use of water at a temperature of not less than 82°C, is that there is no EU guidance on how to determine equivalence in this context.

16. The purpose of this guidance is therefore to provide some instructions on what will be needed by the Competent Authority and FBOs to enable them to determine if an alternative system of disinfection of knives and other tools in Slaughterhouses, AGHEs and Cutting Plants is equivalent to the use of water at 82°C.

Equivalence

17. As Competent Authority, the Agency in England, Wales and Northern Ireland and FSS in Scotland are responsible for the approval of Slaughterhouses and Cutting plants. However, it is important to clarify that the FSA and FSS' roles are not to approve or endorse individual chemicals or equipment, but to assess the equivalence of the methods/processes and application of these procedures in achieving equivalence in the working environment.

18. In setting out the evidence criteria for equivalence, it is essential that the environment in which the alternative method will be used is assessed as some environments will have higher risks associated with contamination than others. Therefore, different approaches have been developed for abattoirs and AGHEs, and cutting plants.

19. Separating the two work streams, Slaughterhouses/AGHEs and Cutting Plants, will allow for each process to focus on the key areas and associated

risks when proving equivalence. This ensures that the assessment and supervision are proportionate to the risks associated with the two systems.

Risk assessment

A) Animal Processing

20. The first stage of animal processing starts at the Slaughterhouses or AGHEs where potential contamination from hides and skins to carcase surfaces is high, particularly during the skinning and evisceration processes. To follow the clean livestock policy principles is a good way to minimise the risk associated to the processing of “dirty livestock”.

21. The risk of cross contamination is higher than in a Cutting Plant as the carcase has already been skinned and eviscerated and passed post mortem inspection. It is therefore considered cleaner and free from external contamination such as fleece/hair, faecal matter, bile, grease from equipment, cysts or abscesses. The latter being related to pathological conditions and potentially containing significant bacterial load.

B) Building Design

22. Slaughterhouses and AGHEs are different in design and set up to Cutting Plants. There are practical issues associated with installation and implementation of alternative disinfection methods in Slaughterhouses which generally have a fixed environment. Cutting Plants tend to have a degree of flexibility when fitting new equipment and there can be more similarity between designs of Cutting Plant.

C) Line Speed

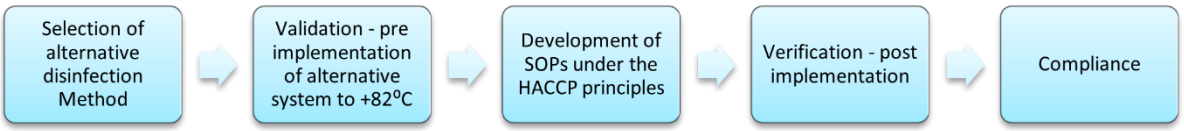
23. The Slaughterhouse/AGHE production line can move at pace and as such there is a constant need for tools to be cleaned and disinfected quickly and efficiently to avoid cross contamination. Any method, particularly a novel approach, will have to demonstrate effectiveness at the speed of the line to which it normally operates, more so when in contact with potentially contaminated surfaces (i.e. hides/skins or intestinal content).

D) Alternative System Failure

24. Failure in an alternative disinfection system in a Slaughterhouse or in an AGHE could have serious implications as finding a quick replacement which complies with legislation might be challenging. This may result in line stoppage and have implications for food safety and potentially animal welfare. A cutting plant would normally have more flexibility to resolve these issues, should a failure in an alternative system occur.

Process for proving equivalence in slaughter-houses and AGHEs

25. An overview of the process can be found below. Table 1 details the steps and responsibilities in the process for proving evidence of equivalence



1.- Selection of the alternative disinfection method

26. Before planning the use of an alternative disinfection method, the FBO should consider the potential co-lateral impact it may have, for instance, on exporting contractual agreements.

27. Although different methods are allowed under EU Legislation, some 3rd countries may not accept the use of the alternative method, which may affect the ability to trade. If in doubt, the FBO can approach the 3rd country exports team at the FSA or Imports & Exports branch in FSS for advice. DAERA will provide advice on 3rd country matters in Northern Ireland.

28. Evidence should be obtained in advance from the manufacturer of any alternative system of its suitability in the food environment, any relevant accreditation such as international/European standards and if necessary appropriateness for use by the Health and Safety Executive.

29. The FBO wishing to install an alternative system is advised to discuss this with their Official Veterinarian (OV) and Field Veterinary Leader (FVL) in FSA or Field Veterinary Manager (FVM) in FSS. The OV/FVL/FVM should consider the process highlighted in this guidance and any practical issues they may envisage with the proposed method. To note that where reference is made to FVL and/or FVM in this guidance, the DAERA equivalent will be the regional Divisional Veterinary Officer (DVO).

2. Validation – Pre-implementation[1]

30. The FBO needs to demonstrate that the selected alternative sanitation system is equivalent to the process to hot water at 82 ºC by validating it either independently by a third party on a real-life scenario or on site.

