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REVIEW OF UNECE STANDARDS FOR EGGS AND EGG PRODUCTS

Edible hen eggs-in-shell

Document submitted by the secretariat

This draft standard was prepared by a UNECE consultant in accordance with the decision of the Working Group on Agricultural Quality Standards to begin revision of the UNECE standards for eggs and egg products (document ECE/TRADE/C/WP.7/2007/27, para. 35).

UNECE STANDARD EGG-1**concerning the marketing and commercial quality control of****EDIBLE HEN EGGS-IN-SHELL****CONTENTS**

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I. INTRODUCTION

A. UNECE standards for edible hen eggs

1. The purpose of UNECE standards for edible hen eggs is to facilitate trade by recommending an international language for use between buyer and seller. The language describes eggs traded internationally and defines a coding system for communication and electronic trade.
2. As the standards are updated regularly, egg producers who believe that additional items are needed or that existing items are inaccurate or no longer being traded are encouraged to contact the UNECE secretariat. Changes requiring immediate attention are published on the UNECE website at: <http://www.unece.org/trade/agr/standards.htm>.
3. In the UNECE coding system (chapter X), the following code is used for eggs:

Type of egg	UNECE code (data field 1)
Edible hen eggs	80

B. Scope

4. This standard recommends an international language for edible hen eggs and appropriate requirements. It provides a variety of options to purchasers for grading, packing, labelling and other aspects concerning eggs traded internationally. Countries are advised to establish a quality control system for eggs.
5. To ensure that items comply with the requirements of this standard, purchasers may choose to use the services of an independent, unbiased third party.
6. To supply eggs across international borders, legislative requirements relating to food hygiene and veterinary control must be complied with. The standard does not attempt to prescribe those aspects, which are covered elsewhere: such provisions are left for national or international legislation or the requirements of the importing country.
7. The standard contains references to other international agreements, standards and codes of practice which aim to provide guidance to Governments on upholding quality and food hygiene rules. The Codex Alimentarius Commission standards, guidelines and codes of practice should be consulted as the international reference on health and hygiene requirements.¹

¹ In European Union countries, regulations (EC) No. 852/2004 and (EC) No. 853/2004 on the hygiene of foodstuffs are also applicable to eggs.

C. Definitions used in the standard

8. This standard applies to eggs-in-shell fit for direct human consumption and for use in the food or other related industries.
9. All eggs must originate from laying hens or laying hens of breeding stock kept on farms regularly operated under the applicable regulations pertaining to food safety and inspection.
10. **Eggs** are eggs-in-shell - other than broken, incubated, or cooked eggs - that are produced by hens of the species *Gallus gallus* and are fit for direct human consumption and for use in the food or other related industries.
11. **Fresh eggs** are eggs which have not been washed or dry-cleaned and which are collected at least once weekly and which should be packed and graded not later than the first working day after arrival at the packing station. Fresh eggs have limited use-by dates.
12. **Chilled eggs** are eggs which have been refrigerated in premises artificially maintained at a temperature between 0° C and +5° C.
13. **Preserved eggs** are eggs which have been preserved, whether refrigerated or not, in a gas mixture, the composition of which differs from that of atmospheric air, or eggs which have undergone any other preservative treatment.
14. **Slightly soiled eggs** are eggs with superficial soiling not exceeding in all 1/8 of the total surface of the eggshell, or accumulations not exceeding 1/16 of the total surface of the eggshell. In both cases the shell is to be free of blood rings and the contents must not be soiled.
15. **Cracked eggs** are eggs with shells that have damage visible to the naked eye but undamaged egg membranes.
16. **Broken eggs** are eggs with cracked shells and damaged membranes, resulting in the exposure of their contents.
17. **Incubated eggs** are eggs which have been in an incubator from the time they were laid.
18. **Foreign matter** consists of organic or inorganic substances of internal or external origin within the contents.
19. **Commodity lot** is a batch of eggs from the same factory or packing centre, laid on the same day or with the same use-by or packing date, packed in uniform containers, produced using the same type of farming and, if graded, of one quality class and weight grade, transported together and presented once for inspection purposes.
20. **Week number** is the index number of the week in which the eggs were produced. The number shall indicate the complete week beginning on Monday but may be used from midnight on Wednesday of the previous week. Every year the numbering shall be continuous from 1 to 52 or 53. The week which includes 1 January shall bear the number 1.

