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Milk and milk products — Sensory analysis —

Part 2: Recommended methods for sensory evaluation

Lait et produits laitiers — Analyse sensorielle —

Partie 2: Méthodes recommandées pour l'évaluation sensorielle

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 22935-2 | IDF 99-2 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*, and the International Dairy Federation (IDF). It is being published jointly by ISO and IDF.

ISO 22935 | IDF 99 consists of the following parts, under the general title *Milk and milk products — Sensory analysis*:

— *Part 1: General guidance for the recruitment, selection, training and monitoring of assessors*

— *Part 2: Recommended methods for sensory evaluation*

— *Part 3: Guidance on a method for evaluation of compliance with product specifications for sensory properties by scoring*

Foreword

IDF (the International Dairy Federation) is a non-profit organization representing the dairy sector worldwide. IDF membership comprises National Committees in every member country as well as regional dairy associations having signed a formal agreement on cooperation with IDF. All members of IDF have the right to be represented on the IDF Standing Committees carrying out the technical work. IDF collaborates with ISO in the development of standard methods of analysis and sampling for milk and milk products.

Draft International Standards adopted by the Action Teams and Standing Committees are circulated to the National Committees for voting. Publication as an International Standard requires approval by at least 50 % of the IDF National Committees casting a vote.

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All work was carried out by the Joint ISO-IDF Action Team on *Statistics and sampling* of the Standing Committee on *Quality assurance, statistics of analytical data & sampling* under the aegis of its project leader: Ms. V. Jones (NZ).

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This edition of ISO 22935-2 | IDF 99-2, together with ISO 22935-1 | IDF 99-1 and ISO 22935-3 | IDF 99-3, cancels and replaces IDF 99C:1997, which has been technically revised.

Introduction

The purpose of ISO 22935 | IDF 99 (all parts) is to give guidance on methodology for sensory analysis and the use of a common nomenclature of terms for milk and milk products.

To achieve that, ISO 22935 | IDF 99 has been divided into the three parts listed in the forewords.

ISO 6658 [1] should be consulted for an overview of sensory methods other than the one provided in ISO 22935-3 | IDF 99-3.

Evaluation of labelling and packaging is not covered by ISO 22935 | IDF 99 (all parts).

The principles described are largely derived from various International Standards on the topic.

Milk and milk products — Sensory analysis —

Part 2:
Recommended methods for sensory evaluation

1 Scope

This part of ISO 22935|IDF 99 specifies recommended methods for the sensory evaluation of specific milk and milk products. It specifies criteria for the sampling and preparation of samples and the assessment of the samples.

This part of ISO 22935|IDF 99 is suitable for application in conjunction with the sensory methodologies outlined in ISO 22935-1|IDF 99-1 and other ISO or IDF sensory methodologies for specific situations and products.

NOTE In addition to terms used in English and French, two of the three official ISO languages, Annex A gives equivalent terms in German and Spanish; these are published under the responsibility of the member bodies for Germany (DIN) and Spain (AENOR), respectively, and are given for information only. Only the terms given in the official languages can be considered as ISO terms.

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 707|IDF 50, *Milk and milk products — Guidance on sampling*

ISO 8589, *Sensory analysis — General guidance for the design of test rooms*

ISO 22935-3|IDF 99-3, *Milk and milk products — Sensory analysis — Part 3: Guidance on a method for evaluation of compliance with product specifications for sensory properties by scoring*

3 Principle

General practices are specified for the sensory evaluation of dairy products by trained evaluators. These practices can be used with the scoring methodology outlined in ISO 22935-3|IDF 99-3, profiling and discrimination tests.

4 Supervision

4.1 Panel leader responsibilities

A panel leader, who is familiar with sensory evaluation of the products, should be responsible for the entire evaluation, and in particular should ensure that:

a) testing conditions are appropriate;

b) correct evaluation forms are supplied;

c) correct sensory protocols are used;

d) panel results are monitored;

e) good records are maintained of panel attendance, panel performance, session objectives, samples and sample preparation methods, response forms used, session results, comments on results, attribute definitions and references;

f) communication is maintained with the site manager or appropriate personnel.

4.2 Panel leader requirements

The panel leader should:

a) understand sensory evaluation principles;

b) understand and have experience with the specific products being evaluated;

c) be committed to a sensory quality assurance programme.

5 Preparing for a panel

General steps for the preparation of a panel include:

a) the invitation of panellists to the panel, informing them of the date, time, and location of the session;

b) the choice of samples for assessment in the panel session, and their preparation using specified standard procedures;

c) labelling of samples with three-digit random numbers to disguise the sample origin (including the assignment of random codes, using a random number table or computer program, to each sample and then labelling report forms and sample containers);

d) the performance of panel evaluations (assessments) in booths or another suitable environment and ensuring that pens, palate cleansers, and spittoons are available in readiness for evaluations;

e) checking that data are complete once assessors have completed their evaluations.