31. The validation must be built on a scientifically based 'validation study' and when the data is justified, this can be applied to similar establishments, without the need for further validation trials.

32. In order to be considered equivalent to disinfection in water at not less than 82°C, an alternative system must have been demonstrated to be effective against a range of bio-indicators.

33. These should normally reflect those found in the Food Safety and Process Hygiene Criteria of Commission Regulation (EC) No 2073/2005, on microbiological criteria for foodstuffs and would typically include (but not exclusively) Aerobic Colony Count, Enterobacteriaceae and/or *Salmonella*.

34. Particular consideration must also be given to *E.coli* if meat is intended to be eaten less than thoroughly cooked in the final product, i.e. rare burger or steak tartare.

[1] **Validation**: evidence before the start (or change) of a process demonstrating that the considered control measures are effective when correctly applied

35. Other food borne organisms might also be considered when demonstrating equivalence, particularly when assessing the effectiveness of the system at laboratory level. For instance, moulds, viruses, staphylococcus aureus, etc.

36. Consideration must be given to the required supply of clean tools at each stage in the operation. Any system used must be able to supply satisfactorily disinfected tools whenever necessary.

37. This is particularly important for novel techniques where disinfection times may be extended which may make them impractical. Novel techniques must also be able to withstand the harsh conditions within a Slaughterhouse and not compromise staff safety, this is particularly important if the systems are electrical. Records of maintenance checks, repairs and servicing must be kept.

2.1 Validation study on site:

2.1.1 Production of a trial protocol

38. The FBO should produce a trial protocol detailing exactly how the trial will be carried out. This should include proposed dates for the trial, the points on the slaughter/dressing line the alternative method is to be used and the tools it is to be used on. It is best to focus on the dirtiest points of the dressing line to trial the system at the points of highest risk.

39. It should also include any evidence relevant to the use of the alternative method. For example, chemical safety information (for example, food grade products), supporting evidence of its effectiveness at laboratory level, concentration requirements, and maintenance. It should also include the SOPs for the use of the new alternative system, including the staff training proposals.

40. Details of how the protocol can be drafted and the sections it could include can be seen in table 2 below.

41. If there is uncertainty over scientific method or if the technique proposed is novel it may need a more robust validation technique. It is important to contact OV/FVL in FSA and OV/FVM in FSS for advice. The trial protocol

should be produced to meet the minimum requirements as shown in Table 2 at the end of this section.

42. The trial will need to be undertaken under normal working conditions on the slaughter/dressing line to demonstrate that the system has an equivalent effect to water at not less than 82°C.

43. It is important to note that any trial must not impact on food safety and operate within legislative requirements, i.e. any tool after being swabbed to test the effectiveness of an alternative disinfection method must then be disinfected in 82ºc water before coming into contact with a carcase again.

2.1.2. Field trial

44. The purpose of the field trial is to demonstrate the effectiveness of the proposed alternative system under normal working conditions in a slaughterhouse or AGHE.

45. Once the protocol for the trial is developed, the FBO must carry out the field trial according to it. It is essential that any trial under working conditions does not compromise food safety and that the protocol ensures that carcases produced during the trial comply with retained Regulation (EC) No 853/2004. Any tool used in the trial must be disinfected in 82ºC water after swabbing before coming into contact with a carcase again.

46. The OV should be made aware that the trial will take place and how the alternative method will operate, although there is no need for 100% supervision.

2.1.3. Assessment

47. Once all the results are obtained from the laboratory, the FBO should present these in a readable format making clear what the results represent (for example, date, time, slaughter line, position, tools tested, etc). It is advisable to use an accredited laboratory.

48. Following the completion of the trial performed in accordance with the protocol, the FBO should assess the data gathered during the trial. The

conclusions and supporting evidence of the outcome of the trial shall also be clearly presented.

49. When the result of the analysis determines that the system that has been trialled has an equivalent effect to water at not less than 82°C, and once the SOPs under the HACCP principles have been developed, FSA/FSS will communicate the outcome to the respective FBO and the system can be implemented.

50. Any method implemented by the FBO will be specific to an SOP on a particular slaughter line in a specified plant. Significant changes to the initial procedures might lead to a new validation process being required.

Unsatisfactory results

51. The proposed equivalent method must not be implemented if the trial is not carried out in accordance with the protocol and/or if, upon assessment, the trial results are not within the range of results that would be expected to demonstrate equivalent effect to the use of hot water supplied at not less than 82°C.

2.2. Independent – 3rd Party Validation Study

52. The same principles above shall be applied when assessing the equivalence of the method off site. Once the method is considered equivalent having been trialled on a real-life scenario, this can be implemented in similar establishments, without the need for on-site validation trials.