II. QUALITY REQUIREMENTS

A. Minimum requirements

21. Eggs should not:
- (i) Be damaged;
 - (ii) Have a soiled shell (excepting slight soiling on the shells of Class B eggs);
 - (iii) Contain foreign matter;
 - (iv) Have an odour and/or aftertaste (except that Class B chilled eggs may have a slight odour of cold storage and Class B preserved eggs may have a slight odour resulting from the method of preservation);
 - (v) Have excessive surface moisture.
22. The following sections set out the requirements that can be specified by the purchaser of edible eggs together with the codes to be used in the UNECE coding system.
23. Additional requirements not accounted for in the code (e.g. if code 9 “other” is used) or that provide additional clarification to the product or packing description shall be agreed between buyer and seller and documented appropriately.

B. Classification

24. For practical purposes, eggs are divided into two classes:

Class A or “fresh” eggs for direct human consumption.

Class B for use in the food or other related industries. Class B eggs may only be sent for processing into food or non-food products.

25. The class-based product code is as follows:

Code (data field 2)	Class	Description
0	Not specified	
1	Class A	Product for direct human consumption
2	Class B	Product for use in the food or other industries
3-9	Codes not used	

C. Class A

26. Class A is divided into two categories of differing quality:

Class A, Extra. Products in this category should be of superior quality and have the following characteristics:

- (i) Shell and cuticle - normal shape, clean and undamaged;
- (ii) Air space - not more than 4 mm in height at the time of packing, immobile;
- (iii) Yolk - faintly visible, spherical, slightly mobile upon turning the egg, and returning to a central position;
- (iv) White - clear, clean and translucent;
- (v) Germ - imperceptible development;
- (vi) Foreign matter - not permissible;
- (vii) Foreign odour - not permissible;
- (viii) Use-by date - no more than nine days after the egg is laid.

Class A, category I. Products in this category should be of good quality and have the following characteristics:

- (i) Shell and cuticle - normal shape, clean and undamaged;
- (ii) Air space - not more than 6 mm in height, immobile or allowing only slight movement;
- (iii) Yolk - faintly visible, spherical, slightly mobile upon turning the egg, and returning to a central position;
- (iv) White - clear, clean and translucent;
- (v) Germ - imperceptible development;
- (vi) Foreign matter - not permissible;
- (vii) Foreign odour - not permissible;
- (viii) Use-by date - no more than 28 days after the egg is laid.

27. Class A eggs should preferably be kept at a constant temperature and not refrigerated in premises artificially maintained at a temperature below 5° C before their sale to the final consumer. Refrigeration does not include eggs stored at temperatures below 5° C for not more than 24 hours during transport or in distribution premises for not more than 72 hours.

28. Class A eggs are not preserved; they are not washed in order to avoid damaging the shell and cuticle.

29. Class A eggs which have lost the above-mentioned characteristics can be transferred to Class B.

D. Class B

30. Class B eggs are fit for human consumption but do not meet the requirements for Class A. They are used in the food or other related industries. Class B eggs have the following characteristics:

- (i) Shell - normal shape, undamaged, slight soiling and insignificant deformations. The shell must be free of blood rings and the contents must not be soiled. Where appropriate national regulations exist and there is agreement between buyer and seller, soiled eggs may be washed by special methods so long as this does not affect their quality;
- (ii) Air space - not more than 9 mm in height; a mobile cavity up to the length of the egg is permissible;
- (iii) Yolk - visible, slightly flattened and mobile;
- (iv) White - translucent;
- (v) Germ - imperceptible development;
- (vi) Foreign matter - not permissible;
- (vii) Foreign odour - not permissible.

