Official Journal of the European Union

L 284

English edition

Legislation

Volume 65

4 November 2022

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(1) Text with EEA relevance.

EN

Acts whose titles are printed in light type are those relating to day-to-day management of agricultural matters, and are generally valid for a limited period.

The titles of all other acts are printed in bold type and preceded by an asterisk.

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(1) Text with EEA relevance.

II

(Non-legislative acts)

REGULATIONS

COMMISSION DELEGATED REGULATION (EU) 2022/2104

of 29 July 2022

supplementing Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards marketing standards for olive oil, and repealing Commission Regulation (EEC) No 2568/91 and Commission Implementing Regulation (EU) No 29/2012

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 (1), and in particular Articles 75(2), 78(3) and (4) and 88(3) thereof,

Whereas:

(1) Regulation (EU) No 1308/2013 repealed and replaced Council Regulation (EC) No 1234/2007 (2). Part II, Title II, Chapter I, Section 1, of Regulation (EU) No 1308/2013 lays down rules on marketing standards for olive oil and empowers the Commission to adopt delegated and implementing acts in that respect. In order to ensure the smooth functioning of the olive oil market in the new legal framework, certain rules have to be adopted by means of such acts. Those acts should replace Commission Regulation (EEC) No 2568/91 (3) and Commission Implementing Regulation (EU) No 29/2012 (4), which should therefore be repealed.

(2) Olive oil has certain organoleptic and nutritional properties, which, taking into account its production costs, allow it access to a relatively high-price market compared with most other vegetable fats. In view of this market situation, marketing standards for olive oils should be laid down which guarantee product quality and combat fraud effectively. Effective monitoring of marketing standards should also be improved. Specific provisions to this end should therefore be laid down.

(3) The experience acquired over the last decade from the implementation of the Union marketing standards for olive oil and from the implementation of conformity checks shows that certain aspects of the regulatory framework need to be simplified and clarified.

(4) For the purpose of differentiating between the various types of olive oil, the physical and chemical characteristics of each of the olive oil categories and the organoleptic characteristics of virgin olive oils should be determined, in order to guarantee the purity and quality of the products concerned.

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(1) OJ L 347, 20.12.2013, p. 671.

(2) Council Regulation (EC) No 1234/2007 of 22 October 2007 establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation) (OJ L 299, 16.11.2007, p. 1).

(3) Commission Regulation (EEC) No 2568/91 of 11 July 1991 on the characteristics of olive oil and olive-residue oil and on the relevant methods of analysis (OJ L 248, 5.9.1991, p. 1).

(4) Commission Implementing Regulation (EU) No 29/2012 of 13 January 2012 on marketing standards for olive oil (OJ L 12, 14.1.2012, p. 14).

(5) In order not to mislead consumers and create unfair competition on the olive oil market, it should be permitted only for categories of olive oil that are allowed to be sold to the final consumer to be blended with other vegetable oils or incorporated in foodstuffs. To take account of their differing circumstances, Member States should be allowed to prohibit the production of such blends on their territory.

(6) To guarantee the authenticity of the olive oil sold, packaging for the retail trade should be small and have an adequate closing system. However, Member States should be allowed to authorise larger packaging for collective establishments.

(7) In order to help the consumer to select products, it is crucial that the mandatory particulars indicated on the label are easily readable. Rules should therefore be laid down on readability and the concentration of mandatory information within the main field of vision.

(8) The names of the categories of olive oil should correspond to the descriptions of the olive oil marketed within each Member State, in intra-Union trade and in trade with third countries as set out in Part VIII of Annex VII to Regulation (EU) No 1308/2013.

(9) Numerous scientific studies have demonstrated that light and heat adversely affect the quality of olive oil. Specific storage conditions should therefore be clearly indicated on the label to ensure that the consumer is well informed about the best conditions for storage.

(10) As a result of agricultural traditions and local extraction and blending practices, directly marketable virgin olive oils may be of quite different taste and quality depending on their place of origin. This may result in price differences within the same category that disturb the market. There are no substantial differences linked to origin in other categories of edible olive oil, and so indicating the place of origin on the packaging of such oil may lead consumers to believe that quality differences do exist. In order not to distort the market in edible olive oil, an obligatory Union regime should therefore be established for labelling the place of origin, which should be restricted to extra virgin and virgin olive oils which satisfy precise conditions.

(11) In the Union, a significant share of extra virgin and virgin olive oils is composed of blends of oils originating from various Member States and third countries. Provisions should be laid down for the labelling of the origin of such blends.

(12) A regional designation of origin may be covered by a protected designation of origin (PDO) or a protected geographical indication (PGI) in accordance with Regulation (EU) No 1151/2012 of the European Parliament and of the Council (5). Designations indicating a regional origin should be reserved for PDOs or PGIs so as to avoid confusion among consumers, which may potentially lead to market disturbances. In the case of imported olive oil, the rules on non-preferential origin provided for in Regulation (EU) No 952/2013 of the European Parliament and of the Council (6) should be complied with.

(13) Existing trademarks including geographical references should be able to continue to be used, provided they have been officially registered in the past, in accordance with Council Directive 89/104/EEC (7) or Council Regulation (EC) No 40/94 (8).

(14) If the place of origin of an extra virgin or a virgin olive oil refers to the Union or a Member State, this is an indication not only of where the olives were harvested but also of the extraction techniques and practices that influence the quality and taste of the oil. The place of origin should thus refer to the geographical area in which the olive oil was obtained, which is generally the area in which the oil was extracted from the olives. However, in certain cases the oil is extracted at a place that is not the same as that where the olives were harvested and this information should be stated on the packaging or labels attached to the packaging to ensure that consumers are not misled and the market in olive oil is not disturbed.

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(5) Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs (OJ L 343, 14.12.2012, p. 1).

(6) Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code (OJ L 269, 10.10.2013, p. 1).

(7) First Council Directive 89/104/EEC of 21 December 1988 to approximate the laws of the Member States relating to trade marks (OJ L 40, 11.2.1989, p. 1).

(8) Council Regulation (EC) No 40/94 of 20 December 1993 on the Community trade mark (OJ L 11, 14.1.1994, p. 1).

(15) When packaging plants are approved at national level in accordance with Article 6 of Commission Implementing Regulation (EU) 2022/2105 laying down rules on conformity checks of marketing standards for olive oil and methods of analysis of the characteristics of olive oil (9), the label of olive oil should include the alphanumeric identification allocated to the packaging plant, in order to allow for better traceability and consumer protection.

(16) In accordance with Regulation (EU) No 1169/2011 of the European Parliament and of the Council (10), indications shown on the label are not to mislead the purchaser, particularly as to the characteristics of the olive oil concerned, or by attributing to it properties which it does not possess, or by suggesting that it possesses special characteristics when in fact most oils possess such characteristics. Certain commonly used, optional indications that are specific to olive oil require harmonised rules to precisely define such claims and ensure that their accuracy can be verified. In view of the proliferation of certain indications and of their economic significance, objective criteria for their uses should be established in order to introduce clarity into the olive oil market.

(17) Accordingly, the concepts of 'first cold pressing' and 'cold extraction' should correspond to a technically defined traditional production method.

(18) Certain terms describing the organoleptic characteristics referring to taste or smell of extra virgin and virgin olive oils have been defined in Annex IX to Regulation (EU) No 1308/2013. In order not to mislead the consumers, no other terms describing the organoleptic characteristics of extra virgin and virgin olive oils should be used in the description of these oils. The use of such terms on the label of extra virgin and virgin olive oils should be reserved to oils that have been verified to possess these characteristics following the corresponding method of analysis of the International Olive Council.

(19) Reference to acidity in isolation wrongly suggests a scale of absolute quality which is misleading for consumers since this factor represents a qualitative value only in relation to the other physico-chemical parameters (peroxide value, wax content and ultraviolet absorption). Therefore when a reference to acidity is made on the label, those parameters should also be indicated.

(20) With a view not to mislead consumers, the value of physico-chemical parameters when such parameters are indicated on the label should be the maximum value such parameters could reach by the date of minimum durability.

(21) In order to provide consumers with information on the age of the product, operators should be allowed to indicate the harvesting year on the label of extra virgin and virgin olive oils but only when 100 % of the contents of the container come from one single harvesting year. Since the olive harvest usually begins during the autumn and ends by spring in the following year, it is appropriate to clarify how to label the harvesting year.

(22) In order to provide information on the age of an olive oil to consumers, Member States should be allowed to make the indication of the harvesting year compulsory. However, with a view not to disturb the functioning of the single market, such compulsory indication should be limited to their domestic production, obtained from olives harvested on their territory and intended for their national markets only. In order to enable the Commission to monitor the application of such national decision and to review the underlying Union provision, in the light of any relevant evolution in the functioning of the single market, Member States should notify their decision in accordance with Commission Delegated Regulation (EU) 2017/1183 (11).

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(9) Commission Implementing Regulation (EU) 2022/2105 laying down rules on conformity checks of marketing standards for olive oil and methods of analysis of the characteristics of olive oil (See page 23 of this Official Journal).

(10) Regulation (EU) No 1169/2011 of the European Parliament and of the Council of 25 October 2011 on the provision of food information to consumers, amending Regulations (EC) No 1924/2006 and (EC) No 1925/2006 of the European Parliament and of the Council, and repealing Commission Directive 87/250/EEC, Council Directive 90/496/EEC, Commission Directive 1999/10/EC, Directive 2000/13/EC of the European Parliament and of the Council, Commission Directives 2002/67/EC and 2008/5/EC and Commission Regulation (EC) No 608/2004 (OJ L 304, 22.11.2011, p. 18).

(11) Commission Delegated Regulation (EU) 2017/1183 of 20 April 2017 on supplementing Regulations (EU) No 1307/2013 and (EU) No 1308/2013 of the European Parliament and of the Council with regard to the notifications to the Commission of information and documents (OJ L 171, 4.7.2017, p. 100).

(23) Steps should be taken to ensure that foodstuffs containing olive oil do not mislead consumers by highlighting the reputation of olive oil without clearly specifying the real composition of the product. The percentage of olive oil and certain indications specific to products consisting exclusively of a blend of vegetable oils should therefore be clearly shown on the labelling. In addition, account should be taken of the special provisions on solid foodstuffs preserved exclusively in olive oil laid down in specific regulations, in particular for sardines, tuna and bonito.

(24) In the interest of simplification, for food products preserved exclusively in olive oil, it should not be required to state the percentage of oil added in relation to the total net weight of the foodstuff on the label,

HAS ADOPTED THIS REGULATION:

Article 1

Scope

This Regulation lays down rules:

(a) on the characteristics of the olive oils referred to in Part VIII, points 1 to 6, of Annex VII to Regulation (EU) No 1308/2013;

(b) on specific marketing standards for the olive oils referred to in Part VIII, points 1(a) and (b) and points 3 and 6, of Annex VII to Regulation (EU) No 1308/2013, when sold to the final consumer, presented in the natural state or in a foodstuff.

Article 2

Categories of olive oil

1. Olive oils which comply with the characteristics set out:

(a) in point 1 of Tables A and B of Annex I to this Regulation shall be deemed to be extra virgin olive oil within the meaning of Part VIII, point 1(a), of Annex VII to Regulation (EU) No 1308/2013;

(b) in point 2 of Tables A and B of Annex I to this Regulation shall be deemed to be virgin olive oil within the meaning of Part VIII, point 1(b), of Annex VII to Regulation (EU) No 1308/2013;

(c) in point 3 of Tables A and B of Annex I to this Regulation shall be deemed to be lampante olive oil within the meaning of Part VIII, point 1(c), of Annex VII to Regulation (EU) No 1308/2013;

(d) in point 4 of Tables A and B of Annex I to this Regulation shall be deemed to be refined olive oil within the meaning of Part VIII, point 2, of Annex VII to Regulation (EU) No 1308/2013;

(e) in point 5 of Tables A and B of Annex I to this Regulation shall be deemed to be olive oil composed of refined olive oils and virgin olive oils within the meaning of Part VIII, point 3, of Annex VII to Regulation (EU) No 1308/2013;

(f) in point 6 of Tables A and B of Annex I to this Regulation shall be deemed to be crude olive-pomace oil within the meaning of Part VIII, point 4, of Annex VII to Regulation (EU) No 1308/2013;

(g) in point 7 of Tables A and B of Annex I to this Regulation shall be deemed to be refined olive-pomace oil within the meaning of Part VIII, point 5, of Annex VII to Regulation (EU) No 1308/2013;

(h) in point 8 of Tables A and B of Annex I to this Regulation shall be deemed to be olive-pomace oil within the meaning of Part VIII, point 6, of Annex VII to Regulation (EU) No 1308/2013.

2. The characteristics of olive oils laid down in Annex I shall be determined in accordance with Commission Implementing Regulation (EU) 2022/2105.

Article 3

Blends and olive oil in other foodstuffs

1. Only oils referred to in Article 1, point (b), may be part of blends of olive oil and other vegetable oils.

2. Only oils referred to in Article 1, point (b), may be incorporated in other foodstuffs.

3. Member States may prohibit the production on their territory of blends of olive oil and other vegetable oils referred to in paragraph 1 for internal consumption. However, they may not prohibit the marketing on their territory of such blends coming from other countries and they may not prohibit the production on their territory of such blends for marketing in another Member State or for exportation.

Article 4

Packaging

1. Oils referred to in Article 1, point (b), shall be presented to the final consumer in packaging of a maximum capacity of five litres. Such packaging shall be fitted with an opening system that can no longer be sealed after the first time it is opened and shall be labelled in accordance with this Regulation.

2. In the case of oils referred to in Article 1, point (b), intended for consumption in restaurants, hospitals, canteens and other similar collective establishments, Member States may set a maximum capacity exceeding five litres for packaging, depending on the type of establishment concerned.

Article 5

Labelling

1. The labelling of particulars referred to in Articles 6 to 9 shall be mandatory.

2. The legal name referred to in Article 6(1) and, where applicable, the place of origin referred to in Article 8(1), shall be grouped together within the principal field of vision, as defined in Article 2(2), point (l), of Regulation (EU) No 1169/2011, either on the same label or on several labels attached to the same container, or directly on the same container. Those particulars shall be shown in full and in a homogeneous body of text.

3. The labelling of particulars referred to in Articles 10, 11 and 12 shall be voluntary.

Article 6

Legal name and labelling of category of oils

1. The description of the oils referred to in Article 1, point (b), shall be considered as their legal name within the meaning of Article 2(2), point (n), of Regulation (EU) No 1169/2011.

2. The label of those oils shall bear, in clear and indelible marking, in addition to the description referred to in paragraph 1, but not necessarily close to it, the following information on the category of oil:

(a) extra virgin olive oil:

‘superior category olive oil obtained directly from olives and solely by mechanical means’;

(b) virgin olive oil:

‘olive oil obtained directly from olives and solely by mechanical means’;

(c) olive oil composed of refined olive oils and virgin olive oils:

‘oil comprising exclusively olive oils that have undergone refining and oils obtained directly from olives’;

(d) olive-pomace oil:

  (i) ‘oil comprising exclusively oils obtained by treating the product obtained after the extraction of olive oil and oils obtained directly from olives’; or

  (ii) ‘oil comprising exclusively oils obtained by processing olive pomace and oils obtained directly from olives’.

Article 7

Special storage conditions

Information on the special storage conditions for oils referred to in Article 1, point (b), namely that they must be stored away from light and heat, shall appear on their containers or on the labels attached to them.

Article 8

Place of origin

1. For extra virgin olive oil and virgin olive oil, referred to in Part VIII, points 1(a) and (b), of Annex VII to Regulation (EU) No 1308/2013, the place of origin shall appear on the label.

2. For the oils referred to in Part VIII, points 3 and 6, of Annex VII to Regulation (EU) No 1308/2013, no place of origin shall be displayed on the label.

3. The place of origin referred to in paragraph 1 shall only consist of:

(a) in the case of olive oils originating, in accordance with paragraphs 6 and 7, from one Member State or third country, a reference to that Member State, the Union or the third country, as appropriate; or

(b) in the case of blends of olive oils originating, in accordance with paragraphs 6 and 7, from more than one Member State or third country, one of the following indications, as appropriate:

  (i) ‘blend of olive oils of European Union origin’ or a reference to the Union;

  (ii) ‘blend of olive oils not of European Union origin’ or a reference to origin outside the Union;

  (iii) ‘blend of olive oils of European Union origin and not of European Union origin’ or a reference to origin within the Union and outside the Union; or

(c) a protected designation of origin or a protected geographical indication in accordance with Regulation (EU) No 1151/2012.

4. The names of brands or firms whose registration was applied for by 31 December 1998 in accordance with Directive 89/104/EEC or by 31 May 2002 in accordance with Council Regulation (EC) No 40/94 shall not be considered as the place of origin covered by this Regulation.

5. In the case of import from a third country, the place of origin shall be determined in accordance with Articles 59 to 63 of Regulation (EU) No 952/2013.

6. The place of origin mentioning a Member State or the Union shall correspond to the geographical area in which the olives were harvested and in which the mill where the oil was extracted from the olives is situated.

7. If the olives have been harvested in a Member State or third country other than that in which the mill where the oil was extracted from the olives is situated, the place of origin shall contain the following wording: ‘(extra) virgin olive oil obtained in (the Union or the name of the Member State or third country concerned) from olives harvested in (the Union or the name of the Member State or third country concerned)’.

Article 9

Packaging plant number

For oils referred to in Article 1, point (b), the label shall, where applicable, bear the alphanumeric identification of the packaging plant approved in accordance with Article 6 of Commission Implementing Regulation (EU) 2022/2105.

Article 10

Optional reserved terms

The following conditions shall apply for the use of optional reserved terms within the meaning of Annex IX to Regulation (EU) No 1308/2013, which may appear on the label of oils referred to in Article 1, point (b), of this Regulation:

(a) the indication 'first cold pressing' may appear only for extra virgin or virgin olive oils obtained at a temperature below 27 °C from a first mechanical pressing of the olive paste by a traditional extraction system using hydraulic presses;

(b) the indication 'cold extraction' may appear only for extra virgin or virgin olive oils obtained at a temperature below 27 ° C by percolation or centrifugation of the olive paste;

(c) indications of organoleptic characteristics referring to taste or smell may appear only for extra virgin and virgin olive oils. Only the organoleptic characteristics as defined in Annex IX to Regulation (EU) No 1308/2013 may appear on the label and only if they are based on an assessment carried out following the method referred to in Annex I, point 5, of Commission Implementing Regulation (EU) 2022/2105. The definitions and ranges of results, which allow for indication of these organoleptic characteristics, are set out in Annex II to this Regulation;

(d) the indication of the maximum acidity expected by the date of minimum durability referred to in Article 9(1), point (f), of Regulation (EU) No 1169/2011 may appear only if it is accompanied by an indication, in marking of the same size and in the same visual field, of the maximum values for peroxide, wax content and ultraviolet absorption, determined in accordance with Commission Implementing Regulation (EU) 2022/2105, expected by the same date.

Article 11

Indication of the harvesting year

1. Only extra virgin olive oil and virgin olive oil, referred to in Part VIII, points 1(a) and (b), of Annex VII to Regulation (EU) No 1308/2013, may bear the indication of the harvesting year.

2. The harvesting year may be shown only if 100 % of the contents of the container come from that harvest and shall be indicated on the label either in the form of the relevant marketing year in accordance with Article 6, point (f), of Regulation (EU) No 1308/2013 or in the form of the month and the year of the harvest, in that order. The month shall correspond to the month of the extraction of the oil from the olives.

3. Member States may decide that the harvesting year referred to in paragraph 1 shall be indicated on the label of olive oils referred to in that paragraph, of their domestic production, obtained from olives harvested on their territory and intended for their national markets only.

4. The decision referred to in paragraph 3 shall not prevent olive oils labelled prior to the date on which that decision takes effect from being marketed until the stocks are exhausted.

5. Member States shall notify the Commission of the decision referred to in paragraph 3 in accordance with Delegated Regulation (EU) 2017/1183.

Article 12

Indication of the presence of olive oil outside the list of ingredients in blends and foodstuffs

1. Where the presence of oils referred to in Article 1, point (b), in a blend with other vegetable oils is highlighted on the label elsewhere than in the list of ingredients, using words, images or graphics, the blend concerned shall bear the following trade description: ‘Blend of vegetable oils (or the specific names of the vegetable oils concerned) and olive oil’, directly followed by the percentage of such oils in the blend.

2. The presence of oils referred to in Article 1, point (b), may be highlighted by images or graphics on the label of a blend referred to in paragraph 1 only where it accounts for more than 50 % of the blend concerned.

3. With the exception of solid foodstuffs preserved exclusively in olive oil, in particular the products referred to in Council Regulations (EEC) No 2136/89 (12) and (EEC) No 1536/92 (13), and where the presence of oils referred to in Article 1, point (b), of this Regulation is stated on the label elsewhere than in the list of ingredients, using words, images or graphics, the name of the food shall be directly followed by the percentage of oil relative to the total net weight of the foodstuff.

4. The percentage of added oils referred to in Article 1, point (b), relative to the total net weight of the foodstuff referred to in paragraph 3 of this Article may be replaced by the percentage of added oil relative to the total weight of fats, adding the words ‘percentage of fats’.

5. The descriptions referred to in Article 6(1) may be replaced by the words ‘olive oil’ on the label of products referred to in paragraphs 1 and 3 of this Article.

However, where olive-pomace oil is present, the words ‘olive oil’ shall be replaced by the words ‘olive-pomace oil’.

6. When other foodstuffs are added to oils referred to in Article 1, point (b), the resulting foodstuff shall not bear any of the legal names referred to in Article 6.

Article 13

Repeals

Regulation (EEC) No 2568/91 and Implementing Regulation (EU) No 29/2012 are repealed.

References to the repealed Regulations shall be construed as references to this Regulation and to Commission Implementing Regulation (EU) 2022/2105 and shall be read in accordance with the correlation table in Annex III to this Regulation.

Article 14

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

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(12) Council Regulation (EEC) No 2136/89 of 21 June 1989 laying down common marketing standards for preserved sardines (OJ L 212, 22.7.1989, p. 79).

(13) Council Regulation (EEC) No 1536/92 of 9 June 1992 laying down common marketing standards for preserved tuna and bonito (OJ L 163, 17.6.1992, p. 1).

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 29 July 2022.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX I

CHARACTERISTICS OF OLIVE OIL

A. Quality characteristics

Category	Acidity (%)(*)	Peroxide value (mEq O_2/kg)	K_{232}	K_{268} or K_{270}	ΔK	Organoleptic characteristics		Fatty acid ethyl esters (mg/kg)
						Median of defect (Md)(*) (1)	Fruity median (Mf) (2)	
1. Extra virgin olive oil	≤ 0,80	≤ 20,0	≤ 2,50	≤ 0,22	≤ 0,01	Md = 0,0	Mf > 0,0	≤ 35
2. Virgin olive oil	≤ 2,0	≤ 20,0	≤ 2,60	≤ 0,25	≤ 0,01	Md ≤ 3,5	Mf > 0,0	—
3. Lampante olive oil	> 2,0	—	—	—	—	Md > 3,5 (3)	—	—
4. Refined olive oil	≤ 0,30	≤ 5,0	—	≤ 1,25	≤ 0,16		—	—
5. Olive oil composed of refined olive oil and virgin olive oils	≤ 1,00	≤ 15,0	—	≤ 1,15	≤ 0,15		—	—
6. Crude olive-pomace oil	—	—	—	—	—		—	—
7. Refined olive-pomace oil	≤ 0,30	≤ 5,0	—	≤ 2,00	≤ 0,20		—	—
8. Olive-pomace oil	≤ 1,00	≤ 15,0	—	≤ 1,70	≤ 0,18		—	—

(1) The median of the defects is defined as the median of the defect perceived with the greatest intensity.

(2) When the median of the bitter and/or pungent attribute is more than 5,0, the panel leader shall report this.

(3) The median of defect may be less than or equal to 3,5 when the fruity median is equal to 0,0.

B. **Purity characteristics**

Category	**Fatty acid composition** (1)						**Total transoleic isomers** (%)	**Total translinoleic + translinolenic isomers** (%)	**Stigmastadienes (mg/kg)** (3)	**ΔECN42**	**2-glyceryl monopalmitate** (%)
	Myristic (%)	**Linolenic** (%)	**Arachidic** (%)	**Eicosenoic** (%)	**Behenic** (%)	**Lignoceric** (%)					
1. Extra virgin olive oil	≤ 0,03	≤1,00(2)-1,00 (2)	≤ 0,60	≤ 0,50	≤ 0,20	≤ 0,20	≤ 0,05	≤ 0,05	≤ 0,05	≤ |0,20|	≤ 0,9 if total palmitic acid % ≤ 14,00 %
											≤ 1,0 if total palmitic acid % > 14,00 %
2. Virgin olive oil	≤ 0,03	≤1,00(2)-1,00 (2)	≤ 0,60	≤ 0,50	≤ 0,20	≤ 0,20	≤ 0,05	≤ 0,05	≤ 0,05	≤ |0,20|	≤ 0,9 if total palmitic acid % ≤ 14,00 %
											≤ 1,0 if total palmitic acid % > 14,00 %
3. Lampante olive oil	≤ 0,03	≤ 1,00	≤ 0,60	≤ 0,50	≤ 0,20	≤ 0,20	≤ 0,10	≤ 0,10	≤ 0,50	≤ |0,30|	≤ 0,9 if total palmitic acid % ≤ 14,00 %
											≤ 1,1 if total palmitic acid % > 14,00 %
4. Refined olive oil	≤ 0,03	≤ 1,00	≤ 0,60	≤ 0,50	≤ 0,20	≤ 0,20	≤ 0,20	≤ 0,30	—	≤|0,30|	≤ 0,9 if total palmitic acid % ≤ 14,00 %
											≤ 1,1 if total palmitic acid% > 14,00 %
5. Olive oil composed of refined olive oil and virgin olive oils	≤ 0,03	≤ 1,00	≤ 0,60	≤ 0,50	≤ 0,20	≤ 0,20	≤ 0,20	≤ 0,30	—	≤ |0,30|	≤ 0,9 if total palmitic acid% ≤ 14,00 %
											≤ 1,0 if total palmitic acid% > 14,00 %
6. Crude olive-pomace oil	≤ 0,03	≤ 1,00	≤ 0,60	≤ 0,50	≤ 0,30	≤ 0,20	≤ 0,20	≤ 0,10	—	≤ |0,60|	≤ 1,4
7. Refined olive-pomace oil	≤ 0,03	≤ 1,00	≤ 0,60	≤ 0,50	≤ 0,30	≤ 0,20	≤ 0,40	≤ 0,35	—	≤ |0,50|	≤ 1,4
8. Olive-pomace oil	≤ 0,03	≤ 1,00	≤ 0,60	≤ 0,50	≤ 0,30	≤ 0,20	≤ 0,40	≤ 0,35	—	≤ |0,50|	≤ 1,2

(1) Other fatty acids content (%): palmitic: 7,00-20,00; palmitoleic: 0,30-3,50; heptadecanoic: ≤ 0,40; heptadecenoic ≤ 0,60; stearic: 0,50-5,00; oleic: 55,00-85,00; linoleic: 2,50-21,00.

(2) When the linolenic acid is more than 1,00 but less than or equal 1,40, the ratio apparent β-sitosterol/campesterol has to be greater than or equal to 24.

(3) Total isomers which could (or could not) be separated by capillary column.

Table B continued

Category	**Sterols composition**						**Total sterols (mg/kg)**	**Erythrodiol and uvaol (%)(**)**	**Waxes (mg/kg)(**)**
	Cholesterol (%)	**Brassicasterol (%)**	**Campesterol (1) (%)**	**Stigmasterol (%)**	**Apparent β–sitosterol (2) (%)**	**Δ-7-stigma-stenol (1) (%)**			
1. Extra virgin olive oil	≤ 0,5	≤ 0,1	≤ 4,0	< Camp.	≥ 93,0	≤ 0,5	≥ 1 000	≤ 4,5	C42 + C44 + C46 ≤ 150
2. Virgin olive oil	≤ 0,5	≤ 0,1	≤ 4,0	< Camp.	≥ 93,0	≤ 0,5	≥ 1 000	≤ 4,5	C42 + C44 + C46 ≤ 150
3. Lampante olive oil	≤ 0,5	≤ 0,1	≤ 4,0	—	≥ 93,0	≤ 0,5	≥ 1 000	≤ 4,5 (3)	C40 + C42 + C44 + C46 ≤ 300 (3)
4. Refined olive oil	≤ 0,5	≤ 0,1	≤ 4,0	< Camp.	≥ 93,0	≤ 0,5	≥ 1 000	≤ 4,5 (4)	C40 + C42 + C44 + C46 ≤ 350
5. Olive oil composed of refined olive oil and virgin olive oils	≤ 0,5	≤ 0,1	≤ 4,0	< Camp.	≥ 93,0	≤ 0,5	≥ 1 000	≤ 4,5	C40 + C42 + C44 + C46 ≤ 350
6. Crude olive-pomace oil	≤ 0,5	≤ 0,2	≤ 4,0	—	≥ 93,0	≤ 0,5	≥ 2 500	> 4,5 (5)	C40 + C42 + C44 + C46 > 350 (5)
7. Refined olive-pomace oil	≤ 0,5	≤ 0,2	≤ 4,0	< Camp.	≥ 93,0	≤ 0,5	≥ 1 800	> 4,5	C40 + C42 + C44 + C46 > 350
8. Olive-pomace oil	≤ 0,5	≤ 0,2	≤ 4,0	< Camp.	≥ 93,0	≤ 0,5	≥ 1 600	> 4,5	C40 + C42 + C44 + C46 > 350

(1) See the Appendix to this Annex.

(2) Apparent β-sitosterol: Δ-5,23-stigmastadienol+clerosterol+ β-sitosterol+sitostanol+ Δ-5-avenasterol+ Δ-5,24-stigmastadienol.

(3) Oils with a wax content of between 300 mg/kg and 350 mg/kg are considered to be lampante olive oil if the total aliphatic alcohol content is less than or equal to 350 mg/kg or if the erythrodiol and uvaol content is less than or equal to 3,5 %.

(4) Oils with an erythrodiol + uvaol content of between 4,5 and 6 % must have an erythrodiol content of less than or equal to 75 mg/kg.

(5) Oils with a wax content of between 300 mg/kg and 350 mg/kg are considered to be crude olive-pomace oil if the total aliphatic alcohol content is above 350 mg/kg and if the erythrodiol and uvaol content is greater than 3,5 %.

Notes:

(a) The results of the analyses must be expressed to the same number of decimal places as used for each characteristic. The last digit must be increased by one unit if the following digit is greater than 4.

(b) If just a single characteristic does not match the values stated, the category of an oil shall be changed or the oil shall be declared non-compliant for the purposes of this Regulation.

