INTERNATIONAL STANDARD

ISO 12877

First edition
2011-08-15

Traceability of finfish products — Specification on the information to be recorded in farmed finfish distribution chains

Traçabilité des produits de la pêche — Spécifications relatives aux informations à enregistrer dans les chaînes de distribution des poissons d'élevage

Reference number
ISO 12877:2011(E)

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Published in Switzerland

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 12877 was prepared by Technical Committee ISO/TC 234, *Fisheries and aquaculture*.

Introduction

There are increasing demands for detailed information on the nature and origin of food products. Traceability is becoming a legal and commercial necessity.

The 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, the processing history and the distribution and location of the product after delivery. 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.

The scheme specified in this International Standard does not demand perfect traceability, i.e. that a particular retail product should be traceable back to a single farm and batch of origin, or vice versa from origin to destination. Pragmatically, it is recognized that mixing of units is likely to occur at a number of stages in the distribution chains, e.g. in grading at auction markets prior to sale and in the processing of raw materials into products. Where such mixing occurs, the food 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 finite number of farms and batches of origin, and vice versa.

Given the enormous variety of fish products and of their distribution chains that operate within and between different countries, and varying legal requirements, the information specifications cannot itemize all the information that may possibly be required in every situation. This International Standard provides a generic basis for traceability. Flexibility is allowed for businesses to record further information, in their own non-standardized files, but keyed to the same unit IDs.

The information remains in the ownership of the food 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 structure, names and content of the information is standardized so that it can be readily communicated from business to business through the distribution chains, ensuring common understanding of terms and meanings.

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 International Standard.

This International Standard is designed with electronic representation and communication of data in mind, but this is not a requirement when using this International Standard. The specifications can be met by paper systems, although the obvious benefits of business efficiency, including rapid communication, will be lost.

Traceability of finfish products — Specification on the information to be recorded in farmed finfish distribution chains

1 Scope

This International Standard specifies the information to be recorded in farmed finfish supply chains in order to establish the traceability of products originating from farmed finfish. It specifies how traded fishery products are to be identified, and the information to be generated and held on those products by each of the food businesses that physically trade them through the distribution chains. It is specific to the distribution for human consumption of farmed finfish and their products, from finfish meal, breeding and finfish farming through to retailers or caterers.

NOTE Together with ISO 12875 for captured finfish, this International Standard provides a basis for implementing chain traceability of finfish.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

3 Terms and definitions

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

3.1
traceability
ability to trace the history, application or location of that which is under consideration

NOTE 1 When considering a product, traceability can relate to

— the origin of materials and parts,

— the processing history, and

— the distribution and location of the product after delivery.

NOTE 2 Adapted from ISO 9000:2005, definition 3.5.4.

3.2
Unique Logistic Unit Identifier
ULUI
any composition established for transport and/or storage that needs to be identified and managed through the supply chain

3.3
Unique Trade Unit Identifier
UTUI
smallest unit which is guaranteed to retain its integrity as it moves from one link of the chain to the next

NOTE UTUI is the smallest unit that is kept whole and undivided with no change in content or label/identification.

4 Abbreviations

In this document, the following abbreviations apply.

EFSIS European Food Safety Inspection Service

ACC Aquaculture Certification Council

EPC Electronic Product Code, a unique number provided by GS1 used to identify instances of trade items (individual trade units) particularly suited for representation in an RFID chip

FAO Food and Agriculture Organization of the United Nations

FBO Food Business Operator, generic term for someone in the supply chain who processes, sends or receives relevant trade units or logistic units

GLN Global Location Number, a 13 digit globally unique number provided by GS1 used to identify parties and physical locations

GMO Genetically Modified Organism

GMP Good Manufacturing Practice

GS1 Global non-profit organization dedicated to the design and implementation of global standards and solutions to improve the efficiency and visibility of supply and demand chains globally and across sectors. Previously EAN/UCC

GTIN Global Trade Item Number, a 8-14 digit globally unique number provided by GS1 used to identify types of trade items (product types)

HACCP Hazard Analysis Critical Control Points

HS Harmonized Commodity Description and Coding System

ID Identifier

LU Logistic Unit

RFID Radio-Frequency Identification, the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product for the purpose of identification and tracking using radio waves

RFMO Regional Fisheries Management Organization

SGTIN Serialized Global Trade Item Number, a unique number provided by GS1 used to identify instances of trade items (individual trade units) by extending the GTIN

SSCC Serial Shipping Container Code, an 18 digit globally unique number provided by GS1 used to identify logistics units

TU Trade Unit

5 Principle

The fundamental principle of chain traceability is that Trade Units (TU) shall be identified by unique codes (UI). This code may be globally unique in itself (for instance the GS1 SGTIN or EPC numbers) or it could be unique in that particular scope only, which means that there should be no other TUs in that part of the chain that may have the same number. If the scope (the company, the chain, the sector, the country, the product type, or similar) is assigned a globally unique number, the combination of the globally unique scope number and the locally unique TU number shall constitute a globally unique identifier for the TU.

