

Traceability of chicken

Specification of the information to be recorded at chicken slaughter/ processing establishments and other links in chicken distribution chains

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Nofima is a new industry-oriented research group that conducts research and development for aquaculture, fisheries and food industries.

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Report

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<i>Summary:</i> This ad-hoc standard has been created as part of the EU project 'Trace the origin of food' (TRACE). TRACE aims to develop generic and sector-specific traceability systems for use in the food industry. This 'ad-hoc standard' forms part of the work undertaken on chicken. This standard is a specification of the information to be recorded in one link, the chicken processors, in chicken distribution chains in order to achieve traceability.		

Preface

This ad-hoc standard has been created as part of the EU project 'Trace the origin of food' (TRACE). TRACE aims to develop generic and sector-specific traceability systems for use in the food industry. This ad-hoc standard forms part of the work undertaken on chicken and is part of the chicken deliverable. This standard is a specification of the information to be recorded in one link, the chicken processors, in chicken distribution chains to achieve traceability.

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1 Introduction

There are increasing demands for detailed information on the nature and origin of food products. Traceability is becoming a legal and commercial necessity. Transmission of all the required (by law or market forces) information physically with the products would, in many instances, be impracticable and so the use of information technology is preferable.

The International Standardization Organization (ISO) definition of traceability concerns the ability to trace the history, application and location of that which is under consideration, and for products this can include the origin of materials and parts and processing history. Traceability includes not only the principal requirement to be able to physically trace products through the distribution chain, from origin to destination and vice versa, but also to be able to provide information on what they are made of and what has happened to them. These further aspects of traceability are important in relation to food safety, quality and labelling.

This document is an information specification for the processing of chicken products i.e. what (with regards to traceability) information should be generated and how it should be held by the chicken processor (ad-hoc standard).

The key to the operation of the scheme is the labelling of each unit of goods traded, for example chickens and the oil used for frying them in, with a unique identification (ID). This is to be done by the business that creates each unit. Businesses that transform units, such as chicken processors, who convert the units of chickens and the oil used for frying them in received into the products dispatched, create new units and must give them new IDs.

Each of the businesses that create or physically trade those units, throughout the distribution chains from the chicken farmer through to retailer or caterer, are to generate and hold the information necessary for traceability. The information is to be held electronic keyed to the unit IDs.

The information can remain in the ownership of the business that generated it, but is available when required by law for the purposes of traceability (in the event of a food safety problem) or by commercial agreement between businesses. The means of communicating the information is standardised, so that it can be readily accessed from business to business through the distribution chains, when required.

This is a development beyond the European Union (EU) legal requirement (General Food Law), which came into force January 1st. 2005, for each food business to independently record sources of supplies and destinations of foods, but builds on that basis.

Commercial arrangements for businesses to communicate information through the distribution chains are to be encouraged, particularly for the information desired by the trade to be *visible* at the various transaction points in the chains, but that is not the subject of this document.

The method of identifying the units of goods traded is based on the Global Solution One (GS1) system, that is already in use throughout the world. The information is keyed to unique IDs given to the individual trade units (e.g. boxes of chicken sticks), but the scheme also accommodates trade in logistic units made up of numbers of trade units (e.g. pallets of

boxes). Businesses that create logistic units have to label them with a logistic unit ID and also record the IDs of the component trade units.

The scheme does not demand perfect traceability, i.e. that a particular retail product should be traceable back to a batch of origin, or vice versa from origin to destination. Pragmatically it is recognised that mixing of units is likely to occur at a number of stages in the distribution chains, e.g. in the production of chicken sticks or the mixing of spices. Where such mixing occurs, the business is transforming the trade units. The requirement for traceability is that the business records the IDs of the received trade units that may be input to each created trade unit, and vice versa. The particular product is then traceable back to a definite number of batches of spices or batches of skewers.

The information itemised in the specifications for recording by the food businesses includes:

- the fundamental information necessary to identify and physically trace the products, that **shall** be recorded.
- specific information that is required by law in relation to food safety, quality and labelling, together with important elements of commercially desirable information related to those matters, that **should** be recorded.
- further specific and commercial information considered to be of sufficient relevance to be included in the specifications, that **may** be recorded.

Given the enormous variety of legal requirements of chicken, the information specifications cannot itemise all the information that may possibly be required in every situation. The specifications provide a generic basis for traceability. Flexibility is allowed for businesses to record further information, in their own non-standardised formats, but keyed to the unit IDs.

Although virtually every distribution chain is different, they all appear to be made up of a number of characteristic components or, *building blocks*. The types of business identified in this document which have inputs or outputs from chicken processing are:

- Chicken farmers
- Batter oil producers
- Frying oil producers
- Spice suppliers
- Skewer producers
- Chicken slaughterers/processors
- Plastic bag producers
- Card board box producers
- Wholesalers/retailers/supermarket

Any given chicken product distribution chain may be made up of some or all of these components but not necessarily in the sequence listed. There may also be others which are not included here amendments may be made to this document at a later stage in order to include these.

Some businesses may carry out the functions of more than one of the types listed, for example distribution businesses may act as *transporters*, in which case those businesses must record the relevant information requirements for each of the functions carried out.

These specifications will provide a basis for information technology (IT) service providers to develop business solutions (applications) for the trade. The information specifications do not preclude the use of paper systems, although the obvious benefits of business efficiency, including rapid communication, will be lost.

Further information on the background to the development of the scheme and on its philosophy is given in informative annexes A and B.

2 Scope

Chicken meat is the product of young poultry hens (or rather chicks) which are slaughtered at the age of 6 weeks.

This document is applicable to the distribution of chicken meat for human consumption including the processing steps of slaughtering, de-boning and packaging, through to retailing and caterers.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

3.1 Chicken

The main attributes of chicken meat are appearance and texture.

Appearance is judged by color as its major component. For chicken meat products color is important for skin, meat and bone. The color of the skin is an attribute most critical for marketing of the whole chicken or parts of breast, leg or wing. Meat color is important for selection of skinless raw meat as well as final evaluation of the cooked product. Factors that influence the color of chicken meat are haem pigments, pre-slaughter factors and slaughter, chilling and further processing steps.

Texture is another critical quality factor. The two major contributors to the tenderness of chicken meat are the maturity of the connective tissue and the contractile state of the myofibrillar proteins. The latter is a function of the rate and severity of rigor mortis development (Fletcher, 2002).

Chicken meat contains on average 70% water, 20% protein and 10% fat. For breast meat with skin the water contents remains the same, but the percentage of protein increases to 20 and the fat contents decreases to 6%.