6 Documents

Necessary documents for the sensory evaluation of the various products should be available, e.g. the following:

a) recommended methods;

b) product attributes and attribute definitions;

c) product specifications;

d) food safety documentation.

7 Test room

Refer to ISO 8589 for more detailed information on the requirements for a sensory evaluation area. Some general suggestions include provision in the test room of:

a) walls and ceilings preferably of light (off-white or light neutral grey) and matt colours, avoiding unnecessary decorations;

b) dividers between the places for each assessor for seated assessments;

c) tabletops and dividers of a matt, light neutral grey colour;

d) lighting free from strong shadows, with a colour temperature of 6 500 K, of constant and uniform intensity with illuminance between 800 lx and 1 500 lx;

e) constant temperature;

f) an environment free from foreign odours;

g) a noise level maintained at a minimum during assessments;

h) sheltering of any sample preparation area from the assessors, when it is necessary for sample preparation to take place in the assessment room;

i) maximum convenience to assessors, especially with respect to temperature and humidity;

j) regular monitoring of equipment and environmental conditions.

8 Recommended method for sensory evaluation of butter

8.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of butter.

The provisions in the method specified in this clause are applicable to butter; however, they can be adapted to include anhydrous milk fat, milk fat, anhydrous butter oil and butter oil.

8.2 Sampling and preparation of the sample

Follow accepted standard preparation methods, except where a customer requires an alternative preparation methodology to test a product for their specific use.

For bulk butter, take a test sample with a butter trier (see ISO 707 | IDF 50) for sensory evaluation. For butter in retail packaging, make an adequate number of packages available.

Before an evaluation, it is recommended that test samples be kept at the temperature mentioned on the packages or laid down by the customer or in national legislation and product specifications.

During the evaluation, the butter should have a temperature of 14 °C ± 2 °C. Temperatures outside this range prevent a reliable evaluation of butter.

8.3 Apparatus and materials

Apparatus as specified in the evaluation method chosen, and in particular the following.

8.3.1 Butter trier.

8.3.2 Incubator or **chiller**.

8.3.3 Thermometer.

8.3.4 Container/crease.

8.3.5 Proof paper.

8.3.6 Knives or **cutting wire** of stainless steel.

8.3.7 Spatulas.

8.3.8 Indicator paper for determination of water.

8.3.9 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

8.3.10 Glasses.

8.3.11 Sampling cups.

8.4 Assessment

8.4.1 Appearance

Examine the following main features: colour, visible purity, mould growth, and water dispersion.

8.4.2 Odour and flavour

Carry out a sensory evaluation of odour and flavour by smelling and tasting the product.

8.4.3 Consistency

Carry out a sensory evaluation of the following main features: firmness and spreadability.

It is not always easy to distinguish clearly between “appearance” (8.4.1) and “consistency”. In this respect, consider a “loose” grainy structure resulting from under-working or a salve-like structure resulting from overworking: these features relate to both “appearance” and “consistency”.

8.5 Attributes

Attributes that can be utilized for the sensory analysis of butter are listed in the 7th columns from the right of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3 | IDF 99-3) or profiling methodologies.

9 Recommended method for sensory evaluation of milk powder

9.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of milk powder.

The provisions in the method specified in this clause are applicable to milk powder.

9.2 Sampling and preparation of the test sample

Follow accepted standard preparation methods, except where a customer requires an alternative preparation methodology to test a product for their specific use.

For bulk powder, a test sample of at least 250 g (see ISO 707 | IDF 50) should be made available for sensory evaluation. For powder in retail packages, an adequate number should be supplied.

The available test samples should be adequate for the preparation of reconstituted milk for evaluation, possible re-evaluation by the panel, and an appropriate quantity of undissolved powder to follow the reconstituted product for evaluation.

Reconstitute a test portion, drawn from the test sample, by dissolving it in 90 g of water which is microbiologically pure and filtered, with neutral sensory properties at 22 °C ± 2 °C. For whole milk powder (not claimed to be soluble in cold water), adjust the water temperature to 40 °C ± 2 °C. Ensure a proper solution by use of an electric mixer. During reconstitution, all test portions should be mixed at the same speed for the same length of time.

The mass, m, of the test portion is given by:

$$m = \frac{1\,000}{100 - w_f}$$

where w_f is the mass fraction, as a percentage, of fat in the milk powder.

Cover the glasses containing the reconstituted milk, as well as the remaining powder test sample, until the evaluation takes place. Keep reconstituted milk under conditions which minimize the influence of light, cool (if necessary) under frequent gentle stirring, and evaluate within 1 h of preparation. During the evaluation, maintain the reconstituted milk at a temperature of 22 °C ± 2 °C.

9.3 Apparatus and materials

Apparatus as specified in the evaluation method chosen, and in particular the following.

9.3.1 Balance.

9.3.2 Weighing dishes.

9.3.3 Electric mixer.

9.3.4 Thermometer.

9.3.5 Beakers.

9.3.6 Spoons.

9.3.7 Timer.

9.3.8 Measuring cylinder.

9.3.9 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

9.3.10 Glasses.

9.3.11 Sampling cups.

9.4 Assessment

9.4.1 Appearance

Examine the reconstituted milk as well as its powder in relation to the following main features: colour, visible purity, and presence of lumps, flakes or hard granules.