31. The quality grade is indicated as follows:

Quality code (data field 3)	Class/Category	Description
0		Not specified
1	Class A, Extra	High-quality product for direct human consumption
2	Class A, Category I	Good-quality product for direct human consumption
3	Class B	Product for use in the food or other related industries
4-8		Codes not used
9	Other	Other quality level or system agreed between buyer and seller

32. The quality level should conform to relevant legislation of the importing country. If such legislation does not exist, the definition of the quality level should be agreed between buyer and seller.

III. WEIGHT

33. Class A eggs shall be graded according to weight. Eggs are divided into the weight categories XL, L, M or S, as indicated below:

Weight code (data field 4)	Category	Description		
		Weight of egg, g	Minimum weight per 100 eggs, kg	Minimum weight per 360 eggs, kg
0	Not specified			
1	XL - Extra large	73 and over	7.4	26.64
2	L - Large	63-73	6.4	23.04
3	M - Medium	53-63	5.4	19.44
4	S - Small	Less than 53	No minimum	No minimum
5-9	Not used			

34. Class B eggs do not have to be graded according to weight.

IV. QUALITY AND WEIGHT TOLERANCES

35. For Class A eggs, not more than 5% of eggs at the packing stage and not more than 7% at later stages which do not meet the requirements for this class are permissible. No allowance shall be made for the height of the air space in "Extra" eggs.

36. For each weight grade indicated when packing a commodity lot, not more than 10% of eggs from the adjoining grade are permissible, provided that not more than 5% of the eggs from the lower adjoining grade are included.

V. PROCESSING

37. Class B eggs may be artificially refrigerated or preserved by various methods and are categorized as follows:

Processing code (data field 5)	Category	Description
0	Not specified	
1	Not processed	Not processed
2	Artificial refrigeration	Product artificially refrigerated at a temperature between 0° C and +5° C
3	Specific preservation method	Agreed between buyer and seller
4-9	Codes not used	

VI. PRODUCTION HISTORY

A. Traceability

38. The requirements concerning production history specified by the purchaser require that traceability systems be in place. Traceability requires a verifiable method for identifying products or commodity lots at all relevant stages of production. Traceability records must be able to substantiate the claims being made, and the procedures used to certify conformity must be in accordance with the provisions concerning conformity-assessment requirements in chapter VIII.

B. Production system

39. The purchaser may specify a production system:

Production system code (data field 6)	Category ²	Description
0	Not specified	
1	Free-range	Hens kept in free-range conditions
2	Floor-house	Hens kept in heated and ventilated houses
3	Cage (type 1)	Hens kept in cages with a high bedding density per unit
4	Cage (type 2)	Hens kept in cages with a low bedding density per unit (modern cage housing)
5	Organic ³	Hens kept in accordance with the organic farming regulations in force in the importing country
4-8	Codes not used	
9	Other	Can be used to describe any other production system agreed between buyer and seller

C. Feeding system

40. The purchaser may specify a feeding system, which must be in conformity with the regulations in force in the importing country. If no such regulations exist, the feeding system shall be agreed between buyer and seller.

² The production system indicated on the labelling should conform to relevant legislation of the importing country.

³ Organic production systems include specific feeding systems. The option “organic” is therefore not repeated under feeding system.

Feeding system code (data field 7)	Description
00	Not specified
01	Conventional
02-09	Codes not used
10	FM free
11	FM & IAO free
12	FM, IAO & GP free
13	FM, IAO, GP & GMO free
14	FM & GP free
15	FM, GP & GMO free
16	FM & GMO free
17-29	Codes not used
30	IAO free
31	IAO & GP free
32	IAO & GMO free
33	IAO, GP & GMO free
34-49	Codes not used
50	GP free
51	GP & GMO free
52-59	Codes not used
60	GMO free
61-98	Codes not used
99	Can be used to describe any other feeding system agreed between buyer and seller

FM free Free from fish meal.

IAO free Free from ingredients of animal origin.

GP free Free from growth promoters. Growth promoters include antibiotics in doses exceeding those recommended for veterinary purposes.

GMO free Free of products derived from genetically modified organisms.