3.2 Traceability

The International Standardization Organization (ISO) defines traceability as [NS-EN ISO 9001:2000]: Ability to trace the history, application or location of that which is under consideration. NOTE when considering products traceability can relate to

- the origin of materials and parts
- the processing history

3.3 Symbols and abbreviations

Table 1 Symbols and abbreviations

AI	GS1 system Application Identifier
GLN	GS1 system Global Location Number
GMP	Good Manufacturing Practice.
GS1	Global Solution 1
GS1 system	Unique global identification system
GTIN	GS1 system Global Trade Item Number.
GTIN+	GTIN plus a further number to uniquely identify each particular trade unit (e.g. the production batch and serial number or the date and time of production).
ID	Identification
ISO	The International Organization for Standardization
n2 or n14, etc	GS1 identifier numbers consisting of 2 or 14, etc digits
SGTIN	SGTIN is a standard for identifying unique items at the unit or retail level as well as at the case and carton levels. It is a GTIN combined with a Serial Number
SSCC	GS1 system Serial Shipping Container Code

4 Requirements

4.1 Identification of the units traded

Chicken products shall be traded as uniquely identified and labelled units.

Businesses that create trade units (a trade unit is defined by Global Solutions One (GS1 previously EAN.UCC) (GS1, 2007) as any item upon which there is a need to retrieve predefined information and that may be priced, or ordered, or invoiced at any point in any supply chain (GS1, 2007).) shall identify and label each of them with a GTIN+/SGTIN+.

Businesses that create logistic units (a logistic unit is defined by GS1 as an item of any composition established for transport and/or storage that needs to be managed through the supply chain (GS1, 2007).) , made up of numbers of separately identified trade units, shall identify and label each logistic unit with a SSCC.

4.2 Recording of information

Businesses that physically trade in chicken products shall generate and hold the required information, appropriate to the type of business, for each of the units traded.

Table 4 (4.2.2) gives a detailed recommendation of data to be recorded at chicken slaughterers/processors. The other tables included here are a skeleton for a recommendation standard for the respective previous links. In order to complete these tables a full sector-wide investigation and subsequent hearing process must take place.

The detailed information requirements are tabulated below as follows:

Businesses that carry out the functions of more than one of the categories listed above shall record the information relevant to each of the functions carried out.

The data elements in the following tables categorised as **shall** are considered to be fundamental information necessary to identify and physically trace the products. These elements must be recorded to achieve traceability.

The data elements in the following tables categorised as **should** are specific information required by law in relation to food safety, quality and labelling together with important elements of commercially desirable information related to those matters. It is recommended that these elements are recorded.

The data elements in the following tables categorised as **may** are further specific information required by law and commercially desirable information, considered to be of sufficient relevance to be included in the document. Businesses may choose to record these elements.

In these tabulations there is no repetition of the information originally recorded to describe the units created and their history, although businesses receiving those units later in the distribution chain will often need some of that information. The information is keyed to the unit IDs and can be supplied by commercial agreement between the businesses without having to re-input the data.

Table 2 Codes used to identify the individual producers. See table 3 for further explanation. The first letter C stands for Chicken.

Producer/farmer of	Replace '****' in table 2 with the code relevant for the business in question
Chicken Farmers	CCF
Batter Oil producers	CBO
Frying Oil producers	CFO
Spice Suppliers	CSS
Skewer Producers	CSP
Chicken Slaughterers/processors	CCS
Plastic Bag producers	CPB
Card Bard box producers	CCB
Transporters	CTS
Wholesalers/Retailers/Supermarket	CRS

4.2.1 Skeleton Generic Traceability Table for producers names in table 2.

The skeleton table (table 3) is in the same for the producers named in table 2. The '***' after in the column named data element should be replaced with the appropriate 3 letters from table 2. This table contains only the 'shall' information that should be recorded in each of the respective previous links. This table can serve as a skeleton for a recommendation/ad-hoc standard for the respective previous links, but then a proper sector-wide investigation and subsequent hearing process must take place, and that was beyond the scope of this project

Table 3 The skeleton table.

Data element		Description	Examples	Categorisation		
				Shall	Should	May
PRODUCER						
***01	Producer ID	Name and address or GLN of producer	Producer Ltd., Albert Street, Hull, HU1 7AR, England or n3+n13	x		
***02	Production establishment ID	Name, address and registration number or GLN of production establishment	Producer Lts., Charles Street, Hull, HU1 7AR, England or n3+n13	x		
FOR EACH TRADE UNIT CREATED						
Identity						
***03	Trade unit ID	GTIN+ (n2+n14+AI's)	(01) 07012345000001 (10) 0000000125	x		
FOR EACH LOGISTIC UNIT CREATED						
Identities						
***04	Logistic unit ID	SSCC	n2+n18	x		
***05	Trade unit Ids	List of GTIN+s of the trade units that make up the logistic unit	List of n2+n14+AIs	x		
FOR EACH UNIT DISPATCHED (either as a logistic unit or a separate trade unit)						
Identity						
***06	Unit ID	SSCC if dispatched as a logistic unit or GTIN+ if dispatched as a trade unit	n2+n18 or n2+n14+AI's	x		
Destination						
***07	Next business ID	Name and address or GLN of the business to whom the unit is dispatched (transporter)	The Producer Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
***08	Date and time of dispatch	Date and time of transfer to next business	2005-06-28T04:00	x		

4.2.2 Chicken Slaughterers/Processors

Information to be recorded at chicken slaughterer/processors

Table 4

Data element	Description	Examples	Categorisation			
			Shall	Should	May	
CHICKEN SLAUGHTERERS						
CCS01	Chicken slaughterer ID	Name and address or GLN of chicken processor that operates processing establishment	The Chicken Co, 13 chicken Street, Manchester, MA14 2LP, England or n3+n13	x		
CCS02	Chicken slaughterer establishment ID	Name, address and registration number or GLN of processing establishment	The Chicken Co, 13 chicken Street, Manchester, MA14 2LP, England or n3+n13	x		
CCS03	GMP certification	Names of quality or food safety GMP schemes by which chicken processor is certified				x
CCS04	Laboratory certification	Names of laboratory certification				x
FOR EACH UNIT OF CHICKEN						
Identities						
CCS05	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+AI's	x		
CCS06	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (if received as a logistic unit)	List of n2+n14+AIs	x		
Source						
CCS07	Transporter ID	Name and address or GLN of transporter from whom the unit was received	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CCS08	Date and time of reception	Date and time of transfer from transporter	2005-06-28T08:30	x		
Control checks (related to the logistic or separate trade units, as appropriate)						
CCS09	Further quality control checks	Records of further quality control checks, each in the form of description of measurement and value, are available in electronic form, on paper or not available	Paper			x
Transformation information (for each trade unit)						