9.4.2 Odour and flavour

Carry out a sensory evaluation of reconstituted milk as well as its powder in relation to odour and flavour by smelling and tasting the product.

9.4.3 Consistency

Carry out a sensory evaluation of reconstituted milk as well as its powder in relation to the perception of particles in the mouth or the thickness/thinness of the product.

9.5 Attributes

Attributes that can be utilized for the sensory analysis of reconstituted milk as well as its powder are listed in the 6th columns from the right of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3⏐IDF 99-3) or profiling methodologies.

10 Recommended method for sensory evaluation of cheese

10.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of cheese.

The provisions in the method specified in this clause are applicable to cheese.

10.2 Sampling and preparation of the sample

For large cheeses, take an adequate sample with a cheese trier or by cutting a sector (see ISO 707⏐IDF 50) for sensory evaluation. For cheese in retail packaging, make an adequate number of packages available.

Before an evaluation, it is recommended that the test samples be kept at the temperature mentioned on the packages or laid down in national legislation and product specifications.

During the evaluation, the test samples should have a temperature of 14 °C ± 2 °C. For special cheeses other temperatures may be chosen, with a tolerance of ± 2 °C.

10.3 Apparatus

Apparatus as specified in the evaluation method chosen, and in particular the following.

10.3.1 Incubator or **chiller**.

10.3.2 Thermometer.

10.3.3 Cheese trier.

10.3.4 Chopping board.

10.3.5 Knives or **cutting wire** of stainless steel.

10.3.6 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

10.3.7 Glasses.

10.3.8 Sampling cups.

10.4 Assessment

10.4.1 Appearance

10.4.1.1 Exterior

Visually examine, for example, shape, rind/surface of the whole cheese prior to sampling.

10.4.1.2 Interior

Visually examine, for example, colour of openings, shape and rind/surface of the cut surface or a core sample of the cheese.

10.4.2 Consistency

Carry out a sensory evaluation of body and texture, by using defined pieces of cheese obtained by cutting or from a core sample, by bending followed by pressing and rubbing between the forefinger and thumb, as well as by chewing.

10.4.3 Odour and flavour

Carry out a sensory evaluation of odour by smelling the cheese sample using two procedures:

a) by smelling the cut cheese or core sample; and

b) by smelling the cheese sample broken in front of the assessor's nose.

Chew and salivate defined pieces of cheese to evaluate the flavour.

10.5 Attributes

Attributes that can be utilized for the sensory analysis of cheese are listed in the 5th columns from the right of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3|IDF 99-3) or profiling methodologies.

11 Recommended method for sensory evaluation of liquid milk

11.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of liquid and condensed milk.

The provisions in the method specified in this clause are applicable to milk. Liquid milk includes raw milk and heat-treated milk such as pasteurized milk, UHT-milk and sterilized milk.

11.2 Sampling and preparation of the sample

Follow accepted standard preparation methods, except where a customer requires an alternative preparation methodology to test a product for their specific use.

For large containers, take a test sample of at least 500 g (see ISO 707 | IDF 50). For retail packages and individual portions, make an adequate number of packages available.

Before an evaluation, it is recommended that test samples be kept at the temperature mentioned on the packages or laid down in national legislation. If there is no temperature indication, 4 °C ± 2 °C for fresh liquid milk or 22 °C ± 2 °C for UHT or sterilized milk is recommended. Mix inhomogeneous liquid milk (e.g. raw or fresh milk) with a stirring stick or spoon just prior to sensory evaluation.

For the evaluation of appearance, the test samples should, if possible, be presented in the original opened packages. For the evaluation of flavour, individual portions of at least 50 g up to 100 g should be available for each assessor. During the evaluation the samples should have a temperature of 16 °C ± 2 °C.

11.3 Apparatus and materials

Apparatus as specified in the evaluation method chosen, and in particular the following.

11.3.1 Incubator or **chiller**.

11.3.2 Thermometer.

11.3.3 Test tubes.

11.3.4 Stirrers.

11.3.5 Beakers.

11.3.6 Spoons.

11.3.7 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

11.3.8 Glasses.

11.3.9 Sampling cups.

11.4 Assessment

11.4.1 Appearance

Examine any filling of the milk, colour, visible purity, presence of foreign matter, spots of mould, and phase separation. Examine the opened package, if necessary pouring out the product from the package.

11.4.2 Odour and flavour

Carry out a sensory evaluation of odour and flavour by smelling and tasting the product.

11.4.3 Consistency

Carry out a sensory evaluation of the perception of particles in the mouth or the thickness/thinness of the product.

11.5 Attributes

Attributes that can be utilized for the sensory analysis of liquid milk are listed in the 4th columns from the right of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3|IDF 99-3) or profiling methodologies.