53. The FBO will still needs to provide evidence of equivalence, although this may be achieved by reliance on the validation carried out at similar establishments. The FBO also have to demonstrate why he considers their system is equivalent to the one the system was validated against.

3. Development of SOPs under the HACCP Principles

54. The FBO should have in place SOPs based on the HACCP principles to detail the conditions necessary to ensure the effective performance of the disinfection procedure.

55. In particular, operators should have specific tool cleaning procedures in place, including documented instructions for carrying these out effectively and records of checks carried out to verify that these have been done (SOPs). Only tools that have been effectively cleaned should be subject to the disinfection procedures.

56. Equipment and/or chemicals used to disinfect tools must be used in accordance with the manufacturer's instructions. Relevant parameters, such as temperature, time, chemical concentration or frequency and power of a radiant source, should be checked and the results, and corrective actions if necessary, should be recorded.

57. Slaughterhouse staff must be adequately trained in the use of alternative disinfection systems. Existing SOPs should be amended to include each step of the alternative cleaning and disinfection procedure both when a field trial is to take place and following the implementation of the use of an alternative system. Amendments to SOPs must be validated and verified, as per any other changes to any process under the HACCP principles.

4. Verification[2] post implementation

58. Operators will have to develop documented procedures to regularly verify the effectiveness of the alternative disinfection system under the FBO's own HACCP system.

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[2] **Verification**: periodic activity to demonstrate that the desired outcome has been reached

59. Disinfection equipment must be maintained in good condition, and when necessary be serviced on a regular basis. Records of maintenance checks, repairs and servicing must be kept.

60. Procedures must be reviewed regularly to verify their continued effectiveness and when any significant operational changes are introduced.

61. Microbiological testing of tools should be considered as an essential part of the verification process. The number and frequency of samples should be proportionate to the type and size of the establishment and the history of test results. Corrective actions must be established and implemented following unsatisfactory results.

62. Disinfection procedures will be monitored by the OV and by the competent authority as part of the regular FBO audits at the set risk-based frequency.

5. Compliance

63. If during routine official controls, audit or unannounced inspection, the use of the equivalent method is not performing to the correct efficacy or is not being carried out in accordance with the SOP, for example the monitoring results are not within the range of results that would be expected if it were demonstrating equivalence to water supplied at not less than 82°C, then the FBO shall stop using this method and revert to hot water sterilisation or any other equivalent validated system.

64. At this point the FBO may wish to review their protocol and re-assess its procedures in order to revert to the alternative disinfection system, once it has been proven that the FBO has re-gained control of the process.

Table 1: Process to implement the Use of an Alternative disinfection Method in SH & AGHE

Process stage	Step		Responsibility
Selection of Alternative Method	Consider co-lateral impact (for example, 3rd C export)		**FBO**
	Obtain manufacturer evidence of suitability as equivalent to 82ºC		
	Inform the OV/FVL in FSA or OV/FVM in FSS of the intention of implement an alternative sanitation system		
Validation	Validation on site. Field trial	Develop the trial protocol	**FBO**
		Carry out the trial	
		Results from the laboratory, to be presented in a readable format	
		Assess the data gathered during the trial, presenting he conclusions of the outcome of the trial	
	Independent 3rd party validation based on a real-life scenario	Provide evidence of equivalence from the 3rd party	
		Demonstrate FBO proposed system is equivalent to the one is validated against	

Development of SOPs under the HACCP principles	SOPs based on the HACCP principles to provide the conditions to ensure the effective performance of the disinfection procedure	**FBO**
	Equipment and/or chemicals used to disinfect tools must be used in accordance with the manufacturer's instructions	
	Slaughterhouse staff must be adequately trained in the use of alternative disinfection systems	
Verification post implementation	Develop documented procedures to verify the effectiveness of the alternative disinfection system under the HACCP	**FBO**
	Microbiological testing of tools should be considered as an essential part of the verification process	
	Disinfection procedures will be monitored by the OV and by the competent authority as part of the regular FBO audits at the set risk-based frequency	**FSA: OV/VA/AVL/FVC/FVL** **FSS: OV/FVM** [3]
Compliance	If the equivalent method is not performing to the correct efficacy or is not used in accordance with the SOP, then the FBO must stop using this method and revert to hot water sterilisation	**FBO** **FSA: OV/VA/AVL/FVC/FVL** **FSS: OV/FVM**

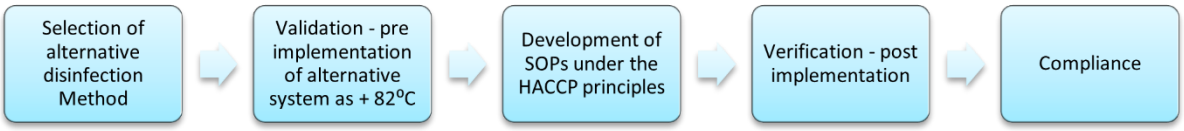
[3] In NI verification and compliance will be carried out by a designated Daera official