<i>Data element</i>		<i>Description</i>	<i>Examples</i>	<i>Categorisation</i>		
				<i>Shall</i>	<i>Should</i>	<i>May</i>
CCS10	Related created trade unit IDs	List of the GTIN+s of the created trade units that may incorporate part of the received trade unit	List of n2+n14+Ais	x		
FOR EACH UNIT OF BATTER OIL						
Identities						
CCS11	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+AI's	x		
CCS12	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (if received as a logistic unit)	List of n2+n14+Ais	x		
Source						
CCS13	Transporter ID	Name and address or GLN of transporter from whom the unit was received	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CCS14	Date and time of reception	Date and time of transfer from transporter	2005-06-28T08:30	x		
Control checks (related to the logistic or separate trade units, as appropriate)						
CCS15	Further quality control checks	Records of further quality control checks, each in the form of description of measurement and value, are available in electronic form, on paper or not available	Paper			X
Transformation information (for each trade unit)						
CCS16	Related created trade unit IDs	List of the GTIN+s of the created trade units that may incorporate part of the received trade unit	List of n2+n14+Ais	x		
FOR EACH UNIT OF FRYING OIL						
Identities						
CCS17	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+AI's	x		
CCS18	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (if received as a logistic unit)	List of n2+n14+Ais	x		
Source						
CCS19	Transporter ID	Name and address or GLN of transporter from whom the unit was received	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CCS20	Date and time of reception	Date and time of transfer from transporter	2005-06-28T08:30	x		
Control checks (related to the logistic or separate trade units, as appropriate)						

<i>Data element</i>		<i>Description</i>	<i>Examples</i>	<i>Categorisation</i>		
				<i>Shall</i>	<i>Should</i>	<i>May</i>
CCS21	Further quality control checks	Records of further quality control checks, each in the form of description of measurement and value, are available in electronic form, on paper or not available	Paper			x
Transformation information (for each trade unit)						
CCS22	Related created trade unit IDs	List of the GTIN+s of the created trade units that may incorporate part of the received trade unit	List of n2+n14+Ais	x		
FOR EACH UNIT OF SCEWERS						
Identities						
CCS17	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+AI's	x		
CCS18	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (if received as a logistic unit)	List of n2+n14+Ais	x		
Source						
CCS19	Transporter ID	Name and address or GLN of transporter from whom the unit was received	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CCS20	Date and time of reception	Date and time of transfer from transporter	2005-06-28T08:30	x		
Control checks (related to the logistic or separate trade units, as appropriate)						
CCS21	Further quality control checks	Records of further quality control checks, each in the form of description of measurement and value, are available in electronic form, on paper or not available	Paper			x
Transformation information (for each trade unit)						
CCS22	Related created trade unit IDs	List of the GTIN+s of the created trade units that may incorporate part of the received trade unit	List of n2+n14+Ais	x		
FOR EACH UNIT OF PLASTIC BAGS						
Identities						
CCS23	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+AI's	x		
CCS24	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (if received as a logistic unit)	List of n2+n14+Ais	x		
Source						
CCS25	Transporter ID	Name and address or GLN of transporter from whom the unit was received	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		

<i>Data element</i>		<i>Description</i>	<i>Examples</i>	<i>Categorisation</i>		
				<i>Shall</i>	<i>Should</i>	<i>May</i>
CCS26	Date and time of reception	Date and time of transfer from transporter	2005-06-28T08:30	x		
Control checks (related to the logistic or separate trade units, as appropriate)						
CCS27	Further quality control checks	Records of further quality control checks, each in the form of description of measurement and value, are available in electronic form, on paper or not available	Paper			x
Transformation information (for each trade unit)						
CCS28	Related created trade unit IDs	List of the GTIN+s of the created trade units that may incorporate part of the received trade unit	List of n2+n14+Ais	x		
FOR EACH UNIT OF CARDBOARD BOXES						
Identities						
CCS23	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+AI's	x		
CCS24	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (if received as a logistic unit)	List of n2+n14+Ais	x		
Source						
CCS25	Transporter ID	Name and address or GLN of transporter from whom the unit was received	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CCS26	Date and time of reception	Date and time of transfer from transporter	2005-06-28T08:30	x		
Control checks (related to the logistic or separate trade units, as appropriate)						
CCS27	Further quality control checks	Records of further quality control checks, each in the form of description of measurement and value, are available in electronic form, on paper or not available	Paper			x
Transformation information (for each trade unit)						
CCS28	Related created trade unit IDs	List of the GTIN+s of the created trade units that may incorporate part of the received trade unit	List of n2+n14+Ais	x		
FOR EACH TRADE UNIT CREATED						
<i>Identity</i>						
CCS29	Trade unit ID	GTIN+ (n2+n14+AI's)	(01) 07012345000001 (10) 0000000125	x		
<i>Description</i>						

<i>Data element</i>		<i>Description</i>	<i>Examples</i>	<i>Categorisation</i>		
				<i>Shall</i>	<i>Should</i>	<i>May</i>
CCS30	Type of unit	Description of physical type of unit	vacuum-pack	x		
CCS31	grams	Grams of product (g)	425g	x		
CCS32	Name/type of product	Descriptive name of product	Chicken	x		
CCS33	Product specification	Records of further details of product specification (quality and size grades, etc) are available in electronic form, on paper or not available	Paper			X
CCS34	Composition	List of names	Nutrients Energy Protein Carbohydrates fat	x		
CCS35	Date of durability	Best before or sell by date, as appropriate	Sell by 2008-06-30		x	
Production history						
CCS36	Water	For information about the standardized analytical method see annex C				X
CCS37	Protein	For information about the standardized analytical method see annex C				X
CCS38	Fat	For information about the standardized analytical method see annex C			X	
CCS39	Minerals (Fe)	For information about the standardized analytical method see annex C				X
CCS40	Texture	For information about the standardized analytical method see annex C				X
CCS41	Newcastle disease (ND)	For information about the standardized analytical method see annex C				X
CCS42	Coccidiosis	For information about the standardized analytical method see annex C				X
CCS43	Broilers Ascites Syndrome	For information about the standardized analytical method see annex C				X
CCS44	Avian influenza	For information about the standardized analytical method see annex C				X
CCS45	Total bacterial count	For information about the standardized analytical method see annex C				X
CCS46	Salmonella	For information about the standardized analytical method see annex C				X
CCS47	Campylobacter	For information about the standardized analytical method see annex C				X
CCS48	Antibacterial substances (Sulphonmid)	For information about the standardized analytical method see annex C				X
CCS49	Antibacterial substances	For information about the standardized analytical method see annex C				X
CCS50	Anticoccidials	For information about the standardized analytical method see annex C				X
CCS51	Anticoccidials (Toltrazuril)	For information about the standardized analytical method see annex C				X
CCS52	Carbamates (insectides)	For information about the standardized analytical method see annex C				X