12 Recommended method for sensory evaluation of cream

12.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of cream.

The provisions in the method specified in this clause are applicable to cream. The method covers liquid cream as well as sweet cream products with high viscosity.

12.2 Sampling and preparation of the sample

Follow accepted standard preparation methods, except where a customer requires an alternative preparation methodology to test a product for their specific use.

For large containers, take a sample of at least 500 g (see ISO 707|IDF 50). For retail packages and individual portions, make an adequate number of packages available.

Before an evaluation, it is recommended that test samples be kept at the temperature mentioned on the packages or laid down in national legislation. If there is no indication, a temperature of 4 °C ± 2 °C is recommended.

For the evaluation of appearance, the test samples should, if possible, be presented in the original packages. For the evaluation of flavour, individual test portions of at least 50 g to 100 g should be available for each assessor. During the evaluation, the test samples should have a temperature of 14 °C ± 2 °C.

12.3 Apparatus and materials

Apparatus as specified in the evaluation method chosen, and in particular the following.

12.3.1 Thermometer.

12.3.2 Beakers.

12.3.3 Spoons.

12.3.4 Stirrer.

12.3.5 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

12.3.6 Glasses.

12.3.7 Sampling cups.

12.4 Assessment

12.4.1 Appearance

Examine the filling of the package, colour, visible purity, presence of foreign matter, and spots of mould and phase separation. Examine the opened package, if necessary pouring out the product from the package.

12.4.2 Odour and flavour

Evaluate odour and flavour by smelling and tasting the product.

12.4.3 Consistency

Evaluate thickness, stickiness, and coarseness. Make the evaluation by blending the product with a spoon before malaxating (or pushing the cream against the palette of the mouth with the tongue) the sample in the mouth.

12.5 Attributes

Attributes that can be utilized for the sensory analysis of cream are listed in the 3rd columns from the right of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3|IDF 99-3) or profiling methodologies.

The attributes mentioned in this method are applicable to fluid cream as well as cream products with high viscosity.

13 Recommended method for sensory evaluation of fermented milk products

13.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of fermented milk products.

The provisions in the method specified in this clause are applicable to fermented milk products.

13.2 Sampling and preparation of the sample

Follow accepted standard preparation methods, except where a customer requires an alternative preparation methodology to test a product for their specific use.

For large containers, take a test sample of at least 500 g (see ISO 707|IDF 50). For retail packages and individual portions, make an adequate number of packages available.

Before an evaluation, it is recommended that test samples be kept at the temperature mentioned on the packages or laid down in national legislation. If there is no indication, a temperature of 4 °C ± 2 °C is recommended.

For the evaluation of appearance, the samples should, if possible, be presented in the original package. For the evaluation of consistency and flavour, individual portions of at least 50 g to 100 g should be available for each assessor. During the evaluation the samples should have a temperature of 12 °C ± 2 °C.

13.3 Apparatus

Apparatus as specified in the evaluation method chosen, and in particular the following.

13.3.1 Incubator or **chiller**.

13.3.2 Thermometer.

13.3.3 Stirrers.

13.3.4 Spoons.

13.3.5 Beakers.

13.3.6 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

13.3.7 Glasses.

13.3.8 Sampling cups.

13.4 Assessment

13.4.1 Appearance

Examine the filling and the surface of the product, colour, visible purity, presence of foreign matter, spots of mould, seepage of whey, and phase separation.

Examine the opened package, if necessary pouring out the product from the package.

13.4.2 Odour and flavour

Carry out a sensory evaluation of odour and flavour by smelling and tasting the product.

13.4.3 Consistency

Carry out a sensory evaluation of thickness, stickiness and coarseness. Evaluate by blending the product with a spoon before malaxating the sample in the mouth.

The defects mentioned in this method are applicable to fluid products as well as fermented milk products with high viscosity.

13.5 Attributes

Attributes that can be utilized for the sensory analysis of fermented milk products are listed in the 2nd columns from the right of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3 | IDF 99-3) or profiling methodologies.

14 Recommended method for sensory evaluation of ice cream

14.1 Applicability

This method is intended to provide a general basis for the sensory evaluation of ice cream.

The provisions in the method specified in this clause are applicable to edible ices.

14.2 Sampling and preparation of the sample

For large containers, take a test sample of at least 500 g (see ISO 707 | IDF 50). For retail packages and individual portions, make an adequate number of packages available.

Before an evaluation, it is recommended that test samples be kept at the temperature mentioned on the packages or laid down in national legislation. If there is no indication, a temperature of at least −18 °C or lower is recommended. During the evaluation the ice cream should have a temperature of −13 °C ± 2 °C.

14.3 Apparatus

Apparatus as specified in the evaluation method chosen, and in particular the following.

14.3.1 Incubator or **freezer**.

14.3.2 Thermometer.

14.3.3 Black plates.

14.3.4 Knives.

14.3.5 Spoons.

14.3.6 Stopwatch (for melting properties).

14.3.7 Palate cleansers.

EXAMPLE Water at 30 °C to 40 °C.