NOTE 1 The UTUI term is introduced to indicate a TU identifier which is, or can be made, globally unique.

TUs may be grouped together to make Logistic Units (LUs) or LUs may be grouped together to make higher level LUs. A fundamental principle of chain traceability is that logistic units shall be identified by a unique code. This code may be globally unique in itself (for instance the GS1 SSCC code) or it could be unique in that particular scope only, which means that there should be no other LUs in that part of the chain that may have the same number. If the scope (the company, the chain, the sector, the country, the product type, or similar) is assigned a globally unique number, the combination of the globally unique scope number and the locally unique LU number shall constitute a globally unique identifier for the LU.

NOTE 2 The ULUI term is introduced to indicate a LU identifier which is, or can be made, globally unique.

The key to the operation of this traceability scheme is the labelling of each unit of goods traded, whether of raw materials or finished products, with a unique ID. This shall be done by the food business that creates each unit. Businesses that transform units, such as processors who convert the units of raw materials received into the products dispatched, shall create new units and shall give them new IDs.

As indicated above, the simplest way of implementing UTUIs and ULUIs is to use the GS1 SGTIN/EPC and SSCC codes. This practice is recommended, but is not mandatory. The central principle behind this International Standard is that businesses which create TUs or LUs should assign unique numbers to them.

Each of the food businesses that create or physically trade in those units, throughout the distribution chains from catcher through to retailer or caterer, shall generate and hold the information necessary for traceability. The information is to be held on paper or electronically, keyed to the unit IDs.

The types of businesses identified in this International Standard for farmed finfish distribution chains are as follows:

— fish feed production, see 6.3;

— breeders, see 6.4;

— hatcheries, see 6.5;

— fish farms, see 6.6;

— live fish transporters, see 6.7;

— processors, see 6.8;

— transporters and storers, see 6.9;

— traders and wholesalers, see 6.10;

— retailers and caterers, see 6.11.

Any given farmed finfish distribution chain may be made up of some or all of these components but not necessarily in the sequence listed.

6 Requirements

6.1 Identification of the units traded

Businesses that bring in supplies of fishery products from outside of the domain of the specifications and trade them onwards shall identify each unit traded and record associated information elements as indicated in Table 3 to Table 12.

6.2 Recording of information

To distinguish between the different categories of information, all information elements are classified as either “shall”, “should” or “may”; for definitions, see Table 1.

Table 1 — Classification of informative elements

	Definition	Explanation
“shall”	This category contains recordings related to identifiers and transformations that are necessary in order to trace the history, application or location of an entity. This means the unique identity of trade and logistic units, as well as the dependencies between the identifiers of inputs and outputs in a process.	“Shall” elements are data elements that it is deemed necessary to record to ensure that traceability is possible. Data elements relating to product properties are not in this category, even if these properties are essential for other purposes like product documentation or food safety.
“should”	This category contains parameters that describe and provide supporting information on the units being traced. Common parameters required by law, according commercial requirements or good manufacturing practises are recorded, but only where an established international format or data list for the value exists.	This includes parameters like “species”, “ID of food business”, “production date”, etc. If certification according to this International Standard is to happen in the future, the “should” parameters are to be considered.
“may”	This category contains parameters that describe and provide supporting information on the units being traced. It contains parameters that are not part of the “should” category, but that may still be useful or relevant to record. It also contains parameters that may be deemed important, but where no established international format or data list exists.	The “may” category is informative only, and it is included to enable use and uptake of this International Standard. If certification according to this International Standard is to happen in the future, the recording of “may” parameters are not to be considered when evaluating adherence. The list of “may” elements is not definitive or exclusive, it is by design extendible, and the threshold for including new elements in this category is low.

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

The detailed information requirements are tabulated in Table 2.

Table 2 — Information requirements to be recorded by the different businesses

Food Business Operator (FBO) type	Table	Data prefix[a]	Receive	Transform	Create/ Produce	Dispatch
Fish feed producers	3	FFE	TU/LU	Yes	TU/LU	TU/LU
Breeders	4	FBR			TU/LU	TU/LU
Hatcheries	5	FHA	TU/LU	Yes	TU/LU	TU/LU
Fish farms	6	FFF	TU/LU	Yes	TU/LU	TU/LU
Live fish transporters	7	FTR	TU/LU	No	LU	TU/LU
Processors	8	FPR	TU/LU	Yes	TU/LU	TU/LU
Transporters and storers	9	FTS	TU/LU	No	LU	TU/LU
Traders and wholesalers	10	FTW	TU/LU	No	TU/LU	TU/LU
Retailers and caterers	11	FRC	TU/LU			
Bringing in materials from outside the domain	12	FOT	TU/LU			

[a] For the purposes of unique identification to establish an extendable framework for data element identification, each table has been identified with a three letter alphanumeric code. This code plus three digits is used to give a unique number to each data element.

The information specifications separately tabulate the information to be recorded by each of these types of business. Some businesses may carry out the functions of more than one of the types listed, for example distribution businesses may act as wholesalers and as transporters, in which case those businesses shall record the relevant information requirements for each of the functions carried out.