<i>Data element</i>		<i>Description</i>	<i>Examples</i>	<i>Categorisation</i>		
				<i>Shall</i>	<i>Should</i>	<i>May</i>
CCS53	Pyrethroids (insecticides)	For information about the standardized analytical method see annex C				X
CCS54	Non steroidal anti-inflammatory drug	For information about the standardized analytical method see annex C				X
CCS55	Feed additives	For information about the standardized analytical method see annex C				X
CCS56	Banned veterinary drugs	For information about the standardized analytical method see annex C				X
CCS57	Chlorinated hydrocarbons	For information about the standardized analytical method see annex C				X
CCS58	Organochlorine compounds	For information about the standardized analytical method see annex C				X
CCS59	PCBs'	For information about the standardized analytical method see annex C				X
CCS60	Stable isotopes	For information about the standardized analytical method see annex C				X
Transformation information						
CCS61	Related received trade unit IDs	List of the GTIN+s of the received trade units that may be input to the created trade unit	List of n2+n14+AIs	x		
FOR EACH LOGISTIC UNIT CREATED						
Identities						
CCS62	Logistic unit ID	SSCC	n2+n18	x		
CCS63	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit	List of n2+n14+AIs	x		
FOR EACH UNIT DISPATCHED (either as a logistic unit or a separate trade unit)						
Identity						
CCS64	Unit ID	SSCC if dispatched as a logistic unit or GTIN+ if dispatched as a trade unit	n2+n18 or n2+n14+AI's	x		
Destination						
CCS65	Transporter ID	Name and address or GLN of the transporter to whom the unit is dispatched	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CCS66	Date and time of dispatch	Date and time of transfer to transporter	2005-06-29T16:00	x		

4.2.3 Transporters and Stores'

Table 5 contains the 'shall' information that should be recorded in each of the respective previous links. This table can serve as a skeleton for a recommendation/ad-hoc standard for the respective previous links, but then a proper sector-wide investigation and subsequent hearing process must take place, and that was beyond the scope of this project. For the purposes of this document, transporters and storage holders are considered to be businesses that provide the service of transporting or storing goods. They may operate at various stages in distribution chains, transporting or storing raw materials or products. Transport may be by land, sea or air. Transporters and storage holders do not break down or create trade units but may break down or create logistic units

Table 5

Data element		Description	Examples	Categorisation		
				Shall	Should	May
TRANSPORTER OR STORER						
CTS01	Transporters business ID	Name and address or GLN of food business that operates transport vehicle or storage establishment	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CTS02	Transport vehicle or storage establishment ID	Nationality, name (if applicable) and registration number of vehicle or name, address and registration number of establishment, or GLN	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
FOR EACH UNIT RECEIVED						
Identities						
CTS03	Unit ID	SSCC if collected or received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+A1's	x		
CTS04	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit (required only if received as a logistic unit and it is to be broken down or transformed by the transporter or storer)	List of n2+n14+A1s	x		
Source						
CTS05	Previous food business ID	Name and address or GLN of food business from whom the unit was received (pre-form producers, cap producers, processors, etc.)	The Chicken Co, 13 Chicken Street, Manchester, MA14 2LP, England or n3+n13	x		
CTS06	Date and time of reception	Date and time of transfer from previous food business	2005-07-29T16:00	x		
CTS07	Place of collection	Name and address or GLN (this is required only for transporters)	The Chicken Co, 13 Chicken Street, Manchester, MA14 2LP, England or n3+n13	x		
FOR EACH NEW LOGISTIC UNIT PRODUCED BY TRANSPORTER OR STORER						

Data element		Description	Examples	Categorisation		
				Shall	Should	May
Identities						
CTS08	Logistic unit ID	SSCC	n2+n18	x		
CTS09	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit	List of n2+n14+AIs	x		
FOR EACH UNIT DISPATCHED (either as a logistic unit or a separate trade unit)						
Identity						
CTS10	Unit ID	SSCC if dispatched as a logistic unit or GTIN+ if dispatched as a trade unit	n2+n18 or n2+n14+AIs	x		
Destination						
CTS11	Next food business ID	Name and address or GLN of the food business to whom the unit is dispatched (transporter or processor, etc.)	F. Butcher and Sons Ltd, High Street, Sheffield, SH1 5GF, England or n3+n13	x		
CTS12	Date and time of dispatch	Date and time of transfer to next food business	2005-07-29T20:00	x		
CTS13	Place of delivery	Name and address or GLN (this is required only for transporters)	F. Butcher and Sons Ltd, High Street, Sheffield, SH1 5GF, England or n3+n13	x		
INCOMPLETE						

4.2.4 Wholesalers/Retailers/Supermarkets

This table contains the 'shall' information that should be recorded in each of the respective previous links. This table can serve as a skeleton for a recommendation/ad-hoc standard for the respective previous links, but then a proper sector-wide investigation and subsequent hearing process must take place, and that was beyond the scope of this project. For the purposes of this document, retailers and caterers are considered to be suppliers to the public, not to other businesses. Retailers and caterers are encouraged to record information on their sales but the scope of this document does not extend to sale to the public.

Table 6

Data element		Description	Examples	Categorisation		
				Shall	Should	May
<i>RETAILER OR CATERER</i>						
CRC01	Food business ID	Name and address or GLN of food business that operates retail or catering establishment	G Grocer and Sons Ltd, High Street, Sheffield, SH1 5GF, England or n3+n13	x		
CRC02	Retail or caterer establishment ID	Name, address and registration number or GLN of retail or catering establishment	F. Monger and Sons Ltd, High Street, Sheffield, SH1 5GF, England or n3+n13	x		
FOR EACH UNIT RECEIVED						
Identities						
CRC03	Unit ID	SSCC if received as a logistic unit or GTIN+ if received as a separate trade unit	n2+n18 or n2+n14+A1's	x		
CRC04	Trade unit IDs in logistic unit	List of GTIN+s of the trade units that make up the logistic unit	List of n2+n14+A1s	x		
Source						
CRC05	Previous food business ID	Name and address or GLN of food business from whom the unit was received (Processor, transporter, etc.)	The Transporters Company, 12 George Street, London, NW3 4TU, England or n3+n13	x		
CRC06	Date and time of reception	Date and time of transfer from previous food business	2005-07-30T07:00	x		
INCOMPLETE						

4.3 Comments regarding the chicken slaughter house table

The list of codes in the standard that refer to the production history (CCS) are parameters which have been selected for this purpose. These parameters have been forwarded to various slaughter houses and has been accepted as it is. The list is extensive and includes all possible parameters even though many slaughter houses may only record some of the elements it was thought necessary to include all.

The parameters of the contaminant checks have been grouped for the sake of efficiency. In the method analysis tables the various sub parameters have been mentioned separately (e.g. Carbamates: Aldicarb, Carbaryl, Ethiofencarb, Methomyl, Propoxur).

5 Bibliography

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Annex A

(informative)

The background to the development of the ad-hoc scheme

The need for traceability

There are increasing demands for traceability throughout the food chain. The root causes of many of the recent food safety problems have been found in the primary production sector, although the problems are manifested at the other end of the food chain in the products sold to consumers. Hence there are needs to trace back through the chain to determine the causes of the problems and then, in taking remedial action, to trace forward from those causes to withdraw or recall all the unsafe products produced. With chain traceability in place, these tasks can be done efficiently and with the minimum of commercial disturbance. Without chain traceability, whole sectors of the food industry may have to be closed down on a precautionary basis and the costs can be ruinous.