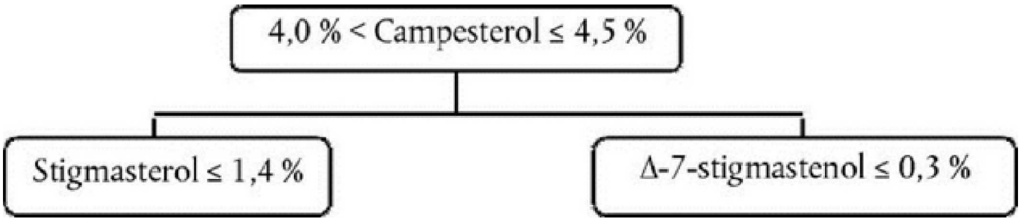
(c) For lampante olive oil, both quality characteristics marked with an asterisk (*) may differ simultaneously from the limits established for that category.

(d) If a characteristic is marked with two asterisks (**), this means that for crude olive-pomace oil, it is possible for both the relevant limits to be different from the stated values at the same time. For olive-pomace oil and refined olive-pomace oil one of the relevant limits may be different from the stated values.

Appendix

Decision trees

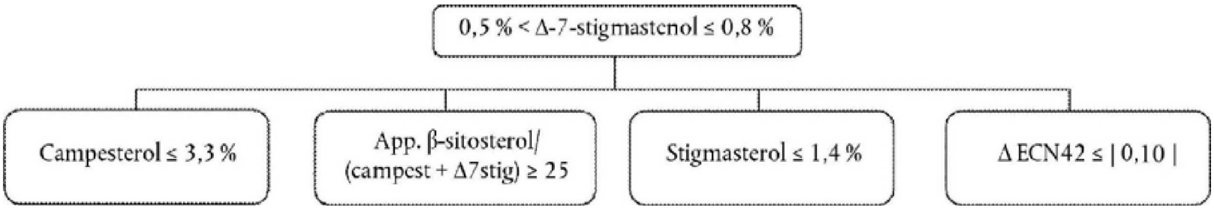
<u>Campesterol decision tree</u> for virgin and extra virgin olive oils:



The other parameters shall comply with the limits fixed in this Regulation.

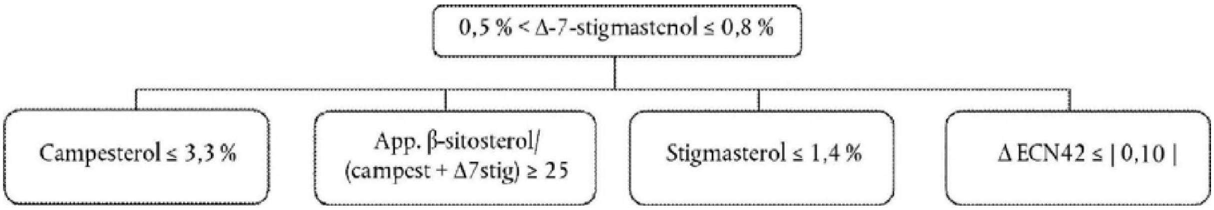
<u>Delta-7-stigmastenol decision tree</u> for:

— **Extra virgin and virgin olive oils**



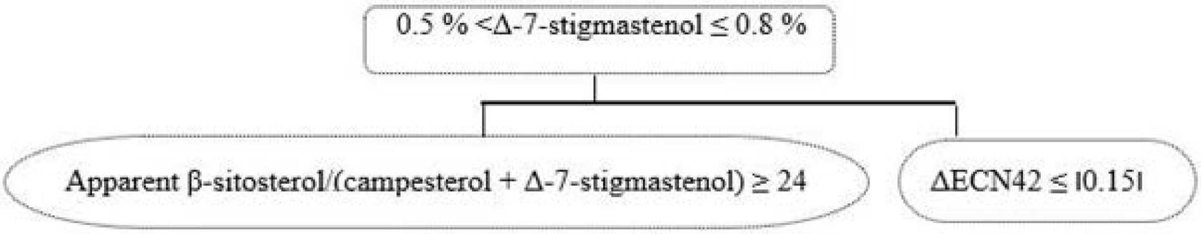
The other parameters shall comply with the limits fixed in this Regulation.

— **Lampante olive oils**



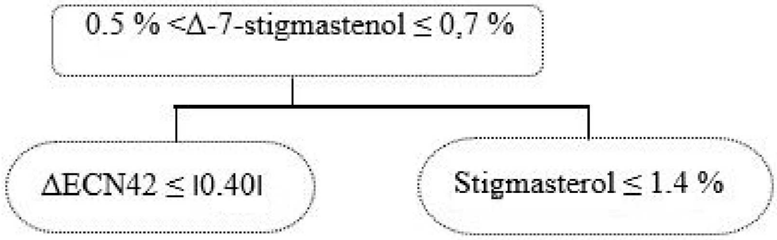
The other parameters shall comply with the limits fixed in this Regulation.

— **Refined olive oils and olive oils composed of refined olive oils and virgin olive oils**



The other parameters shall comply with the limits fixed in this Regulation.

— **Crude olive-pomace oil, refined olive-pomace oil and olive-pomace oil**



The other parameters shall comply with the limits fixed in this Regulation.

ANNEX II

Definitions of optional terminology on organoleptic characteristics for labelling purposes

Upon request, the leader of the tasting panel established in accordance with Article 10 of Commission Implementing Regulation (EU) 2022/2105. may certify that the oils which have been assessed comply with the definitions and ranges corresponding solely to the following terms according to the intensity and perception of the attributes.

Positive attributes (fruity, bitter and pungent) according to the intensity of perception:

Robust, when the median of the attribute is more than 6,0.

Medium, when the median of the attribute is more than 3,0 and less or equal to 6,0.

Delicate, when the median of the attribute is less or equal to 3,0.

Fruitiness: set of olfactory sensations characteristic of the oil which depends on the variety of olive and comes from sound, fresh olives in which neither green nor ripe fruitiness predominates. It is perceived directly and/or through the back of the nose.

Green fruitiness: set of olfactory sensations characteristic of the oil which is reminiscent of green fruit, depends on the variety of olive and comes from green, sound, fresh olives. It is perceived directly and/or through the back of the nose.

Ripe fruitiness: set of olfactory sensations characteristic of the oil which is reminiscent of ripe fruit, depends on the variety of olive and comes from sound, fresh olives. It is perceived directly and/or through the back of the nose.

Well balanced oil: oil which does not display a lack of balance, by which is meant the olfactory-gustatory and tactile sensation where the median of the bitter attribute and the median of the pungent attribute are not more than 2,0 points above the median of the fruitiness.

Mild oil: oil for which the median of the bitter and pungent attributes is 2,0 or less.

Terms subject to production of an organoleptic test certificate	**Median of the attribute**
Fruitiness	—
Ripe fruitiness	—
Green fruitiness	—
Delicate fruitiness	≤ 3,0
Medium fruitiness	3,0 < Me ≤ 6,0
Robust fruitiness	> 6,0
Delicate ripe fruitiness	≤ 3,0
Medium ripe fruitiness	3,0 < Me ≤ 6,0
Robust ripe fruitiness	> 6,0
Delicate green fruitiness	≤ 3,0
Medium green fruitiness	3,0 < Me ≤ 6,0
Robust green fruitiness	> 6,0
Delicate bitterness	≤ 3,0
Medium bitterness	3,0 < Me ≤ 6,0
Robust bitterness	> 6,0
Delicate pungency	≤ 3,0

Medium pungency	$3{,}0 < Me \leq 6{,}0$
Robust pungency	$> 6{,}0$
Well balanced oil	The median of the bitter attribute and the median of the pungent attribute are not more than 2,0 points above the median of the fruitiness.
Mild oil	The median of the bitter attribute and the median of the pungent attribute are 2,0 or less.

ANNEX III

Correlation Table

Implementing Regulation (EU) No 29/2012	Regulation (EEC) No 2568/91	This Regulation	Commission Implementing Regulation (EU) 2022/2105
———	———	Article 1, point (a)	
———	———		Article 1
———	———		Article 2(2)
Article 1(1)		Article 1, point (b), and Article 1(2)	
Article 1(2)		Article 1, point (b)	
Article 2, first paragraph		Article 4(1)	
Article 2, second paragraph		Article 4(2)	
Article 3, first paragraph		Article 6(1)	
Article 3, second paragraph, points (a) to (d)		Article 6(2), points (a) to (d)	
Article 4(1), first subparagraph		Article 8(1)	
Article 4(1), second subparagraph		Article 8(2)	
Article 4(1), third subparagraph		-	
Article 4(2)		Article 8(3)	
Article 4(3)		Article 8(4)	
Article 4(4)		Article 8(5)	
Article 4(5), first subparagraph		Article 8(6)	
Article 4(5), second subparagraph		Article 8(7)	
Article 4a		Article 7	
Article 4b		Article 5	
Article 5, first paragraph, points (a) to (d)		Article 10, points (a) to (d)	
Article 5, first paragraph, point (e)		Article 11(1) and (2)	
Article 5, second paragraph		-	
Article 5a, first paragraph		Article 11(3)	
Article 5a, second paragraph		Article 11(4)	
Article 5a, third paragraph		Article 11(5)	
Article 6(1), first subparagraph		Article 12(1)	

Implementing Regulation (EU) No 29/2012	**Regulation (EEC) No 2568/91**	**This Regulation**	**Commission Implementing Regulation (EU) 2022/2105**
Article 6(1), second subparagraph		Article 12(2)	
Article 6(1), third subparagraph		Article 3(3)	
Article 6(2), first subparagraph		Article 12(3)	
Article 6(2), second subparagraph		Article 12(4)	
Article 6(3)		Article 12(5)	
-	-	Article 12(6)	
Article 6(4)		-	
Article 7			Article 5(2)
Article 8(1)			Article 2(3)
Article 8(2)			Article 4(3)
Article 8(3)			Article 4(2)
Article 8(4)			Article 4(3)
Article 8a			Articles 2(1) and 4(1)
Article 9(1), first subparagraph			Article 13(1)
Article 9(1), second subparagraph			Article 13(2)
Article 9(1), third subparagraph			——
Article 9(1), fourth subparagraph			——
Article 9(1), fifth subparagraph			——
Article 9(2),first subparagraph			Article 6(1)
Article 9(2), second subparagraph, points (a), (b) and (c)			Article 6(2), points (a), (b) and (c)
Article 9(2), third subparagraph		Article 9	
——-			Article 6(3)
Article 10, first paragraph, introductory sentence			Article 14
Article 10, first paragraph, points (a) to (d), and second paragraph			——
Article 10a			Article 14
Annex I		-	
Annex II		-	

Implementing Regulation (EU) No 29/2012	**Regulation (EEC) No 2568/91**	**This Regulation**	**Commission Implementing Regulation (EU) 2022/2105**
	Article 1(1)	Article 2(1)(a) and 2(1)(b)	
	Article 1(2)	Article 2(1)(c)	
	Article 1(3)	Article 2(1)(d)	
	Article 1(4)	Article 2(1)(e)	
	Article 1(5)	Article 2(1)(f)	
	Article 1(6)	Article 2(1)(g)	
	Article 1(7)	Article 2(1)(h)	
——-	———	Article 2(2)	
——-	———	Article 3(1) and (2)	
	Article 2(1)		Article 7
	Article 2(1), point (a)		Annex I, point 1
	Article 2(1), point (b)		Annex I, point 2
	Article 2(1), point (c)		——
	Article 2(1), point (d)		——
	Article 2(1), point (e)		Annex I, point 3
	Article 2(1), point (f)		Annex I, point 4
	Article 2(1), point (g)		Annex I, point 5
	Article 2(1), point (h)		——-
	Article 2(1), point (i)		Annex I, point 6
	Article 2(1), point (j)		Annex I, point 7
	Article 2(1), point (k)		Annex I, point 8
	Article 2(1), point (l)		Annex I, point 9
	Article 2(1), point (m)		Annex I, point 10
	Article 2(2), first subparagraph and part of point 9.4 of Annex XII		Article 10(1)
	Article 2(2), second subparagraph		Article 11(1)
	Article 2(2), third subparagraph		Article 11(2)

Implementing Regulation (EU) No 29/2012	**Regulation (EEC) No 2568/91**	**This Regulation**	**Commission Implementing Regulation (EU) 2022/2105**
	-		Article 11(3)
	part of point 9.4 of Annex XII		Article 11(4)
	Article 2(3), first subparagraph		Article 3(1)
	Article 2(3), second subparagraph		Article 3(2)
	Article 2(4), first subparagraph		Article 9(2)
	Article 2(4), second subparagraph		Article 9(3)
	Article 2(4), third subparagraph		Article 9(4)
	Article 2(5)		Article 9(5)
	Article 2a(1)		Article 3(1)
	Article 2a(2)		Article 3(3)
	Article 2a(3)		Article 3(4)
	Article 2a(4), first subparagraph		Article 3(5)
	Article 2a(4), second subparagraph		Article 3(2)
	Article 2a(5)		Article 9(1)
	Article 3, first paragraph		Article 13(1)
	Article 3, second paragraph		Article 3(6)
	Article 4(1), first subparagraph		Article 10(1)
	Article 4(1), second subparagraph		Article 10(2)
	Article 4(1), third subparagraph		Article 10(3)
	Article 4(2)		Article 10(4)
	Article 4(3)		-
	Article 6(1)		Article 12(1)
	Article 6(2)		Article 12(2)
	Article 7		——
	Article 7a, second paragraph		Article 2(2)

Implementing Regulation (EU) No 29/2012	**Regulation (EEC) No 2568/91**	**This Regulation**	**Commission Implementing Regulation (EU) 2022/2105**
	Article 8(1)		-
	Article 8(2)		Article 14
	Annex I	Annex I	
	Annex XII, point 3.3	Annex II	
	Annex Ia, except for point 2.1		Annex II
	Annex Ia, point 2.1		Article 9(6)
	Annex Ib		Annex III
	Annex III		——
	Annex IV		——
	Annex VII		——
	Annex IX		——
	Annex X		——
	Annex XI		——
	Annex XII, except for point 3.3 and part of point 9.4		——
	Annex XV		Annex IV
	Annex XVI		——
	Annex XVII		——
	Annex XVIII		——
	Annex XIX		——
	Annex XX		——
	Annex XXI		Annex V

COMMISSION IMPLEMENTING REGULATION (EU) 2022/2105

of 29 July 2022

laying down rules on conformity checks of marketing standards for olive oil and methods of analysis of the characteristics of olive oil

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 (1), and in particular Article 90a(6), points (b) and (c), and Article 91, points (b), (d) and (g), thereof,

Whereas:

(1) Regulation (EU) No 1308/2013 repealed and replaced Council Regulation (EC) No 1234/2007 (2). Regulation (EU) No 1308/2013 lays down rules on marketing standards for olive oil and empowers the Commission to adopt delegated and implementing acts in that respect. In order to ensure the smooth functioning of the olive oil market in the new legal framework, certain rules have to be adopted by means of such acts.

(2) The experience acquired over the last decade from the implementation of the Union marketing standards for olive oil and from the implementation of conformity checks shows that the regulatory framework needs to be simplified and clarified. Similar and complementary requirements should be revised to avoid duplications and potential inconsistencies.

(3) Member States should carry out conformity checks aimed to verify whether products referred to in Part VII of Annex VIII to Regulation (EU) No 1308/2013 conform to the rules laid down in Commission Delegated Regulation (EU) 2022/2104 (3), and in particular on the conformity of the label with the contents of the container. Introducing minimum control requirements for all Member States should also help to combat fraud. While Member States are best placed to identify and decide which authorities should be responsible for the application of this Regulation, they should inform the Commission of such competent authorities, to ensure appropriate communication with other Member States' respective authorities and with the Commission.

(4) Member States should be required to submit an annual report to the Commission with information on conformity checks carried out during the previous year, in order to ensure uniform conditions for the implementation of this Regulation. To facilitate the collection and transmission of comparable data, the subsequent compilation of such data into Union-wide statistics and the preparation of reports by the Commission on conformity checks across the Union, a standard model form should be provided for annual reports.

(5) In order to verify that olive oil complies with the rules laid down in Delegated Regulation (EU) 2022/2104 and maximise the protection of consumers, competent authorities should carry out conformity checks based on a risk analysis.

(6) Since checks on operators responsible for producing or first placing olive oil on the market must be made in the Member State in which they are established, there should be a procedure for administrative cooperation between the Commission and the Member States where the oil is produced and marketed.

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(1) OJ L 347, 20.12.2013, p. 671.

(2) Council Regulation (EC) No 1234/2007 of 22 October 2007 establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation) (OJ L 299, 16.11.2007, p. 1).

(3) Commission Delegated Regulation (EU) 2022/2104 of 29 July 2022 supplementing Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards marketing standards for olive oil, and repealing Commission Regulation (EEC) No 2568/91 and Commission Implementing Regulation (EU) No 29/2012 (See page 1 of this Official Journal).

(7) Within the framework of the checks the Member States should specify the evidence to be provided for the different terms that can be used on the label. Such evidence should include established facts, results of analyses or reliable recordings, and administrative or accounting information.

(8) Member States should be allowed to approve packaging plants situated on their territory, in order to facilitate the check of the conformity of the product with the mandatory and optional particulars written on the label, in accordance with Delegated Regulation (EU) 2022/2104.

(9) The characteristics of the different types of olive oil should be determined uniformly throughout the Union. To that end, Union legislation should specify which methods of chemical analysis and organoleptic evaluation should be used. As the Union is a member of the International Olive Council ('IOC'), the methods to be used when performing conformity checks should be those established by the IOC.

(10) In order to ensure uniformity in the sampling for conformity checks, the method of sampling of olive oil should be set out. In order to ensure that analyses are carried out in the correct conditions and in view of the distances between regions, different time limits should be set for sending samples to the laboratory after sampling.

(11) Member States should verify the compliance of olive oil placed on the Union market with the characteristics set out in Delegated Regulation (EU) 2022/2104. As regards the classification of oils, the test results should be compared with the limits set in that Regulation, which take into account the repeatability and reproducibility of the analysis methods used.

(12) The IOC method for the evaluation of the organoleptic characteristics of virgin olive oils includes the setting up of panels of selected and trained tasters. In order to ensure uniformity in the implementation, minimum requirements for the approval of panels should be set out. In view of the difficulties that some Member States encounter in setting up tasting panels, the use of panels in other Member States should be authorised.

(13) The use of the IOC method for the evaluation of the organoleptic characteristics of virgin olive oils requires that a procedure be available for dealing with cases of discrepancy between the category declared and that assigned by the tasting panel.

(14) In order to ensure that the system of levies applicable to imports of olive cake and residues functions correctly, a single method for the determination of the oil content of these products should be laid down.

(15) Member States should lay down penalties for the non-compliances found at national level with the marketing standards for olive oil. Those penalties should be effective, proportionate and dissuasive.

(16) The measures provided for in this Regulation are in accordance with the opinion of the Committee for the Common Organisation of Agricultural Markets,

HAS ADOPTED THIS REGULATION:

Article 1

Scope

This Regulation lays down rules on:

(a) the checks of conformity with marketing standards for the olive oils referred to in Article 2 of Delegated Regulation (EU) 2022/2104 and their implementation by operators;

(b) the cooperation and assistance between competent authorities with regard to the conformity checks referred to in point (a);

(c) the records to be kept by operators who produce or hold olive oil and the approval of packaging plants;

(d) the methods of analysis for determining the characteristics of olive oil.

Article 2

Obligations of Member States concerning conformity checks

1. Member States shall carry out conformity checks on olive oil to verify the implementation of the marketing standards laid down in Commission Delegated Regulation (EU) 2022/2104 on the basis of a risk analysis referred to in Article 3.

2. Member States shall verify that operators comply with their obligations under Article 5(1).

3. Each Member State shall notify the Commission, in accordance with Commission Delegated Regulation (EU) 2017/1183 ([4]) of the name and address of the authority or authorities competent to perform conformity checks in accordance with this Regulation. The Commission shall inform the other Member States and, on request, any interested party of those competent authorities. Member States shall inform the Commission about any changes as they occur.

Article 3

Frequency of conformity checks and risk analysis

1. For the purposes of this Article, ‘olive oil marketed’ means the total quantity of olive oil that is made available on the market in a Member State and exported from that Member State.

2. Member States shall carry out at least one conformity check per year per thousand tonnes of olive oil marketed on their territory.

3. Member States shall ensure that conformity checks are carried out selectively, based on a risk analysis, and with appropriate frequency, to verify that the olive oil marketed corresponds to the category declared.

4. The criteria to assess the risk are in particular:

(a) the category of olive oil within the meaning of Article 2 of Delegated Regulation (EU) 2022/2104, the period of production, its price as compared to other vegetable oils, the blending and packing operations, the storage facilities and conditions, the country of origin, the country of destination, the means of transport or the volume of the lot;

(b) the position of the operators in the marketing chain, the volume and value marketed by them, the range of oil categories they place on the market, the type of business carried out such as milling, storage, refining, blending, packaging or retail sale;

(c) findings made during previous checks including the number and type of defects found, the usual quality of olive oil marketed, the performance of technical equipment used;

(d) the reliability of operators’ quality assurance systems or self-checking systems related to the conformity with marketing standards;

(e) the place where the conformity check is carried out, in particular if it is the first point of entry into the Union, the last point of exit from the Union or the place where the oils are produced, packaged, loaded or sold to the final consumer;

(f) any other information that might indicate a risk of non-compliance.

5. Member States shall lay down in advance:

(a) the criteria for assessing the risk of non-conformity of lots;

(b) on the basis of a risk analysis for each risk category, the minimum number of operators or lots and quantities which will be subject to a conformity check.

6. Where checks reveal significant irregularities, Member States shall increase the frequency of checks in relation to marketing stage, oil category, origin, or other criteria.

([4]) Commission Delegated Regulation (EU) 2017/1183 of 20 April 2017 on supplementing Regulations (EU) No 1307/2013 and (EU) No 1308/2013 of the European Parliament and of the Council with regard to the notifications to the Commission of information and documents (OJ L 171, 4.7.2017, p. 100).

Article 4

Cooperation between Member States with regard to conformity checks

1. If any irregularity is detected and the operator shown on the label is established in another Member State, the Member State concerned shall make a request for verification in accordance with Commission Implementing Regulation (EU) 2019/1715 ([5]) to the Member State in which the operator appearing on the label is established.

2. In addition to the requirements laid down in Article 16 of Implementing Regulation (EU) 2019/1715, the request referred to in paragraph 1 of this Article shall be accompanied by all information needed for the verification, and in particular:

(a) the date of sampling or purchase of the olive oil in question;

(b) the name or business name and address of the operator where the sample was taken or where the olive oil concerned was purchased;

(c) the number of batches concerned;

(d) a copy of all labels appearing on the packaging of the olive oil concerned;

(e) the results of the analysis or of the other comparative expert opinions indicating the methods used and the name and address of the laboratory or expert;

(f) where applicable, the name of the supplier of the olive oil in question as declared by the marketing outlet.

3. In addition to the requirements laid down in Article 22 of Implementing Regulation (EU) 2019/1715, the Member State to which the request is addressed, shall take samples at the latest before the end of the month following that of the request and verify the indications on the labelling concerned. It shall respond within 3 months from the date of the request.

Article 5

Obligations of operators

1. For the purpose of conformity checks, operators from the mill and up to the bottling stage shall keep entry and withdrawal registers for each category of olive oil they hold.

2. At the request of the Member State in which the operator appearing on the label is established, the operator shall supply documentation with regard to the fulfilment of the requirements referred to in Articles 6, 8 and 10 of Delegated Regulation (EU) 2022/2104 based on one or more of the following elements:

(a) factual elements or scientifically established facts;

(b) results of analyses or automatic recordings taken on representative samples;

(c) administrative or accounting information kept in accordance with Union and national rules.

Article 6

Optional approval of packaging plants at national level

1. Member States shall have the possibility to approve packaging plants situated on their territory.

2. When they decide to make use of paragraph 1, Member States shall grant approval and allocate an alphanumeric identification to any packaging plant so requesting, which meets the following conditions:

(a) possesses packaging facilities;

(b) undertakes to collect and keep the documentation referred to in Article 5;

([5]) Commission Implementing Regulation (EU) 2019/1715 of 30 September 2019 laying down rules for the functioning of the information management system for official controls and its system components (the IMSOC Regulation) (OJ L 261, 14.10.2019, p. 37).

(c) has a storage system which makes it possible to check the provenance of the olive oils for which the labelling of the place of origin is mandatory in accordance with Article 8(1) of Delegated Regulation (EU) 2022/2104.

3. When they decide to make use of paragraph 1, Member States shall notify the Commission of the relevant arrangements in accordance with Directive (EU) 2015/1535 of the European Parliament and of the Council (6).

Article 7

Methods of analysis used for determining the characteristics of olive oils

The characteristics of olive oils set out in Annex I to Commission Delegated Regulation (EU) 2022/2104 shall be determined in accordance with methods of analysis set out in Annex I to this Regulation.

Article 8

Sampling for conformity checks

1. Samples for conformity checks shall be taken in accordance with international standards EN ISO 661 on the preparation of test samples and EN ISO 5555 on sampling. However, for batches of packaged olive oil, sampling shall be carried out in accordance with Annex II. In case of bulk oils for which the sampling cannot be performed in accordance with the EN ISO 5555 standard, the sampling shall be performed in accordance with instructions provided by the competent authority of the Member State.

2. Without prejudice to standard EN ISO 5555 and Chapter 6 of standard EN ISO 661, the samples taken shall be put as quickly as possible in a dark place, away from heat and sent to the laboratory for analysis no later than on the fifth working day after they are taken, otherwise the samples shall be kept in such a way that they will not be degraded or damaged during transport or storage before being sent to the laboratory.

Article 9

Verification of the characteristics of olive oils

1. Member States shall verify compliance of the olive oils with the characteristics of olive oils set out in Annex I to Commission Delegated Regulation (EU) 2022/2104:

(a) in any order; or

(b) by following the order set out on the flow-chart in Annex III to this Regulation, until one of the decisions appearing in the flow-chart is reached.

2. For the purpose of the verification provided for in paragraph 1, the analyses for the determination of the acidity level, peroxide value, K232, K268 or K270, ΔK, fatty acid ethyl esters, waxes and the organoleptic characteristics, where applicable, any counter-analyses required under national law shall be carried out before the minimum durability date in case of packaged olive oil. In case of sampling of bulk oils, those analyses shall be carried out within 6 months after the month in which the sample was taken.

3. No time limit shall apply to the verification of other characteristics of olive oil set out in Annex I to Delegated Regulation (EU) 2022/2104.

4. For packaged olive oil, unless the sample was taken less than 2 months before the minimum durability date, if the results of the analyses do not match the characteristics of the category of olive oil declared, the operator from which the sample was taken shall be notified no later than one month before the minimum durability date.

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(6) Directive (EU) 2015/1535 of the European Parliament and of the Council of 9 September 2015 laying down a procedure for the provision of information in the field of technical regulations and of rules on Information Society services (OJ L 241, 17.9.2015, p. 1).

5. For the purpose of determining the characteristics of olive oil by the methods set out in Annex I to this Regulation, the results of the analyses shall be directly compared with the limits set out in Annex I to Delegated Regulation (EU) 2022/2104, which take into account the repeatability and reproducibility of the analysis methods used.

6. The rules of this Article shall apply for each primary sample taken in accordance with Annex II.

Article 10

Tasting panels

1. For the purpose of conformity checks, tasting panels, approved by Member States on their territory, shall assess the organoleptic characteristics of virgin olive oils set out in Annex I to Delegated Regulation (EU) 2022/2104 and shall report on those characteristics and on the category.

2. The terms of approval of tasting panels shall be set by Member States and ensure that:

(a) the requirements of the method referred to in Annex I, point 5 for the determination of the organoleptic characteristics of virgin olive oil are met;

(b) the panel leader is given training recognised for this purpose by the Member State;

(c) continued approval depends on the performance at an annual review of the tasting panel by the Member State.

3. Member States shall notify the Commission, in accordance with Delegated Regulation (EU) 2017/1183, of the list of approved tasting panels on their territory and inform the Commission of any change to that list without delay.

4. Where no tasting panel on a Member State’s territory fulfils the terms of approval referred to in paragraph 2, the Member State shall call on a tasting panel approved in another Member State.

Article 11

Verification of the organoleptic characteristics of virgin olive oils

1. The organoleptic characteristics of virgin olive oils set out in Annex I to Delegated Regulation (EU) 2022/2104 shall be deemed consistent with the declared category if a tasting panel approved by a Member State confirms the category.

2. Where the tasting panel does not confirm the declared category as regards the organoleptic characteristics, at the request of the operator subject to the control, the competent authorities shall have two counter-assessments carried out by other approved tasting panels without delay. At least one of the tasting panels shall be a panel approved by the Member State in which the olive oil was produced. The characteristics concerned shall be deemed consistent with the characteristics declared if the two counter-assessments confirm the declared category. If this is not the case, regardless of the type of defects determined during the counter-assessments, the declared category shall be declared inconsistent with the characteristics, and the operator subject to the control shall bear the costs of the counter-assessments.

3. When the oil is produced outside the Union, the two counter-analyses shall be carried out by two tasting panels different from the one that initially established the non-conformity.

4. When carrying out counter-assessments, tasting panels shall assess the olive oil in two separate tasting sessions. The results from the two sessions for the olive oil subject to the counter-assessment must be statistically homogenous. If not, the sample must be re-analysed again twice. The reported values of the organoleptic characteristics of the olive oil subject to the counter-assessment shall be calculated as the average of the values obtained for those characteristics in the two statistically homogenous sessions.

Article 12

Oil content of oil cake and other residues

1. The oil content of oil cake and other residues resulting from the extraction of olive oil (CN codes 2306 90 11 and 2306 90 19) shall be determined using the method set out in Annex IV.

2. The oil content referred to in paragraph 1 shall be expressed as a percentage of the weight of oil to the weight of dry matter.

Article 13

Penalties

1. Where it is found that the marketing standards laid down in Delegated Regulation (EU) 2022/2104 are not respected, Member States shall apply effective, proportionate and dissuasive penalties to be determined in the light of the seriousness of the irregularity detected.

2. By 31 May of each year, Member States shall notify the Commission, in accordance with Delegated Regulation (EU) 2017/1183, of the measures taken to that end and without delay of any amendments to those measures.

Article 14

Reporting

By 31 May of each year, Member States shall submit to the Commission a report in accordance with Delegated Regulation (EU) 2017/1183 on the implementation of this Regulation during the previous calendar year. The report shall contain at least the results of the conformity checks carried out on olive oil in accordance with the form set out in Annex V to this Regulation.