NOTE 1 This International Standard is limited in scope to the distribution for human consumption of farmed finfish and their products. The captured and farmed finfish information specifications are substantially the same from processing onward.

Pragmatically, it is recognized that some supplies of fish products and supplies of ingredients, etc., will come from outside of the domain and may lack the required IDs and information records. To accommodate this, a business that brings in fish and materials from outside of the domain is required to generate and hold the key information necessary for the traceability of the units brought in, and if they are to be traded on, to label those units with the required IDs.

NOTE 2 These specifications are designed with electronic representation and communication of data in mind, but this is not a requirement when using this International Standard. The specifications can be met by paper systems, although the obvious benefits of business efficiency, including rapid communication, will be lost.

Note that the specification is for data to be generated, recorded and stored at the respective link. For all links except “Breeders”, relevant data shall be generated in a previous link in the supply chain and passed along with the trade unit/logistic unit.

NOTE 3 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.

Codes (country prefix) for the names of countries, dependent territories and special areas of geographical interest shall be given in accordance with ISO 3166-1.

Date and time should be given in the formats specified in ISO 8601.

6.3 Fish feed production

For the purposes of this International Standard, *fish feed producers* are considered to be businesses that produce fish feed based on an indefinite range of ingredients. They may be considered as an equivalent to the *processors* but will be presented as a separate link in this International Standard. Fish feed producers create new trade units that can range from one feed bag to bulk units of several hundreds of tons passed into the hands of the next food business.

Table 3 — Detailed information for fish feed production

Data element		Description	Examples	Categorization		
				Shall	Should	May
FISH FEED						
FFE101	Food business ID	Country prefix plus unique national identification number for the organization, as well as the name and address of the food business that operates the feed company	NO - 123467890 Uni Fishfeed 1234 Narvik Norway		x	
FFE102	Feed producer establishment ID	Country prefix plus unique national identification number for the organization, as well as the name and address or GLN of the feed plant establishment	NO - 123467890 Uni Fishfeed dep. 02 1234 Narvik Norway NO02F1234B		x	
FFE103	Feed producer GMP certification	Names of certification schemes	SGS			x
FFE150-	(unassigned)	Further information elements that describe the organization, linked to feed producer establishment ID				x
FOR EACH UNIT RECEIVED						
Identities						
FFE201	Unit ID	ULUI (if received as a logistic unit) or UTUI (if received as a separate trade unit)	(00) 100653005555555558 978817525.0766.000010272	x		
FFE202	Trade unit IDs	If received as a logistic unit, the IDs of the trade units within the logistic unit	978817525.0766.000010123 978817525.0766.000010131 978817525.0766.000010272	x		
Source						
FFE203	Previous Food Business ID	Country prefix plus unique national identification number for the organization, as well as the name and address or GLN of food business that operates fish meal/oil etc., producer establishment	NO - 123467890 Fishmeal A/S, Florø NO SF 123 Norway		x	
FFE204	Date and time of reception	ISO 8601 format	2010-06-20T14:15		x	

Table 3 (*continued*)

Data element		Description	Examples	Categorization		
				Shall	Should	May
Control checks (either on logistic or separate trade units)						
FFE205	Quality control checks	Type of checks and measured results (organoleptic, physical, chemical and microbiological, etc.) or indication if records are available in electronic form, on paper or are not available	Yes, electronic form			x
Production history						
FFE206	Temperature record	Temperature/time log of the product holding area for the period between reception and processing	Series of temperature (°C)/date and time points in ISO 8601 format		x	
Transformation information						
FFE207	Related created trade unit IDs	List of IDs of created trade units that may incorporate part of this received trade unit	978817525.0766.000010123 978817525.0766.000010131 978817525.0766.000010272	x		
FFE208	Fractions	Fraction (%, kilos) of the received trade unit that goes into each created unit	UTUI-1 33 %, 7 250 kg UTUI-2 33 %, 7 250 kg UTUI-3 33 %, 7 250 kg		x	
Additional data						
FFE250-	(unassigned)	Further information elements that describe the received trade/logistic unit, linked to UTUI/ULUI				x
FOR EACH NEW TRADE UNIT CREATED						
Identity						
FFE301	Unit ID	UTUI	978817525.0766.000010123	x		
Description						
FFE302	Net weight	Net weight of created trade unit (kg)	10 kg		x	
FFE303	Type of unit	Bags, bulk, etc.	Bulk			x
FFE304	Name/type of product	Smolt feed (commercial name)	Dynamic blue			x
FFE305	Production date	Time of packing/labelling at end of line, ISO 8601 format	2010-06-15		x	
FFE306	Product form	Meal, pellets, pellets size, etc.	Pellets, 2,5 – 7,0 mm		x	
FFE307	Composition	List of ingredient names and % by weight	Fat 37 % Protein 55 %		x	
FFE308	GMO	Any use of GMO or products from GMO in product or raw material; Yes or No	No		x	