Legislators are now acting on traceability in order to protect the public. Food businesses, particularly the large retailers and those producing branded goods, are increasingly demanding traceability to assure their standards and to protect their businesses.

The legal requirements for traceability

The EU Regulation on the General Principles and Requirements of Food Law came into effect 1st January 2005 (EC-178/02, 2002). Related EU food legislation will have to be adapted to these requirements by 1st January 2007 at latest.

In its article 3 this Regulation provides its own definition of traceability, in Article 18 it specifies traceability requirements and in Article 19 it specifies related product recall requirements:

Article 3

Other Definitions

(15) 'traceability' means the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution;

Article 18

Traceability

1. The traceability of food, feed, food-producing animals, and any other substance intended to be, or expected to be, incorporated into a food or feed shall be established at all stages of production, processing and distribution.

2. Food and feed business operators shall be able to identify any person from whom they have been supplied with a food, a feed, a food-producing animal, or any substance intended to be, or expected to be, incorporated into a food or feed. To this end, such operators shall have in place systems and procedures which allow for this information to be made available to the competent authorities on demand.
3. Food and feed business operators shall have in place systems and procedures to identify the other businesses to which their products have been supplied. This information shall be made available to the competent authorities on demand.
4. Food or feed which is placed on the market or is likely to be placed on the market in the Community shall be adequately labelled or identified to facilitate its traceability, through relevant documentation or information in accordance with the relevant requirements of more specific provisions.
5. Provisions for the purpose of applying the requirements of this Article in respect of specific sectors may be adopted in accordance with the procedures laid down in Article 58(2).

Article 19

Responsibilities for food: food business operators

1. If a food business operator considers or suspects that a food which it has imported, produced, processed, manufactured or distributed is not in compliance with the food safety requirements, it shall immediately initiate procedures to withdraw the food in question from the market and inform the competent authorities thereof. Where the product may have reached the consumer, the operator shall effectively and accurately inform the consumers of the reason for its withdrawal, and if necessary, recall from consumers products already supplied to them when other measures are not sufficient to achieve a high level of health protection.
2. A food business operator responsible for retail or distribution activities which do not affect the packaging, labelling, safety or integrity of the food shall, within the limits of its respective activities, initiate procedures to withdraw from the market products not in compliance with the food-safety requirements and shall participate in contributing to the safety of the food by passing on relevant information necessary to trace a food, cooperating in the action taken by producers, processors, manufacturers and/or the competent authorities.

The Regulation demands a one up, one down traceability system to be operated throughout food distribution chains. It requires the identification of food at all stages, not merely the lot marking after processing required by current legislation. Chain traceability, product withdrawal and recall are based on the sequential interrogation of the food businesses up or down the chain and are dependent on them responding and providing the necessary information to track the materials involved.

Annex B (informative)

The philosophy of the ad-hoc scheme

The concept of traceability

ISO defines traceability as the ability to trace the history, application or location of that which is under consideration, and notes that when considering products this can relate to the origin of materials and parts and the processing history.

This is a more extensive definition than is stated in the EU General Food Law, with implications beyond that law's fundamental requirement to be able to trace the food through the various food businesses that handle it in the distribution chain. The information required may therefore include what the food is and what has happened to it, as well as where it has come from and who was responsible for it. These further aspects of traceability are important in relation to food safety, quality and labelling.

Traceability concerns only the *ability* to trace things, which means that the necessary information must be available when required. It does not mean that the information must at all times be *visible* by being labelled on the food or being with it.

The types of information required and their prioritisation

The types of information that may be required can be broadly categorised into:

- fundamental traceability information
- specifically required information
- and commercially desirable information

Fundamental traceability information is information required to identify the food and trace its physical movement through the distribution chains. Essential parts of this information concerning the suppliers and destinations of food will, under the EU General Food Law, have to be held by each producer or food business and be made available to the competent authorities and to other producer or food business operators for the purpose of product withdrawal or recall. For each producer or food business, the fundamental information includes:

- their own ID and location;
- the quantities, nature and unit IDs of the food (including materials to be incorporated in food) received by the business;
- the ID's of the previous producer/food businesses (from whom those units were received);
- the dates/times and places of reception;
- the quantities, nature and unit IDs of the food dispatched by the business;
- the ID's of the next businesses (to whom those units are dispatched);
- the dates/times and places of dispatch;

- the 'mapping' relationships between the units received and dispatched (when units are transformed by the business).

Note that when units are transformed by a business, the mapping relationship between the units received and the units dispatched need not be simple and direct. For example, a chicken processor may use many chickens, perhaps from different suppliers, to produce units of product. Each unit of product may possibly be associated with a number of units of chicken product, and vice versa. Traceability requires that the mapping relationship is known, not that it should be a simple 1:1 relationship.

Specifically required information is particular information on the nature of the food and on the circumstances of its production that is required by law for particular purposes, and which must be made available to the appropriate authorities or persons for those purposes. These requirements vary with national legislation and the type of food and food business.

Examples of specifically required information include:

- the results of chemical and bacterial analyses, etc, that are specifically required under food safety legislation or under the general obligation for the monitoring of critical control points, which must be held by the food businesses and be accessible by the food authority (and be directly supplied to the food authority in some instances);
- customs and excise and trading (financial) information that must be held by businesses and be supplied to the appropriate authorities for purposes such as taxation, etc.

Commercially desirable information is information on the nature of the food and on the circumstances of its production, which is sought by food businesses for a variety of reasons. These include maximising the efficiency of their own operations, limiting their own liabilities under product liability and safety legislation, assuring the safety and quality of their products, enabling accurate labelling and substantiating their marketing claims, etc. The requirements for this information do, of course, vary from business to business.

Examples of commercially desirable information include much of that already listed above and:

- details of raw materials, products, processes and controls that are required for reasons of business efficiency, product labelling and to ensure product safety and quality;
- information on the Good Management Practice (GMP) status of the food businesses involved in the chain that is required to ensure product safety and quality, etc.

Clearly there is a huge range of information of potential interest. Given the differences between countries in their specific legal requirements, the information specifications cannot itemise all the information that may possibly be required in every situation. Hence there is a need for prioritisation, with the aim of providing a generic basis for traceability. For this purpose, the information itemised in the documents is categorised as:

- fundamental information necessary to identify and physically trace the products, that shall be recorded;
- specific information that is required by law in relation to food safety, quality and labelling, together with important elements of commercially desirable information related to those matters, that should be recorded;
- further specific and commercial information considered to be of sufficient relevance to be included in the documents, that may be recorded.