VII. PRODUCT MARKING

A. Marking of eggs

41. Class A and Class B eggs must be marked with a producer code,⁴ which includes: the production system code (see chapter VI, section B), the ISO 3166 two-letter code of the country of origin⁵ and the national code of the production enterprise.
42. Markings for Class A eggs must also include information on:
- (i) Quality class and category;
 - (ii) Weight grade.
43. Markings for eggs should also specify:
- (i) Packing station number;
 - (ii) Name or logo of the company which owns the packing station;
 - (iii) A brand name or trademark;
 - (iv) Date laid;
 - (v) Packing date or week.
44. The distinguishing mark for Class A eggs shall consist of a circle not less than 12 mm in diameter containing the Roman letter A at least 5 mm high. The weight grade of Class A eggs shall be denoted by a number between 2 and 3 mm high in a circle of the size specified above.
45. The following is an example of the marking for a Class A egg with a weight grade of 1 (XL):



46. The marking of Class B eggs shall make them easily distinguishable from Class A eggs. Class B eggs shall be marked with a circle not less than 12 mm in diameter containing the Roman letter B at least 5 mm high. The weight grade of Class B eggs shall also be indicated by a number between 2 and 3 mm high.

⁴ In States members of the European Union, the content of the producer code is regulated by Commission directive 2002/4/EC.

⁵ In this standard, the term “country of origin” is reserved to indicate that production, grading and packing have taken place in the same country.

47. The following is an example of the marking for a Class B egg with a weight grade of 2 (L):



48. Class B chilled eggs shall be marked with an equilateral triangle with each side at least 10 mm long. The weight grade may also be indicated by a number between 2 and 3 mm high. When eggs are refrigerated they shall be marked in the manner described above prior to refrigeration.

49. The following is an example of the marking for a Class B chilled egg with a weight grade of 3 (M):



50. Class B preserved eggs shall be marked with a rhombus with diagonals of 16 and 7 mm. The weight grade may also be indicated by a number between 2 and 3 mm high. Preserved eggs shall be marked prior to preservation. For eggs preserved in lime, however, such marks may be affixed after the preserving process has been completed.

51. The following is an example of the marking for a Class B preserved egg with a weight grade of 4 (S):



52. The marking on eggs shall be clear, indelible, red colour and resistant to heat. The products used shall comply with the provisions in force in respect of colouring matters which may be used in foodstuffs intended for human consumption.

53. Marking which covers more than 20% of the egg's surface is not permissible.

B. Marking of packaging

54. Packaging must not contain eggs from more than one lot.

55. Without prejudice to the national requirements of importing countries, the following list contains information that must be indicated on product labels on crates (large packages) and consumer packaging for eggs:

- (i) Country of origin and producer code;
- (ii) Packing centre code (name and address of the packer and/or distributor);

- (iii) Veterinary/sanitary mark;
- (iv) Quality class/category;
- (v) Weight grade, weight in kilograms;
- (vi) Production system;
- (vii) Feeding system;
- (viii) Number of eggs packed;
- (ix) Identification number of the commodity lot being sent;
- (x) Date/period laid;
- (xi) Packing date or week number;
- (xii) "Use-by" date;
- (xiii) Storage conditions: e.g. "Store at or below XX° C".

56. The date on which the eggs were laid must be included on consumer packaging for Class A "Extra" eggs. The packaging must be sealed with a band bearing the word "extra" ("superior" or "fresh eggs of superior quality"). The band must be removed nine days after the date on which the eggs were laid and must not obscure any of the marking or damage it when the packaging is opened.

57. In the case of Class B eggs, it is recommended that a band or label be affixed to the packaging which makes it immediately obvious that the eggs are not fit for direct human consumption.

58. The meaning of the producer code must be clear from the packaging.

VIII. PROVISIONS CONCERNING CONFORMITY-ASSESSMENT REQUIREMENTS

59. The purchaser may request specific third-party conformity assessments. Such conformity assessments, whether individual or in combination, may take the forms set out below. In such cases, the name of the third party certifying authority and quality grade standard to be used must be designated as indicated in chapter II, section A.