14.3.8 Glasses.

14.3.9 Sampling plates.

14.4 Assessment

14.4.1 Appearance

Examine the filling and the surface of the ice cream, colour, visible purity, and the amount and uniformity of ingredients/flavouring. Examine the external surface and the cut surface of the sample.

14.4.2 Odour and flavour

Carry out a sensory evaluation of odour and flavour by allowing a test portion to melt in the mouth, and observing the taste and smell.

14.4.3 Consistency

Carry out a sensory evaluation of smoothness, uniformity, coarseness, stickiness, the presence or absence of sandiness, and the relative size of the ice crystals. Cut the test sample with a spoon and chew the test portion, allowing it to melt in the mouth.

14.4.4 Melting properties

Evaluate the following: how the sample has retained its form and approximate size, whether free liquid has leaked out, whether the liquid appears homogeneous and creamy, curdled, foamy or watery. Visually examine test portions kept at a temperature of 22 °C ± 2 °C. Use the same time interval and test portion size for the same type of ice cream.

14.5 Attributes

Attributes that can be utilized in sensory analysis of ice cream are listed in the rightmost columns of Tables A.1 to A.3. These attributes can be used for scoring (see ISO 22935-3 | IDF 99-3) or profiling methodologies.

Annex A
(normative)

International tables of common attributes

Table A.1 — International table of appearance attributes for specific dairy products

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
Appearance	**Aspect**	**Aussehen**	**Apariencia**							
air bubbles	présence de bulles d'air	Luftblasen	presencia de búrbujas de aire			X			X	X
animal	animal	tierisch	a animal							
bicoloured	bicolore	zweifarbig	bicolor	X		X				
bleached surface	halo périphérique	ausgebleichte Oberfläche	superficie decolorada	X						
brown	caramel à brun	braun	marrón		X					
clotted	granuleux	klumpig	granulosa				X			
coarse	granuleux	grobkörnig	granulosa/grano grueso		X					
coating	enrobage	Überzug	cobertura							X
coating thickness	épaisseur d'enrobage	Überzugsdicke	cobertura espesa							X
colour	couleur	Farbe	color	X	X	X			X	X
compact	compact	kompakt	compacta	X		X				
cream layer	remontée de crème	Sahne-/ Rahmschicht	con capas de crema				X	X	X	
cream lumps	grumeaux de crème	Sahne-/ Rahmklumpen	con grumos de crema				X		X	
cream plug	bouchon/ accumulation de crème	Sahne/ Rahmpfropfen	tapón de crema					X		
curdy	floconneux	flockig	cuajada				X	X		
distribution of ingredients (e.g. fruit pieces)	distribution des ingrédients (fruits, ...)	Verteilung der Zutaten (z.B. Fruchtstücke)	distribución de ingredientes			X			X	X
dripping (water, milk)	coulant/suintant (d'eau, de lait)	wasserlässig, milchlässig	exhudado (agua, leche)	X		X				
dry	sec	trocken	seca	X		X				X

Table A.1 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
fill	forme et/ou remplissage	Fülle, Füllgrad, Füllmarke	completa	X		X				X
fill (package)	remplissage	Füllgrad/Füllmarke	completo	X	X	X	X	X	X	X
flakes	grains flocons, floconneux	Flocken	escamas, copos, flóculos		X		X		X	X
foaming	mousseux	schaumig	espumosa			X		X	X	X
foreign matter	corps étrangers, matières étrangères	Fremdpartikel, Fremdstoffe	cuerpos extraños	X	X	X	X	X	X	X
free fat	grains de matière grasse	freies Fett	grasa libre		X	X	X			X
free protein	grains de protéine	freies Eiweiß	proteína libre		X		X			
hard granules	agrégats solides	harte Teilchen	gránulos duros		X	X				
holes	présence d'ouvertures, d'yeux	Blasen, Löcher	agujeros, ojos	X		X				X
ice crystals	présence de cristaux de glace	Eiskristalle	presencia de cristales de hielo							X
insufficient coating of the stick	enrobage insuffisant du bâton	Stiel ungenügend überzogen	cobertura insuficiente del palito							X
layered	feuilleté	Schichtig	estratificada, en capas	X						
loose (free) moisture, droplets	humidité, gouttelettes	freies Wasser, Tropfen	agua libre/gotitas	X		X				
lumps	agrégats	Klumpen	terrones		X			X	X	
marbled	marbré	marmoriert	marmolada	X		X		X	X	
melted	fondu	geschmolzen	fundido							X
moisture	humidité	Feuchte	húmeda	X		X				
mottled	tacheté	gesprinkelt	moteada	X		X				X
mould	moisissures	Schimmel	mohosa, presencia de hongos	X		X	X	X	X	
mould/mouldy	moisi	schimmelig	enmohecida	X						
oil separation	séparation d'huile	ölige Abtrennung	separación de aceite	X						
poor distribution of ingredients	mauvaise distribution des ingrédients	schlechte Verteilung der Zutaten	distribución pobre de ingredientes			X			X	X
protein/fat flocks	agrégats graisseux ou protéiques	Protein-/Fettflocken	flóculos de proteína/grasa				X			