Article 15

Entry into force

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 29 July 2022.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX I

METHODS OF ANALYSIS USED FOR DETERMINING THE CHARACTERISTICS OF OLIVE OILS

	Characteristics of olive oils	IOC method to be used
1	Acidity	COI/T.20/Doc. No 34 (*Determination of free fatty acids, cold method*)
2	Peroxide value	COI/T.20/Doc. No 35 (*Determination of peroxide value*)
3	2-glyceryl monopalmitate	COI/T.20/Doc. No 23 (*Determination of the percentage of 2-glyceryl monopalmitate*)
4	K232, K268 or K270, ΔK	COI/T.20/Doc. No 19 (*Spectrophotometric investigation in the ultraviolet*)
5	Organoleptic characteristics	COI/T.20/Doc. No 15 (*Sensory analysis of olive oil – Method for the organoleptic assessment of virgin olive oil*) – except for its points 4.4 and 10.4
6	Fatty acid composition, including trans-isomers	COI/T.20/Doc. No 33 (*Determination of fatty acid methyl esters by gas chromatography*)
7	Fatty acid ethyl esters, waxes	COI/T.20/Doc. No 28 (*Determination of the content of waxes, fatty acid methyl esters and fatty acid ethyl esters by capillary gas chromatography*)
8	Total sterols, sterol composition, erythrodiol, uvaol and aliphatic alcohols	COI/T.20/Doc. No 26 (*Determination of the composition and content of sterols, triterpenic dialcohols and aliphatic alcohols by capillary gas chromatography*)
9	Stigmastadienes	COI/T-20/Doc. No 11 (*Determination of stigmastadienes in vegetable oils*)
10	ΔECN42	COI/T.20/Doc. No 20 (*Determination of the difference between actual and theoretical content of triacyglycerols with ECN 42*)

ANNEX II

SAMPLING OF OLIVE OIL DELIVERED IN PACKAGES

This method of sampling is applied to batches of olive oil put up in packages. Different sampling methods apply, depending on whether the package exceeds 5 litres or not.

For the purposes of this Annex, the following definitions apply:

(a) 'package' means the container which is in direct contact with the olive oil;

(b) 'batch' means a set of packages which are produced, manufactured and packed in circumstances such that the olive oil contained in each package is considered to be homogenous in terms of all analytical characteristics. The individuation of a batch must be done in accordance with Directive 2011/91/EU of the European Parliament and of the Council ([1]);

(c) 'increment' means the quantity of olive oil contained in a package of up to 5 litres or extracted from a package exceeding 5 litres, when packages are selected from a random point of the batch.

1. CONTENT OF PRIMARY SAMPLE

1.1. Primary samples for packages up to 5 litres

A primary sample for packages of up to 5 litres shall be constituted in accordance with Table 1.

Table 1

Primary sample minimum size must comprise the following:

Where the packaging has a capacity of	The primary sample must comprise the olive oil from
(a) 750 ml or more	(a) 1 package;
(b) less than 750 ml	(b) the minimum number of packages with a total capacity of at least 750 ml

The content of the primary sample must be homogenised before carrying out the different assessments and analyses.

1.2. Primary samples for packages exceeding 5 litres

A primary sample for packages exceeding 5 litres shall be constituted from the total number of increments extracted from the minimum number of packages set out in Table 2. The packages shall be selected randomly from the batch. Once constituted, the primary sample shall be of sufficient volume to allow for the division in multiple examples.

Table 2

Minimum number of packages to be selected randomly

Number of packages in the batch	Minimum number of packages to be selected
Up to 10	1
From … 11 to 150	2
From … 151 to 500	3
From … 501 to 1 500	4
From … 1 501 to 2 500	5
> 2 500 per 1 000 packages	1 extra package

After homogenising the content of each package, the increment is extracted and poured into a common container for homogenisation by stirring, so that it will be best protected from air.

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[1] Directive 2011/91/EU of the European Parliament and of the Council of 13 December 2011 on indications or marks identifying the lot to which a foodstuff belongs (OJ L 334, 16.12.2011, p. 1).

The content of the primary sample must be poured into a series of packages of a minimum capacity of 1 litre, each one of which constitutes a unit of the primary sample. Each package unit must be filled in a way to minimise the air layer on top and then suitably closed and sealed to ensure the product is tamper-proof. These package units must be labelled to ensure correct identification.

2. INCREASING THE NUMBER OF PRIMARY SAMPLES

2.1. The number of primary samples may be increased by each Member State, according to their own necessity (for example organoleptic assessment by a different laboratory from the one that performed the chemical analyses, counter-analysis, etc.).

2.2. The competent authority may increase the number of primary samples according to the following table:

Table 3

Number of primary samples determined by the size of batch

Size of batch (litres)	Number of primary samples
Less than 7 500	2
From 7 500 to less than 25 000	3
From 25 000 to less than 75 000	4
From 75 000 to less than 125 000	5
Equal to and more than 125 000	6 + 1 for each 50 000 litres more

2.3. The formation of each primary sample must be carried out in accordance with the procedures referred to in points 1.1 and 1.2.

2.4. When randomly selecting packages for increments, the packages selected for one primary sample must be contiguous to packages selected for another primary sample. It is necessary to take note of the location of each randomly selected package and to identify it unambiguously.

3. ANALYSES AND RESULTS

3.1. Where all the results of the analyses for all primary samples comply with the characteristics of the category of olive oil declared, the whole batch is to be declared compliant.

3.2. When one of the results of the analyses of at least one primary sample does not comply with the characteristics of the declared category of olive oil, the whole sampling batch shall be declared non-compliant.

ANNEX III

FLOW-CHART FOR VERIFYING WHETHER AN OLIVE OIL SAMPLE IS CONSISTENT WITH THE CATEGORY DECLARED

General table

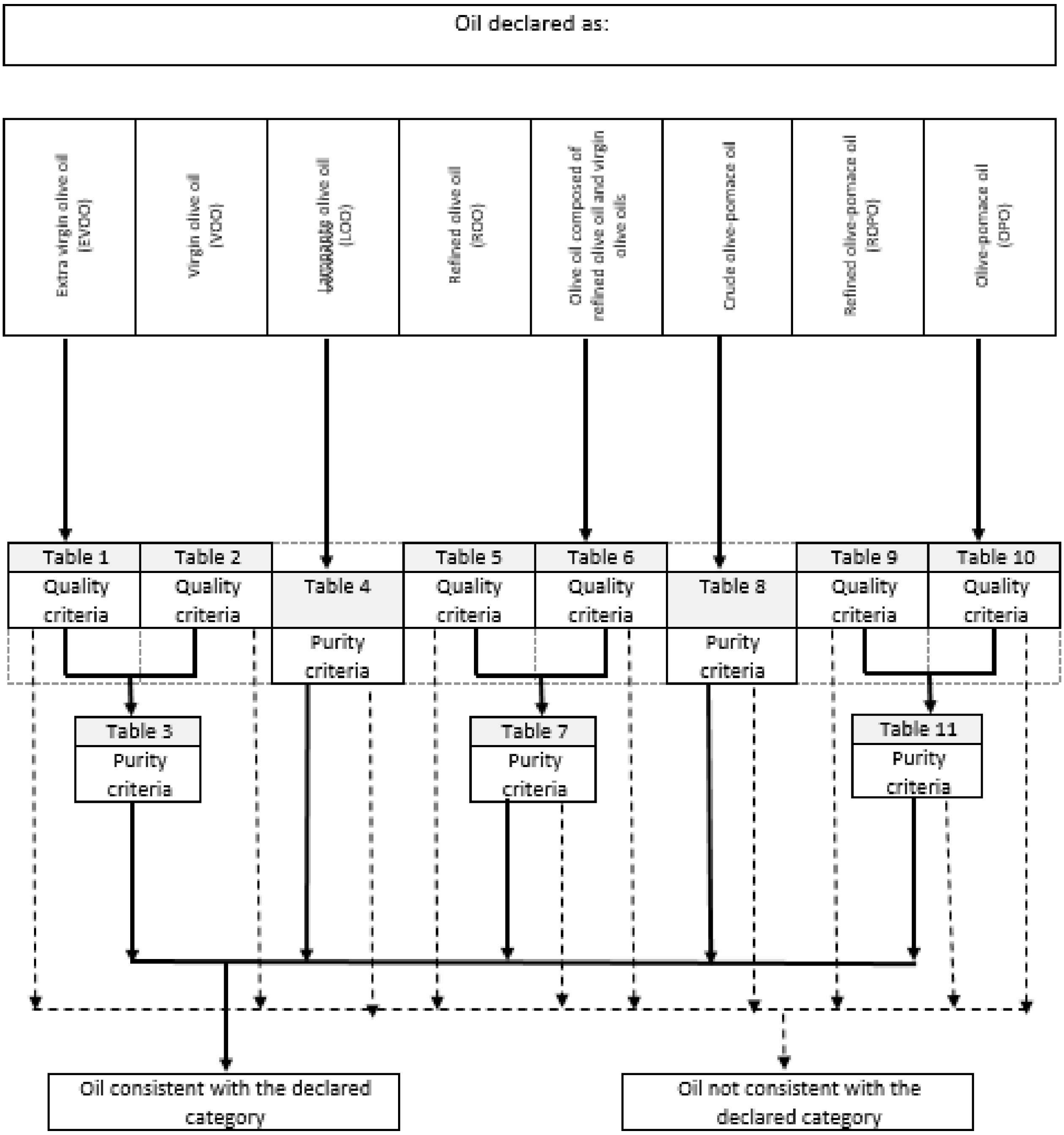
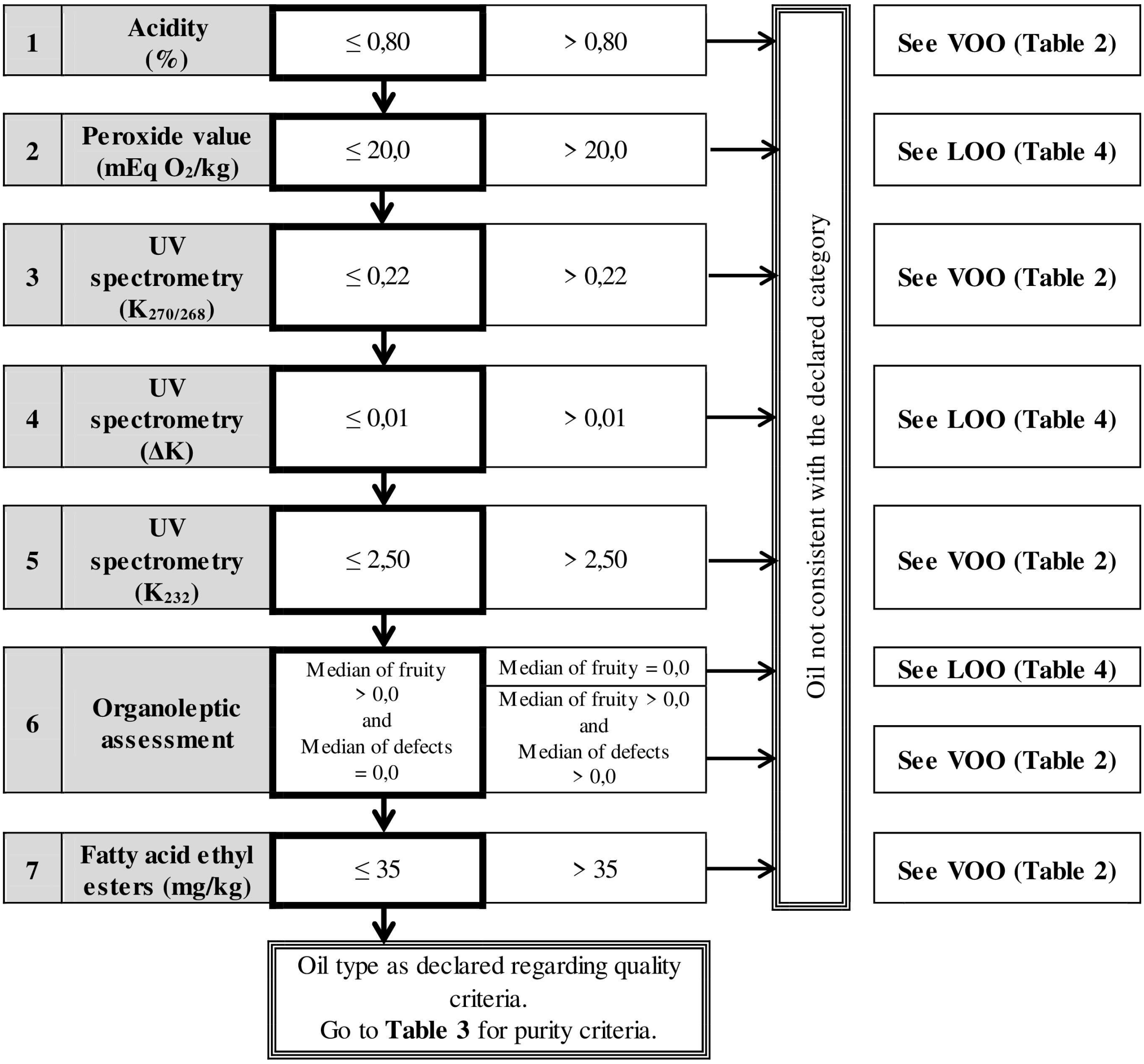


Table 1

Extra virgin olive oil — Quality criteria



1	**Acidity (%)**	≤ 0,80	> 0,80	**See VOO (Table 2)**
2	**Peroxide value (mEq O_2/kg)**	≤ 20,0	> 20,0	**See LOO (Table 4)**
3	**UV spectrometry ($K_{270/268}$)**	≤ 0,22	> 0,22	**See VOO (Table 2)**
4	**UV spectrometry (ΔK)**	≤ 0,01	> 0,01	**See LOO (Table 4)**
5	**UV spectrometry (K_{232})**	≤ 2,50	> 2,50	**See VOO (Table 2)**
6	**Organoleptic assessment**	Median of fruity > 0,0 and Median of defects = 0,0	Median of fruity = 0,0	**See LOO (Table 4)**
			Median of fruity > 0,0 and Median of defects > 0,0	**See VOO (Table 2)**
7	**Fatty acid ethyl esters (mg/kg)**	≤ 35	> 35	**See VOO (Table 2)**

Oil type as declared regarding quality criteria.
Go to **Table 3** for purity criteria.

Table 2

Virgin olive oil — Quality criteria

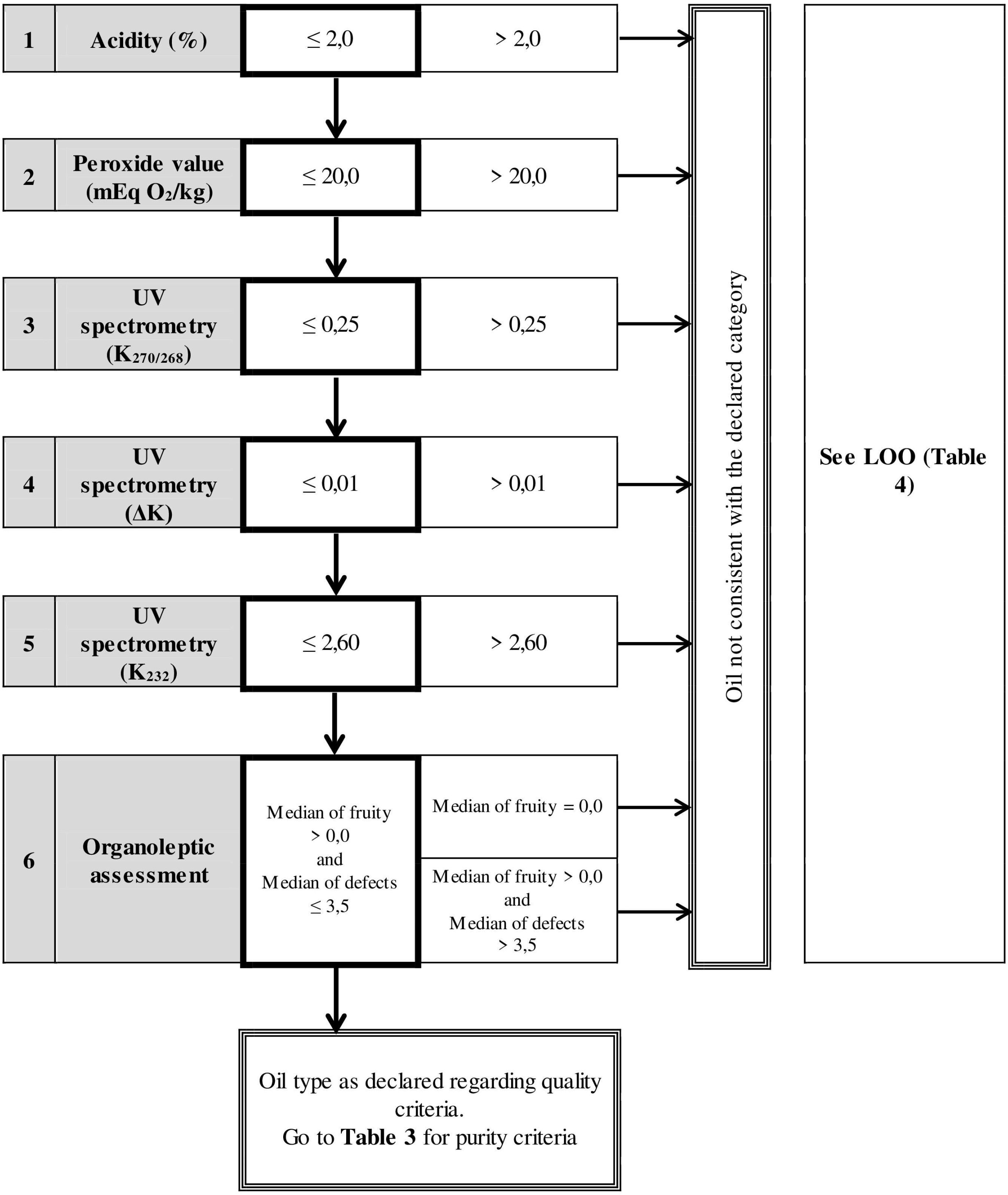
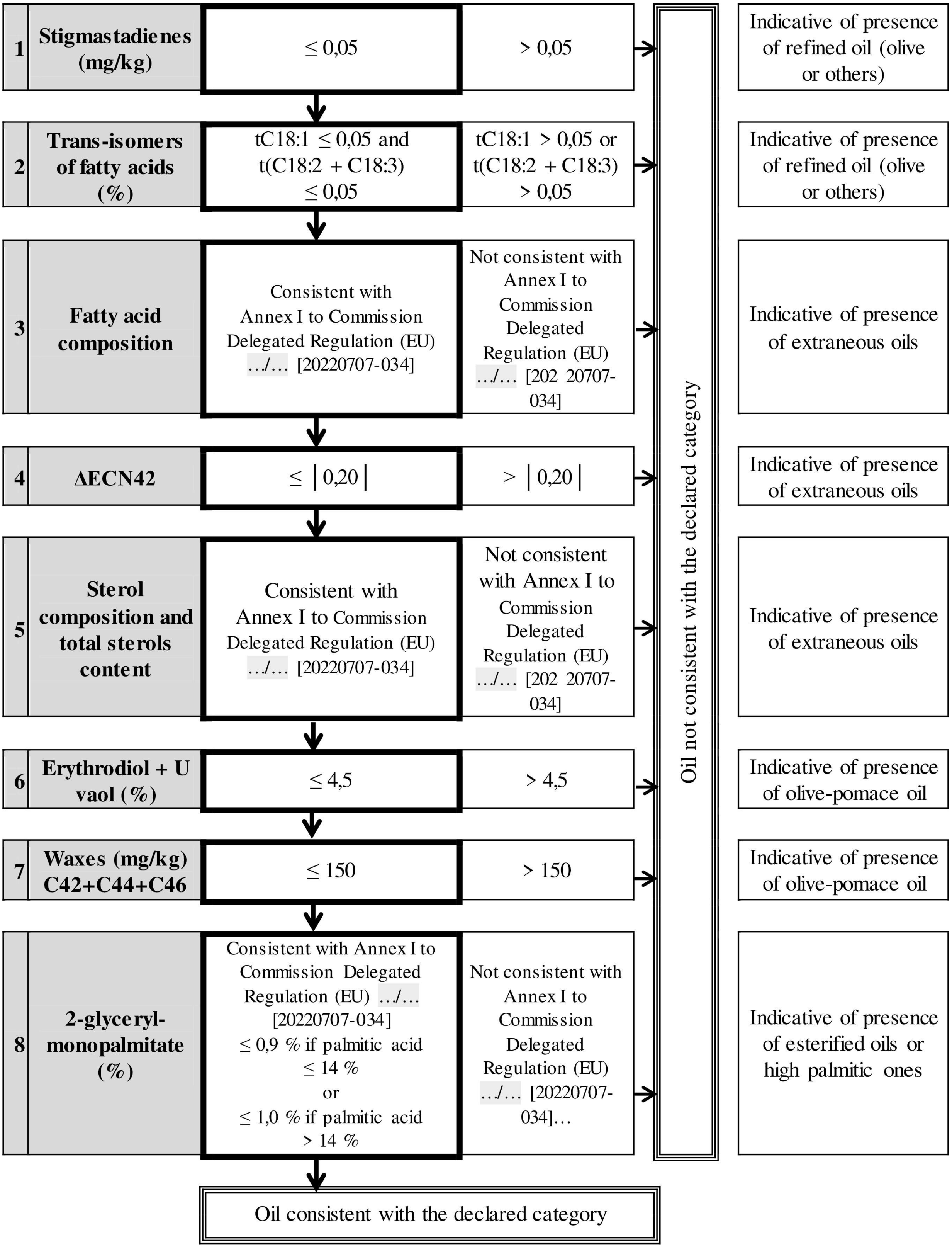


Table 3

Extra virgin olive oil and virgin olive oil — Purity criteria



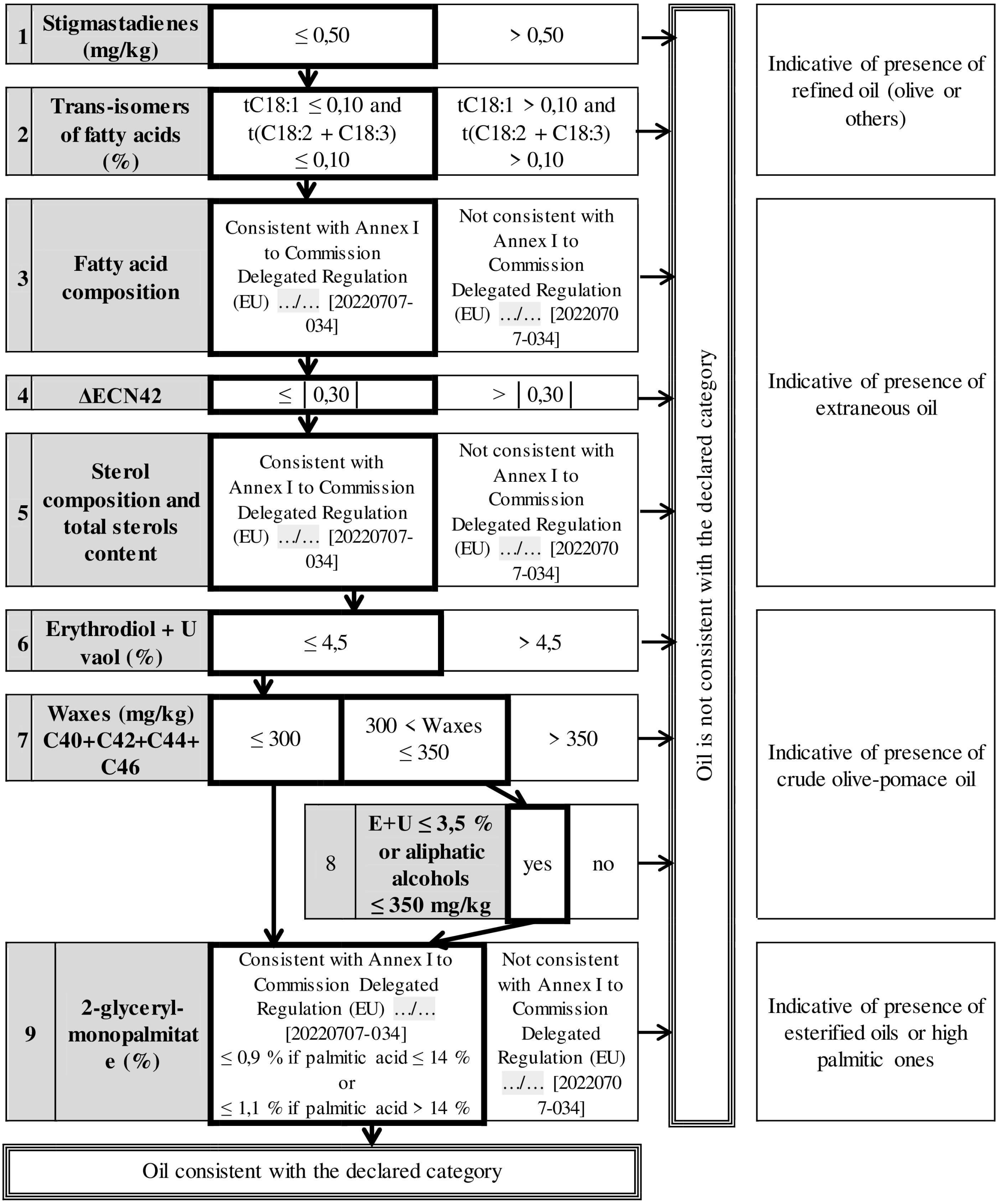
1	**Stigmastadienes (mg/kg)**	≤ 0,05	> 0,05	Indicative of presence of refined oil (olive or others)
2	**Trans-isomers of fatty acids (%)**	tC18:1 ≤ 0,05 and t(C18:2 + C18:3) ≤ 0,05	tC18:1 > 0,05 or t(C18:2 + C18:3) > 0,05	Indicative of presence of refined oil (olive or others)
3	**Fatty acid composition**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]	Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [202 20707-034]	Indicative of presence of extraneous oils
4	**ΔECN42**	≤ |0,20|	> |0,20|	Indicative of presence of extraneous oils
5	**Sterol composition and total sterols content**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]	Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [202 20707-034]	Indicative of presence of extraneous oils
6	**Erythrodiol + Uvaol (%)**	≤ 4,5	> 4,5	Indicative of presence of olive-pomace oil
7	**Waxes (mg/kg) C42+C44+C46**	≤ 150	> 150	Indicative of presence of olive-pomace oil
8	**2-glyceryl-monopalmitate (%)**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034] ≤ 0,9 % if palmitic acid ≤ 14 % or ≤ 1,0 % if palmitic acid > 14 %	Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]…	Indicative of presence of esterified oils or high palmitic ones

Oil not consistent with the declared category

Oil consistent with the declared category

Table 4

Lampante olive oil — Purity criteria



1	**Stigmastadienes (mg/kg)**	≤ 0,50		> 0,50	Indicative of presence of refined oil (olive or others)
2	**Trans-isomers of fatty acids (%)**	tC18:1 ≤ 0,10 and t(C18:2 + C18:3) ≤ 0,10		tC18:1 > 0,10 and t(C18:2 + C18:3) > 0,10	
3	**Fatty acid composition**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]		Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]	Indicative of presence of extraneous oil
4	**ΔECN42**	≤ |0,30|		> |0,30|	
5	**Sterol composition and total sterols content**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]		Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]	
6	**Erythrodiol + Uvaol (%)**	≤ 4,5		> 4,5	Indicative of presence of crude olive-pomace oil
7	**Waxes (mg/kg) C40+C42+C44+C46**	≤ 300	300 < Waxes ≤ 350	> 350	
8	**E+U ≤ 3,5 % or aliphatic alcohols ≤ 350 mg/kg**		yes	no	
9	**2-glyceryl-monopalmitate (%)**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034] ≤ 0,9 % if palmitic acid ≤ 14 % or ≤ 1,1 % if palmitic acid > 14 %		Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220707-034]	Indicative of presence of esterified oils or high palmitic ones