60. **Quality classification conformity assessment:** a third party examines and certifies that the product meets the quality level requested.

61. **Trade standard conformity assessment (trade descriptions):** a third party examines and certifies that the product meets the purchaser-specified options as specified in this trade standard, except for quality level. Optionally, the purchaser may indicate specific options to be certified, once the third party certifying authority has been designated.

62. **Eggs or lot identification (ID) conformity assessment:** a third party examines and certifies that the product meets the agreed requirements.

Conformity-assessment code (data field 18)	Category
0	Not specified
1	Quality classification conformity assessment
2	Trade descriptions conformity assessment
3	Egg/lot ID conformity assessment
4	Quality and trade descriptions conformity assessment
5	Quality and egg/lot ID conformity assessment
6	Trade descriptions and egg/lot ID conformity assessment
7	Quality, trade descriptions and egg/lot ID conformity assessment
8	Code not used
9	Other

IX. PROVISIONS CONCERNING PACKING, STORING AND TRANSPORT

63. Packaging, including primary packaging, must be made from impact-resistant material, must be dry, clean and undamaged, and should protect the eggs from foreign odours and from risk of a deterioration in quality.

64. Large packages used for the transport and distribution of eggs, including primary packaging, may not be used more than once.

65. Unprocessed eggs shall be stored in clean, dry premises free from foreign odours, at a temperature of between 5° C and 20° C and relative humidity of between 85 and 88%. The use-by date for eggs is 28 days from the day they were laid.

66. Chilled eggs must be stored in premises with an artificially maintained temperature of between 0° C and +5° C and a relative humidity of between 85 and 88%. The use-by date for eggs is 90 days from the day they were laid.

67. Use-by dates and storage conditions for preserved eggs shall be agreed between the buyer and the seller.

68. Eggs in transport should be protected from soiling and extraneous odours and should be well protected from physical shocks, weather conditions and light.

69. Eggs should be protected from changes in temperature during transport and storage.

70. Storage conditions prior to dispatch and the equipment used for transportation shall be appropriate to the physical and, in particular, the thermal condition of the eggs and shall be in accordance with the requirements of the importing country. Attention is drawn to the provisions of the UNECE Agreement on the International Carriage of Perishable Foodstuffs and on the Special Equipment to be Used for Such Carriage (ECE/TRANS/165).

X. UNECE CODE FOR PURCHASER REQUIREMENTS FOR EGGS

A. Definition of the Code

71. The UNECE Code for Purchaser Requirements for Edible Eggs has 8 fields and 20 digits (9 digits unused) and is a combination of the codes defined in chapters II-VIII.

No.	Name	Chapter	Range of values
1	Type of egg	II	00-99
2	Quality class	II, section B	0-9
3	Quality category	II, section B	0-9
4	Weight grade	III	0-9
5	Processing	V	0-9
6	Production system	VI, section B	0-9
7	Feeding system	VI, section C	00-99
8	Conformity assessment	VIII	0-9

B. Example

72. In the example below, a description is given of edible size L Class A “Extra” eggs which are unprocessed, taken from hens kept in cages (type 2) and not fed on fish meal or ingredients of animal origin. The eggs should be of only superior quality, and quality and trade description conformity should be certified by the companies nominated by the purchaser.

73. This item has the following UNECE egg code: 8011214110000000004.

Data field No.	Name	Requirement	Value
1	Type of egg	Edible eggs	80
2	Quality class	Class A	1
3	Quality category	Extra	1
4	Weight grade	L - Large	2
5	Processing	Not processed	1
6	Production system	Cage (type 2)	4
7	Feeding system	FM- and IAO-free	11
8	Field unused	-	0
9	Field unused	-	0
10	Field unused	-	0
11	Field unused	-	0
12	Field unused	-	0
13	Field unused	-	0
14	Field unused	-	0
15	Field unused	-	0
16	Field unused	-	0
17	Field unused	-	0
18	Conformity assessment	Quality and trade description conformity assessment	4