Table A.1 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
ropy/stringy	filant/élastique	zähflüssig/zäh	elástica/filamentosa				X	X	X	
scorched particles	particules brûlées	verbrannte Teilchen	partículas quemadas		X	X				X
sedimentation	sédimentation	Bodensatz	sedimentación				X	X	X	
separation of phases	séparation de phases	Phasentrennung	separación de fases				X	X	X	
separation of whey	exsudation de sérum	Serumabscheidung, Molke abgesetzt	separación del suero/exudado			X		X	X	
shape	forme	Form	forma	X		X				X
shrunken	flétri/contracté	geschrumpft	contraída			X		X	X	X
smeary	poisseux	schmierig	grasosa	X		X				
stick placement	emplacement du bâton	Stielplatzierung	ubicación del palito							X
streaky	rayé	streifig	rayada/veteada	X		X				X
surface colour changes	couleur hétérogène	heterogene Oberflächenfarbe	color heterogéneo	X		X				X
weak (open texture)	poreux	porig	porosa	X		X				X
yeast	présence de levures	Hefen	presencia de levadura			X			X	
Exterior	**Extérieur**	**Äußeres**	**Exterior**							
filling (of package)	forme et/ou remplissage	Füllung/Form	completa	X	X	X	X	X	X	X
height	hauteur	Höhe	alta			X				
oblique	casquette	schief, durchgelegen	oblicua	X		X				X
rims	talons afaissés	verlaufen	bordes	X		X				X
vaulted (blown)	bombé	triebig	bombé			X				
Rind/surface	**Croûtage**	**Oberfläche**	**Corteza/superficie**							
cracked	fendu, crevassé, déchiré	rissig	hendiduras, grietas, rajaduras			X				
fatty	graisseux	ausgeölt	grasosa			X				
holes	présence d'ouvertures, d'yeux	Löcher	presencia de aberturas, ojos			X				
mould	moisi	Schimmel	enmohecida			X				

Table A.1 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
rough	rugueux	rauh	rugosa			X				
smeary	poisseux, morgé	Schmiere	grasosa			X				
speckled	tacheté	fleckig	manchada			X				
thickness	épaisseur	Stärke, Dicke	espesor, grosor			X				
wet	humide	feuchte	húmeda			X				
wrinkled	ondulé	runzelig	ondulada			X				
Interior	**Intérieur**	**Inneres**	**Interior**							
bicoloured	bicolore	zweifarbig	bicolor	X		X				X
blown	gonflé, éclaté	gebläht, triebig, getrieben	hinchada, estallada			X				
collapsed	aplati	eingefallen	achatada, aplastada			X				
concentrated areas of grains	agglomérat de grains de caillé	Ansammlung von Bruchkorn	aglomerados de granos de cuajada			X				
cracked	fissuré	Risse	grietas			X				
crystals	cristaux	Kristalle	cristales			X				X
delicate (roughness)	fin (rugosité)	fein (Rauheit)	rugosidad fina			X				
droplets	gouttelettes	Tröpfchen	gotitas			X				
eyes	yeux	Lochung	ojos			X				
foreign matter	corps étrangers	Fremdstoffe	cuerpos extraños			X				
glossy openings	ouvertures lustrées	Glanzlöcher	ojos brillosos							
granular	granuleux	Körner	gránulos			X				
holes	trous	Löcher	agujeros			X				
marbled	marbré	marmoriert	marmolada			X				
mottled	moucheté	Fleckig	moteada			X				
nesty openings	présence de poches	Molkennester	aberturas en forma de nido, irregularmente repartidas, bolsas de lactosuero			X				
openness	présence d'ouvertures	Öffnung	aberturas			X				
pale, dull	pâle, terne	Blass	pálida/opaca			X				
pin-holed	mille trous	Nissen, viele kleine Löcher	mil ojos			X				
speckled	tacheté	gesprenkelt, getüpfelt	manchada			X				

Table A.1 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
splitting	rainuré	Schlitzlöcher	hendiduras			X				
streaky	rayé	streifig	rayado/veteado			X				
thin (microstructure)	fin (microstructure)	dünn, wässrig	fina (microestrutaura)			X				
tightly packed, compact	serré, compact	dicht gedrängt, kompakt	muy compacta, cerrada			X				
uneven colour	couleur irrégulière	ungleichmässige Farbe	color irregular			X				
wrinkling	plissé, ridé	unsaubere Lochung	arrugada			X				

Table A.2 — International table of odour and flavour attributes for specific dairy products