Some areas of relevant information, such as the Hazard Analysis (and) Critical Control Point (HACCP) analyses and checks carried out by a business, are complex data sets that are individual to each product, process and business and so are difficult to standardise. To account for this, some flexibility is allowed in the specifications for businesses to record

further information in their own non-standardised files but keyed to the units of food produced.

The units to be identified and traced

The physical units traded are those to be identified and traced.

An ID system that applies to the trade in goods of all types is already in operation throughout the world, under the auspices of GS1 (formally EAN:UCC). This system is widely used in the food industry.

The GS1 system defines a trade unit as any item (product or service) upon which there is a need to retrieve pre-defined information and that may be priced or ordered or invoiced at any point in the supply chain, and adds this definition covers raw materials through to the end-user products and also includes services, all of them having pre-defined characteristics.

Trade units are marked with a *Global Trade Identification Number* (GTIN) which incorporates a code allocated by GS1 to uniquely identify the company and another code allocated by the company to denote the item (usually indicating product type). Further data can be attributed to the item using *Application Identifiers* (AI's), commonly used to further describe the product (e.g. date of minimum durability) and to uniquely identify each particular trade unit. The production batch and item serial numbers, or simply the date and time of production, are often used to uniquely identify each trade unit. A further GS1 code, the *Global Location Number* (GLN), can be allocated by the company to identify particular locations.

However, goods are also transported or stored as *logistic units*, such as pallets, which contain a number of separately identified trade units. The trade units within a logistic unit may all be similar in type or they may be different, for example in a pallet of mixed products assembled by wholesaler to send to a retailer. Each logistic unit is marked with a *Serial Shipping Container Code* (SSCC) which uniquely identifies the company and the particular logistic unit.

These various GS1 identifiers are usually expressed as standardised bar code labels on the units.

To achieve chain traceability, the business that creates each trade unit, whatever its form, must uniquely identify it with a GTIN plus a particular unit code (i.e. a GTIN+ in the terminology of this document). Businesses that transform trade units, such as processors who convert the units of raw materials received into the products dispatched, create new units and must give them new IDs. The relevant information for the traceability of the units is recorded by their creator and by the businesses that subsequently trade them physically through the distribution chain.

Similarly, businesses that assemble logistic units must identify each logistic unit with a SSCC and record the IDs of the trade units that make up each logistic unit. Businesses that transport, store or trade intact logistic units merely have to record the limited information related to those logistic units rather than their component trade units. However, distributors often transform logistic units or break them down to the separate trade units prior to dispatch. These businesses must also record the relationships mapping the trade units between the logistic units received and the units dispatched.

Dealing with the security, rights of access and supply of information

Clearly the businesses will not wish to make all this traceability information publicly available, particularly not to their competitors or even in many instances to their own suppliers and outlets. Even the fundamental traceability information has considerable commercial value, as open access to it would reveal a business's suppliers, markets and trading patterns. Therefore, there is a need to consider the rights to information and the control of access to it.

The rights of the various authorities to the fundamental traceability and specifically required information are prescribed in law. Business operators have a right to some of the specifically required information that the law requires to be passed on. They will also have a legal right to relevant fundamental traceability information when engaged in withdrawal or recall procedures, but not otherwise. There are no rights to the commercially desirable information other than those agreed or contracted between trading partners.

However, in practice there is considerable and increasing commercial pressure to provide information. Trade with much of the corporate food industry is now subject to suppliers and distributors agreeing to quality assurance standards and traceability requirements, including the holding or the supply of the associated information. Multiple retailers even share relevant on-line sales information with major suppliers to facilitate just-in-time stock replenishment.

To achieve commercial acceptance, the information specifications are for the generation and holding of information, not for the dissemination of that information. The businesses remain, in effect, the owners of their information. The passing on of information, other than that prescribed by law, remains a matter of commercial policy or commercial agreement between businesses. The establishment of the information specifications will, of course, ensure that the necessary information is available, and the technical specification will facilitate the communication of the information when required.

The business solutions built on the specifications will require secure business to business handshaking protocols to ensure that only those with a legitimate reason can gain access, and then only to the particular information on the particular units to which they have a right.

A consequence of this is that the information desired by the trade to be visible at the various transaction points in the distribution chains will not necessarily be available, unless there are commercial arrangements for that information to be passed on through the chains from the businesses that generated it. It is strongly recommended that such arrangements are made, but that is not part of the scheme.

Annex C (informative)

Standardized analytical methods

Data elements for product quality checks

In the following table information is given about data elements a link to the appropriate analytical method.

Table 7 — Overview over the data elements for product quality checks

Data element (name and code)		Method number	Page
CCS36	Water	1	33
CCS37	Protein	2	33
CCS38	Fat	3	33
CCS39	Minerals (FE)	4	34
CCS40	Texture	5	34
CCS41	Newcastle disease (ND)	6	34
CCS42	Coccidiosis	7	35
CCS43	Broilers Ascites Syndrome	8	35
CCS44	Avian Influenza	9	35
CCS45	Total bacterial count	10	36
CCS46	Salmonella	11	36
CCS47	Campylobacter	12	36

Data elements for contaminant checks

In the following table information is given about data elements a link to the appropriate analytical method.

Table 8 — Overview over the data elements for contaminant checks

Data element (name and code)		Method number	Page
CCS48	Antibacterial substances (Sulphonamid)	13	37
CCS49	Antibacterial substances	14	37
CCS50	Anticoccidials	15	38
CCS51	Anticoccidials (Toltrazuril)	16	38
CCS52	Carbamates	17	39
CCS53	Pyrethroids	18	39
CCS54	Non steroidal anti-Inflammatory drug	19	40
CCS55	Feed additives	20	40
CCS56	Banned veterinary drugs	21	41
CCS57	Chlorinated hydrocarbons	22	41
CCS58	Organochlorine compounds	23	42
CCS59	PCBs'	24	42
CCS60	Stable isotopes	25	43

Analytical methods

In the following table information is given about methods of analysis in a standardised manner. The format of method of analysis and explanation of the headings is given in table 9.

Table 9. Explanation of items in standardized analytical methods

Method number	Number of all methods recorded within the ad-hoc standard
Method of analysis	Method name may include analyte and type of method
Category of method of analysis	Reference to official status of cooperating organisation
Parameter group	Main group of parameters like microbiological, chemical or others
Parameter	Analyte level
Legislative limit	Residual concentration allowed in e.g. EU directive of regulation
Monitoring	Subject to monitoring according to legislation
Literature reference	EU directive or published research reference of the method
Chemical Abstract Service	Registry number, a unique identifier to be used to search a number of data-retrieval systems
Cross reference	Method may also include references in other chapters/products

Various additions to this standardized table of analytical methods are possible, but this depends on the level of thoroughness of data required. The following items may be considered to include in the table:

- Applicability statement:
 - Limitations on use of method or other information
- Method performance:
 - Statistical information generated by collaborative study like, trueness %, precision % or limit of detection %
- Principle:
 - Scientific basis for the method of analysis
- Apparatus and reagents:
 - Specifications for necessary laboratory apparatus and reagent preparations
- Preparation of sample:
 - Description of method of analysis in several sections
- Calculation:
 - Description of final result of method of analysis

The following tables show the methods of analysis for the determination of presence of contaminants in samples of mineral water.