Oil consistent with the declared category

Oil is not consistent with the declared category

Table 5

Refined olive oil — Quality criteria

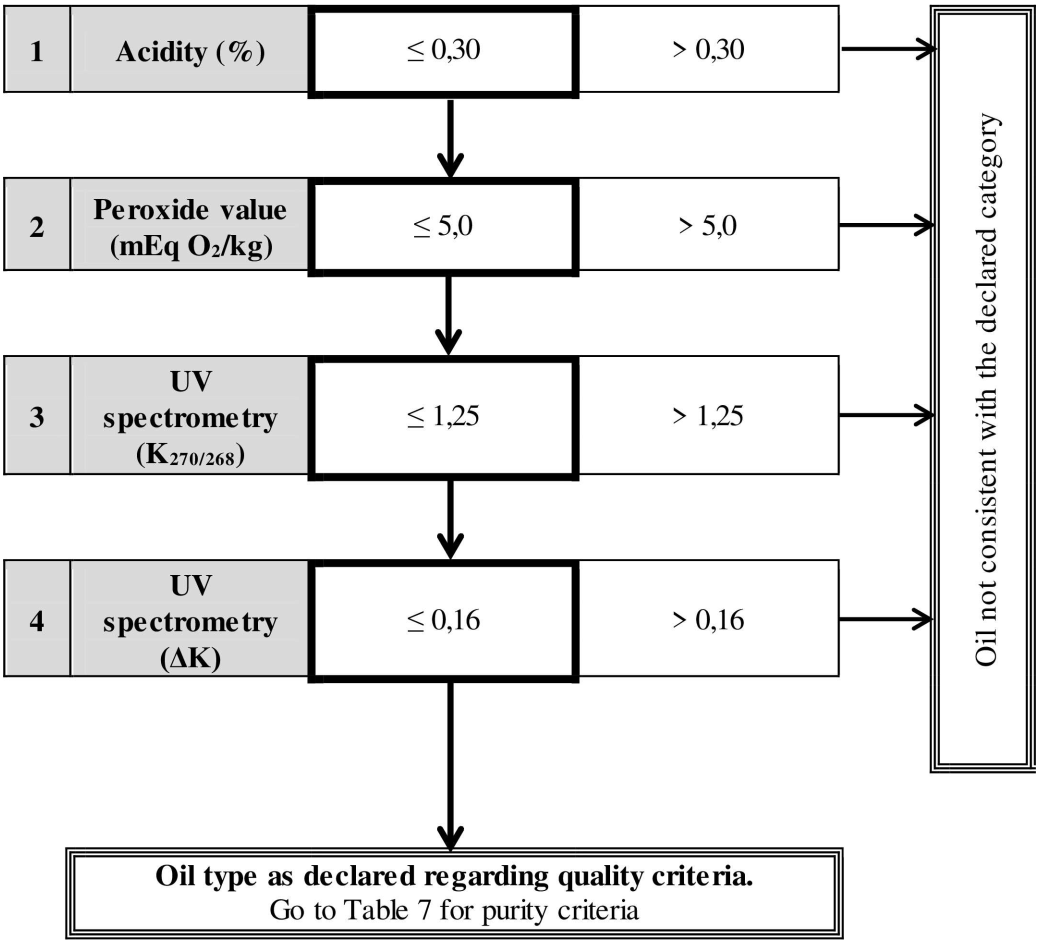
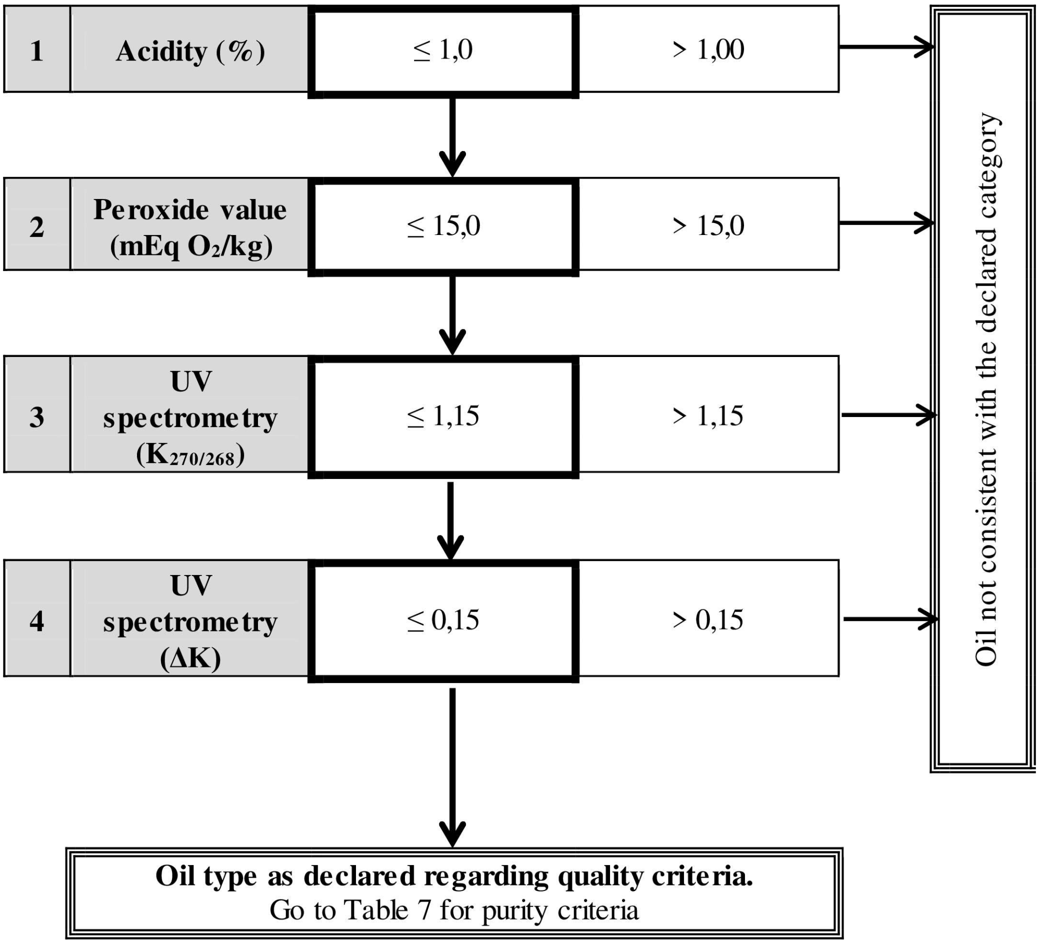


Table 6

Olive oil (composed of refined olive oil and virgin olive oils) — Quality criteria



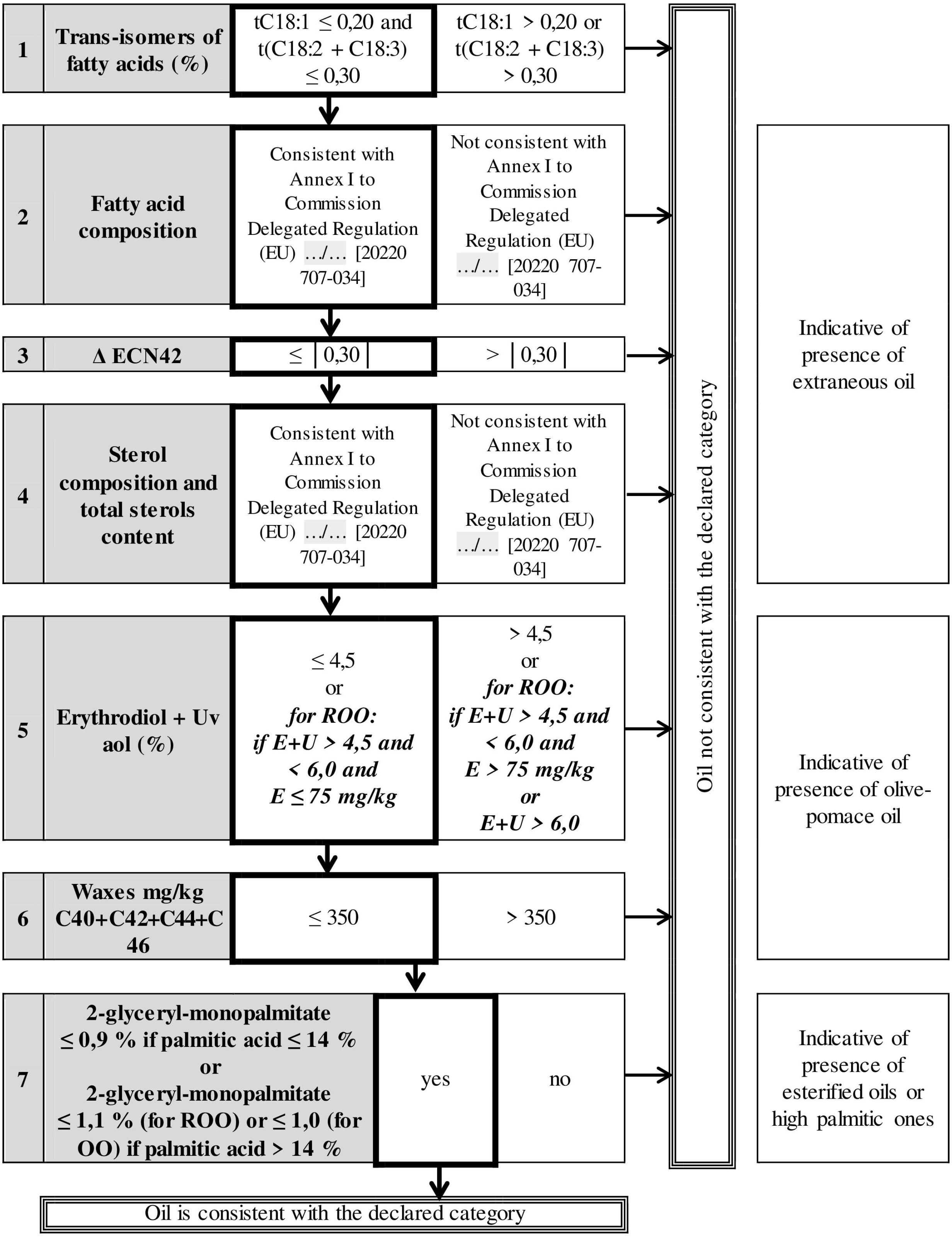
1	**Acidity (%)**	≤ 1,0	> 1,00
2	**Peroxide value (mEq O_2/kg)**	≤ 15,0	> 15,0
3	**UV spectrometry ($K_{270/268}$)**	≤ 1,15	> 1,15
4	**UV spectrometry (ΔK)**	≤ 0,15	> 0,15

Oil not consistent with the declared category

Oil type as declared regarding quality criteria.
Go to Table 7 for purity criteria

Table 7

Refined olive oil and olive oil composed of refined olive oil and virgin olive oils — Purity criteria



1	**Trans-isomers of fatty acids (%)**	tC18:1 ≤ 0,20 and t(C18:2 + C18:3) ≤ 0,30	tC18:1 > 0,20 or t(C18:2 + C18:3) > 0,30
2	**Fatty acid composition**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220 707-034]	Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220 707-034]
3	**Δ ECN42**	≤ |0,30|	> |0,30|
4	**Sterol composition and total sterols content**	Consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220 707-034]	Not consistent with Annex I to Commission Delegated Regulation (EU) …/… [20220 707-034]
5	**Erythrodiol + Uvaol (%)**	≤ 4,5 or ***for ROO:*** ***if E+U > 4,5 and < 6,0 and E ≤ 75 mg/kg***	> 4,5 or ***for ROO:*** ***if E+U > 4,5 and < 6,0 and E > 75 mg/kg*** ***or*** ***E+U > 6,0***
6	**Waxes mg/kg C40+C42+C44+C46**	≤ 350	> 350
7	**2-glyceryl-monopalmitate ≤ 0,9 % if palmitic acid ≤ 14 % or 2-glyceryl-monopalmitate ≤ 1,1 % (for ROO) or ≤ 1,0 (for OO) if palmitic acid > 14 %**	yes	no

Table 8

Crude olive-pomace-oil — Purity criteria

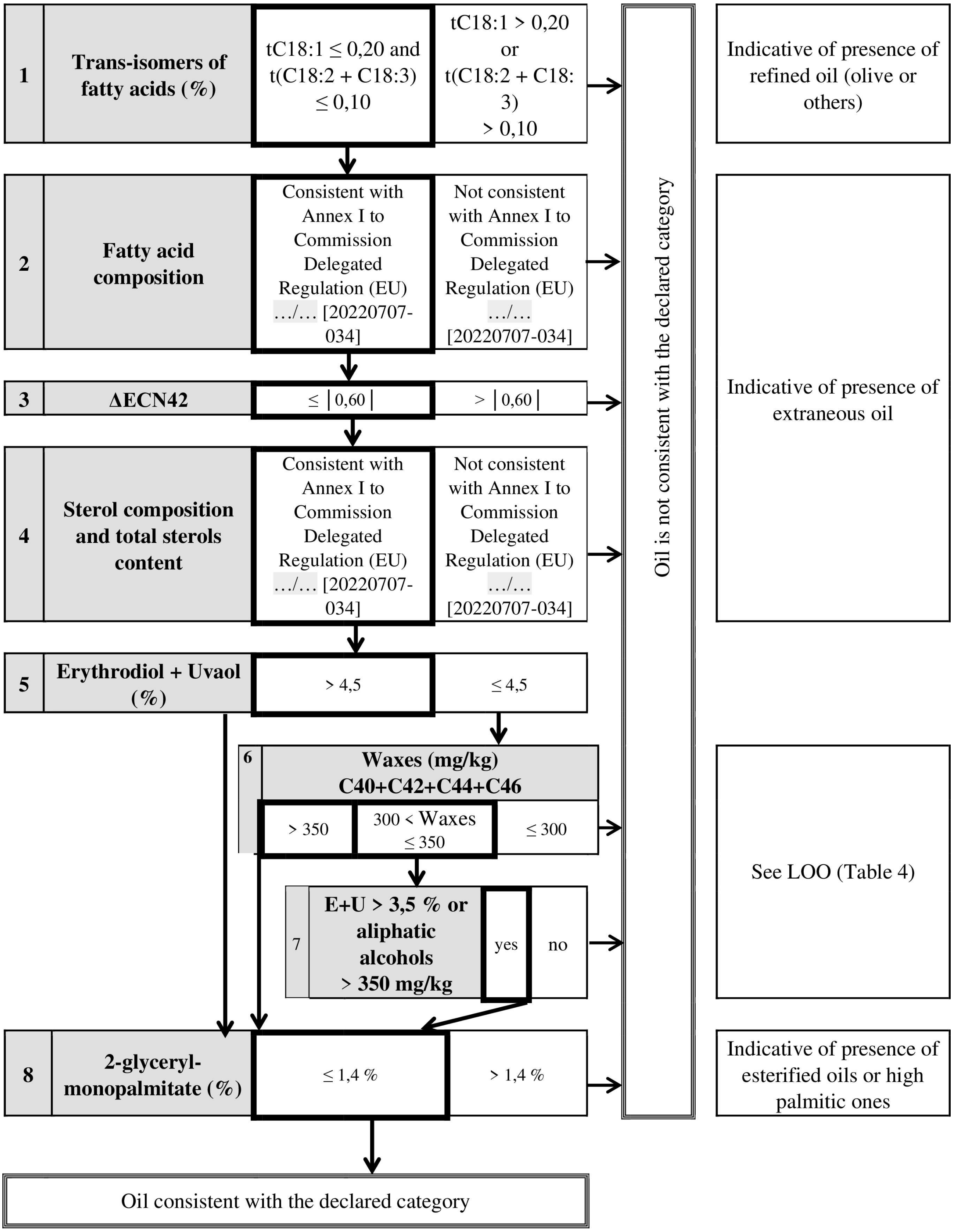


Table 9

Refined olive-pomace-oil — Quality criteria

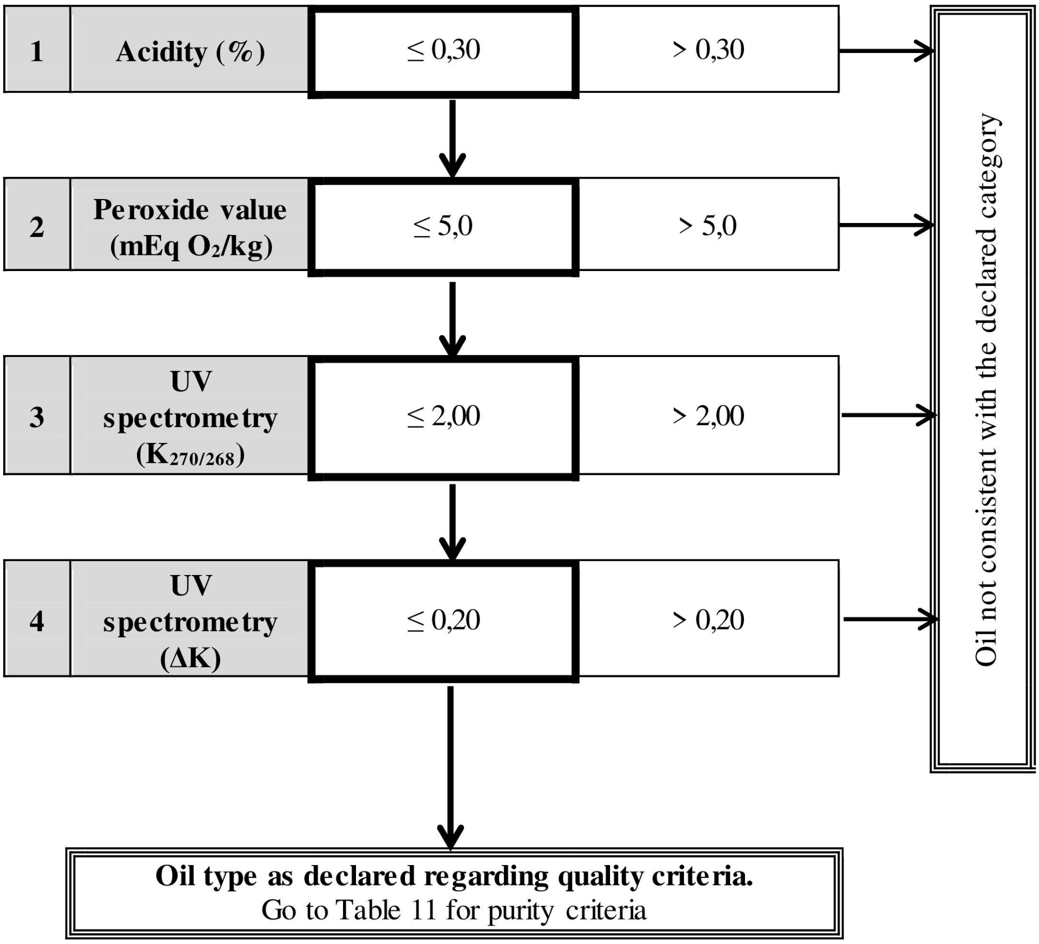
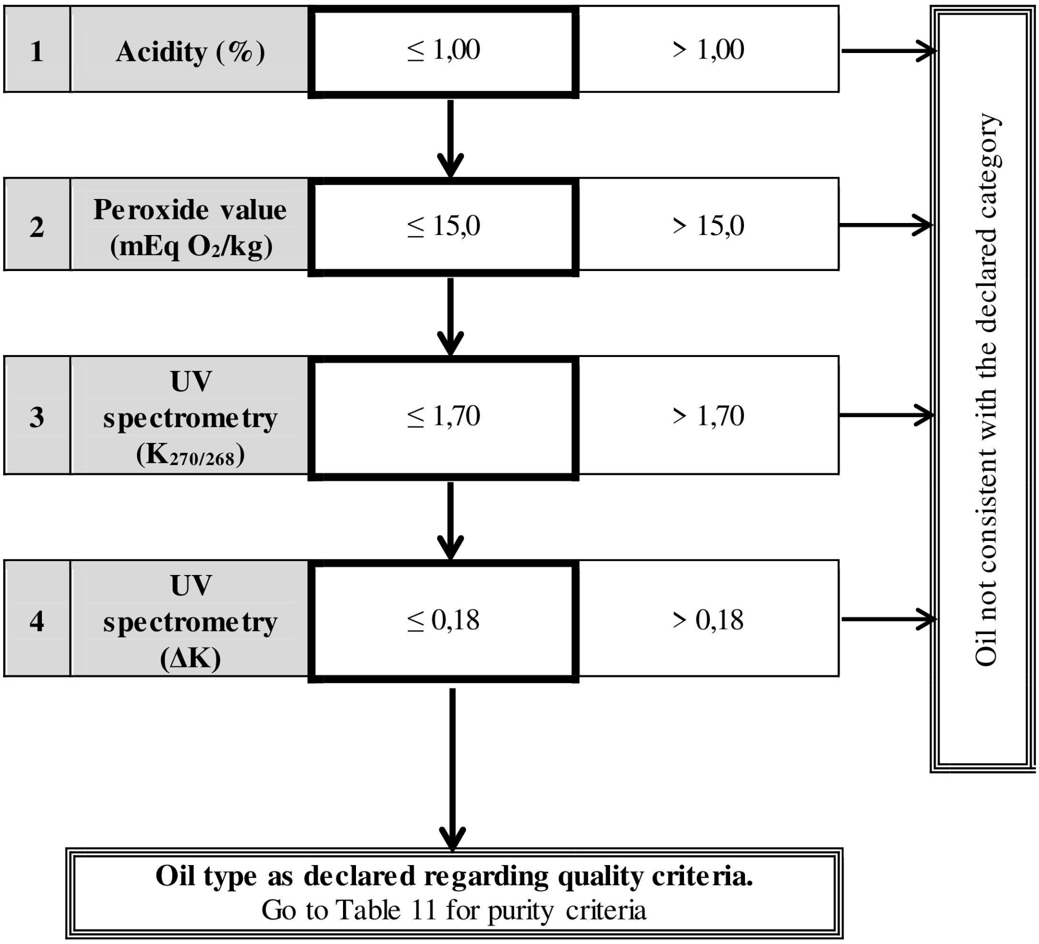


Table 10

Olive-pomace oil — Quality criteria



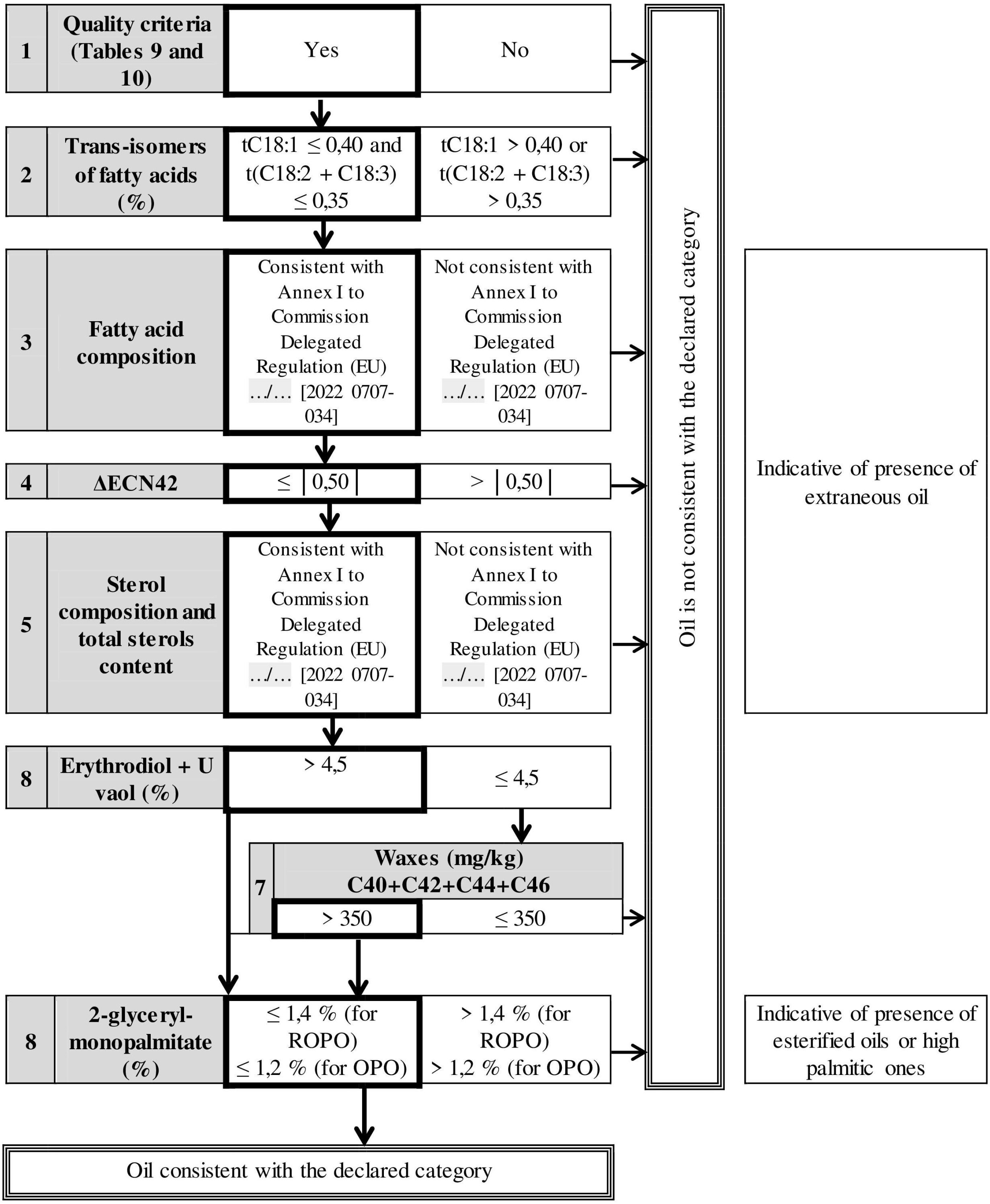
1	**Acidity (%)**	≤ 1,00	> 1,00
2	**Peroxide value (mEq O_2/kg)**	≤ 15,0	> 15,0
3	**UV spectrometry ($K_{270/268}$)**	≤ 1,70	> 1,70
4	**UV spectrometry (ΔK)**	≤ 0,18	> 0,18

Oil not consistent with the declared category

Oil type as declared regarding quality criteria.
Go to Table 11 for purity criteria

Table 11

Refined olive-pomace oil and olive-pomace oil — Purity criteria



ANNEX IV

Method for measuring the oil content in olive cake and residues

1. MATERIALS

1.1. Apparatus

- — suitable extraction apparatus fitted with a 200 to 250 ml round-bottomed flask,
- — electrically heated bath (e.g. sand bath, water bath) or hotplate,
- — analytical balance,
- — oven regulated to a maximum of 80 °C,
- — electrically heated oven fitted with a thermostatic device regulated to 103 ± 2 °C and one that can be swept with a stream of air or operated at reduced pressure,
- — mechanical mill, easy to clean, and one that allows the olive residues to be ground without a rise in their temperature or any appreciable alteration in their content of moisture, volatile matter or substances extractable with hexane,
- — extraction thimble and cotton wool or filter paper from which substances extractable with hexane have already been removed,
- — desiccator,
- — sieve with 1 mm diameter apertures,
- — small particles of previously dried pumice stone.

1.2. Reagent

Normal hexane, technical grade, which must leave a residue of less than 0,002 g per 100 ml, on complete evaporation.

2. PROCEDURE

2.1. Preparation of the test sample

If necessary, use the mechanical mill, which has previously been properly cleaned, to grind the laboratory sample in order to reduce it to particles that can pass completely through the sieve.

Use about one twentieth of the sample to complete the process of cleaning the mill, discard the ground material, grind the remainder and collect, mix carefully and analyse without delay.

2.2. Test portion

As soon as the grinding operation has been completed, weigh out about 10 g of the sample to the nearest 0,01 g for testing.

2.3. Preparation of the extraction thimble

Place the test portion in the thimble and plug with cotton wool. If a filter paper is used, envelope the test portion in it.

2.4. Preliminary drying

If the olive residues are very moist (i.e. moisture and volatile matter content more than 10 %), carry out preliminary drying by placing the loaded thimble (or filter paper) in the oven heated for an appropriate time at not more than 80 °C in order to reduce the moisture and volatile matter content to less than 10 %.

2.5. Preparation of the round-bottomed flask

Weigh to the nearest 1 mg the flask containing one or two particles of pumice stone, previously dried in the stove at 103 ± 2 °C and then cooled in a desiccator for not less than one hour.

2.6. Initial extraction

Into the extraction apparatus insert the thimble (or filter paper) containing the test portion. Pour into the flask the requisite quantity of hexane. Fit the flask to the extraction apparatus and place the whole on the electrically heated bath. Adjust the rate of heating in such a way that the reflux rate is not less than three drops per second (moderate, not violent boiling). After four hours extraction, allow to cool. Remove the thimble from the extraction apparatus and place it in a stream of air in order to drive off most of the impregnating solvent.

2.7. Second extraction

Tip the contents of the thimble into the micro-grinder and grind as finely as possible. Return the ground mixture to the thimble without loss and place it back in the extraction apparatus.

Continue the extraction for a further two hours using the same round-bottomed flask containing the initial extract.

The resultant solution in the extraction flask must be clear. If not, filter it through a filter paper and wash the original flask and the filter paper several times with hexane. Collect the filtrate and the washing solvent in a second round-bottomed flask which has been dried and tared to the nearest 1 mg.

2.8. Removal of solvent and weighing of extract

Remove the greater part of the solvent by distillation on an electrically heated bath. Remove the last traces of solvent by heating the flask in the oven at 103 ± 2 °C for 20 minutes. Assist the elimination process either by blowing in air, or preferably an inert gas, at intervals or by using reduced pressure.

Leave the flask in a desiccator to cool for at least one hour and weigh to the nearest 1 mg.

Heat again for 10 minutes under the same conditions, cool in a desiccator and reweigh.

The difference between the two weightings shall not exceed 10 mg. If it does, heat again for periods of 10 minutes followed by cooling and weighing until the weight difference is 10 mg or less. Note the last weight of the flask.

Carry out duplicate determinations on the test sample.

3. EXPRESSION OF RESULTS

3.1. Method of calculation and formula

(a) The extract expressed as a percentage by mass of the product as received is equal to:

$$S = m_1 \times \frac{100}{m_0}$$

where:

S = is the percentage by mass of extract of the product as received,

m_0 = is the mass, in grams, of the test portion,

m_1 = is the mass, in grams, of the extract after drying.

Take as the result the arithmetic mean of the duplicate determinations, providing the repeatability conditions are satisfied.

Express the result to the first decimal place.

(b) The extract is expressed on a dry matter basis by using the formula:

$$S \times \frac{100}{100 - U} = \text{oil percentage of extract on dry basis}$$

where:

S = is the percentage of extract by means of the product as received (see point (a)),

U = is its moisture and volatile matter content.

3.2. **Repeatability**

The difference between the duplicate determinations carried out simultaneously or in rapid succession by the same analyst shall not exceed 0,2 g of hexane extract per 100 g of sample.

If this condition is not satisfied, repeat the analysis on two other test portions. If, in this case too, the difference exceeds 0,2 g, take as the result the arithmetic mean of the four determinations.

ANNEX V

Form for reporting results of conformity checks referred to in Article 14 in conformity with Commission Delegated Regulation (EU) 2017/1183

				Labelling						**Chemical parameters**			**Organoleptic characteristics** (4)			**Final conclusion**	
Sample	**Category**	**Country of origin**	**Place of inspection** (1)	**Legal name**	**Place of origin**	**Storage conditions**	**Erroneous information**	**Legibility**	**C/NC** (3)	**Parameters out of limit Y/N**	**If so, please indicate which one(s)** (2)	**C/NC** (3)	**Median defect**	**Fruity Median**	**C/NC** (3)	**Required action**	**Sanction**

(1) Internal market (mill, bottlers, retail stage), export, import.

(2) Each characteristic of olive oil set out in Annex I to Commission Delegated Regulation (EU) 2022/2104 shall have a code.

(3) Conform/not conform.

(4) Required only for virgin olive oils within the meaning of Part VIII, point 1, of Annex VII to Regulation (EU) No 1308/2013

COMMISSION REGULATION (EU) 2022/2106

of 31 October 2022

establishing a fisheries closure for giant red shrimp in GFCM geographical subareas 8, 9, 10 and 11 for vessels flying the flag of Italy

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Council Regulation (EC) No 1224/2009 of 20 November 2009 establishing a Union control system for ensuring compliance with the rules of the common fisheries policy (1), and in particular Article 36(2) thereof,

Whereas:

(1) Council Regulation (EU) 2022/110 (2) lays down quotas for 2022.

(2) According to the information received by the Commission, catches of the stock of giant red shrimp in the General Fisheries Commission for the Mediterranean (GFCM) geographical subareas 8, 9, 10 and 11 by vessels flying the flag of or registered in Italy have exhausted the quota allocated for 2022.

(3) It is therefore necessary to prohibit certain fishing activities for that stock,

HAS ADOPTED THIS REGULATION:

Article 1

Quota exhaustion

The fishing quota allocated for 2022 to Italy for the stock of giant red shrimp in the GFCM geographical subareas 8, 9, 10 and 11 referred to in the Annex shall be deemed to be exhausted from the date set out in that Annex.

Article 2

Prohibitions

Fishing activities for the stock referred to in Article 1 by vessels flying the flag of or registered in Italy shall be prohibited from the date set out in the Annex. In particular it shall be prohibited to retain on board, relocate, tranship or land fish from that stock caught by those vessels after that date.