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
acid	acide	sauer	acido	X	X	X	X	X	X	X
ammoniacal	ammoniacal	ammoniakalisch	amoníaco			X				
animal	animal	tierisch, animalisch	a animal	X	X	X	X	X	X	X
apple	pomme	Apfel	a manzana			X				
apricot	abricot	Aprikose	damasco			X				
astringent	astringent	astringierend	astringente			X		X	X	X
bitter	amer	bitter	amargo	X	X	X	X	X	X	X
boiled milk	lait bouilli	gekochte Milch	a leche hervida			X				
burnt	brûlé	verbrannt, brandig	a quemado	X	X	X	X	X	X	X
buttery	de beurre	buttrig	a manteca		X	X				
caramel	caramel	Karamel	caramelo		X	X	X	X		X
cardboard	de carton	kartonartig	a cartón	X	X	X	X	X	X	X
cereal	de céréale	getreidig	cereal		X		X			
chalky	crayeux	kreidig	a tiza		X		X			
cheesy	de fromage	käsig	a queso	X				X	X	X
chemical	chimique	chemisch	a producto químico	X	X	X	X	X	X	X
cooked	de cuit	gekocht	a cocido	X	X	X	X	X	X	X

Table A.2 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
cow shed	d'étable	Kuhstall	a establo	X	X	X	X	X	X	X
cream	de crème	Sahne/Rahm	a crema	X		X				X
creamy	crémeux	cremig	a crema, cremoso		X	X	X		X	X
diacetyl	diacétyl	Diacetyl	diacetilo	X		X			X	
earthy	de terre, de poussière	erdig	a tierra		X		X			
fatty/oily	graisseux	fettig/ölig	grasoso/oleoso				X	X	X	X
fecal	fécal	fäkalisch	fecal		X	X	X	X		
feedy	de fourrage	silageartig	a forraje	X	X	X	X	X	X	X
fermented	fermenté	fermentiert, gärig	fermentado	X	X	X	X	X	X	X
fermented fruit	de fruits fermentés	gärige Früchte	a fruta fermentada	X					X	X
fermented hay	de foin fermenté	gäriges Heu	a heno fermentado	X		X	X	X	X	
fishy	de poisson	fischig	a pescado	X	X	X	X	X	X	X
flat (neutral)	neutre	neutral	insípido	X	X	X		X	X	
floral	floral	blumig	floral		X	X	X	X	X	
foreign flavour	flaveur étrangère	Fremdgeruch/ Fremdgeschmack	flavor extraño	X	X	X	X	X	X	X
fresh butter	beurre frais	frische Butter	manteca fresca	X						X
fresh cream	crème fraîche	frische Sahne/frischer Rahm	crema fresca	X		X				X
freshly cut grass	herbe coupée	geschnittenes Gras	hierba recién cortada		X	X	X	X	X	X
fruity	fruité	fruchtig	frutal		X	X	X			
grassy	herbeux	grasig	a hierba	X		X	X	X	X	
hay	foin	Heu	a heno	X	X	X	X	X	X	
lactone, milky	lactique	milchig	láctico		X	X	X	X	X	X
light induced oxidation	légèrement oxydé, oxydation causée par la lumière	leicht oxidiert, Licht oxidiert	ligeramente oxidada	X	X	X	X	X	X	X
malty	malté	malzig	a malta	X	X	X	X	X	X	X
meat broth	bouillon de viande	Fleischbouillon	caldo de carne			X				
metallic	métallique	metallisch	metálico	X	X	X	X	X	X	X
milk powder flavour	goût de poudre de lait	Milchpulvergesch-mack/-geruch	flavor de leche en polvo							X

Table A.2 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
milky	lactique	milchig	a leche, láctico			X		X	X	X
mineral	minérale	mineralisch	mineral		X		X			
mouldy	moisi	schimmelig, muffig, modrig	a moho	X	X	X	X	X	X	X
musty	de renfermé	muffig, modrig	mohoso/a humedad/ a encierro	X	X	X	X	X	X	X
oily	huileux	ölig	aceitoso, oleoso	X	X	X	X	X		X
oxidized	oxydé	oxidiert	oxidado	X	X	X	X	X	X	X
painty	de peinture	Farbgeruch	a pintura		X		X			
propionic acid	propionique	Propionsäure	acido propiónico			X				
pungent	âcre	pikant	pungente	X	X	X	X	X	X	X
putrid	putride	faulig, putrid	pútrido	X	X	X	X	X	X	X
rancid	rance	ranzig	rancio	X	X	X	X	X	X	X
rendered butter	de beurre fondu	eingesottene Butter	manteca fundida	X						
salt	salé	Salz	salado	X	X	X	X	X	X	X
sharp	piquant	scharf	picante			X			X	
silage	d'ensilage	Silage	silaje	X	X	X	X	X	X	X
smoked	fumé	geräuchert	ahumado	X	X	X	X	X	X	
soapy	savonneux, de savon	seifig	a jabón	X	X	X	X	X	X	X
sour	acide, aigre	sauer	agrio	X	X	X	X	X	X	X
stale, old	vieux	schal, abgestanden	a viejo	X	X	X	X	X	X	X
sulfurous	soufré	schweflig	sulfuroso			X				
sweat, butyric	sueur, butyrique	schweissig, Buttersäure	sudor, butírico	X	X	X	X	X	X	X
sweet	sucré	süss	dulce, azucarado	X	X	X	X	X	X	X
tallowy	suiffeux	talgig	a sebo	X	X	X	X	X	X	X
toasted	torréfié	geröstet	tostado			X				
uncharacteristic	non caractéristique	atypisch	no característico	X	X	X	X	X	X	X
unclean	impropre	verunreinigt	a sucio/extraño	X	X	X	X	X	X	X
vegetable	végétal	gemüseartig, pflanzlich	vegetal		X	X	X	X	X	X
watery	aqueux	wässrig	aguado/soso/ desabrido	X	X	X	X	X	X	X