Table 2: Minimum requirements of a draft trial protocol

Process stage	Description
Proposal	i. Brief description of the site details (e.g. throughput, number of lines, species processed, number of hot water sterilisers on each line, tools used, etc) ii. An overview of what the objective is, and how the FBO will achieve it, e.g. details of how the alternative method of disinfection will achieve equivalence to water at 82°C iii. Technical details of the effectiveness of the alternative method at laboratory level
Procedure	i. How the FBO will establish a baseline using their existing system of water at not less than 82°C so that a direct comparison can be made with the proposed alternative ii. The proposed validation procedure in detail, including the bioindicators to be used, number of samples to be taken, length of the trial, location of sampling points, etc. iii. SOP for the use of the alternative system, including staff training protocols iv. How control measures will be monitored throughout the process
Testing	i. Details of the dates, timings (approx.) and personnel responsible for the sampling ii. The accredited testing laboratory and methodology to be used
Verification	i. The control measures that will be put in place to ensure efficacy is maintained post implementation ii. How control measures will be monitored iii. A contingency plan detailing the corrections and corrective actions to be taken in the event that control measures fail
Trial report	i. Details of how the results from the laboratory will be presented to ensure these are in a readable format. ii. Description of how the data will be assessed and the conclusions of the outcome of the trial presented.

Process for Proving Equivalence in Cutting Plants

65. An overview of the process below can be found below 3 at the end of this section.



1. Selection of the alternative disinfection method

66. Before planning the use of an alternative disinfection method, the FBO should consider the potential co-lateral impact it may have for instance on exporting contractual agreements.

67. Although different methods are allowed under EU Legislation, some 3rd countries may not accept the use of the alternative method, which may affect the ability to trade. If in doubt, the FBO can approach the 3rd country exports team at the FSA or FSS Imports & Exports branch for advice. DAERA will provide advice on 3rd country matters in Northern Ireland.

68. Evidence should be obtained in advance from the manufacturer of any alternative system of its suitability in the food environment, any relevant accreditation such as international/European standards and if necessary appropriateness for use by the Health and Safety Executive.

2. Validation[4] – Pre-Implementation

69. The FBO needs to demonstrate that the selected alternative sanitation system is equivalent to the process to hot water at 82 ºC. This can be done

[4] **Validation**: evidence before the start (or change) of a process demonstrating that the considered control measures are effective when correctly applied

through manufacturer specifications, scientific publications, literature review, or any other mean.

70. In order to be considered equivalent to disinfection in water at not less than 82°C, an alternative system must have been demonstrated to be effective against a range of bio-indicators.

71. These should normally reflect those found in the Food Safety and Process Hygiene Criteria of retained Commission Regulation (EC) No 2073/2005, on microbiological criteria for foodstuffs and would typically include (but not exclusively) Aerobic Colony Count, Enterobacteriaceae and/or *Salmonella*.

72. Particular consideration must also be given to *E.coli* if minced meat is intended to be eaten less than thoroughly cooked in the final product, i.e. rare burger or steak tartare, or listeria on Ready to Eat products (RTE) supporting its growth.

73. Other food borne organisms might also be considered when demonstrating equivalence, particularly when assessing the effectiveness of the system at laboratory level. For instance, moulds, viruses, staphylococcus aureus, etc..

74. Consideration must be given to the required supply of clean tools at each stage in the operation. Any system used must be able to supply satisfactorily disinfected tools whenever necessary.

75. This is particularly important for novel techniques where disinfection times may be extended which may make them impractical. Records of maintenance checks, repairs and servicing must be kept.

3. Development of SOPS under the HACCP principles

76. The FBO should have in place SOPs based on the HACCP principles to provide the conditions necessary to ensure the effective performance of the disinfection procedure.

77. In particular, operators should have specific tool cleaning procedures in place, including documented instructions for carrying these out effectively and records of checks carried out to verify that these have been done

(SOPs). Only tools that have been effectively cleaned should be subject to the disinfection procedures.

78. Equipment and/or chemicals used to disinfect tools must be used in accordance with the manufacturer's instructions. Relevant parameters, such as temperature, time, chemical concentration or frequency and power of a radiant source, should be checked and the results, and corrective actions if necessary, should be recorded.

79. Cutting plant staff must be adequately trained in the use of alternative disinfection systems. Existing SOPs should be amended to include each step of the alternative cleaning and disinfection procedure Amendments to SOPs must be validated and verified, as per any other changes to any process under the HACCP principles.

4. Verification[5] post implementation

80. Operators will have to develop documented procedures to regularly verify the effectiveness of the alternative disinfection system under the FBO's own HACCP system.

81. Disinfection equipment must be maintained in good condition, and when necessary be serviced on a regular basis. Records of maintenance checks, repairs and servicing must be kept.

82. Procedures must be reviewed regularly to verify their continued effectiveness and when any significant operational changes are introduced.