Article 3

Entry into force

This Regulation shall enter into force on the day following that of its publication in the *Official Journal of the European Union*.

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(1) OJ L 343, 22.12.2009, p. 1.

(2) Council Regulation (EU) 2022/110 of 27 January 2022 fixing for 2022 the fishing opportunities for certain fish stocks and groups of fish stocks applicable in the Mediterranean and Black Seas (OJ L 21, 31.1.2022, p. 165).

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 31 October 2022.

For the Commission,
On behalf of the President,
Virginijus SINKEVIČIUS
Member of the Commission

ANNEX

No	09/TQ110
Member State	Italy
Stock	ARS/GF8-11
Species	Giant red shrimp (*Aristaeomorpha foliacea*)
Zone	GSA 8-9-10-11
Closing date	28.9.2022

COMMISSION IMPLEMENTING REGULATION (EU) 2022/2107

of 3 November 2022

entering a name in the register of protected designations of origin and protected geographical indications (‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ (PGI))

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to regard to Regulation (EU) No 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs (1), and in particular Article 52(3)(b) thereof,

Whereas:

(1) Pursuant to Article 50(2)(a) of Regulation (EU) No 1151/2012, the application from Finland to register the name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ as protected geographical indication was published in the *Official Journal of the European Union* (2).

(2) On 23 April 2021 the Commission received from Sweden the notice of opposition. The Commission forwarded the notice of opposition to Finland on 27 April 2021. On 4 June 2021 Sweden submitted to the Commission a reasoned statement of opposition.

(3) After examining the reasoned statement of opposition and founding it admissible, in accordance with Article 51(3) of Regulation (EU) No 1151/2012, the Commission invited Finland and Sweden, by letter of 29 June 2021, to engage in appropriate consultations in view of reaching an agreement.

(4) On 20 July 2021, on request of Finland, the Commission extended the deadline for consultations by three months. The consultations between Finland and Sweden ended without an agreement being reached. The Commission should therefore take a decision on the registration in accordance with the procedure provided for in Article 52(3)(b) of Regulation (EU) No 1151/2012 taking into account the results of these consultations.

(5) The main arguments of Sweden as set out in its reasoned statement of opposition and in the consultations carried out with Finland can be summarised as follows.

(6) Sweden claimed that a significant number of hams from a variety of producers and brands were sold since at least 2008 on the Swedish market under the designation ‘Basturökt skinka’. Because of the partial homonymy with the name to be registered, the opponent argued that the registration would jeopardise the existence of ‘Basturökt skinka’, which referred to products legally marketed in Sweden since 2008.

(7) Moreover, Sweden claimed that the term ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’, where ‘aito/äkta’ translates to ‘genuine’ or ‘authentic’, would be generic, especially considering there is no reference to a place, region or country in the name applied to be protected as a protected geographical indication. Thus the registration, in Sweden’s view, would not comply with article 6(1) of Regulation (EU) No 1151/2012.

(8) The Commission has assessed the arguments exposed in the reasoned statement of opposition from Sweden in the light of the provisions of Regulation (EU) No 1151/2012, taking into account the results of the appropriate consultations carried out between the applicant and the opponent and it has reached the following conclusions.

(9) ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ is a compound name that designates product produced in the whole area of Finland using a specific traditional method of direct smoking with alder wood sticks/blocks in a smoke sauna. Its processing time is long, lasting at least 12 hours. The product has been on the market since 1950’s under the Finnish name ‘Aito saunapalvikinkku’ and the Swedish name ‘Äkta basturökt skinka’ or ‘Äkta bastupalvad skinka’. This product is distinct from the product designated in both Finland and Sweden as ‘Saunapalvikinkku’ or

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(1) OJ L 343, 14.12.2012, p. 1.

(2) OJ C 27, 25.1.2021, p. 29.

‘Basturökt skinka’, for production of which a different production method is used (smoking method, where the smoke is generated outside the smoke chamber from wood chips or by regenerated smoke). The word ‘aito/äkta’ (‘genuine’) in ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ refers to the fact that the product is prepared using only the above described specific traditional method, thanks to which the product has its own distinct characteristics compared to ‘Saunapalvikinkku’ or ‘Basturökt skinka’. Sweden has confirmed that there are no products on the Swedish market produced in a traditional method and sold under the name ‘Äkta basturökt skinka’. The name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ only refers therefore to the product as produced in Finland using that specific method of production.

(10) It follows that the compound name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ identifies a product originating in a specific place, in particular in a country, which has specific quality and characteristics attributable to its geographical origin.

(11) Only the compound name refers to the specific product produced in the defined geographical area following the traditional method. Therefore, the common terms the compound name is composed of product marketed in Sweden and in Finland, should not be protected in themselves.

(12) In the light of the above, the protection should be limited to the name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ as a whole, while the individual components of that name should continue to be allowed for products not complying with the product specification of ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ throughout the European Union, provided the principles and rules applicable in its legal order are respected.

(13) Moreover, Sweden’s opposition also concerns the generic character of the whole name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ and the fact that there is no reference to a place, region or country.

(14) According to the definition contained in Article 3(6) of Regulation (EU) No 1151/2012, ‘generic terms’ means the names of products which, although relating to the place, region or country, where the product was originally produced or marketed, have become the common name of a product in the Union.

(15) The name ‘Aito saunapalvikinkku/Äkta basturökt skinka’ as a whole refers to a specific product being produced in a specific geographical area and having specific and distinctive quality and characteristics linked to its geographical origin. Therefore, it is clear that the name ‘Aito saunapalvikinkku/Äkta basturökt skinka’, as a whole, has not become a common name and thus has not become generic.

(16) It is true that the name consist of multiple common terms without a geographical term. Though, as long as the whole name designates an agricultural product or a foodstuff that fulfils the conditions referred to in Article 5(2) of Regulation (EU) No 1151/2012, it is eligible for registration as a protected geographical indication.

(17) Accordingly, the name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ (PGI) should be entered in the register of protected designations of origin and protected geographical indications.

(18) The measures provided for in this Regulation are in accordance with the opinion of the Agricultural Product Quality Policy Committee,

HAS ADOPTED THIS REGULATION:

Article 1

The name ‘Aito saunapalvikinkku’/‘Äkta basturökt skinka’ (PGI) is registered.

The name in the first paragraph identifies a product from Class 1.2. Meat products (cooked, salted, smoked, etc.) set out in Annex XI to Commission Implementing Regulation (EU) No 668/2014 ([3]).

Article 2

The terms ‘Saunapalvikinkku’ and ‘Basturökt skinka’ may continue to be used within the territory of the Union, provided the principles and rules applicable in its legal order are respected.

Article 3

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 3 November 2022.

For the Commission
The President
Ursula VON DER LEYEN

([3]) Commission Implementing Regulation (EU) No 668/2014 of 13 June 2014 laying down rules for the application of Regulation (EU) No 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs (OJ L 179, 19.6.2014, p. 36).

COMMISSION IMPLEMENTING REGULATION (EU) 2022/2108

of 3 November 2022

granting a Union authorisation for the single biocidal product ‘Ecolab UA Lactic acid single product dossier’

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products (1), and in particular Article 44(5), first paragraph, thereof,

Whereas:

(1) On 16 April 2019, Ecolab Deutschland GmbH submitted an application in accordance with Article 43(1) of Regulation (EU) No 528/2012 for authorisation of a single biocidal product named ‘Ecolab UA Lactic acid single product dossier’ of product-type 2, as described in Annex V to that Regulation, providing written confirmation that the competent authority of Latvia had agreed to evaluate the application. The application was recorded under case number BC-XS050968-91 in the Register for Biocidal Products.

(2) ‘Ecolab UA Lactic acid single product dossier’ contains L-(+)-lactic acid, as active substance, which is included in the Union list of approved active substances referred to in Article 9(2) of Regulation (EU) No 528/2012 for product-type 2.

(3) On 24 March 2021, the evaluating competent authority submitted, in accordance with Article 44(1) of Regulation (EU) No 528/2012, an assessment report and the conclusions of its evaluation to the European Chemicals Agency (‘the Agency’).

(4) On 4 November 2021, the Agency submitted to the Commission an opinion (2), the draft summary of the biocidal product characteristics (‘SPC’) of ‘Ecolab UA Lactic acid single product dossier’ and the final assessment report on the single biocidal product, in accordance with Article 44(3) of Regulation (EU) No 528/2012.

(5) The opinion concludes that ‘Ecolab UA Lactic acid single product dossier’ is a single biocidal product, that it is eligible for Union authorisation in accordance with Article 42(1) of Regulation (EU) No 528/2012 and that subject to compliance with the draft SPC, it meets the conditions laid down in Article 19(1) of that Regulation.

(6) On 22 November 2021, the Agency transmitted to the Commission the draft SPC in all the official languages of the Union in accordance with Article 44(4) of Regulation (EU) No 528/2012.

(7) The Commission concurs with the opinion of the Agency and considers it therefore appropriate to grant a Union authorisation for ‘Ecolab UA Lactic acid single product dossier’.

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(1) OJ L 167, 27.6.2012, p. 1.

(2) ECHA opinion of 12 October 2021 on the Union authorisation of the biocidal product ‘Ecolab UA Lactic acid single product dossier’ (ECHA/BPC/294/2021), https://echa.europa.eu/it/opinions-on-union-authorisation.

(8) In its opinion, the Agency recommends that the Commission request the authorisation holder to conduct a shelf-life study of ‘Ecolab UA Lactic acid single product dossier’ in commercial packaging in which the product is to be made available on the market, as a condition of the authorisation. The study should show relevant data demonstrating satisfactory chemical and physical properties prior to and after storage. The Commission agrees with that recommendation and considers that the submission of the results of that study should be a condition relating to the making available on the market and use of the single biocidal product pursuant to Article 22(1) of Regulation (EU) No 528/2012. Given the fact that that study is already being conducted, the authorisation holder should submit the results of that study to the Agency by 3 months after the date of entry into force of this Regulation. The Commission also considers that the fact that data is to be provided after the authorisation is granted does not affect the conclusion on the fulfilment of the condition under Article 19(1), point (d), of Regulation (EU) No 528/2012 on the basis of the existing data.

(9) The measures provided for in this Regulation are in accordance with the opinion of the Standing Committee on Biocidal Products,

HAS ADOPTED THIS REGULATION:

Article 1

A Union authorisation with authorisation number EU-0027463-0000 is granted to Ecolab Deutschland GmbH for the making available on the market and use of the single biocidal product ‘Ecolab UA Lactic acid single product dossier’ subject to compliance with the terms and conditions set out in Annex I and in accordance with the summary of the biocidal product characteristics set out in Annex II.

The Union authorisation is valid from 24 November 2022 to 31 October 2032.

Article 2

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 3 November 2022.

For the Commission
The President
Ursula VON DER LEYEN

ANNEX I

TERMS AND CONDITIONS (EU-0027463-0000)

The authorisation holder shall conduct a shelf life study (24 months) of ‘Ecolab UA Lactic acid single product dossier’ in commercial packaging in which the product is to be made available on the market. The specification proposed and properties tested shall be in accordance with Guidance on the Biocidal Products Regulation Volume I: Identity of the active substance/physico-chemical properties/analytical methodology – Information Requirements, Evaluation and Assessment. Parts A+B+C, Version 2.1, March 2022, section 2.6.4 Storage stability, stability and shelf-life (1). All relevant properties shall be determined prior to and after storage.

By 24 February 2023 the authorisation holder shall submit the results of the study to the Agency.

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(1) https://echa.europa.eu/documents/10162/2324906/bpr_guidance_vol_i_parts_abc_en.pdf/31b245e5-52c2-f0c7-04db-8988683cbc4b

ANNEX II

Summary of product characteristics for a biocidal product

Ecolab UA Lactic Acid single product dossier

Product type 2 – Disinfectants and algaecides not intended for direct application to humans or animals (Disinfectants)

Authorisation number: EU-0027463-0000

R4BP asset number: EU-0027463-0000

1. ADMINISTRATIVE INFORMATION

1.1. Trade name(s) of the product

Trade name(s)	GEL NETTOYANT DESINFECTANT WC Maxx Into Des

1.2. Authorisation holder

Name and address of the authorisation holder	Name	Ecolab Deutschland GmbH
	Address	Ecolab Allee 1, 40789 Monheim am Rhein Germany
Authorisation number	EU-0027463-0000	
R4BP asset number	EU-0027463-0000	
Date of the authorisation	24 November 2022	
Expiry date of the authorisation	31 October 2032	

1.3. Manufacturer(s) of the product

Name of manufacturer	Ecolab Europe GmbH
Address of manufacturer	Richtistrasse 7, 8304 Wallisellen, Switzerland
Location of manufacturing sites	AFP GmbH, 21337 Lueneburg, Germany ACIDEKA S.A. Capuchinos de Basurto 6, 4a planta, 48013 Bilbao, Bizkaia, Spain ADIEGO HNOS, Adiego CTRA DE VALENCIA, 50410 CUARTE DE HUERVA, Spain ALLIED PRODUCTS, Allied Hygiene Unit 11, Belvedere Industrial Estate Fishers Way, DA17 6BS Belvedere Kent, United Kingdom Arkema GmbH Morschheimer Strasse 19, D-67292 Krichbeimbolanden, Germany AZELIS DENMARK, Lundtoftegårdsvej 95, 2800 Kgs. Lyngby, Denmark BELINKA-LJUBLJANA, Belinka Zasavska Cesta 95, 1001 Ljubljana, Slovenia BENTUS LABORATORIES, Radio street 24 BLd 1, 105005 Moscow, Russian Federation BIO PRODUCTiONS Ltd, 72 Victoria Road, RH15 9LH West Sussex, United Kingdom BIOXAL SA, Route des Varennes – Secteur A – BP 30072, 71103 Chalon sur Saône Cedex, France

BORES S.R.L., Bores Srl Via Pioppa 179, 44020 Pontegradella, Italy
BRENNTAG ARDENNES, Route de Tournes CD n 2, 08090 Cliron, France
BRENNTAG CEE – GUNTRAMSDORF, Blending Bahnstr 13A, 2353 Guntramsdorf, Austria
BRENNTAG Kleinkarlbach, Humboldtring 15, 45472 Muehlheim, Germany
BRENNTAG KAISERSLAUTERN, Merkurstr. 47, 67663 Kaiserslautern, Germany
BRENNTAG NORDIC – HASLEV, Høsten Teglværksvej 47, 4690 Haslev, Denmark
BRENNTAG NORMANDLY, 12 Sente des Jumelles BP 11, 76710 Montville, France
BRENNTAG PL-ZGIERZ, ul. Kwasowa 5, 95-100 Zgierz, Poland
BRENNTAG QUIMICA – Calle Gutemberg n° 22,. Poligono Industrial El Lomo, 28906 Madrid, Spain
BRENNTAG SCHWEIZERHALL, Elsaesserstr. 231, CH-4056 Basel, Switzerland
BUDICH INTERNATIONAL GmbH, Dieselstrasse 10, 32120 Hiddenhause, Germany
CALDIC DEUTSCHLAND CHEMIE B.V., Karlshof 10 D, 40231 Deusseldorf, Germany
COLEP BAD SCHMIEDEBERG, Kemberger Str. 3, 06905 Bad Schmiedeberg, Germany
LANA S.A. Condado de Trevino 46, 09080 Burgos, Spain
COMERCIAL GODO, França 13, 08700 Barcelona, Spain
COURTOIS SARL, Route de Pacy, 27730 Bueil, France
DAN-MOR Natural products and Chemicals Ltd, Hailian street 29, 30600 Akiva, Israel
DENTECK BV, Heliumstraat 8, 2718 SL Zoetermeer, Netherlands
DETERGENTS BURGUERA S.L., Joan Ballester, 50, 07630 Campos (illes Baleares), Spain
ECL BIEBESHEIM, Justus-von-Liebig-Straße 11, 64584 Biebesheim am Rhein, Germany
ECL CELRA, Celra C/Tramuntana s/n Poligona Industrial Celra, 17460 Girona, Spain
ECL CHALONS, AVENUE DU GENERAL PATTON, 51000 Chalons en Champagne, France
ECL CISTERNA, Via Ninfina II, 04012 Cisterna di Latina, Italy
ECL FAWLEY, Fawley Cadland Road, Hythe, SO45 3NP Hampshire, South Hampton, United Kingdom
ECL LEEDS, Lotherton Way Garforth, LS25 2JY Leeds, United Kingdom
ECL MANDRA, 25TH KM OLD NATIONAL ROAD OF ATHENS TO THIVA, GR 19600, 19600 Mandra, Greece
ECL MARIBOR, Vajngerlova 4, SI-2001 Maribor, Slovenia
ECL MICROTEK B.V. – Gesinkkampstraat 19, 7051 HR Varsseveld, Netherlands
ECL MICROTEK MOSTA, F20 MOSTA TECHNOPARK, 3000 MOSTA MST, Malta
ECL MULLINGAR, Forest Park Zone C Mullingar Industrial Estate, N91 Mullingar, Ireland
ECL NIEWEGEIN, Brugwal 11A, 3432 NZ Nieuwegein, Netherlands
ECL ROVIGO ESOFORM, Viale del Lavoro 10, 45100 Rovigo, Italy
ECL ROZZANO, Via A. Grandi,, 20089 Rozzano MI, Italy
ECL TESJOKI, NLC Tesjoki Kivikummuntie 1, 07955 Tesjoki, Finland

	ECL TESSENDERLO, Industriezone Ravenshout 4, 3980 Tessenderlo, Belgium ECL WEAVERGATE, NLC Weavergate Northwich, CHheshire West and Chester, CW8 4EE Weavergate, United Kingdom ECOLAB LTD BAGLAN/SWINDON, Plot 7a Baglan Energy Park, Baglan, Port Talbot, SA11 2HZ Baglan, United Kingdom FERDINAND EIERMACHER, Westring 24, 48356 Nordwalde, Germany F.E.L.T., B.P 64 10 rue du Vertuquet, 59531 Neuville En Ferrain, France Gallows Green Services Ltd. Cod Beck Mill Industrial Estate Dalton Lane Thirsk North Yorkshire, YO7 3HR North Yorkshire, United Kingdom GERDISA GERMAN RGUEZ DROGAS IND., Gerdisa Pol Industrial Miralcampo parc.37, 19200 Azuqueca de Henares Guadalajara, Spain GIRASOL NATURAL PRODUCTS BV, De Veldoven 12-14, 3342 GR Hendrik-Ido-Ambacht, Netherlands HENKEL ENGELS, 48 Pr. Stroitelei, 413116 Saratov, Russian Federation IMECO GmbH & Co. KG, Boschstraße 5, D-63768 Hösbach, Germany INNOVATE GmbH, Am Hohen Stein 11, 06618 Naumburg, Germany INTERFILL LCC-TOSNO, Moskovskoye shosse 1, 187000 Tosno – Leningradskaya oblast, Russian Federation JODEL- PRODUCTOS QUIMICOS, Jodel Zona Inustrial, 2050 Aveiras de Cima, Portugal KLEIMANN GmbH, Am Trieb 13, 72820 Sonnenbühl, Germany LA ANTIGUA LAVANDERA S.L., Apartado de Correos, 58, 41500 Sevilla, Spain LABORATOIRES ANIOS, Pavé du moulin, 59260 Lille-Hellemmes, Spain LABORATOIRES ANIOS, Rue de Lille 3330, 59262 Sainghin-en-Mélantois, France LICHTENHELDT GmbH, Lichtenheldt Industriestrasse 7-9, 23812 Wahlstedt, Germany LONZA GmbH, Morianstr.32, 42103 Wuppertal, Germany MULTIFILL BV, Constructieweg 25A, 3641 SB Mijdrecht, Netherlands NOPA NORDISK PARFUMERIVARE, Hvedevej 2-22, DK-8900 Randers, Denmark PLANOL GmbH, Maybachstr 17, 63456 Hanau, Germany PLUM A/S, Frederik Plums Vej 2, DK 5610 Assens, Denmark PRODUCTOS LA CORBERANA S.L.,, 46612 Corbera (Valencia), Spain THE PROTON GROUP LTD, Ripley Drive, Normanton Industrial Estate, Wakefield, WF6 1QT Wakefield, United Kingdom QUIMICAS MORALES S.L., Misiones, 11, 05005 Las Palmas de Fran Canaria, Spain RNM PRODUCTOS QUIMICOS, Lda Rua da Fabrica, 123, 4765-080 Carreira Vila Nova de Famalicao Carreira Vila Nova de Famalicao, Portugal ROQUETTE & BARENTZ, Route De La Gorgue, F-62136 Lestrem, France RUTPEN LTD, MEMBURY AIRFIELD LAMBOURN BERKS, RG16 7TJ Membury, United Kingdom Solimix, Montseny 17-19 Pol. Ind. Sant Pere Molanta, 08799 Olerdola Barcelona, Spain

	STAUB & Co, Industriestraße 3, D-86456 Gablingen, Germany STOCKMEIER CHEMIE EILENBURG GmbH & Co.Kg, Gustav-Adolf-Ring 5, 04838 Ellenburg, Germany SYNERLOGIC BV, L.J. Costerstraat 5, 6827 Arnhem, Netherlands UNIVAR Ltd, Argyle House, Epsom Avenue„ SK9 3RN Wilmslow, United Kingdom UNIVAR SPA, Via Caldera 21, 20-153 Milano, Italy Van Dam Bodegraven B.V, Beneluxweg 6-8, 2410 AA Bodegraven, Netherlands Pal International Ltd., Sandhurst Street, – Leicester, United Kingdom CARBON CHEMICALS GROUP LTD, P43 R772 Ringaskiddy, County Cork, Ireland BRENNTAG DUISBURG, Am Röhrenwerk, 4647529 Duisberg, Germany BRENNTAG Glauchau, Bochstrasse, 08371 Glauchau, Germany BRENNTAG Hamburg, Hannoversche Str 40, 21079 Hamburg, Germany BRENNTAG Heilbronn, Dieselstrasse, 574076 Heilbronn, Germany BRENNTAG Lohfelden, Am Fieseler Werk, 934253 Lohfelden, Germany BRENNTAG Nordic – VEJLE, Strandgade 35, 7100 Vejle, Denmark KOMPAK NEDERLAND BV, 433651 Bavel, Netherlands

1.4. **Manufacturer(s) of the active substance(s)**

Active substance	L-(+)-lactic acid
Name of manufacturer	Purac Biochem bv
Address of manufacturer	Arkelsedijk 46, 4206 AC Gorinchem, Netherlands
Location of manufacturing sites	Arkelsedijk 46, 4206 AC Gorinchem, Netherlands

2. PRODUCT COMPOSITION AND FORMULATION

2.1. **Qualitative and quantitative information on the composition of the product**

Common name	IUPAC name	Function	CAS number	EC number	Content (%)
L-(+)-lactic acid		Active Substance	79-33-4	201-196-2	13,2
D-Glucopyranose, oligomers, decyl octyl glycosides	D-Glucopyranose, oligomers, decyl octyl glycosides	Non-active substance	68515-73-1	500-220-1	3,25
Alcohols, C8-10 (even numbered), ethoxylated (< 2,5-EO)	Alcohols, C8-10, ethoxylated	Non-active substance	71060-57-6	615-247-5	1,0

2.2. **Type of formulation**

AL – Any other liquid

3. HAZARD AND PRECAUTIONARY STATEMENTS

Hazard statements	Causes severe skin burns and eye damage. Corrosive to the respiratory tract.
Precautionary statements	Do not breathe vapours. Wash hands thoroughly after handling. Wear protective gloves. IF SWALLOWED:Rinse mouth.Do NOT induce vomiting. IF ON SKIN (or hair):Take off immediately all contaminated clothing.Rinse skin with water. IF IN EYES:Rinse cautiously with water for several minutes.Remove contact lenses, if present and easy to do. Continue rinsing. IF INHALED:Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Specific treatment (see first aid instruction on this label). Wash contaminated clothing before reuse. Store locked up. Dispose of contents to according with national regulations. Dispose of container to according with national regulations.

4. AUTHORISED USE(S)

4.1. **Use description**

Table 1.

Use # 1 – Toilet bowl disinfectant

Product type	PT02 – Disinfectants and algaecides not intended for direct application to humans or animals (Disinfectants)
Where relevant, an exact description of the authorised use	Not relevant
Target organism(s) (including development stage)	Common name: Bacteria Development stage: Common name: Yeasts Development stage:
Field(s) of use	Indoor Indoor – disinfection of hard surface on the inside of toilet bowl in institutional and healthcare area.
Application method(s)	Method: Pouring Detailed description: Pouring directly onto surface
Application rate(s) and frequency	Application Rate: Ready to use (RTU) – in an amount sufficient to cover the whole inner toilet bowl surface. Contact time – 15 minutes. Dilution (%): Ready-to-use Number and timing of application: Daily use
Category(ies) of users	Professional
Pack sizes and packaging material	750, 1000 mL HDPE bottles with a dosing plug and PP/LDPE cap.

4.1.1. *Use-specific instructions for use*

See general directions for use

4.1.2. *Use-specific risk mitigation measures*

See general directions for use

4.1.3. *Where specific to the use, the particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment*

See general directions for use

4.1.4. *Where specific to the use, the instructions for safe disposal of the product and its packaging*

See general directions for use

4.1.5. *Where specific to the use, the conditions of storage and shelf-life of the product under normal conditions of storage*

See general directions for use

5. GENERAL DIRECTIONS FOR USE (1)

5.1. **Instructions for use**

Lift up the toilet seat and carefully direct the nozzle under the toilet rim. Squeeze and apply slowly all around the inside of the bowl, allowing enough liquid to cover the whole inner toilet bowl surface. Leave for 15 minutes. Flush the toilet afterwards.

May not be used with bleach or other cleaning agents.

Inform the registration holder if the treatment is ineffective.

5.2. **Risk mitigation measures**

Do not breathe vapour.

Avoid contact with eyes and skin.

Do not brush the product in toilet bowl.

Wear protective chemical resistant gloves during product handling phase (glove material to be specified by the authorisation holder within the product information).

Wash hands thoroughly after handling.

5.3. **Particulars of likely direct or indirect effects, first aid instructions and emergency measures to protect the environment**

IF INHALED: Move to fresh air and keep at rest in a position comfortable for breathing. If symptoms: Call 112/ambulance for medical assistance. If no symptoms: Call a Poison Centre or a doctor.

IF ON SKIN: Immediately wash with plenty of water. Thereafter take off all contaminated clothing and wash it before reuse. Continue to wash the skin with water for 15 minutes. Call a POISON CENTRE or a doctor.

IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Call 112/ambulance for medical assistance.

Information to healthcare personnel/doctor: the eyes should also be rinsed repeatedly on the way to the doctor if eye exposure to alkaline chemicals (pH > 11), amines and acids like acetic acid, formic acid or propionic acid.

IF SWALLOWED: Immediately rinse mouth. Do NOT induce vomiting. Give something to drink, if exposed person is able to swallow. Call 112/ambulance for medical assistance.

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(1) Instructions for use, risk mitigation measures and other directions for use under this section are valid for any authorised uses.

When asking for medical advice keep packaging or label at hand and call a POISON CENTER or doctor/physician.

5.4. Instructions for safe disposal of the product and its packaging

Dispose the product and its packaging in accordance with applicable national regulations.

5.5. Conditions of storage and shelf-life of the product under normal conditions of storage

Keep away from strong bases. Keep out of reach of children.

Store in original container tightly closed.

Store between + 5 °C and + 40 °C. Protect from frost.

Shelf life: 24 months.

6. OTHER INFORMATION

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DECISIONS

COUNCIL DECISION (EU) 2022/2109

of 24 October 2022

establishing the position to be taken on behalf of the European Union with regard to certain resolutions to be voted at the 20th General Assembly of the International Organisation of Vine and Wine, to be held on 4 November 2022

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 43, in conjunction with Article 218(9) thereof,

Having regard to the proposal from the European Commission,

Whereas:

(1) The International Organisation of Vine and Wine (OIV) will examine and possibly adopt resolutions ('draft OIV resolutions') in its next General Assembly on 4 November 2022. Those resolutions will have legal effects for the purposes of Article 218(9) of the Treaty.

(2) The Union is not a member of the OIV. However, on 20 October 2017 the OIV granted to the Union the particular status provided for in Article 4 of the Rules of Procedure of the OIV.

(3) 20 Member States are members of the OIV. Those Member States have the possibility to propose amendments to the draft OIV resolutions and will be asked to adopt those resolutions in the next OIV General Assembly on 4 November 2022.

(4) It is appropriate to establish the position to be taken on the Union's behalf at the OIV meetings with regard to the draft OIV resolutions in relation to matters within its competence. That position should be expressed at the OIV meetings by the Member States which are members of the OIV, acting jointly in the interest of the Union.

(5) Pursuant to Regulation (EU) No 1308/2013 of the European Parliament and of the Council (1) and Commission Delegated Regulation (EU) 2019/934 (2), certain resolutions adopted and published by the OIV will have legal effects.

(6) Article 80(3)(a) of Regulation (EU) No 1308/2013 provides that the Commission is to take into account the oenological practices and methods of analysis recommended and published by the OIV when authorising oenological practices.

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(1) Regulation (EU) No 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007 (OJ L 347, 20.12.2013, p. 671).

(2) Commission Delegated Regulation (EU) 2019/934 of 12 March 2019 supplementing Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards wine-growing areas where the alcoholic strength may be increased, authorised oenological practices and restrictions applicable to the production and conservation of grapevine products, the minimum percentage of alcohol for by-products and their disposal, and publication of OIV files (OJ L 149, 7.6.2019, p. 1).

(7) Article 80(5) of Regulation (EU) No 1308/2013 provides that the Commission, when laying down methods of analysis for determining the composition of the products of the wine sector, is to base those methods on any relevant methods recommended and published by the OIV, unless they would be ineffective or inappropriate in view of the objective pursued by the Union.

(8) Article 90(2) of Regulation (EU) No 1308/2013 provides that products of the wine sector imported into the Union are to be produced in accordance with oenological practices authorised by the Union pursuant to that Regulation or, prior to that authorisation, produced in accordance with oenological practices recommended and published by the OIV.

(9) Article 9(1) of Delegated Regulation (EU) 2019/934 provides that, where they are not laid down by the Commission, the purity and identification specifications of substances used in oenological practices are to be those referred to in column 4 of Table 2 of Part A of Annex I to that Regulation, which refer to OIV recommendations.

(10) Draft Resolutions OENO-TECHNO 14-567B2, 14-567B4 and 14-567C1 establish the distinction between additives and processing aids for certain oenological compounds. Draft Resolutions OENO-TECHNO 20-684A, 21-689 and 21-708 update certain existing oenological practices. Draft Resolution OENO-TECHNO 20-684B establishes a new oenological practice. Draft Resolution OENO-TECHNO 21-707 withdraws an existing oenological practice. In accordance with Article 80(3)(a) and Article 90(2) of Regulation (EU) No 1308/2013, those Resolutions will have legal effects.