Method number 1

Method of analysis	Chemical test or (oven method)
Category of method of analysis	ISO 1442:1997 (Determination of moisture content in meat and meat products)
Parameter group	Composition
Parameter	Water content
Legislative value	Mean physiological W/RP ratio 3,19 (chicken breast fillet) (W – water, RP = protein)
Monitoring	
Literature reference	EU regulation 1538/91 (annex VIa)
Chemical Abstract Service	7732-18-5
Cross Reference	

Method number 2

Method of analysis	Chemical test or (Kjeldahl method)
Category of method of analysis	ISO 937:1998 (Determination of nitrogen content in meat and meat products)
Parameter group	Composition
Parameter	Protein content
Legislative value	Mean physiological W/RP ratio 3,19 (chicken breast fillet) (W – water, RP = protein)
Monitoring	
Literature reference	EU regulation 1538/91 (annex VIa)
Chemical Abstract Service	
Cross reference	

Method number 3

Method of analysis	Extract with ether
Category of method of analysis	ISO 1443-1973
Parameter group	Composition
Parameter	Fat
Legislative value	Not applicable
Monitoring	
Literature reference	
Chemical Abstract Service	Fat16: 93376-67-1
Cross reference	

Method number 4

Method of analysis	Atomic Absorption Spectrometry (AAS) Ashing triplicate (total iron)
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Category of method of analysis

Parameter group	Composition
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Parameter	Mineral (Fe)
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Legislative value

Monitoring

Literature reference	Clark, E.M. et al. 1997. <i>Heme and total iron in ready-to-eat chicken</i> . Journal Agric. Food Chemistry. 1997, 45, 124-126
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Chemical Abstract Service	15438-31-0 (Fe ²⁺) 7439-89-6 (iron)
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Cross reference

Method number 5

Method of analysis	Texture analyzer (Warner-Bratzler shear apparatus)
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Category of method of analysis

Parameter group	Organoleptical
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Parameter	Texture
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Legislative value

Monitoring

Literature reference	Wattanachant, S. 2004. <i>Composition, Color, and Texture of Thai Indigenous and Broiler Chicken Muscles</i> . Poultry Science 83: 123-128
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Chemical Abstract Service

Cross reference

Method number 6

Method of analysis	Isolation of hemagglutinating virus
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Category of method of analysis

Parameter group	Diseases
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Parameter	Newcastle Disease (ND)
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Legislative value

Monitoring

Literature reference	The Merck Veterinary Manual (www.merckvetmanual.com)
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Chemical Abstract Service

Cross reference

Method number 7

Method of analysis	Microscopically diagnosis of oocysts
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Category of method of analysis

Parameter group	Diseases
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Parameter	Coccidiosis
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Legislative value	Anticoccidials MRL 100µg/kg (EUReg. 205/2004)
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Monitoring

Literature reference	The Merck Veterinary Manual (www.merckvetmanual.com)
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Chemical Abstract Service

Cross reference

Method number 8

Method of analysis	Clinical (pulmonair hypertension syndrome) Oxygen deficiency, fast heart beat
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Category of method of analysis

Parameter group	Diseases
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Parameter	Broilers Ascites Syndrome (BAS or water belly)
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Legislative value

Monitoring

Literature reference	www.omafra.gov.on.ca
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Chemical Abstract Service

Cross reference

Method number 9

Method of analysis	Isolation of virus from tracheal and cloacal swabs
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Category of method of analysis

Parameter group	Diseases
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Parameter	Avian Influenza (AI)
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Legislative value

Monitoring

Literature reference	The Merck Veterinary Manual (www.merckvetmanual.com)
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Chemical Abstract Service

Cross reference

Method number 10

Method of analysis	1. Agar pour plate method 2. Spiral plating method 3. Isogrid system 4. Petrifilm system 5. Redigel system
Category of method of analysis	ISO 10272-1 (2006) for <i>Campylobacter</i> ISO 6579 (2002) for <i>Salmonella</i>
Parameter group	Microbiological
Parameter	Total bacterial count
Legislative value	See <i>Salmonella</i> (method 11)
Monitoring	EU monitoring system
Literature reference	EU directive 2003/99 (concerns monitoring zoonoses and zoonotic agents)
Chemical Abstract Service	
Cross reference	

Method number 11

Method of analysis	Agar/chromogenic agars/immunogenic assay/PCR
Category of method of analysis	EN/ISO 6579
Parameter group	Zoonoses
Parameter	<i>Salmonella</i>
Legislative value	From 1-1-2006 absence in 10 gr. Poultry meat intended to be eaten cooked From 1-1-2010 absence in 25 gr. Poultry meat intended to be eaten cooked
Monitoring	EU monitoring system
Literature reference	EU directive 2003/99 (concerns monitoring zoonoses and zoonotic agents) EU regulation 2160/2003 (concerns control of <i>Salmonella</i> and other specified food-borne zoonotic agents) EU regulation 2073/2005 (concerns microbiological criteria for foodstuffs)
Chemical Abstract Service	
Cross reference	

Method number 12

Method of analysis	Agar/chromogenic agars/immunogenic assay/PCR
Category of method of analysis	
Parameter group	Zoonoses
Parameter	<i>Campylobacter</i>
Legislative value	
Monitoring	EU monitoring system
Literature reference	EU directive 2003/99 (concerns monitoring zoonoses and zoonotic agents)
Chemical Abstract Service	
Cross reference	

Method number 13

Method of analysis	ASTED-HPLC-UV or HPLC-DAD
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Category of method of analysis	
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Parameter group	Antibacterial substances
Parameter	Sulphonamides (sulphonamid)
Legislative value	100 µg/kg
Monitoring	EU national plan

Literature reference	EU Regulation 508/1999
Chemical Abstract Service	63-74-1
Cross Reference	

Method number 14

Method of analysis	LC-MS/HPLC
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Category of method of analysis	
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Parameter group	Antibacterial substances
Parameter	a. Oxytetracyclin b. Tetracyclin c. Chlortetracylin d. Doxycyclin e. Flumequine f. Enrofloxacin
Legislative value	a. 100 µg/kg b. 100 µg/kg c. 100 µg/kg d. 100 µg/kg e. 400 µg/kg f. 100 µg/kg
Monitoring	EU national plan

Literature reference	a./b./c./d. EU regulation 508/1999 e./f. EU regulation 1121/2002
Chemical Abstract Service	a. 79-57-2 b. 60-54-8 c. 57-62-5 d. 564-25-0 e. 42835-25-6 f. 93106-60-6
Cross Reference	