83. Microbiological testing of tools should be considered as an essential part of the verification process. The number and frequency of samples should be proportionate to the type and size of the establishment and the history of test

[5] **Verification**: periodic activity to demonstrate that the desired outcome has been reached

results. Corrective actions must be established and implemented following unsatisfactory results.

84. Disinfection procedures will be monitored by the competent authority as part of the regular FBO inspections and audits at the set risk-based frequency.

5. Compliance

85. If during routine official controls, audit or unannounced inspection, the use of the equivalent method is not performing to the correct efficacy or is not being carried out in accordance with the SOP, for example the monitoring results are not within the range of results that would be expected if it were demonstrating equivalence to water supplied at not less than 82°C, then the FBO shall stop using this method and revert to hot water sterilisation or any other equivalent validated system.

86. At this point the FBO may wish to review their protocol and re-assess its procedures in order to revert to the alternative disinfection system, once it has been proven that the FBO has re-gained control of the process.

Table 3: Process for the Use of an Alternative Disinfection Method in Cutting Plants

Process stage	Step	Responsibility
Selection of Alternative Method	Consider co-lateral impact (e.g. 3rd C export)	**FBO**
	Obtain manufacturer evidence of suitability as equivalent to 82ºC	
Validation	Demonstrate that the selected alternative sanitation system is equivalent to the process to hot water at 82 ºC. This can be done through manufacturer specifications, scientific publications, literature review, or any other means.	**FBO**
	Demonstrate FBO proposed system is equivalent to the one is validated against	
Development of SOPs under the HACCP principles	SOPs based on the HACCP principles to provide the conditions to ensure the effective performance of the disinfection procedure	**FBO**
	Equipment and/or chemicals used to disinfect tools must be used in accordance with the manufacturer's instructions	
	Cutting plant staff must be adequately trained in the use of alternative disinfection systems.	

Verification post implementation	Develop documented procedures to verify the effectiveness of the alternative disinfection system under the HACCP.	**FBO**
	Microbiological testing of tools should be considered as an essential part of the verification process	
	Disinfection procedures will be monitored by the competent authority as part of the regular FBO inspections and audits at the set risk-based frequency	**FSA: VA/AVL/FVC/FVL** **FSS: OV/MHI/FVM** [6]
Compliance	If the equivalent method is not performing to the correct efficacy or is not used in accordance with the SOP, then the FBO must stop using this method and revert to hot water sterilisation	**FBO** **FSA: VA/AVL/FVC/FVL** **FSS: OV/MHI/FVM**

[6] In NI verification and compliance will be carried out by a designated Daera official

Examples of chemical disinfection requirements

Example of a Standard Operating Procedure (SOP) for food grade chemicals for disinfection of tools and equipment

1. Only trained personnel will be allowed to carry out the cleaning and disinfection of cutting tools.

2. At break times and/or at the end of the processing day, all cutting tools, equipment surfaces and food contact surfaces (i.e. knives, saws, mincing, dicing, slicing machines, chopping boards) will be washed and cleaned with hot water and a detergent declared as fit for food preparation and meat cutting surfaces, sometimes called a food grade detergent.

3. A dilution bath of an approved food grade odourless disinfectant (disinfectant declared as fit for food preparation and meat cutting surfaces) will be prepared following the instructions in the chemical data sheet (please refer to volumes/concentrations in the datasheet).

4. After washing the tools with detergent and hot water, place utensils and small equipment parts in the bath previously prepared and give sufficient time to ensure the tools have been disinfected (as per the manufacturer instructions).

5. After that time, place the utensils and parts in a rack, rinse with clean potable water using a hand-held spray or a clean water bath and allow to dry.

6. Large pieces of equipment and food contact surfaces unable to fit in the bath will be sprayed with the same dilution and allow an exposure time as per the specifications in the datasheet.

7. After that time, equipment will be rinsed with clean potable water and allow to dry.

8. The technical manager will be responsible for monitoring that the process is completed as per the instructions and completing the cleaning check list to that effect.

9. When pre-cutting inspection is being carried out a colour coded knife must be used.

10. If contamination is found and this need to be trimmed off, steps 1 to 3 must be observed immediately after trimming of contamination.

11. To verify that bacterial growth is kept to the very minimum and the process of cleaning and disinfection is effective, swabs of handles, blades and equipment will be taken on a monthly cycle.

Example of a chemical disinfection process

1. Cleaning and disinfection area (dilution material, washing sink, water spray, disinfection bath, drying/storage area).

2. Brush washing with hot water and detergent.

3. Dilution equipment. Four full buckets and one full measure jar.

4. Disinfection bath

5. Equipment rinsing with water.

6. Disinfection of equipment.

Figure 2: Example Instruction Data Sheet for a Chemical Disinfectant

KITCHEN CLEANER SANITISER ODOURLESS

Description

Unperfumed, multi purpose cleaner and terminal disinfectant. Recommended for use on a variety of surfaces, including worktops, cutting boards, tables, vending machines, refrigerators, kitchen equipment, shelves, floors and walls.