(11) Draft Resolutions OENO-SPECIF 17-624 and 20-674 update the identification specifications for certain substances used in wine production. Draft Resolutions OENO SPECIF 20-675A, 20-675B, 20-675C, 20-675D and 20-681 establish new identification specifications for certain substances used in wine production. In accordance with Article 80(3)(a) and Article 90(2) of Regulation (EU) No 1308/2013, and with Article 9(1) of Delegated Regulation (EU) 2019/934, those Resolutions will have legal effects.

(12) Draft Resolution CST-SCMA 20-668 provides the opinion of the OIV on the total dry extract of wine used to detect fraud in wine. Draft Resolutions OENO-SCMA 19-665 and 20-667 establish new methods of analysis. Draft Resolution OENO-SCMA 20-683 updates the method of analysis which quantifies total nitrogen in musts and wines and draft Resolution SECSAN-SECUAL 21-709 updates the criteria for the quantification of allergens. In accordance with Article 80(3)(a) and Article 80(5) of Regulation (EU) No 1308/2013, those Resolutions will have legal effects.

(13) Those draft OIV resolutions have been extensively discussed between scientific and technical experts of the wine sector. They contribute to the international harmonisation of wine standards and will set a framework which will ensure fair competition in the trading of products of the wine sector. They should therefore be supported.

(14) In order to allow for the necessary flexibility during the negotiations ahead of the OIV General Assembly on 4 November 2022, Member States which are members of the OIV should be authorised to agree to changes to those draft OIV resolutions provided that such changes do not alter the substance thereof,

HAS ADOPTED THIS DECISION:

Article 1

The position to be taken on the Union’s behalf in the 20th OIV General Assembly scheduled for 4 November 2022 is set out in the Annex to this Decision.

Article 2

The position referred to in Article 1 shall be expressed by the Member States which are Members of the OIV, acting jointly in the interest of the Union.

Article 3

1. Where the position referred to in Article 1 is likely to be affected by new scientific or technical information presented before or during the OIV meetings, Member States which are Members of the OIV shall request that the voting in the OIV General Assembly be postponed until the position to be taken on the Union's behalf is established on the basis of the new information.

2. Following coordination meetings and without further decision of the Council establishing the position to be taken on the Union's behalf, the Member States which are Members of the OIV, acting jointly in the interest of the Union, may agree to technical changes to the draft OIV resolutions referred to in the Annex to this Decision which do not alter the substance thereof.

Article 4

This Decision shall enter into force on the date of its adoption.

Done at Luxembourg, 24 October 2022.

For the Council
The President
A. HUBÁČKOVÁ

ANNEX

The Member States of the Union that are Members of the International Organisation for Vine and Wine (OIV), acting jointly in the interest of the Union, shall support the following draft resolutions at step 7 during the OIV General Assembly scheduled for 4 November 2022:

- OENO-TECHNO 14-567B2: Distinction between additives and processing aids – Part 2: Carbon dioxide;
- OENO-TECHNO 14-567B4: Distinction between additives and processing aids – Dimethyl dicarbonate;
- OENO-TECHNO 14-567C1: Distinction between additives and processing aids – Part 3: Skim milk;
- OENO-TECHNO 20-684A: Use of selective plant fibres in wine – update to Resolution OIV-OENO 582-2017;
- OENO-TECHNO 20-684B: Use of selective plant fibres in must;
- OENO-TECHNO 21-689: OIV Maximum limit for gum arabic – update;
- OENO-TECHNO 21-707: Wines – treatment with silver chloride;
- OENO-TECHNO 21-708: Update to file 2.1.14 – flotation;
- OENO-SPECIF 17-624: Update to the monograph on oenological tannins;
- OENO-SPECIF 20-674: Update to the monograph on yeast mannoproteins;
- OENO-SPECIF 20-675A: Specific monographs for procyanidins/prodelphinidins;
- OENO-SPECIF 20-675B: Specific monographs for ellagitannins;
- OENO-SPECIF 20-675C: Specific monographs for gallotannins;
- OENO-SPECIF 20-675D: Specific monographs for profisetinidins/prorobitenidins;
- OENO-SPECIF 20-681: Food cellulose;
- CST-SCMA 20-668: Opinion of the OIV on total dry extract (total dry extract, total dry extract without sugars, residual extract);
- OENO-SCMA 19-665: Determination of sweeteners in wine by high performance liquid chromatography coupled with a diode array detector and a charged aerosol detector;
- OENO-SCMA 20-667: Operative instructions/guidelines for the determination of chromatic characteristics for ranking and/or comparing musts obtained by grape varieties characterized by high concentrations of colouring pigments;
- OENO-SCMA 20-683: Update to method OIV-MA-AS323-02B – Quantification of total nitrogen according to the Dumas method (musts and wines);
- SECSAN-SECUAL 21-709: Update to resolution OIV-OENO 427-2010 – Criteria for quantification of allergens.

COMMISSION IMPLEMENTING DECISION (EU) 2022/2110

of 11 October 2022

establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for the ferrous metals processing industry

(notified under document C(2022) 7054)

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (1), and in particular Article 13(5) thereof,

Whereas:

(1) Best available techniques (BAT) conclusions are the reference for setting permit conditions for installations covered by Chapter II of Directive 2010/75/EU and competent authorities should set emission limit values which ensure that, under normal operating conditions, emissions do not exceed the emission levels associated with the best available techniques as laid down in the BAT conclusions.

(2) In accordance with Article 13(4) of Directive 2010/75/EU, the forum composed of representatives of Member States, the industries concerned and non-governmental organisations promoting environmental protection, established by Commission Decision of 16 May 2011 (2), provided the Commission on 17 December 2021 with its opinion on the proposed content of the BAT reference document for the ferrous metals processing industry. That opinion is publicly available (3).

(3) The BAT conclusions set out in the Annex to this Decision take into account the opinion of the forum on the proposed content of the BAT reference document. They contain the key elements of the BAT reference document.

(4) The measures provided for in this Decision are in accordance with the opinion of the Committee established by Article 75(1) of Directive 2010/75/EU,

HAS ADOPTED THIS DECISION:

Article 1

The best available techniques (BAT) conclusions for the ferrous metals processing industry, as set out in the Annex, are adopted.

Article 2

This Decision is addressed to the Member States.

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(1) OJ L 334, 17.12.2010, p. 17.

(2) Commission Decision of 16 May 2011 establishing a forum for the exchange of information pursuant to Article 13 of Directive 2010/75/EU on industrial emissions (OJ C 146, 17.5.2011, p. 3).

(3) https://circabc.europa.eu/ui/group/06f33a94-9829-4eee-b187-21bb783a0fbf/library/b8ba39b2-77ca-488a-889b-98e13cee5141/details

Done at Brussels, 11 October 2022.

For the Commission
Virginijus SINKEVIČIUS
Member of the Commission

ANNEX

1. **BEST AVAILABLE TECHNIQUES (BAT) CONCLUSIONS FOR THE FERROUS METALS PROCESSING INDUSTRY**

SCOPE

These BAT conclusions concern the following activities specified in Annex I to Directive2010/75/EU:

2.3. Processing of ferrous metals:

- (a) operation of hot rolling mills with a capacity exceeding 20 tonnes of crude steel per hour;
- (c) application of protective fused metal coats with an input exceeding 2 tonnes of crude steel per hour; this includes hot dip coating and batch galvanising.

2.6. Surface treatment of ferrous metals using electrolytic or chemical processes where the volume of the treatment vats exceeds 30 m^3, when it is carried out in cold rolling, wire drawing or batch galvanising.

6.11. Independently operated treatment of waste water not covered by Directive 91/271/EEC, provided that the main pollutant load originates from the activities covered by these BAT conclusions.

These BAT conclusions also cover the following:

- Cold rolling and wire drawing if directly associated with hot rolling and/or hot dip coating.
- Acid recovery, if directly associated with the activities covered by these BAT conclusions.
- The combined treatment of waste water from different origins, provided that the waste water treatment is not covered by Directive 91/271/EEC and that the main pollutant load originates from the activities covered by these BAT conclusions.
- Combustion processes directly associated with the activities covered by these BAT conclusions provided that:
  1. the gaseous products of combustion are put into direct contact with material (such as direct feedstock heating or direct feedstock drying); or
  2. the radiant and/or conductive heat is transferred through a solid wall (indirect heating):
     - without using an intermediary heat transfer fluid (this includes heating of the galvanising kettle), or
     - when a gas (e.g. H_2) acts as the intermediary heat transfer fluid in the case of batch annealing.

These BAT conclusions do not cover the following:

- metal coating by thermal spraying;
- electroplating and electroless plating; this may be covered by the BAT conclusions for Surface Treatment of Metals and Plastics (STM).

Other BAT conclusions and reference documents which could be relevant for the activities covered by these BAT conclusions include the following:

- Iron and Steel Production (IS);
- Large Combustion Plants (LCP);
- Surface Treatment of Metals and Plastics (STM);
- Surface Treatment using Organic Solvents (STS);
- Waste Treatment (WT);
- Monitoring of Emissions to Air and Water from IED Installations (ROM);
- Economics and Cross-Media Effects (ECM);

— Emissions from Storage (EFS);

— Energy Efficiency (ENE);

— Industrial Cooling Systems (ICS).

These BAT conclusions apply without prejudice to other relevant legislation, e.g. on the registration, evaluation, authorisation and restriction of chemicals (REACH), on classification, labelling and packaging (CLP).

DEFINITIONS

For the purposes of these BAT conclusions, the following definitions apply:

General terms

Term used	Definition
Batch galvanising	Discontinuous immersion of steel workpieces in a bath containing molten zinc to coat their surface with zinc. This also includes any directly associated pre- and post-treatment processes (e.g. degreasing and passivation).
Bottom dross	A reaction product of molten zinc with iron or with iron salts carried over from pickling or fluxing. This reaction product sinks to the bottom of the zinc bath.
Carbon steel	Steel in which the content of each alloy element is less than 5 wt-%.
Channelled emissions	Emissions of pollutants into the environment through any kind of duct, pipe, stack, etc.
Cold rolling	Compression of steel by rollers at ambient temperatures to change its characteristics (e.g. size, shape and/or metallurgical properties). This also includes any directly associated pre- and post-treatment processes (e.g. pickling, annealing and oiling).
Continuous measurement	Measurement using an automated measuring system permanently installed on site.
Direct discharge	Discharge to a receiving water body without further downstream waste water treatment.
Existing plant	A plant that is not a new plant.
Feedstock	Any steel input (unprocessed or partly processed) or workpieces entering a production process step.
Feedstock heating	Any process step where feedstock is heated. This does not include feedstock drying or the heating of the galvanising kettle.
Ferrochromium	An alloy of chromium and iron typically containing between 50 wt-% and 70 wt-% chromium.
Flue-gas	The exhaust gas exiting a combustion unit.
High-alloy steel	Steel in which the content of one or more alloy elements is 5 wt-% or more.
Hot dip coating	Continuous immersion of steel sheets or wires through a bath containing molten metal(s), e.g. zinc and/or aluminium, to coat the surface with metal(s). This also includes any directly associated pre- and post-treatment processes (e.g. pickling and phosphating).
Hot rolling	Compression of heated steel by rollers at temperatures typically ranging from 1 050 °C to 1 300 °C to change its characteristics (e.g. size, shape and/or metallurgical properties). This includes hot ring rolling and hot rolling of seamless tubes as well as any directly associated pre- and post-treatment processes (e.g. scarfing, finishing, pickling and oiling).

Indirect discharge	A discharge that is not a direct discharge.
Intermediate heating	Heating of the feedstock between the hot rolling stages.
Iron and steel process gases	Blast furnace gas, basic oxygen furnace gas, coke oven gas or mixtures thereof originating from iron and steel production.
Leaded steel	Steel grades in which the content of lead added is typically between 0,15 wt-% and 0,35 wt-%.
Major plant upgrade	A major change in the design or technology of a plant with major adjustments or replacements of the process and/or abatement technique(s) and associated equipment.
Mass flow	The mass of a given substance or parameter which is emitted over a defined period of time.
Mill scale	Iron oxides formed on the surface of steel when oxygen reacts with hot metal. This occurs immediately after casting, during reheating and hot rolling.
Mixed acid	A mixture of hydrofluoric acid and nitric acid.
New plant	A plant first permitted at the site of the installation following the publication of these BAT conclusions or a complete replacement of a plant following the publication of these BAT conclusions.
Periodic measurement	Measurement at specified time intervals using manual or automated methods.
Plant	All parts of an installation covered by the scope of these BAT conclusions and any other directly associated activities which have an effect on consumption and/or emissions. Plants may be new plants or existing plants.
Post-heating	Heating of the feedstock after hot rolling.
Process chemicals	Substances and/or mixtures as defined in Article 3 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council (1) and used in the process(es).
Recovery	Recovery as defined in Article 3(15) of Directive 2008/98/EC of the European Parliament and of the Council (2). The recovery of spent acids includes their regeneration, reclamation and recycling.
Regalvanising	The processing of used galvanised articles (e.g. highway guard rails) that are returned to be galvanised after long service periods. Processing of these articles requires additional process steps due to the presence of partly corroded surfaces or the need to remove any residual zinc coating.
Reheating	Heating of the feedstock before hot rolling.
Residue	Substance or object generated by the activities covered by the scope of these BAT conclusions as waste or by-product.
Sensitive receptor	Areas which need special protection, such as: — residential areas; — areas where human activities are carried out (e.g. neighbouring workplaces, schools, day-care centres, recreational areas, hospitals or nursing homes).
Stainless steel	High-alloy steel which contains chromium typically within the range 10–23 wt-%. It includes austenitic steel, which also contains nickel typically within the range 8–10 wt-%.
Top dross	In hot dipping, the oxides formed on the surface of the molten zinc bath by reaction of iron and aluminium.

Valid hourly (or half-hourly) average	An hourly (or half-hourly) average is considered valid when there is no maintenance or malfunction of the automated measuring system.
Volatile substance	A substance capable of readily changing from a solid or liquid form to a vapour, having a high vapour pressure and a low boiling point (e.g. HCl). This includes volatile organic compounds as defined in Article 3(45) of Directive 2010/75/EU.
Wire drawing	Drawing of steel rods or wires through dies to reduce their diameter. This also includes any directly associated pre- and post-treatment processes (e.g. wire rod pickling and feedstock heating after drawing).
Zinc ash	A mixture comprising zinc metal, zinc oxide and zinc chloride that is formed on the surface of the molten zinc bath.

(1) Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (OJ L 396, 30.12.2006, p. 1).

(2) Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (OJ L 312, 22.11.2008, p. 3).

Pollutants and parameters	
Term used	Definition
B	The sum of boron and its compounds, dissolved or bound to particles, expressed as B.
Cd	The sum of cadmium and its compounds, dissolved or bound to particles, expressed as Cd.
CO	Carbon monoxide.
COD	Chemical oxygen demand. Amount of oxygen needed for the total chemical oxidation of the organic matter to carbon dioxide using dichromate. COD is an indicator for the mass concentration of organic compounds.
Cr	The sum of chromium and its compounds, dissolved or bound to particles, expressed as Cr.
Cr(VI)	Hexavalent chromium, expressed as Cr(VI), includes all chromium compounds where the chromium is in the oxidation state +6.
Dust	Total particulate matter (in air).
Fe	The sum of iron and its compounds, dissolved or bound to particles, expressed as Fe.
F^-	Dissolved fluoride, expressed as F^-.
HCl	Hydrogen chloride.
HF	Hydrogen fluoride.
Hg	The sum of mercury and its compounds, dissolved or bound to particles, expressed as Hg.
HOI	Hydrocarbon oil index. The sum of compounds extractable with a hydrocarbon solvent (including long-chain or branched aliphatic, alicyclic, aromatic or alkyl-substituted aromatic hydrocarbons).
H_2SO_4	Sulphuric acid.
NH_3	Ammonia.

Ni	The sum of nickel and its compounds, dissolved or bound to particles, expressed as Ni.
NO_X	The sum of nitrogen monoxide (NO) and nitrogen dioxide (NO_2), expressed as NO_2.
Pb	The sum of lead and its compounds, dissolved or bound to particles, expressed as Pb.
Sn	The sum of tin and its compounds, dissolved or bound to particles, expressed as Sn.
SO_2	Sulphur dioxide.
SO_X	The sum of sulphur dioxide (SO_2), sulphur trioxide (SO_3) and sulphuric acid aerosols, expressed as SO_2.
TOC	Total organic carbon, expressed as C (in water); includes all organic compounds.
Total P	Total phosphorus, expressed as P, includes all inorganic and organic phosphorus compounds.
TSS	Total suspended solids. Mass concentration of all suspended solids (in water), measured via filtration through glass fibre filters and gravimetry.
TVOC	Total volatile organic carbon, expressed as C (in air).
Zn	The sum of zinc and its compounds, dissolved or bound to particles, expressed as Zn.

ACRONYMS

For the purposes of these BAT conclusions, the following acronyms apply:

Acronym	Definition
BG	Batch galvanising
CMS	Chemicals management system
CR	Cold rolling
EMS	Environmental management system
FMP	Ferrous metals processing
HDC	Hot dip coating
HR	Hot rolling
OTNOC	Other than normal operating conditions
SCR	Selective catalytic reduction
SNCR	Selective non-catalytic reduction
WD	Wire drawing

GENERAL CONSIDERATIONS

Best Available Techniques

The techniques listed and described in these BAT conclusions are neither prescriptive nor exhaustive. Other techniques may be used that ensure at least an equivalent level of environmental protection.

Unless otherwise stated, the BAT conclusions are generally applicable.

BAT-AELs and indicative emission levels for emissions to air

Emission levels associated with the best available techniques (BAT-AELs) and indicative emission levels for emissions to air given in these BAT conclusions refer to concentrations (mass of emitted substances per volume of waste gas) under the following standard conditions: dry gas at a temperature of 273,15 K and a pressure of 101,3 kPa, and expressed in mg/Nm^3.

The reference oxygen levels used to express BAT-AELs and indicative emission levels in these BAT conclusions are shown in the table below.

Source of emissions	Reference oxygen level (O_R)
Combustion processes associated with: — feedstock heating and drying; — heating of the galvanising kettle.	3 dry vol-%
All other sources	No correction for the oxygen level

For the cases where a reference oxygen level is given, the equation for calculating the emission concentration at the reference oxygen level is:

$$E_R = \frac{21 - O_R}{21 - O_M} \times E_M$$

where:

E_R: emission concentration at the reference oxygen level O_R;

O_R: reference oxygen level in vol-%;

E_M: measured emission concentration;

O_M: measured oxygen level in vol-%.

The equation above does not apply if the combustion process(es) use oxygen-enriched air or pure oxygen or when additional air intake for safety reasons brings the oxygen level in the waste gas very close to 21 vol-%. In this case, the emission concentration at the reference oxygen level of 3 dry vol-% is calculated differently, e.g. by normalising on the basis of the carbon dioxide generated by the combustion.

For averaging periods of BAT-AELs for emissions to air, the following definitions apply.

Type of measurement	Averaging period	Definition
Continuous	Daily average	Average over a period of one day based on valid hourly or half-hourly averages.
Periodic	Average over the sampling period	Average value of three consecutive measurements of at least 30 minutes each (1).

(1) For any parameter where, due to sampling or analytical limitations and/or due to operational conditions, a 30-minute sampling/measurement and/or an average of three consecutive measurements is inappropriate, a more representative sampling/measurement procedure may be employed.

When the waste gases of two or more sources (e.g. furnaces) are discharged through a common stack, the BAT-AELs apply to the combined discharge from the stack.

For the purpose of calculating the mass flows in relation to BAT 7 and BAT 20, where waste gases from one type of source (e.g. furnaces) discharged through two or more separate stacks could, in the judgement of the competent authority, be discharged through a common stack, these stacks shall be considered as a single stack.

BAT-AELs for emissions to water

Emission levels associated with the best available techniques (BAT-AELs) for emissions to water given in these BAT conclusions refer to concentrations (mass of emitted substances per volume of water), expressed in mg/l or µg/l.

Averaging periods associated with the BAT-AELs refer to either of the following two cases:

- In the case of continuous discharge, daily average values, i.e. 24-hour flow-proportional composite samples. Time-proportional composite samples can be used provided that sufficient flow stability is demonstrated. Spot samples can be used when the emission levels are proven to be sufficiently stable.
- In the case of batch discharge, average values over the release duration taken as flow-proportional composite samples, or, provided that the effluent is appropriately mixed and homogeneous, a spot sample taken before discharge.

The BAT-AELs apply at the point where the emission leaves the plant.

Other environmental performance levels associated with the best available techniques (BAT-AEPLs)

BAT-AEPLs for specific energy consumption (energy efficiency)

The BAT-AEPLs for specific energy consumption refer to yearly averages calculated using the following equation:

$$\textit{specific energy consumption} = \frac{\textit{energy consumption}}{\textit{input}}$$

where:	energy consumption:	total amount of heat (generated from primary energy sources) and electricity consumed by the relevant process(es), expressed in MJ/year or kWh/year; and
	input:	total amount of feedstock processed, expressed in t/year.

In the case of feedstock heating, the energy consumption corresponds to the total amount of heat (generated from primary energy sources) and electricity consumed by all furnaces in the relevant process(es).

BAT-AEPLs for specific water consumption

The BAT-AEPLs for specific water consumption refer to yearly averages calculated using the following equation:

$$\textit{specific water consumption} = \frac{\textit{water consumption}}{\textit{production rate}}$$

where:	water consumption:	total amount of water consumed by the plant excluding: — recycled and reused water, and — cooling water used in once-through cooling systems, and — water for domestic-type usage, expressed in m³/year; and
	production rate:	total amount of products manufactured by the plant, expressed in t/year.

BAT-AEPLs for specific material consumption

The BAT-AEPLs for specific material consumption refer to averages over 3 years calculated using the following equation:

$$\textit{specific material consumption} = \frac{\textit{material consumption}}{\textit{input}}$$

where:	material consumption:	3-year average of total amount of material consumed by the relevant process(es), expressed in kg/year; and
	input:	3-year average of total amount of feedstock processed, expressed in t/year or m²/year.

1.1. *General BAT conclusions for the ferrous metals processing industry*

1.1.1. General environmental performance

BAT 1. In order to improve the overall environmental performance, BAT is to elaborate and implement an environmental management system (EMS) that incorporates all of the following features:

i. commitment, leadership, and accountability of the management, including senior management, for the implementation of an effective EMS;

ii. an analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment;

iii. development of an environmental policy that includes the continuous improvement of the environmental performance of the installation;

iv. establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements;

v. planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;

vi. determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;

vii. ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);

viii. internal and external communication;

ix. fostering employee involvement in good environmental management practices;

x. establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;

xi. effective operational planning and process control;

xii. implementation of appropriate maintenance programmes;

xiii. emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;

xiv. when (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life, which includes construction, maintenance, operation and decommissioning;

xv. implementation of a monitoring and measurement programme; if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;

xvi. application of sectoral benchmarking on a regular basis;

xvii. periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;

xviii. evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;

xix. periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;

xx. following and taking into account the development of cleaner techniques.

Specifically for the ferrous metals processing sector, BAT is to also incorporate the following features in the EMS:

xxi. an inventory of process chemicals used and of waste water and waste gas streams (see BAT 2);

xxii. a chemicals management system (see BAT 3);

xxiii. a plan for the prevention and control of leaks and spillages (see BAT 4 (a));

xxiv. an OTNOC management plan (see BAT 5);

xxv. an energy efficiency plan (see BAT 10 (a));

xxvi. a water management plan (see BAT 19 (a));

xxvii. a noise and vibration management plan (see BAT 32);

xxviii. a residues management plan (see BAT 34 (a)).

Note

Regulation (EC) No 1221/2009 establishes the European Union eco-management and audit scheme (EMAS), which is an example of an EMS consistent with this BAT.

Applicability

The level of detail and the degree of formalisation of the EMS will generally be related to the nature, scale and complexity of the installation, and the range of environmental impacts it may have.

BAT 2. In order to facilitate the reduction of emissions to water and air, BAT is to establish, maintain and regularly review (including when a significant change occurs) an inventory of process chemicals used and of waste water and waste gas streams, as part of the EMS (see BAT 1), that incorporates all of the following features:

(i) information about the production processes, including:

  (a) simplified process flow sheets that show the origin of the emissions;

  (b) descriptions of process-integrated techniques and waste water/waste gas treatment at source including their performances;

(ii) information about the characteristics of the waste water streams, such as:

  (a) average values and variability of flow, pH, temperature and conductivity;

  (b) average concentration and mass flow values of relevant substances (e.g. total suspended solids, TOC or COD, hydrocarbon oil index, phosphorus, metals, fluoride) and their variability;

(iii) information about the quantity and characteristics of the process chemicals used:

  (a) the identity and the characteristics of process chemicals, including properties with adverse effects on the environment and/or human health;

  (b) the quantities of process chemicals used and the location of their use;

(iv) information about the characteristics of the waste gas streams, such as:

  (a) average values and variability of flow and temperature;

  (b) average concentration and mass flow values of relevant substances (e.g. dust, NO_X, SO_2, CO, metals, acids) and their variability;

  (c) presence of other substances that may affect the waste gas treatment system (e.g. oxygen, nitrogen, water vapour) or plant safety (e.g. hydrogen).

Applicability

The level of detail of the inventory will generally be related to the nature, scale and complexity of the plant, and the range of environmental impacts it may have.

BAT 3. In order to improve the overall environmental performance, BAT is to elaborate and implement a chemicals management system (CMS) as part of the EMS (see BAT 1) that incorporates all of the following features:

i. A policy to reduce the consumption and risks of process chemicals, including a procurement policy to select less harmful process chemicals and their suppliers with the aim of minimising the use and risks of hazardous substances and avoiding the procurement of an excess amount of process chemicals. The selection of process chemicals may consider:

(a) their eliminability, their ecotoxicity and their potential to be released into the environment in order to reduce emissions to the environment;

(b) the characterisation of the risks associated with the process chemicals, based on the chemicals' hazards statement, pathways through the plant, potential release and level of exposure;

(c) the regular (e.g. annual) analysis of the potential for substitution to identify potentially new available and safer alternatives to the use of hazardous substances (e.g. use of other process chemicals with no or lower environmental impacts, see BAT 9).

(d) the anticipatory monitoring of regulatory changes related to hazardous chemicals and safeguarding compliance with applicable legal requirements.

The inventory of process chemicals (see BAT 2) may be used to support the selection of process chemicals.

ii. Goals and action plans to avoid or reduce the use and risks of hazardous substances.

iii. Development and implementation of procedures for the procurement, handling, storage, and use of process chemicals to prevent or reduce emissions to the environment (e.g. see BAT 4).

Applicability

The level of detail of the CMS will generally be related to the nature, scale and complexity of the plant.

BAT 4. In order to prevent or reduce emissions to soil and groundwater, BAT is to use all of the techniques given below.

Technique		Description	Applicability
a.	Set-up and implementation of a plan for the prevention and control of leaks and spillages	A plan for the prevention and control of leaks and spillages is part of the EMS (see BAT 1) and includes, but is not limited to: — site incident plans for small and large spillages; — identification of the roles and responsibilities of persons involved; — ensuring staff are environmentally aware and trained to prevent and deal with spillage incidents; — identification of areas at risk of spillage and/or leaks of hazardous materials and ranking them according to the risk; — identification of suitable spillage containment and clean-up equipment and regularly ensuring it is available, in good working order and close to points where these incidents may occur;	The level of detail of the plan will generally be related to the nature, scale and complexity of the plant, as well as to the type and quantity of liquids used.

		— waste management guidelines for dealing with waste arising from spillage control; — regular (at least on an annual basis) inspections of storage and handling areas, testing and calibration of leak detection equipment and prompt repair of leaks from valves, glands, flanges, etc.	
b.	Use of oil-tight trays or cellars	Hydraulic stations and oil- or grease-lubricated equipment are situated in oil-tight trays or cellars.	Generally applicable.
c.	Prevention and handling of acid spillages and leaks	Storage tanks for both fresh and spent acid are equipped with sealed secondary containment protected with an acid-resistant coating which is regularly inspected for potential damage and cracks. Loading and unloading areas for the acids are designed in such a way that any potential spillages and leaks are contained and sent to on-site treatment (see BAT 31) or off-site treatment.	Generally applicable.

BAT 5. In order to reduce the frequency of the occurrence of OTNOC and to reduce emissions during OTNOC, BAT is to set up and implement a risk-based OTNOC management plan as part of the EMS (see BAT 1) that includes all of the following elements:

i. identification of potential OTNOC (e.g. failure of equipment critical to the protection of the environment (‘critical equipment’)), of their root causes and of their potential consequences, and regular review and update of the list of identified OTNOC following the periodic assessment below;

ii. appropriate design of critical equipment (e.g. compartmentalisation of fabric filters);

iii. set-up and implementation of an inspection and preventive maintenance plan for critical equipment (see BAT 1 xii);

iv. monitoring (i.e. estimating or, where possible, measuring) and recording of emissions during OTNOC and of associated circumstances;

v. periodic assessment of the emissions occurring during OTNOC (e.g. frequency of events, duration, amount of pollutants emitted) and implementation of corrective actions if necessary.

1.1.2. Monitoring

BAT 6. BAT is to monitor at least once per year:

- **the yearly consumption of water, energy and materials;**
- **the yearly generation of waste water;**
- **the yearly amount of each type of residues generated and of each type of waste sent for disposal.**

Description

Monitoring can be performed by direct measurements, calculations or recording, e.g. using suitable meters or invoices. The monitoring is broken down to the most appropriate level (e.g. to process or plant level) and considers any significant changes in the plant.

BAT 7. BAT is to monitor channelled emissions to air with at least the frequency given below and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.