Method number 15

Method of analysis	HPLC-UV/HPLC-DAD
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Category of method of analysis	
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Parameter group	Anticoccidials
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Parameter	a. Nicarbazin b. Metichlorpindol
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Legislative value	a. 100 µg/kg b. 100 µg/kg
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Monitoring	EU national plan
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Literature reference	a. en b. EU directive 96/23 EC
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Chemical Abstract Service	a. 330-95-0 b. 2971-90-6
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Cross Reference	
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Method number 16

Method of analysis	HPLC-UV/HPLC-LCMS
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Category of method of analysis	
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Parameter group	Anticoccidials
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Parameter	Toltrazuril
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Legislative value	100 µg/kg
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Monitoring	EU national plan
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Literature reference	EU regulation 508/1999 and 206/2006
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Chemical Abstract Service	69004-03-1
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Cross Reference	
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Method number 17

Method of analysis HPLC-FD

Category of method of analysis

Parameter group Insecticides - Carbamates

Parameter a. Aldicarb
b. Carbaryl
c. Ethiofencarb
d. Methomyl
e. Propoxur

Legislative value a. 10 µg/kg
b. 500
c. 20
d. 20
e. 50

Monitoring EU national plan

Literature reference EU regulation 149/2008

Chemical Abstract Service a. 116-06-3
b. 63-25-2
c. 29973-13-5
d. 16752-77-5
e. 114-26-1

Cross Reference

Method number 18

Method of analysis GC-MS

Category of method of analysis

Parameter group Insecticides - Pyrethroids

Parameter a. Cyhalothrin
b. Cyfluthrin
c. Cypermethrin
d. Deltamethrin
e. Fenvalerate
f. Flucythrinate
g. Permethrin

a. 20 µg/kg
b. 50 µg/kg
c. 50 µg/kg
d. 50 µg/kg
e. 10 µg/kg
f. 20 µg/kg
g. 500 µg/kg

Monitoring EU national plan

Literature reference EU regulation 149/2008

Chemical Abstract Service a. 68085-85-8
b. 68359-37-5
c. 52315-07-8
d. 52918-63-5
e. 51630-58-1
f. 70124-77-5
g. 52645-53-1

Cross Reference

Method number 19

Method of analysis	HPLC
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Category of method of analysis	
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Parameter group	Non steroidal anti-inflammatory drugs
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Parameter	Na-salicylate
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Legislative value	20 µg/kg
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Monitoring	EU national plan
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Literature reference	EU regulation 2377/1990
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Chemical Abstract Service	54-21-7 (sodium salicylate)
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Cross Reference	
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Method number 20

Method of analysis	LC-UV
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Category of method of analysis	
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Parameter group	Feed Additives
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Parameter	a. Lasalocid b. Narasin c. Salinomycin d. Monensin-sodium
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Legislative value	a. 20 µg/kg b. 50 µg/kg c. 5 µg/kg d. 20 µg/kg
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Monitoring	
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Literature reference	a. EU regulation 712/2005; 1055/2006; 1353/2006 b. EU regulation 545/2006 c. EU regulation 496/2007; 500/2007 d. EU regulation 108/2007; 109/2007
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Chemical Abstract Service	a. 25999-31-9 b. 55134-13-9 c. 53003-10-4 d. 22373-78-0
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Cross Reference	
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Method number 21

Method of analysis LC-MS

Category of method of analysis

Parameter group Banned veterinary drugs

Parameter a. Chloramphenicol
b. Nitrofurans (AMOX, AOZ, AHD, SEM)
c. Nitroimidazoles: Ronidazol, Dimetridazol, Metronidazol)
d. Dapsone

Legislative value a. 0,3 µg/kg (level of action)
b. 1 µg/kg (level of action)
c. ?
d. ?

Monitoring EU national plan third countries

Literature reference EU Directive 2377/1990 annex IV

Chemical Abstract Service a. 25999-31-9
b. 67-45-8
c. 7681-76-7 (Ronidazole); 551-92-8 (Dimetridazol); 443-48-1 (Metronidazol)
d. 80-08-0

Cross Reference

Method number 22

Method of analysis GC-ECD/GC-MS

Category of method of analysis

Parameter group Chlorinated hydrocarbons

Parameter a. DDT
b. Chlordane
c. Dieldrin/aldrin
d. Endrin

Legislative value a. 1000 µg/kg
b.
c. 50/50 µg/kg
d. 200 µg/kg

Monitoring EU national plan

Literature reference EU regulation 149/2008

Chemical Abstract Service a. 50-29-3
b. 57-74-9
c. 60-57-1/309-00-2
d. 72-20-8

Cross reference

Method number 23

Method of analysis	GC-ECD/GC-MS
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Category of method of analysis	
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Parameter group	Organochlorine compounds
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Parameter	a. HCB (ISO) b. alpha-HCH c. beta-HCH d. gamma-HCH (Lindane) e. Heptachlor f. Methoxychlor
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Legislative value	a. 50 µg/kg b. 200 µg/kg c. 200 µg/kg d. 100 µg/kg e. 700 µg/kg f. 200 µg/kg
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Monitoring	EU national plan
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Literature reference	EU Directive 96/23/EC
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	EU Directive 2006/77
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Chemical Abstract Service	a. 118-74-1 b. 319-84-6 c. 319-85-7 d. 58-89-9 e. 1024-57-3 f. 72-43-5
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Cross reference	
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Method number 24

Method of analysis	GC-ECD/GC-MS
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Category of method of analysis	
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Parameter group	PCBs
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Parameter	a. PCB 138 b. PCB 153 c. PCB 28 d. PCB 52 e. PCB 101 f. PCB 118 g. PCB 180
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Legislative value	a. 50 µg/kg b. 50 µg/kg c. 50 µg/kg d. 20 µg/kg e. 40 µg/kg f. 40 µg/kg g. 60 µg/kg
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Monitoring	EU national plan
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Literature reference	EU regulation 199/2006 EU directive 2004/44/EC
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Chemical Abstract Service	Not available
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Cross reference	
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Method number 25

Method of analysis	Isotope ratio analysis
Category of method of analysis	

Parameter group	Stable isotopes
Parameter	a. $^2\text{H}/^1\text{H}$, b. $^{13}\text{C}/^{12}\text{C}$ c. $^{15}\text{N}/^{14}\text{N}$ d. $^{34}\text{S}/^{32}\text{S}$ e. $^{87}\text{Sr}/^{86}\text{Sr}$
Legislative value	
Monitoring	Not applicable

Literature reference	Camin, F. et al. 2007. Multi element (H, C, N, S) stable isotope characteristics of lamb meat from different European regions. Analytical and Bio analytical Chemistry, vol 389, no. 1, 309-320.
Chemical Abstract Service	Not available
Cross reference	



FOOD QUALITY AND SAFETY