Laboratory tests have proved it will kill gram positive and gram negative bacteria in 60 seconds.

Features and Benefits

- Unperfumed
- Cleans and disinfects in one operation
- Kills bacteria and helps prevent the spread of infection
- Formulated especially for the Food and Catering Industry
- Passes British and EuropeanTest Method BS EN 1276:1997
- Available in Ready to Use formulation in 750ml trigger spray bottles
- A Microbiology report is available on request

How to Use

FOOD CONTACT SURFACES:
Dilute 500ml of detergent per 5 litres of hot water.
Dilute 50ml of detergent per 500ml of water in a 750ml spray bottle.
Wipe or spray surface. Rinse with clean water

NON FOOD CONTACT SURFACES:
Dilute 100ml of detergent per 5 litres of hot water.
Mop or wipe surface. Allow to air dry.

Composition

Contains a blend of quaternary ammonium compound, glycol ether, sequestering agent, ethoxylated amine, amphoteric and non-ionic surfactants

Typical Product Data

Appearance/ Colour:	Liquid. Pale straw
Odour/Taste:	Faint surfactant
Solubility Description:	Soluble in water
Boiling Pt. (°C):	101 @ 760mmHg
Specific Gravity (Water=1):	1.016 @ 20 °C
Flash Pt. (°C):	Boils without flashing
Melting Point: (°C):	-1
pH-Value, Conc:	11.00

Storage

Store in original sealed container and protect from extremes of temperature

Examples of Ultraviolet cleaning requirements

Example of a Standard Operating Procedure (SOP) for use of ultraviolet light cabins for the disinfection of cutting tools

1. Only trained personnel will be allowed to carry out the cleaning and disinfection of cutting tools.
2. At break times and/or at the end of the processing day knives will be washed and cleaned with hot water and an approved detergent declared as fit for food preparation and meat cutting surfaces, sometimes called a food grade detergent.
3. After rinsing with water, knives will be place in the UV cabinet for a period of time (as per the manufacturer instructions) sufficient to ensure the tools have been disinfected.
4. The technical manager will be responsible for monitoring that the process is completed as per the instructions and completing the cleaning check list (doc 1111) to that effect.
5. When pre-cutting inspection is being carried out a RED handled knife must be used.
6. If contamination is found and this need to be trimmed off, steps 1 to 3 must be observed immediately after trimming of contamination.
7. To verify that bacterial growth is kept to the very minimum and the process of cleaning and disinfection is effective swabs of handles and blades will be taken on a monthly cycle.
8. UV equipment must be regularly checked to make sure it remains compliant with the manufacturer’s specifications.

Figure 3: Example Instructions Data Sheet for an UV Cabinet

Ultraviolet cleaner and disinfector

Description

This UV knife disinfection cabinet is particularly useful for disinfecting knives and other utensils presenting a risk of contaminating high risk foods. This has proven to be highly effective in eradicating food borne micro-organisms.

Working method

A tube generates ultraviolet germicidal rays transforming oxygen into ozone, thus killing bacteria. The effect of the UV rays (254 nm) is well known, it is a highly effective virucide and germicide. The generated ozone ensures an excellent decontamination of utensils stored within the cupboard. The cupboards, which conform to hygiene standards, are useful in all branches of industry and food trades.

Constructed in brushed 18/10 stainless steel, they are meant to last and can be installed in all kinds of atmospheres including humid environments.

Use

- After cleaning the knives or tools, place them in the cabinet as per manufacturer's instructions.
- The minimum advised time to be included in the SOP.
- At the end of this time period, the knives and tools are disinfected and ready for use.