Substance/ Parameter	Specific process(es)	Sector	Standard(s)	Minimum monitoring frequency (1)	Monitoring associated with
CO	Feedstock heating (2)	HR, CR, WD, HDC	EN 15058 (3)	Once every year	BAT 22
	Heating of the galvanising kettle (2)	HDC of wires, BG		Once every year	
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors Mixed acid recovery by spray roasting	HR, CR, HDC, WD		Once every year	BAT 29
Dust	Feedstock heating	HR, CR, WD, HDC	EN 13284-1 (3) (4)	Continuous for any stack with dust mass flows > 2 kg/h Once every 6 months for any stack with dust mass flows between 0,1 kg/h and 2 kg/h Once every year for any stack with dust mass flows < 0,1 kg/h	BAT 20
	Hot dipping after fluxing	HDC, BG		Once every year (5)	BAT 26

	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors Mixed acid recovery by spray roasting or by evaporation	HR, CR, HDC, WD		Once every year	BAT 29
	Mechanical processing (including slitting, descaling, grinding, roughing, rolling, finishing, levelling), scarfing (other than manual scarfing) and welding	HR		Once every year	BAT 42
	Decoiling, mechanical predescaling, levelling and welding	CR		Once every year	BAT 46
	Lead baths	WD		Once every year	BAT 51
	Dry drawing			Once every year	BAT 52
HCl	Pickling with hydrochloric acid	HR, CR, HDC, WD	EN 1911 (3)	Once every year	BAT 24
	Pickling and stripping with hydrochloric acid	BG		Once every year	BAT 62
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors	HR, CR, HDC, WD		Once every year	BAT 29
	Pickling and stripping with hydrochloric acid in open pickling baths	BG	No EN standard available	Once every year (6)	BAT 62
HF	Pickling with acid mixtures containing hydrofluoric acid	HR, CR, HDC	EN standard under development (3)	Once every year	BAT 24
	Recovery of mixed acid by spray roasting or by evaporation	HR, CR		Once every year	BAT 29

Metals	Ni	Mechanical processing (including slitting, descaling, grinding, roughing, rolling, finishing, levelling), scarfing (other than manual scarfing) and welding	HR	EN 14385	Once every year (7)	BAT 42
		Decoiling, mechanical predescaling, levelling and welding	CR		Once every year (7)	BAT 46
	Pb	Mechanical processing (including slitting, descaling, grinding, roughing, rolling, finishing, levelling), scarfing (other than manual scarfing) and welding	HR		Once every year (7)	BAT 42
		Decoiling, mechanical predescaling, levelling and welding	CR		Once every year (7)	BAT 46
		Lead baths	WD		Once every year	BAT 51
	Zn	Hot dipping after fluxing	HDC, BG		Once every year (5)	BAT 26
NH_3		When SNCR and/or SCR is used	HR, CR, WD, HDC	EN ISO 21877 (3)	Once every year	BAT 22, BAT 25, BAT 29
NO_X		Feedstock heating (2)	HR, CR, WD, HDC	EN 14792 (3)	Continuous for any stack with NO_X mass flows > 15 kg/h Once every 6 months for any stack with NO_X mass flows between 1 kg/h and 15 kg/h Once every year for any stack with NO_X mass flows < 1 kg/h	BAT 22

	Heating of the galvanising kettle (2)	HDC of wires, BG		Once every year	
	Pickling with nitric acid alone or in combination with other acids	HR, CR		Once every year	BAT 25
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors Mixed acid recovery by spray roasting or by evaporation	HR, CR, WD, HDC		Once every year	BAT 29
SO_2	Feedstock heating (8)	HR, CR, WD, coating of sheets in HDC	EN 14791 (3)	Continuous for any stack with SO_2 mass flows > 10 kg/h Once every 6 months for any stack with SO_2 mass flows between 1 kg/h and 10 kg/h Once a year for any stack with SO_2 mass flows < 1 kg/h	BAT 21
	Hydrochloric acid recovery by spray roasting or by using fluidised bed reactors	HR, CR, HDC, WD		Once every year (5)	BAT 29
SO_X	Pickling with sulphuric acid	HR, CR, HDC, WD		Once every year	BAT 24
		BG			

TVOC	Degreasing	CR, HDC	EN 12619 (3)	Once every year (5)	BAT 23
	Rolling, wet tempering and finishing	CR		Once every year (5)	BAT 48
	Lead baths	WD		Once every year (5)	—
	Oil quench baths	WD		Once every year (5)	BAT 53

(1) To the extent possible, the measurements are carried out at the highest expected emission state under normal operating conditions.

(2) The monitoring does not apply when only electricity is used.

(3) If measurements are continuous, the following generic EN standards apply: EN 15267-1, EN 15267-2, EN 15267-3 and EN 14181.

(4) If measurements are continuous, EN 13284-2 also applies.

(5) If the emission levels are proven to be sufficiently stable, a lower monitoring frequency can be adopted but in any case at least once every 3 years.

(6) In the event that techniques (a) or (b) of BAT 62 are not applicable, measurement of the HCl concentration in the gaseous phase above the pickling bath is carried out at least once every year.

(7) The monitoring only applies when the substance concerned is identified as relevant in the waste gas stream based on the inventory given in BAT 2.

(8) The monitoring does not apply if only natural gas is used as a fuel or when only electricity is used.

BAT 8. BAT is to monitor emissions to water with at least the frequency given below and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.

Substance/Parameter		Specific process(es)	Standard(s)	Minimum monitoring frequency (1)	Monitoring associated with
Total suspended solids (TSS) (2)		All processes	EN 872	Once every week (3)	BAT 31
Total organic carbon (TOC) (2) (4)		All processes	EN 1484	Once every month	
Chemical oxygen demand (COD) (2) (4)		All processes	No EN standard available		
Hydrocarbon oil index (HOI) (5)		All processes	EN ISO 9377-2	Once every month	
Metals/ metalloids (5)	Boron	Processes where borax is used	Various EN standards available (e.g. EN ISO 11885, EN ISO 17294-2)	Once every month	
	Cadmium	All processes (6)	Various EN standards available (e.g. EN ISO 11885, EN ISO 15586, EN ISO 17294-2)	Once every month	
	Chromium	All processes (6)			
	Iron	All processes			

	Nickel	All processes (6)			
	Lead	All processes (6)			
	Tin	Hot dip coating using tin			
	Zinc	All processes (6)			
	Mercury	All processes (6)	Various EN standards available (e.g. EN ISO 12846, EN ISO 17852)		
	Hexavalent chromium	Pickling of high-alloy steel or passivation with hexavalent chromium compounds	Various EN standards available (e.g. EN ISO 10304-3, EN ISO 23913)		
Total phosphorus (Total P) (2)		Phosphating	Various EN standards available (e.g. EN ISO 6878, EN ISO 11885, EN ISO 15681-1 and -2)	Once every month	
Fluoride (F^-) (5)		Pickling with acid mixtures containing hydrofluoric acid	EN ISO 10304-1	Once every month	

(1) In the case of batch discharge less frequent than the minimum monitoring frequency, monitoring is carried out once per batch.

(2) The monitoring only applies in the case of a direct discharge to a receiving water body.

(3) Monitoring frequencies may be reduced to once every month if the emission levels are proven to be sufficiently stable.

(4) Either COD or TOC is monitored. TOC monitoring is the preferred option because it does not rely on the use of very toxic compounds.

(5) In the case of an indirect discharge to a receiving water body, the monitoring frequency may be reduced to once every 3 months if the downstream waste water treatment plant is designed and equipped appropriately to abate the pollutants concerned.

(6) The monitoring only applies when the substance/parameter is identified as relevant in the waste water stream based on the inventory mentioned in BAT 2.

1.1.3. Hazardous substances

BAT 9. In order to avoid the use of hexavalent chromium compounds in passivation, BAT is to use other metal-containing solutions (e.g. containing manganese, zinc, titanium fluoride, phosphates and/or molybdates) or organic polymer solutions (e.g. containing polyurethanes or polyesters).

Applicability

Applicability may be restricted due to product specifications (e.g. surface quality, paintability, weldability, formability, corrosion resistance).

1.1.4. Energy efficiency

BAT 10. In order to increase the overall energy efficiency of the plant, BAT is to use both of the techniques given below.

	Technique	Description	Applicability
a.	Energy efficiency plan and energy audits	An energy efficiency plan is part of the EMS (see BAT 1) and entails defining and monitoring the specific energy consumption of the activity/processes (see BAT 6), setting key performance indicators on an annual basis (e.g. MJ/t of product) and planning the periodic improvement targets and related actions. Energy audits are carried out at least once a year to ensure that the objectives of the energy management plan are met. The energy efficiency plan and the energy audits may be integrated in the overall energy efficiency plan of a larger installation (e.g. for iron and steel production).	The level of detail of the energy efficiency plan, of the energy audits and of the energy balance record will generally be related to the nature, scale and complexity of the plant and the types of energy sources used.
b.	Energy balance record	Drawing up on an annual basis of an energy balance record which provides a breakdown of the energy consumption and generation (including energy export) by the type of energy source (e.g. electricity, natural gas, iron and steel process gases, renewable energy, imported heat and/or cooling). This includes: — defining the energy boundary of the processes; — information on energy consumption in terms of delivered energy; — information on energy exported from the plant; — energy flow information (e.g. Sankey diagrams or energy balances) showing how the energy is used throughout the processes.	

BAT 11. In order to increase energy efficiency in heating (including heating and drying of feedstock as well as heating of baths and galvanising kettles), BAT is to use an appropriate combination of the techniques given below.

	Technique	Description	Applicability
Design and operation			
a.	Optimum furnace design for feedstock heating	This includes techniques such as: — optimisation of key furnace characteristics (e.g. number and type of burners, air tightness and furnace insulation using suitable refractory materials); — minimisation of heat losses from furnace door openings, e.g. by using several liftable segments instead of one in continuous reheating furnaces;	Only applicable to new plants and major plant upgrades.

		— minimisation of the number of feedstock-supporting structures inside the furnace (e.g. beams, skids) and use of suitable insulation to reduce the heat losses from water cooling of the supporting structures in continuous reheating furnaces.	
b.	Optimum galvanising kettle design	This includes techniques such as: — uniform heating of the galvanising kettle walls (e.g. by using high-velocity burners or radiant design); — minimisation of heat losses from the furnace using insulated outer/inner walls (e.g. ceramic lining).	Only applicable to new plants and major plant upgrades.
c.	Optimum galvanising kettle operation	This includes techniques such as: minimisation of heat losses from the galvanising kettle in hot dip coating of wires or in batch galvanising, e.g. by using insulated covers during idle periods.	Generally applicable.
d.	Combustion optimisation	See Section 1.7.1.	Generally applicable.
e.	Furnace automation and control	See Section 1.7.1.	Generally applicable.
f.	Process gas management system	See Section 1.7.1. The calorific value of iron and steel process gases and/or CO-rich gas from ferrochromium production is used.	Only applicable when iron and steel process gases and/or CO-rich gas from ferrochromium production are available.
g.	Batch annealing with 100 % hydrogen	Batch annealing is carried out in furnaces using 100 % hydrogen as a protective gas with increased thermal conductivity.	Only applicable to new plants and major plant upgrades.
h.	Oxy-fuel combustion	See Section 1.7.1.	Applicability may be restricted for furnaces processing high-alloy steel. Applicability to existing plants may be restricted by furnace design and the need for a minimum waste gas flow. Not applicable to furnaces equipped with radiant tube burners.

i.	Flameless combustion	See Section 1.7.1.	Applicability to existing plants may be limited by furnace design (i.e. furnace volume, space for burners, distance between burners) and the need for a change of the refractory lining. Applicability may be limited for processes where close control of temperature or temperature profile is required (e.g. recrystallisation). Not applicable to furnaces operating at a temperature lower than the auto-ignition temperature required for flameless combustion or to furnaces equipped with radiant tube burners.
j.	Pulse-fired burner	The heat input to the furnace is controlled by the firing duration of the burners or by the sequential start of the individual burners instead of adjusting combustion air and fuel flows.	Only applicable to new plants and major plant upgrades.
Heat recovery from flue-gases			
k.	Feedstock preheating	Feedstock is preheated by blowing hot flue-gases directly onto it.	Only applicable to continuous reheating furnaces. Not applicable to furnaces equipped with radiant tube burners.
l.	Drying of workpieces	In batch galvanising, the heat from flue-gases is used to dry the workpieces.	Generally applicable.

m.	Preheating of combustion air	See Section 1.7.1. This may be achieved for example by using regenerative or recuperative burners. A balance has to be achieved between maximising heat recovery from the flue-gas and minimising NO_X emissions.	Applicability to existing plants may be restricted by a lack of space for the installation of regenerative burners.
n.	Waste heat recovery boiler	The heat from hot flue-gases is used to generate steam or hot water that is used in other processes (e.g. for heating pickling and fluxing baths), for district heating or for generating electricity.	Applicability to existing plants may be restricted by a lack of space and/or a suitable steam or hot water demand.

Further sector-specific techniques to increase energy efficiency are given in Sections 1.2.1, 1.3.1 and 1.4.1 of these BAT conclusions.

Table 1.1

BAT-associated environmental performance levels (BAT-AEPLs) for specific energy consumption for feedstock heating in hot rolling

Specific process(es) Steel products at the end of the rolling process	Unit	BAT-AEPL (Yearly average)
Feedstock reheating		
Hot rolled coils (strips)	MJ/t	1 200–1 500 (1)
Heavy plates	MJ/t	1 400–2 000 (2)
Bars, rods	MJ/t	600–1 900 (2)
Beams, billets, rails, tubes	MJ/t	1 400–2 200
Feedstock intermediate heating		
Bars, rods, tubes	MJ/t	100–900
Feedstock post-heating		
Heavy plates	MJ/t	1 000–2 000
Bars, rods	MJ/t	1 400–3 000 (3)

(1) In the case of high-alloy steel (e.g. austenitic stainless steel), the higher end of the BAT-AEPL range may be higher and up to 2 200 MJ/t.

(2) In the case of high-alloy steel (e.g. austenitic stainless steel), the higher end of the BAT-AEPL range may be higher and up to 2 800 MJ/t.

(3) In the case of high-alloy steel (e.g. austenitic stainless steel), the higher end of the BAT-AEPL range may be higher and up to 4 000 MJ/t.

Table 1.2

BAT-associated environmental performance level (BAT-AEPL) for specific energy consumption in annealing after cold rolling

Specific process(es)	Unit	BAT-AEPL (Yearly average)
Annealing after cold rolling (batch and continuous)	MJ/t	600–1 200 (1) (2)

(1) For batch annealing, the lower end of the BAT-AEPL range can be achieved by using BAT 11 (g).

(2) The BAT-AEPL may be higher for continuous annealing lines requiring an annealing temperature above 800 °C.

Table 1.3

BAT-associated environmental performance level (BAT-AEPL) for specific energy consumption of feedstock heating before hot dip coating

Specific process(es)	Unit	BAT-AEPL (Yearly average)
Feedstock heating before hot dip coating	MJ/t	700–1 100 (1)

(1) The BAT-AEPL may be higher for continuous annealing lines requiring an annealing temperature above 800 °C.

Table 1.4

BAT-associated environmental performance level (BAT-AEPL) for specific energy consumption in batch galvanising

Specific process(es)	Unit	BAT-AEPL (Yearly average)
Batch galvanising	kWh/t	300–800 (1) (2) (3)

(1) The higher end of the BAT-AEPL range may be higher when centrifugation is used to remove the excess zinc and/or when the galvanising bath temperature is higher than 500 °C.

(2) The higher end of the BAT-AEPL may be higher and up to 1 200 kWh/t for batch galvanising plants operating at an average yearly production throughput below 150 t/m^3 of kettle volume.

(3) In the case of batch galvanising plants producing mainly thin products (e.g. < 1,5 mm), the higher end of the BAT-AEPL range may be higher and up to 1 000 kWh/t.

The associated monitoring is given in BAT 6.

1.1.5. Material efficiency

BAT 12. In order to increase material efficiency in degreasing and to reduce the generation of spent degreasing solution, BAT is to use a combination of the techniques given below.

	Technique	Description	Applicability
Avoiding or reducing the need for degreasing			
a.	Use of feedstock with low oil and grease contamination	The use of feedstock with low oil and grease contamination prolongs the lifetime of the degreasing solution.	Applicability may be limited if the feedstock quality cannot be influenced.
b.	Use of a direct-flame furnace in the case of hot dip coating of sheets	The oil on the surface of the sheet is burnt in a direct-flame furnace. Degreasing before the furnace may be needed for some high-quality products or in the case of sheets with high residual oil levels.	Applicability may be limited if a very high level of surface cleanliness and zinc adhesion is required.

Degreasing optimisation			
c.	General techniques for increased degreasing efficiency	These include techniques such as: — monitoring and optimising the temperature and the concentration of degreasing agents in the degreasing solution; — enhancing the effect of the degreasing solution on the feedstock (e.g. by moving the feedstock, agitating the degreasing solution or by using ultrasound to create cavitation of the solution on the surface to be degreased).	Generally applicable.
d.	Minimisation of drag-out of degreasing solution	This includes techniques such as: — using squeeze rolls, e.g. in the case of continuous degreasing of strip; — allowing for a sufficient dripping time, e.g. by slow lifting of workpieces.	Generally applicable.
e.	Reverse cascade degreasing	Degreasing is carried out in two or more baths in series where the feedstock is moved from the most contaminated degreasing bath to the cleanest.	Generally applicable.
Extending the lifetime of the degreasing baths			
f.	Cleaning and reuse of the degreasing solution	Magnetic separation, oil separation (e.g. skimmers, discharge launders, weirs), micro- or ultrafiltration or biological treatment is used to clean the degreasing solution for reuse.	Generally applicable.

BAT 13. In order to increase material efficiency in pickling and to reduce the generation of spent pickling acid when pickling acid is heated, BAT is to use one of the techniques given below and not to use direct injection of steam.

Technique		Description
a.	Acid heating with heat exchangers	Corrosion-resistant heat exchangers are immersed in the pickling acid for indirect heating, e.g. with steam.
b.	Acid heating by submerged combustion	Combustion gases pass through the pickling acid, releasing the energy via direct heat transfer.

BAT 14. In order to increase material efficiency in pickling and to reduce the generation of spent pickling acid, BAT is to use an appropriate combination of the techniques given below.

	Technique	Description	Applicability
Avoiding or reducing the need for pickling			
a.	Minimisation of steel corrosion	This includes techniques such as: — cooling the hot rolled steel as fast as possible depending on product specifications; — storing the feedstock in roofed areas; — limiting the storage duration of the feedstock.	Generally applicable.
b.	Mechanical (pre)descaling	This includes techniques such as: — shot blasting; — bending; — sanding; — brushing; — stretching and levelling.	Applicability to existing plants may be restricted by a lack of space. Applicability may be restricted due to product specifications.
c.	Electrolytic prepickling of high-alloy steel	Use of an aqueous solution of sodium sulphate (Na_2SO_4) to pretreat high-alloy steel before pickling with mixed acid, in order to speed up and improve the removal of the surface oxide scale. The waste water containing hexavalent chromium is treated using technique BAT 31 (f).	Only applicable to cold rolling. Applicability to existing plants may be restricted by a lack of space.
Pickling optimisation			
d.	Rinsing after alkaline degreasing	Carry-over of alkaline degreasing solution to the pickling bath is reduced by rinsing feedstock after degreasing.	Applicability to existing plants may be restricted by a lack of space.

e.	General techniques for increased pickling efficiency	These include techniques such as: — optimisation of the pickling temperature for maximising pickling rates while minimising emissions of acids; — optimisation of the pickling bath composition (e.g. acid and iron concentrations); — optimisation of the pickling time to avoid over-pickling; — avoiding drastic changes in the pickling bath composition by frequently replenishing it with fresh acid.	Generally applicable.
f.	Cleaning of the pickling bath and reuse of free acid	A cleaning circuit, e.g. with filtration, is used to remove particles from the pickling acid followed by reclamation of the free acid via ion exchange, e.g. using resins.	Not applicable if cascade pickling (or similar) is used, as this results in very low levels of free acid.
g.	Reverse cascade pickling	Pickling is carried out in two or more baths in series where the feedstock is moved from the bath with the lowest acid concentration to the one with the highest.	Applicability to existing plants may be restricted by a lack of space.
h.	Minimisation of drag-out of pickling acid	This includes techniques such as: — using squeeze rolls, e.g. in the case of continuous pickling of strip; — allowing for a sufficient dripping time, e.g. by slow lifting of workpieces; — using vibrating wire rod coils.	Generally applicable.
i.	Turbulence pickling	This includes techniques such as: — injection of the pickling acid at high pressure via nozzles; — agitation of the pickling acid using an immersed turbine.	Applicability to existing plants may be restricted by a lack of space.

j.	Use of pickling inhibitors	Pickling inhibitors are added to the pickling acid to protect metallically clean parts of the feedstock from over-pickling.	Not applicable to high- alloy steel. Applicability may be restricted due to product specifications.
k.	Activated pickling in hydrochloric acid pickling	Pickling is carried out with a low hydrochloric acid concentration (i. e. around 4–6 wt-%) and a high iron concentration (i.e. around 120–180 g/l) at temperatures of 20–25 °C.	Generally applicable.

Table 1.5

BAT-associated environmental performance level (BAT-AEPL) for specific pickling acid consumption in batch galvanising

Pickling acid	Unit	BAT-AEPL (3-year average)
Hydrochloric acid, 28 wt-%	kg/t	13–30 (1)

(1) The higher end of the BAT-AEPL range may be higher and up to 50 kg/t when galvanising mainly workpieces with a high specific surface area (e.g. thin products < 1,5 mm, tubes with a wall thickness < 3 mm) or when regalvanising is carried out.

The associated monitoring is given in BAT 6.

BAT 15. In order to increase material efficiency in fluxing and to reduce the quantity of spent fluxing solution sent for disposal, BAT is use all of the techniques (a), (b) and (c), in combination with technique (d) or in combination with technique (e) given below.

Technique		Description	Applicability
a.	Rinsing of workpieces after pickling	In batch galvanising, carry-over of iron to the fluxing solution is reduced by rinsing workpieces after pickling.	Applicability to existing plants may be restricted by a lack of space.
b.	Optimised fluxing operation	The chemical composition of the fluxing solution is monitored and adjusted frequently. The amount of fluxing agent used is reduced to the minimum level required to achieve the product specifications.	Generally applicable.
c.	Minimisation of drag-out of fluxing solution	The drag-out of the fluxing solution is minimised by allowing enough time for it to drip off.	Generally applicable.
d.	Iron removal and reuse of the fluxing solution	Iron is removed from the fluxing solution by one of the following techniques: — electrolytic oxidation; — oxidation using air or H_2O_2; — ion exchange. After iron removal, the fluxing solution is reused.	Applicability to existing batch galvanising plants may be restricted by a lack of space.

e.	Recovery of salts from the spent fluxing solution for production of fluxing agents	Spent fluxing solution is used to recover the salts contained therein to produce fluxing agents. This may take place on site or off site.	Applicability may be restricted depending on the availability of a market.

BAT 16. In order to increase the material efficiency of hot dipping in the coating of wires and in batch galvanising, and to reduce the generation of waste, BAT is to use all of the techniques given below.

Technique		Description
a.	Reduction of the generation of bottom dross	The generation of bottom dross is reduced, e.g. by sufficient rinsing after pickling, removing the iron from the fluxing solution (see BAT 15 (d)), using fluxing agents with a mild pickling effect and avoiding local overheating in the galvanising kettle.
b.	Prevention, collection and reuse of zinc splashes in batch galvanising	The generation of zinc splashes from the galvanising kettle is reduced by minimising carry-over of the fluxing solution (see BAT 26 (b)). Zinc splashes out of the kettle are collected and reused. The area surrounding the kettle is kept clean to reduce contamination of the splashes.
c.	Reduction of the generation of zinc ash	The formation of zinc ash, i.e. zinc oxidation on the bath surface, is reduced for example by: — sufficient drying of the workpieces/wires before dipping; — avoiding unnecessary disturbances of the bath during production, including during skimming; — in continuous hot dipping of wires, reducing the bath surface that is in contact with air using a floating refractory cover.

BAT 17. In order to increase material efficiency and to reduce the quantity of waste sent for disposal from phosphating and passivation, BAT is to use technique (a) and one of the techniques (b) or (c) given below.

Technique		Description
Extending the lifetime of the treatment baths		
a.	Cleaning and reuse of the phosphating or passivation solution	A cleaning circuit, for example with filtration, is used to clean the phosphating or passivation solution for reuse.
Treatment optimisation		
b.	Use of roll coaters for strips	Roll coaters are used to apply a passivation or a phosphate-containing layer on the surface of strips. This allows better control of the layer thickness and thus the reduction of the consumption of chemicals.
c.	Minimisation of drag-out of chemical solution	The drag-out of chemical solution is minimised, e.g. by passing the strips through squeeze rolls or by allowing for sufficient dripping time for workpieces.

BAT 18. In order to reduce the quantity of spent pickling acid sent for disposal, BAT is to recover spent pickling acids (i.e. hydrochloric acid, sulphuric acid and mixed acid). The neutralisation of spent pickling acids or the use of spent pickling acids for emulsion splitting is not BAT.

Description

Techniques to recover spent pickling acid on site or off site include:

i. spray roasting or using fluidised bed reactors for the recovery of hydrochloric acid;

ii. crystallisation of ferric sulphate for the recovery of sulphuric acid;

iii. spray roasting, evaporation, ion exchange or diffusion dialysis, for the recovery of mixed acid;

iv. use of spent pickling acid as a secondary raw material (e.g. for the production of iron chloride or pigments).

Applicability

In batch galvanising, if the use of spent pickling acid as a secondary raw material is restricted by market unavailability, neutralisation of spent pickling acid may exceptionally take place.

Further sector-specific techniques to increase material efficiency are given in Sections 1.2.2, 1.3.2, 1.4.2, 1.5.1 and 1.6.1 of these BAT conclusions.

1.1.6. Water use and waste water generation

BAT 19. In order to optimise water consumption, to improve water recyclability and to reduce the volume of waste water generated, BAT is to use both techniques (a) and (b) and an appropriate combination of the techniques (c) to (h) given below.

Technique		Description	Applicability
a.	Water management plan and water audits	A water management plan and water audits are part of the EMS (see BAT 1) and include: — flow diagrams and a water mass balance of the plant; — establishment of water efficiency objectives; — implementation of water optimisation techniques (e.g. control of water usage, water recycling, detection and repair of leaks). Water audits are carried out at least once every year to ensure that the objectives of the water management plan are met. The water management plan and the water audits may be integrated in the overall water management plan of a larger installation (e.g. for iron and steel production).	The level of detail of the water management plan and water audits will generally be related to the nature, scale and complexity of the plant.

b.	Segregation of water streams	Each water stream (e.g. surface run-off water, process water, alkaline or acidic waste water, spent degreasing solution) is collected separately, based on the pollutant content and on the required treatment techniques. Waste water streams that can be recycled without treatment are segregated from waste water streams that require treatment.	Applicability to existing plants may be limited by the layout of the water collection system.
c.	Minimisation of hydrocarbon contamination of process water	The contamination of process water by oil and lubricant losses is minimised by using techniques such as: — oil-tight bearings and bearing seals for working rolls; — leakage indicators; — regular inspections and preventive maintenance of pump seals, piping and working rolls.	Generally applicable.
d.	Reuse and/or recycling of water	Water streams (e.g. process water, effluents from wet scrubbing or quench baths) are reused and/or recycled in closed or semi-closed circuits, if necessary after treatment (see BAT 30 and BAT 31).	The degree of water reuse and/or recycling is limited by the water balance of the plant, the content of impurities and/or the characteristics of the water streams.
e.	Reverse cascade rinsing	Rinsing is carried out in two or more baths in series where the feedstock is moved from the most contaminated rinsing bath to the cleanest.	Applicability to existing plants may be restricted by a lack of space.
f.	Recycling or reuse of rinsing water	Water from rinsing after pickling or degreasing is recycled/reused, if necessary after treatment, to the preceding process baths as make-up water, rinsing water or, if the acid concentration is sufficiently high, for acid recovery.	Generally applicable.
g.	Treatment and reuse of oil- and scale-bearing process water in hot rolling	Oil- and scale-bearing waste water from hot rolling mills is treated separately using different cleaning steps including scale pits, settling tanks, cyclones and filtration to separate oil and scale. A large proportion of the treated water is reused in the process.	Generally applicable.

h.	Water spray descaling triggered by sensors in hot rolling	Sensors and automation are used to track the position of the feedstock and adjust the volume of the descaling water passing through the water sprays.	Generally applicable.

Table 1.6

BAT-associated environmental performance levels (BAT-AEPLs) for specific water consumption

Sector	Unit	BAT-AEPL (Yearly average)
Hot rolling	m^3/t	0,5–5
Cold rolling	m^3/t	0,5–10
Wire drawing	m^3/t	0,5–5
Hot dip coating	m^3/t	0,5–5

The associated monitoring is given in BAT 6.

1.1.7. Emissions to air

1.1.7.1. *Emissions to air from heating*

BAT 20. In order to prevent or reduce dust emissions to air from heating, BAT is to use either electricity generated from fossil-free energy sources or technique (a), in combination with technique (b) given below.

Technique		Description	Applicability
a.	Use of fuels with low dust and ash content	Fuels with low dust and ash content include for example natural gas, liquefied petroleum gas, dedusted blast furnace gas and dedusted basic oxygen furnace gas.	Generally applicable.
b.	Limiting the entrainment of dust	Entrainment of dust is limited by for example: — as far as practically possible, use of clean feedstock or cleaning the feedstock of loose scale and dust before feeding it into the furnace; — minimisation of dust generation from refractory lining damage, e.g. by avoiding direct contact of the flames with the refractory lining, using ceramic coatings on the refractory lining; — avoiding direct contact of the flames with the feedstock.	Avoiding direct contact of the flames with the feedstock is not applicable in the case of direct flame furnaces.

Table 1.7

BAT-associated emission levels (BAT-AELs) for channelled dust emissions to air from feedstock heating

Parameter	Sector	Unit	BAT-AEL (1) (Daily average or average over the sampling period)
Dust	Hot rolling	mg/Nm^3	< 2–10
	Cold rolling		< 2–10
	Wire drawing		< 2–10
	Hot dip coating		< 2–10

(1) The BAT-AEL does not apply when the dust mass flow is below 100 g/h.

The associated monitoring is given in BAT 7.

BAT 21. In order to prevent or reduce SO_2 emissions to air from heating, BAT is to use either electricity generated from fossil-free energy sources or a fuel, or a combination of fuels, with low sulphur content.

Description

Fuels with low sulphur content include for example natural gas, liquefied petroleum gas, blast furnace gas, basic oxygen furnace gas and CO-rich gas from ferrochromium production.

Table 1.8

BAT-associated emission levels (BAT-AELs) for channelled SO_2 emissions to air from feedstock heating

Parameter	Sector	Unit	BAT-AEL (Daily average or average over the sampling period)
SO_2	Hot rolling	mg/Nm^3	50–200 (1) (2)
	Cold rolling, wire drawing, hot dip coating of sheets		20–100 (1)

(1) The BAT-AEL does not apply to plants using 100 % natural gas or 100 % electrical heating.

(2) The higher end of the BAT-AEL range may be higher and up to 300 mg/Nm^3 when using a high share of coke oven gas (> 50 % of energy input).

The associated monitoring is given in BAT 7.

BAT 22. In order to prevent or reduce NO_X emissions to air from heating while limiting CO emissions and the emissions of NH_3 from the use of SNCR and/or SCR, BAT is to use either electricity generated from fossil-free energy sources or an appropriate combination of the techniques given below.