Table A.2 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
wet grass	herbe mouillée	nasses Gras	hierba mojada	X	X	X	X	X	X	X
whey	de lactosérum	Molke	a lactosuero	X		X		X	X	X
wood shavings	copeaux de bois	Holzspänne	viruta de madera			X				
yeasty	de levure	hefig	a levadura	X		X		X	X	X
yogurt	de yaourt	Joghurt	a yogur						X	X

Table A.3 — International table of consistency attributes for specific dairy products

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
brittle	cassant	spröde	quebradiza	X		X				X
chalky	crayeux	kreidig	tiza			X				
coarse	grossier	grobkörnig	grosera			X				X
crumbly	friable	krümelig	desmenuzable	X		X				X
curdy	floconneux	flockig	de cuajada			X				
doughy	pâteux	teigig	pastosa	X						
dripping	suintant, coulant	naß, molkig, nässend, wasserlässig	que desuera, que fluye			X		X	X	
fatty	graisseux	fettig	grasosa							X
firmness	fermeté	Festigkeit, Härte	firme							
fluffy/foamy	mousseux	weich, schaumig	espumosa							X
flaky	floconneux	flockig, Flocken	escamas, copos					X	X	
floury	farineux	mehlig	harinosa		X	X				
gelatinous	gélatineux	gallertartig	gelatinosa					X	X	
granular (grainy)	granuleux, grenu	körnig	granulosa	X		X				X
greasy	graisseux, pommadeux	schmierig, salbig	grasosa, a pomade	X						
gritty	sableux	grießig, sandig	arenosa	X	X	X		X	X	X
gummy (pasty, sticky)	gluant, collant	gummiartig (teigig, klebrig)	fomosa (pastosa, pegajosa)							X
hard, firm	dur, ferme	hart, fest	dura, firme							X

Table A.3 (*continued*)

English	French	German	Spanish	Butter	Milk powder	Cheese	Liquid milk	Cream	Fermented milk	Ice cream
heavy (pudding-like)	pâteux, lourd	schwer (puddingartig)	pesada							X
ice crystals	présence de cristaux de glace	Eiskristalle	cristales de hielo							X
layered	clivé, par couches	schichtig	estratificada			X				
lumps	agrégats, granuleux	Klumpen	con terrones, grumosa	X		X		X	XX	
mealy	farineux	mehlig	harinosa			X				
moist	humide, aqueux	feucht	húmeda			X		X	X	
pasty	pâteux	pappig, klebrig, leimig	pastosa			X				
plastic	plastique	plastisch	plástico			X				
ropy/stringy	filant	zäh/fadenziehend	elástica/filamentosa					X	X	
rubbery	gommeux	gummiartig	gomosa			X				
setting	pris en masse	abgesetzt	firme					X	X	
short	court	kurz	corta	X		X				
smeary	emmorgé, poisseux	schmierig	untuoso			X				
smooth	lisse, onctueux	glatt	lisa		X	X	X			
snowy	neigeux	schneeig	de nieve							X
spongy	spongieux	schwammig	esponjosa			X				X
springy	élastique	elastisch	elástica			X				
sticky	collant	klebrig	pegajosa	X		X		X	X	
thickness	épaisseur	Stärke, Dicke	espesa	X	X		X	X	X	
thin (watery)	fin (aqueux)	dünn (wäßrig)	fina (aguada)			X				X
tightly packed, compact	serré, compact	dicht gedrängt, kompakt	compacta, cerrada			X				
tough	dur, coriace, résistant	Zäh, hart	dura (coriácea, resistente)			X				
Melting properties	**Fonte**	**Schmelzen**	**Propiedades de fusión**							
curdy melt down	fonte avec aspect de caillé	schmilzt flockig	fusión con aspecto de coágulos							X
foamy	mousseux	schaumig	espumosa							X
flaky	floconneux	flockig	escamas, copos							X
free whey	exsudation de sérum	feie Molke	suero libre							X
melting rate	vitesse de fonte	Schmelzgeschwin-digkeit	velocidad de fusión							X
spongy	spongieux	schwammig	esponjosa							X
watery	aqueux	wäßrig	acuosa							X

Bibliography

[1] ISO 6658, *Sensory analysis — Methodology — General guidance*

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