Features

- Disinfect up to X knives at a time;
- Short disinfection time
- Wall mounted

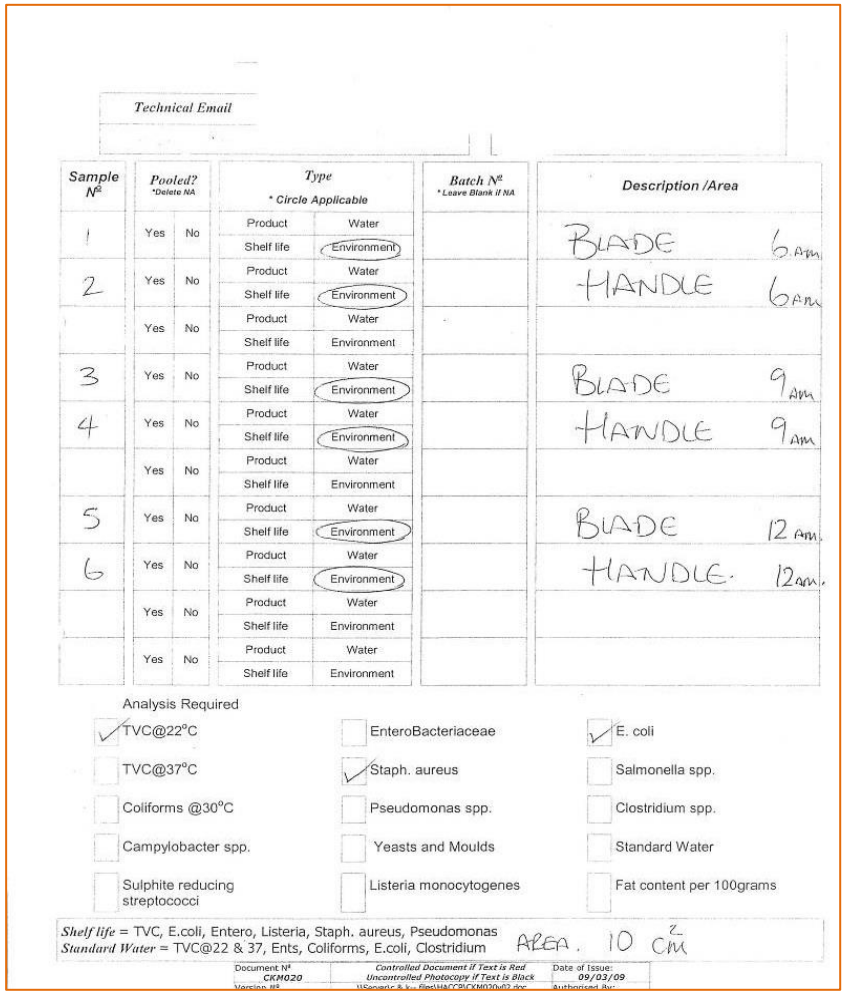
Reference Information

Table 4: Example daily cleaning schedule and checklist

WEEK COMMENCING: .....

Area/Equipment	Frequency of Cleaning	Method of cleaning	Signed by Cleaner							Comments and corrective actions
			S	M	T	W	T	F	S	
Knives	Every break	As per protocol 001								
Knives	End of day									
Mincing machine	End of processing									
Dicer	End of processing									
Slicing machine	End of processing									
Verified by……										

Figures 4 and 5: Examples Verification Forms and Certificates



Technical Email

Sample N²	Pooled? *Delete NA		Type * Circle Applicable		Batch N² * Leave Blank if NA	Description /Area
1	Yes	No	Product	Water		BLADE 6AM
			Shelf life	(Environment)		
2	Yes	No	Product	Water		HANDLE 6AM
			Shelf life	(Environment)		
	Yes	No	Product	Water		
			Shelf life	Environment		
3	Yes	No	Product	Water		BLADE 9AM
			Shelf life	(Environment)		
4	Yes	No	Product	Water		HANDLE 9AM
			Shelf life	(Environment)		
	Yes	No	Product	Water		
			Shelf life	Environment		
5	Yes	No	Product	Water		BLADE 12AM
			Shelf life	(Environment)		
6	Yes	No	Product	Water		HANDLE 12AM
			Shelf life	(Environment)		
	Yes	No	Product	Water		
			Shelf life	Environment		
	Yes	No	Product	Water		
			Shelf life	Environment		

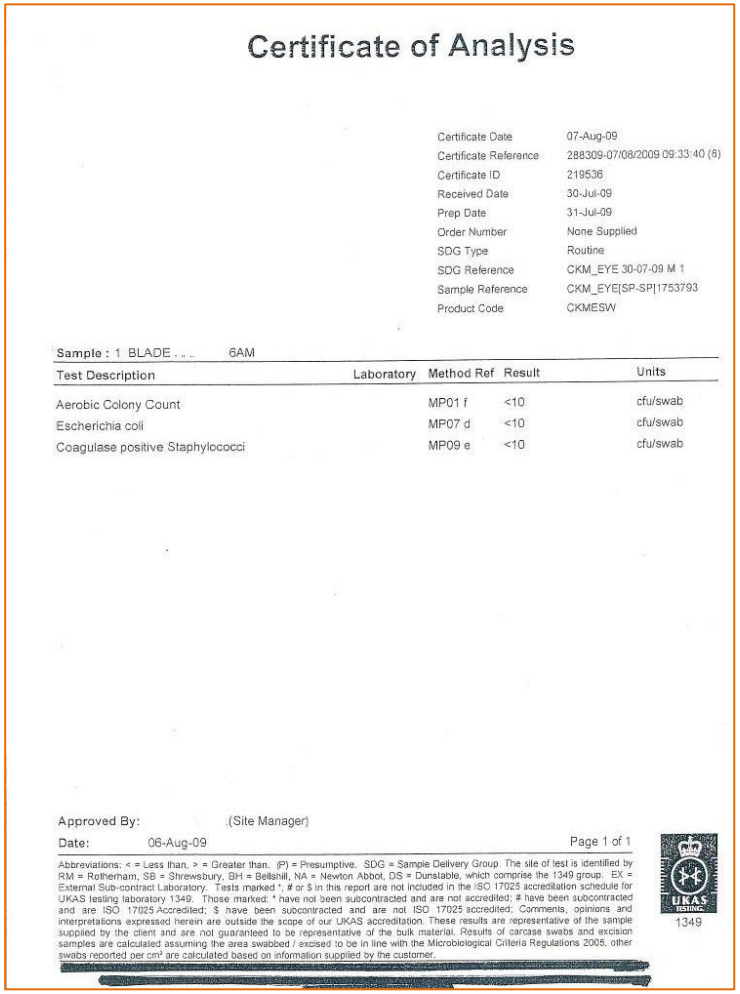
Analysis Required

✓ TVC@22°C	EnteroBacteriaceae	✓ E. coli
TVC@37°C	✓ Staph. aureus	Salmonella spp.
Coliforms @30°C	Pseudomonas spp.	Clostridium spp.
Campylobacter spp.	Yeasts and Moulds	Standard Water
Sulphite reducing streptococci	Listeria monocytogenes	Fat content per 100grams

Shelf life = TVC, E.coli, Entero, Listeria, Staph. aureus, Pseudomonas
Standard Water = TVC@22 & 37, Ents, Coliforms, E.coli, Clostridium

AREA. 10 CM²

Document N²	Controlled Document if Text is Red / Uncontrolled Photocopy if Text is Black	Date of Issue:
CKM020		09/03/09



Certificate of Analysis

Certificate Date	07-Aug-09
Certificate Reference	288309-07/08/2009 09:33:40 (6)
Certificate ID	219536
Received Date	30-Jul-09
Prep Date	31-Jul-09
Order Number	None Supplied
SDG Type	Routine
SDG Reference	CKM_EYE 30-07-09 M 1
Sample Reference	CKM_EYE[SP-SP]1753793
Product Code	CKMESW

Sample : 1 BLADE . . . 6AM

Test Description	Laboratory	Method Ref	Result	Units
Aerobic Colony Count		MP01 f	<10	cfu/swab
Escherichia coli		MP07 d	<10	cfu/swab
Coagulase positive Staphylococci		MP09 e	<10	cfu/swab

Approved By: (Site Manager)

Date: 06-Aug-09 Page 1 of 1

Abbreviations: < = Less than, > = Greater than. (P) = Presumptive. SDG = Sample Delivery Group. The site of test is identified by RM = Rotherham, SB = Shrewsbury, BH = Bellshill, NA = Newton Abbot, DS = Dunstable, which comprise the 1349 group. EX = External Sub-contract Laboratory. Tests marked *, # or $ in this report are not included in the ISO 17025 accreditation schedule for UKAS testing laboratory 1349. Those marked: * have not been subcontracted and are not accredited; # have been subcontracted and are ISO 17025 Accredited; $ have been subcontracted and are not ISO 17025 accredited; Comments, opinions and interpretations expressed herein are outside the scope of our UKAS accreditation. These results are representative of the sample supplied by the client and are not guaranteed to be representative of the bulk material. Results of carcase swabs and excision samples are calculated assuming the area swabbed / excised to be in line with the Microbiological Criteria Regulations 2005, other swabs reported per cm² are calculated based on information supplied by the customer.

UKAS TESTING 1349

Q&A Section

1.- Why do I need to disinfect cutting tools and contact surfaces

After cleaning cutting equipment, tools or contact surfaces, pathogen bacteria can still be present in these surfaces. These micro-organisms can eventually contaminate food. This is known as cross-contamination. A correctly applied cleaning and disinfection process will kill these pathogens, minimising considerably the risk of cross contamination and subsequent food related outbreak.

2.- How often do I need to disinfect my equipment, tools and contact surfaces?

Every factory has a different working pattern and it is not possible to determine a generic protocol. Whatever disinfection programme you establish at your establishment, should ensure the food processed is safe and fit for human consumption.

As a minimum, knives and cutting tools should be cleaned and disinfected at every break and immediately after they have become contaminated, whereas equipment and contact surfaces should be cleaned at least once a day, at the end of the operations.

3.- Why do I need to carry out a microbiological test on the surfaces that have been disinfected?

In addition to visual examination, this is the best way to verify the effectives of the cleaning and the disinfection processes. The sampling procedure is very simple and should not take long to complete. This can be paired with another compulsory microbiological testing (i.e. water testing, compulsory food sampling).

4.- Why do I need to wash thoroughly before using the disinfectant?

Chemical or UV disinfectants are only effective on clean surfaces. All organic matter (i.e. meat, fat) has to be removed prior to the application of any chemical or placing the tools in the UV cabinet.