Technique		Description	Applicability
Reduction of generation of emissions			
a.	Use of a fuel or a combination of fuels with low NO_X formation potential	Fuels with a low NO_X formation potential, e.g. natural gas, liquefied petroleum gas, blast furnace gas and basic oxygen furnace gas.	Generally applicable.

b.	Furnace automation and control	See Section 1.7.2.	Generally applicable.
c.	Combustion optimisation	See Section 1.7.2. Generally used in combination with other techniques.	Generally applicable.
d.	Low-NO_X burners	See Section 1.7.2.	Applicability may be restricted at existing plants by design and/or operational constraints.
e.	Flue-gas recirculation	Recirculation (external) of part of the flue-gas to the combustion chamber to replace part of the fresh combustion air, with the dual effect of lowering the temperature and limiting the O_2 content for nitrogen oxidation, thus limiting the NO_X generation. It implies the supply of flue-gas from the furnace into the flame to reduce the oxygen content and therefore the temperature of the flame.	Applicability to existing plants may be restricted by a lack of space.
f.	Limiting the temperature of air preheating	Limiting the air preheating temperature leads to a decrease of the concentration of NO_X emissions. A balance has to be achieved between maximising heat recovery from the flue-gas and minimising NO_X emissions.	May not be applicable in the case of furnaces equipped with radiant tube burners.
g.	Flameless combustion	See Section 1.7.2.	Applicability to existing plants may be limited by furnace design (i.e. furnace volume, space for burners, distance between burners) and the need for a change of the refractory lining. Applicability may be limited for processes where close control of the temperature or temperature profile is required (e.g. recrystallisation). Not applicable to furnaces operating at a temperature lower than the auto-ignition temperature required for flameless combustion, or to furnaces equipped with radiant tube burners.

h.	Oxy-fuel combustion	See Section 1.7.2.	Applicability may be restricted for furnaces processing high-alloy steel. Applicability to existing plants may be restricted by furnace design and the need for a minimum waste gas flow. Not applicable to furnaces equipped with radiant tube burners.
Waste gas treatment			
i.	Selective catalytic reduction (SCR)	See Section 1.7.2.	Applicability to existing plants may be restricted by a lack of space. Applicability may be restricted in batch annealing due to the varying temperatures during the annealing cycle.
j.	Selective non-catalytic reduction (SNCR)	See Section 1.7.2.	Applicability to existing plants may be restricted by the optimum temperature window and the residence time needed for the reaction. Applicability may be restricted in batch annealing due to the varying temperatures during the annealing cycle.
k.	Optimisation of the SNCR/SCR design and operation	See Section 1.7.2.	Only applicable where SNCR/SCR is used for the reduction of NO_X emissions.

Table 1.9

BAT-associated emission levels (BAT-AELs) for channelled NO_X emissions to air and indicative emission levels for channelled CO emissions to air from feedstock heating in hot rolling

Parameter	Type of fuel	Specific process	Unit	BAT-AEL (Daily average or average over the sampling period)	Indicative emission level Daily average or average over the sampling period)
NO_X	100 % natural gas	Reheating	mg/Nm³	New plants: 80–200 Existing plants: 100–350	No indicative level
		Intermediate heating	mg/Nm³	100–250	

		Post-heating	mg/Nm^3	100–200	
	Other fuels	Reheating, intermediate heating, post-heating	mg/Nm^3	100–350 (1)	
CO	100 % natural gas	Reheating	mg/Nm^3	No BAT-AEL	10–50
		Intermediate heating	mg/Nm^3		10–100
		Post-heating	mg/Nm^3		10–100
	Other fuels	Reheating, intermediate heating, post-heating	mg/Nm^3		10–50

(1) The higher end of the BAT-AEL range may be higher and up to 550 mg/Nm^3 when using a high share of coke oven gas or of CO-rich gas from ferrochromium production (> 50 % of energy input).

Table 1.10

BAT-associated emission levels (BAT-AELs) for channelled NOX emissions to air and indicative emission levels for channelled CO emissions to air from feedstock heating in cold rolling

Parameter	Type of fuel	Unit	BAT-AEL (Daily average or average over the sampling period)	Indicative emission level Daily average or average over the sampling period)
NO_X	100 % natural gas	mg/Nm^3	100–250 (1)	No indicative level
	Other fuels	mg/Nm^3	100–300 (2)	
CO	100 % natural gas	mg/Nm^3	No BAT-AEL	10–50
	Other fuels	mg/Nm^3	No BAT-AEL	10–100

(1) The higher end of the BAT-AEL range may be higher and up to 300 mg/Nm^3 in continuous annealing.

(2) The higher end of the BAT-AEL range may be higher and up to 550 mg/Nm^3 when using a high share of coke oven gas or of CO-rich gas from ferrochromium production (> 50 % of energy input).

Table 1.11

BAT-associated emission level (BAT-AEL) for channelled NOX emissions to air and indicative emission level for channelled CO emissions to air from feedstock heating in wire drawing

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)	Indicative emission level (Average over the sampling period)
NO_X	mg/Nm^3	100–250	No indicative level
CO	mg/Nm^3	No BAT-AEL	10–50

Table 1.12

BAT-associated emission level (BAT-AEL) for channelled NOX emissions to air and indicative emission level for channelled CO emissions to air from feedstock heating in hot dip coating

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)	Indicative emission level (Daily average or average over the sampling period)
NO_X	mg/Nm^3	100–300 (1)	No indicative level
CO	mg/Nm^3	No BAT-AEL	10–100

(1) The higher end of the BAT-AEL range may be higher and up to 550 mg/Nm^3 when using a high share of coke oven gas or of CO-rich gas from ferrochromium production (> 50 % of energy input).

Table 1.13

BAT-associated emission level (BAT-AEL) for channelled NOX emissions to air and indicative emission level for channelled CO emissions to air from heating the galvanising kettle in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)	Indicative emission level (Daily average or average over the sampling period)
NO_X	mg/Nm^3	70–300	No indicative level
CO	mg/Nm^3	No BAT-AEL	10–100

The associated monitoring is given in BAT 7.

1.1.7.2. *emissions to air from degreasing*

BAT 23. In order to reduce emissions to air of oil mist, acids and/or alkalis from degreasing in cold rolling and hot dip coating of sheets, BAT is to collect emissions by using technique (a) and to treat the waste gas by using technique (b) and/or technique (c) given below.

	Technique	Description
Collection of emissions		
a.	Closed degreasing tanks combined with air extraction in the case of continuous degreasing	Degreasing is carried out in closed tanks and air is extracted.

Waste gas treatment		
b.	Wet scrubbing	See Section 1.7.2.
c.	Demister	See Section 1.7.2.

The associated monitoring is given in BAT 7.

1.1.7.3. *Emissions to air from pickling*

BAT 24. In order to reduce emissions to air of dust, acids (HCl, HF, H_2SO_4) and SO_x from pickling in hot rolling, cold rolling, hot dip coating and wire drawing, BAT is to use technique (a) or technique (b) in combination with technique (c) given below.

	Technique	Description
Collection of emissions		
a.	Continuous pickling in closed tanks combined with fume extraction	Continuous pickling is carried out in closed tanks with limited entry and exit openings for the steel strip or wire. The fumes from the pickling tanks are extracted.
b.	Batch pickling in tanks equipped with lids or enclosing hoods combined with fume extraction	Batch pickling is carried out in tanks equipped with lids or enclosing hoods that can be opened to allow charging of the wire rod coils. The fumes from the pickling tanks are extracted.
Waste gas treatment		
c.	Wet scrubbing followed by a demister	See Section 1.7.2.

Table 1.14

BAT-associated emission levels (BAT-AELs) for channelled emissions of HCl, HF and SOX to air from pickling in hot rolling, cold rolling and hot dip coating

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
HCl	mg/Nm^3	< 2–10 (1)
HF	mg/Nm^3	< 1 (2)
SO_X	mg/Nm^3	< 1–6 (3)

(1) This BAT-AEL only applies to pickling with hydrochloric acid.

(2) This BAT-AEL only applies to pickling with acid mixtures containing hydrofluoric acid.

(3) This BAT-AEL only applies to pickling with sulphuric acid.

Table 1.15

BAT-associated emission level (BAT-AEL) for channelled HCl and SOX emissions to air from pickling with hydrochloric acid or sulphuric acid in wire drawing

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
HCl	mg/Nm^3	< 2–10 (1)

SO_X	mg/Nm³	< 1–6 (²)

(¹) This BAT-AEL only applies to pickling with hydrochloric acid.
(²) This BAT-AEL only applies to pickling with sulphuric acid.

The associated monitoring is given in BAT 7.

BAT 25. In order to reduce NO_X emissions to air from pickling with nitric acid (alone or in combination with other acids) and the emissions of NH_3 from the use of SCR, in hot rolling and cold rolling, BAT is to use one or a combination of the techniques given below.

	Technique	Description	Applicability
		Reduction of generation of emissions	
a.	Nitric-acid-free pickling of high-alloy steel	Pickling of high-alloy steel is carried out by fully substituting nitric acid with a strong oxidising agent (e.g. hydrogen peroxide).	Only applicable to new plants and major plant upgrades.
b.	Addition of hydrogen peroxide or urea to the pickling acid	Hydrogen peroxide or urea is added directly to the pickling acid to reduce NO_X emissions.	Generally applicable.
		Collection of emissions	
c.	Continuous pickling in closed tanks combined with fume extraction	Continuous pickling is carried out in closed tanks with limited entry and exit openings for the steel strip or wire. The fumes from the pickling bath are extracted.	Generally applicable.
d.	Batch pickling in tanks equipped with lids or enclosing hoods combined with fume extraction	Batch pickling is carried out in tanks equipped with lids or enclosing hoods that can be opened to allow charging of the wire rod coils. The fumes from the pickling tanks are extracted.	Generally applicable.
		Waste gas treatment	
e.	Wet scrubbing with addition of an oxidising agent (e.g. hydrogen peroxide)	See Section 1.7.2. An oxidising agent (e.g. hydrogen peroxide) is added to the scrubbing solution to reduce NO_X emissions. When using hydrogen peroxide, the nitric acid formed can be recycled to the pickling tanks.	Generally applicable.
f.	Selective catalytic reduction (SCR)	See Section 1.7.2.	Applicability to existing plants may be restricted by a lack of space.
g.	Optimisation of the SCR design and operation	See Section 1.7.2.	Only applicable where SCR is used for the reduction of NO_X emissions.

Table 1.16

BAT-associated emission level (BAT-AEL) for channelled NOX emissions to air from pickling with nitric acid (alone or in combination with other acids) in hot rolling and cold rolling

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
NO_X	mg/Nm^3	10–200

The associated monitoring is given in BAT 7.

1.1.7.4. *Emissions to air from hot dipping*

BAT 26. In order to reduce emissions to air of dust and zinc from hot dipping after fluxing in hot dip coating of wires and in batch galvanising, BAT is to reduce the generation of emissions by using technique (b) or techniques (a) and (b), to collect the emissions by using technique (c) or technique (d), and to treat the waste gases by using technique (e) given below.

	Technique	Description	Applicability
Reduction of generation of emissions			
a.	Low-fume flux	Ammonium chloride in fluxing agents is partly substituted with other alkali chlorides (e.g. potassium chloride) to reduce dust formation.	Applicability may be restricted due to product specifications.
b.	Minimisation of carry-over of the fluxing solution	This includes techniques such as: — allowing enough time for the fluxing solution to drip off (see BAT 15 (c)); — drying before dipping.	Generally applicable.
Collection of emissions			
c.	Air extraction as close as possible to the source	Air from the kettle is extracted, for example using lateral hood or lip extraction.	Generally applicable.
d.	Enclosed kettle combined with air extraction	Hot dipping is carried out in an enclosed kettle and air is extracted.	Applicability to existing plants may be limited where enclosure interferes with an existing transport system for workpieces in batch galvanising.
Waste gas treatment			
e.	Fabric filter	See Section 1.7.2.	Generally applicable.

Table 1.17

BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from hot dipping after fluxing in hot dip coating of wires and in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm^3	< 2–5

The associated monitoring is given in BAT 7.

1.1.7.4.1. Emissions to air from oiling

BAT 27. In order to prevent oil mist emissions to air and to reduce the consumption of oil from oiling of the feedstock surface, BAT is to use one of the techniques given below.

Technique		Description
a.	Electrostatic oiling	Oil is sprayed on the metal surface through an electrostatic field, which ensures homogeneous oil application and optimises the quantity of oil applied. The oiling machine is enclosed and oil that does not deposit on the metal surface is recovered and reused within the machine.
b.	Contact lubrication	Roller lubricators, e.g. felt rolls or squeeze rolls, are used in direct contact with the metal surface.
c.	Oiling without compressed air	Oil is applied with nozzles close to the metal surface using high-frequency valves.

1.1.7.5. *Emissions to air from post-treatment*

BAT 28. In order to reduce emissions to air from chemical baths or tanks in post-treatment (i.e. phosphating and passivation), BAT is to collect the emissions by using technique (a) or technique (b), and in that case to treat the waste gas by using technique (c) and/or technique (d) given below.

Technique		Description	Applicability
Collection of emissions			
a.	Air extraction as close as possible to the source	Emissions from the chemical storage tanks and chemical baths are captured, e.g. by using one or a combination of the following techniques: — lateral hood or lip extraction; — tanks equipped with moveable lids; — enclosing hoods; — placing the baths in enclosed areas. The captured emissions are then extracted.	Only applicable when the treatment is carried out by spraying or when volatile substances are used.

b.	Closed tanks combined with air extraction in the case of continuous post-treatment	Phosphating and passivation are carried out in closed tanks and the air is extracted from the tanks.	Only applicable when the treatment is carried out by spraying or when volatile substances are used.
Waste gas treatment			
c.	Wet scrubbing	See Section 1.7.2.	Generally applicable.
d.	Demister	See Section 1.7.2.	Generally applicable.

1.1.7.6. *Emissions to air from acid recovery*

BAT 29. In order to reduce emissions to air from the recovery of spent acid of dust, acids (HCl, HF), SO_2 and NO_X (while limiting CO emissions) and the emissions of NH_3 from the use of SCR, BAT is to use a combination of the techniques given below.

Technique		Description	Applicability
a.	Use of a fuel or a combination of fuels with low sulphur content and/or low NO_X formation potential	See BAT 21 and BAT 22 (a).	Generally applicable.
b.	Combustion optimisation	See Section 1.7.2. Generally used in combination with other techniques.	Generally applicable.
c.	Low-NO_X burners	See Section 1.7.2.	Applicability may be restricted at existing plants by design and/or operational constraints.
d.	Wet scrubbing followed by a demister	See Section 1.7.2. In the case of mixed acid recovery, an alkali is added to the scrubbing solution to remove traces of HF and/or an oxidising agent (e.g. hydrogen peroxide) is added to the scrubbing solution to reduce NO_X emissions. When using hydrogen peroxide, the nitric acid formed can be recycled to the pickling tanks.	Generally applicable.
e.	Selective catalytic reduction (SCR)	See Section 1.7.2.	Applicability to existing plants may be restricted by a lack of space.
f.	Optimisation of the SCR design and operation	See Section 1.7.2.	Only applicable where SCR is used for the reduction of NO_X emissions.

Table 1.18

BAT-associated emission levels (BAT-AELs) for channelled emissions of dust, HCl, SO2 and NOX to air from the recovery of spent hydrochloric acid by spray roasting or by using fluidised bed reactors

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm^3	< 2–15
HCl	mg/Nm^3	< 2–15
SO_2	mg/Nm^3	< 10
NO_X	mg/Nm^3	50-180

Table 1.19

BAT-associated emission levels (BAT-AELs) for channelled emissions of dust, HF and NOX to air from the recovery of mixed acid by spray roasting or evaporation

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
HF	mg/Nm^3	< 1
NO_X	mg/Nm^3	50–100 (1)
Dust	mg/Nm^3	< 2–10

(1) The higher end of the BAT-AEL range may be higher and up to 200 mg/Nm^3 in the case of recovery of mixed acid by spray roasting.

The associated monitoring is given in BAT 7.

1.1.8. Emissions to water

BAT 30. In order to reduce the load of organic pollutants in water contaminated with oil or grease (e.g. from oil spillages or from the cleaning of rolling and tempering emulsions, degreasing solutions and wire drawing lubricants) that is sent to further treatment (see BAT 31), BAT is to separate the organic and the aqueous phase.

Description

The organic phase is separated from the aqueous phase, e.g. by skimming or by emulsion splitting with suitable agents, evaporation or membrane filtration. The organic phase may be used for energy or material recovery (e.g. see BAT 34 (f)).

BAT 31. In order to reduce emissions to water, BAT is to treat waste water using a combination of the techniques given below.

Technique (1)		Typical pollutants targeted
Preliminary, primary and general treatment, e.g.		
a.	Equalisation	All pollutants
b.	Neutralisation	Acids, alkalis
c.	Physical separation, e.g. screens, sieves, grit separators, grease separators, hydrocyclones, oil-water separation or primary settlement tanks	Gross solids, suspended solids, oil/grease

Physico-chemical treatment, e.g.		
d.	Adsorption	Adsorbable dissolved non-biodegradable or inhibitory pollutants, e.g. hydrocarbons, mercury
e.	Chemical precipitation	Precipitable dissolved non-biodegradable or inhibitory pollutants, e.g. metals, phosphorus, fluoride
f.	Chemical reduction	Reducible dissolved non-biodegradable or inhibitory pollutants, e.g. hexavalent chromium
g.	Nanofiltration/reverse osmosis	Soluble non-biodegradable or inhibitory pollutants, e.g. salts, metals
Biological treatment, e.g.		
h.	Aerobic treatment	Biodegradable organic compounds
Solids removal, e.g.		
i.	Coagulation and flocculation	Suspended solids and particulate-bound metals
j.	Sedimentation	
k.	Filtration (e.g. sand filtration, microfiltration, ultrafiltration)	
l.	Flotation	

(1) The descriptions of the techniques are given in Section 1.7.3.

Table 1.20

BAT-associated emission levels (BAT-AELs) for direct discharges to a receiving water body

Substance/Parameter		Unit	BAT-AEL (1)	Process(es) to which the BAT-AEL applies
Total suspended solids (TSS)		mg/l	5–30	All processes
Total organic carbon (TOC) (2)		mg/l	10–30	All processes
Chemical oxygen demand (COD) (2)		mg/l	30–90	All processes
Hydrocarbon oil index (HOI)		mg/l	0,5–4	All processes
Metals	Cd	µg/l	1-5	All processes (3)
	Cr	mg/l	0,01–0,1 (4)	All processes (3)
	Cr(VI)	µg/l	10–50	Pickling of high-alloy steel or passivation with hexavalent chromium compounds
	Fe	mg/l	1–5	All processes
	Hg	µg/l	0,1–0,5	All processes (3)
	Ni	mg/l	0,01–0,2 (5)	All processes (3)
	Pb	µg/l	5–20 (6) (7)	All processes (3)
	Sn	mg/l	0,01–0,2	Hot dip coating using tin
	Zn	mg/l	0,05–1	All processes (3)

Total phosphorus (Total P)	mg/l	0,2–1	Phosphating
Fluoride (F^-)	mg/l	1–15	Pickling with acid mixtures containing hydrofluoric acid

(1) The averaging periods are defined in the General considerations.
(2) Either the BAT-AEL for COD or the BAT-AEL for TOC applies. TOC monitoring is the preferred option because it does not rely on the use of very toxic compounds.
(3) The BAT-AEL only applies when the substance(s)/parameter(s) concerned is identified as relevant in the waste water stream based on the inventory mentioned in BAT 2.
(4) The higher end of the BAT-AEL range is 0,3 mg/l in the case of high-alloy steels.
(5) The higher end of the BAT-AEL range is 0,4 mg/l in the case of plants producing austenitic stainless steel.
(6) The higher end of the BAT-AEL range is 35 µg/l in the case of wire drawing plants using lead baths.
(7) The higher end of the BAT-AEL range may be higher and up to 50 µg/l in the case of plants processing leaded steel.

Table 1.21

BAT-associated emission levels (BAT-AELs) for indirect discharges to a receiving water body

Substance/Parameter		Unit	BAT-AEL (1) (2)	Process(es) to which the BAT-AEL applies
Hydrocarbon oil index (HOI)		mg/l	0,5–4	All processes
Metals	Cd	µg/l	1–5	All processes (3)
	Cr	mg/l	0,01–0,1 (4)	All processes (3)
	Cr(VI)	µg/l	10–50	Pickling of high-alloy steel or passivation with hexavalent chromium compounds
	Fe	mg/l	1–5	All processes
	Hg	µg/l	0,1–0,5	All processes (3)
	Ni	mg/l	0,01–0,2 (5)	All processes (3)
	Pb	µg/l	5–20 (6) (7)	All processes (3)
	Sn	mg/l	0,01–0,2	Hot dip coating using tin
	Zn	mg/l	0,05–1	All processes (3)
Fluoride (F^-)		mg/l	1–15	Pickling with acid mixtures containing hydrofluoric acid

(1) The averaging periods are defined in the general considerations.
(2) The BAT-AELs may not apply if the downstream waste water treatment plant is designed and equipped appropriately to abate the pollutants concerned, provided this does not lead to a higher level of pollution in the environment.
(3) The BAT-AEL only applies when the substance(s)/parameter(s) concerned is identified as relevant in the waste water stream based on the inventory mentioned in BAT 2.
(4) The higher end of the BAT-AEL range is 0,3 mg/l in the case of high-alloy steels.
(5) The higher end of the BAT-AEL range is 0,4 mg/l in the case of plants producing austenitic stainless steel.
(6) The higher end of the BAT-AEL range is 35 µg/l in the case of wire drawing plants using lead baths.
(7) The higher end of the BAT-AEL range may be higher and up to 50 µg/l in the case of plants processing leaded steel.

The associated monitoring is given in BAT 8.

1.1.9. Noise and vibrations

BAT 32. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the EMS (see BAT 1), that includes all of the following elements:

i. a protocol containing appropriate actions and timelines;

ii. a protocol for conducting noise and vibration monitoring;

iii. a protocol for response to identified noise and vibration events, e.g. complaints;

iv. a noise and vibration reduction programme designed to identify the source(s), to measure/estimate noise and vibration exposure, to characterise the contributions of the sources and to implement prevention and/or reduction measures.

Applicability

The applicability is restricted to cases where a noise or vibration nuisance at sensitive receptors is expected and/or has been substantiated.

BAT 33. In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given below.

Technique		Description	Applicability
a.	Appropriate location of equipment and buildings	Noise levels can be reduced by increasing the distance between the emitter and the receiver, by using buildings as noise screens and by relocating the exits or entrances of the buildings.	For existing plants, the relocation of equipment and the exits or entrances of the buildings may not be applicable due to a lack of space and/or excessive costs.
b.	Operational measures	These include techniques such as: — inspection and maintenance of equipment; — closing of doors and windows of enclosed areas, if possible; — equipment operation by experienced staff; — avoidance of noisy activities at night, if possible; — provisions for noise control, e.g. during production and maintenance activities, transport and handling of feedstock and materials.	Generally applicable.
c.	Low-noise equipment	This includes techniques such as direct drive motors, low-noise compressors, pumps and fans.	

d.	Noise and vibration control equipment	This includes techniques such as: — noise reducers; — acoustic and vibrational insulation of equipment; — enclosure of noisy equipment (e.g. scarfing and grinding machines, wire drawing machines, air jets); — building materials with high sound insulation properties (e.g. for walls, roofs, windows, doors).	Applicability to existing plants may be restricted by a lack of space.
e.	Noise abatement	Inserting obstacles between emitters and receivers (e.g. protection walls, embankments and buildings).	Only applicable to existing plants, as the design of new plants should make this technique unnecessary. For existing plants, the insertion of obstacles may not be applicable due to a lack of space.

1.1.10. **Residues**

BAT 34. In order to reduce the quantity of waste sent for disposal, BAT is to avoid the disposal of metals, metal oxides and oily sludge and hydroxide sludge by using technique (a) and an appropriate combination of techniques (b) to (h) given below.

Technique		Description	Applicability
a.	Residues management plan	A residues management plan is part of the EMS (see BAT 1) and is a set of measures aiming to (1) minimise the generation of residues; (2) optimise the reuse, recycling and/or recovery of residues; and (3) ensure the proper disposal of waste. The residues management plan may be integrated in the overall residues management plan of a larger installation (e.g. for iron and steel production).	The level of detail and the degree of formalisation of the residues management plan will generally be related to the nature, scale and complexity of the installation.
b.	Pretreatment of oily mill scale for further use	This includes techniques such as: — briquetting or pelletising, — reducing the oil content of oily mill scale, e.g. by thermal treatment, washing, flotation.	Generally applicable.

c.	Use of mill scale	Mill scale is collected and used on site or off site, e.g. in iron and steel production or in cement production.	Generally applicable.
d.	Use of metallic scrap	Metallic scrap from mechanical processes (e.g. from trimming and finishing) is used in iron and steel production. This may take place on site or off site.	Generally applicable.
e.	Recycling of metal and metal oxides from dry waste gas cleaning	The coarse fraction of metal and metal oxides originating from dry cleaning (e.g. fabric filters) of waste gases from mechanical processes (e.g. scarfing or grinding) is selectively isolated using mechanical techniques (e.g. sieves) or magnetic techniques and recycled, e.g. to iron and steel production. This may take place on site or off site.	Generally applicable.
f.	Use of oily sludge	Residual oily sludge, e.g. from degreasing, is dewatered to recover the oil contained therein for material or energy recovery. If the water content is low, the sludge can be directly used. This may take place on site or off site.	Generally applicable.
g.	Thermal treatment of hydroxide sludge from the recovery of mixed acid	Sludge generated from the recovery of mixed acid is thermally treated in order to produce a material rich in calcium fluoride that can be used in argon oxygen decarburisation converters.	Applicability may be restricted by a lack of space.
h.	Recovery and reuse of shot blast media	Where mechanical descaling is carried out by shot blasting, the shot blast media are separated from the scale and reused.	Generally applicable.

BAT 35. In order to reduce the quantity of waste sent for disposal from hot dipping, BAT is to avoid the disposal of zinc-containing residues by using all of the techniques given below.

Technique		Description	Applicability
a.	Recycling of fabric filter dust	Dust from fabric filters containing ammonium chloride and zinc chloride is collected and reused, e.g. to produce fluxing agents. This may take place on site or off site.	Only applicable in hot dipping after fluxing. Applicability may be restricted depending on the availability of a market.

b.	Recycling of zinc ash and top dross	Metallic zinc is recovered from zinc ash and top dross by melting in recovery furnaces. The remaining zinc-containing residue is used, e.g. for zinc oxide production. This may take place on site or off site.	Generally applicable.
c.	Recycling of bottom dross	Bottom dross is used, e.g. in the non-ferrous metals industries to produce zinc. This may take place on site or off site.	Generally applicable.

BAT 36. In order to improve the recyclability and recovery potential of the zinc-containing residues from hot dipping (i.e. zinc ash, top dross, bottom dross, zinc splashes, and fabric filter dust) as well as to prevent or reduce the environmental risk associated with their storage, BAT is to store them separately from each other and from other residues on:

- **impermeable surfaces, in enclosed areas and in closed containers/bags, for fabric filter dust,**
- **impermeable surfaces and in covered areas protected from surface run-off water, for all the other residue types above.**

BAT 37. In order to increase material efficiency and to reduce the quantity of waste sent for disposal from texturing of working rolls, BAT is to use all of the techniques given below.

Technique		Description
a.	Cleaning and reuse of grinding emulsion	Grinding emulsions are treated using lamellar or magnetic separators or using a sedimentation/clarification process in order to remove the grinding sludge and reuse the grinding emulsion.
b.	Treatment of grinding sludge	Treatment of grinding sludge by magnetic separation for recovery of metal particles and recycling of metals, e.g. to iron and steel production.
c.	Recycling of worn working rolls	Worn working rolls which are unsuitable for texturing are recycled to iron and steel production or returned to the manufacturer for refabrication.

Further sector-specific techniques to reduce the quantity of waste sent for disposal are given in Section 1.4.4 of these BAT conclusions.

1.2. BAT *conclusions for hot rolling*

The BAT conclusions in this section apply in addition to the general BAT conclusions given in Section 1.1.

1.2.1. Energy efficiency

BAT 38. In order to increase energy efficiency in feedstock heating, BAT is to use a combination of the techniques given in BAT 11 together with an appropriate combination of the techniques given below.

Technique		Description	Applicability
a.	Near-net-shape casting for thin slabs and beam blanks followed by rolling	See Section 1.7.1.	Only applicable to plants adjacent to continuous casting and within the limitations of the plant layout and product specifications.

b.	Hot/direct charging	Continuous-cast steel products are directly charged hot into the reheating furnaces.	Only applicable to plants adjacent to continuous casting and within the limitations of the plant layout and product specifications.
c.	Heat recovery from skids cooling	Steam produced when cooling the skids supporting the feedstock in the reheating furnaces is extracted and used in other processes of the plant.	Applicability to existing plants may be restricted by a lack of space and/or of a suitable steam demand.
d.	Heat conservation during transfer of feedstock	Insulated covers are used between the continuous caster and the reheating furnace, and between the roughing mill and the finishing mill.	Generally applicable within the limitations of the plant layout.
e.	Coil boxes	See Section 1.7.1.	Generally applicable.
f.	Coil recovery furnaces	Coil recovery furnaces are used as an addition to coil boxes to restore the rolling temperature of coils and return them to a normal rolling sequence in the event of rolling mill interruptions.	Generally applicable.
g.	Sizing press	See BAT 39 (a). A sizing press is used to increase the energy efficiency in feedstock heating because it enables the hot charging rate to be increased.	Only applicable to new plants and major plant upgrades for hot strip mills.

BAT 39. In order to increase energy efficiency in rolling, BAT is to use a combination of the techniques given below.

Technique		Description	Applicability
a.	Sizing press	The use of a sizing press before the roughing mill enables the hot charging rate to be significantly increased and results in a more uniform width reduction both at the edges and centre of the product. The shape of the final slab is nearly rectangular, reducing significantly the number of rolling passes necessary to reach product specifications.	Only applicable to hot strip mills. Only applicable to new plants and major plant upgrades.
b.	Computer-aided rolling optimisation	The thickness reduction is controlled using a computer to minimise the number of rolling passes.	Generally applicable.

c.	Reduction of the rolling friction	See Section 1.7.1.	Only applicable to hot strip mills.
d.	Coil boxes	See Section 1.7.1.	Generally applicable.
e.	Three-roll stand	A three-roll stand increases the section reduction per pass, resulting in an overall reduction of the number of rolling passes required for producing wire rods and bars.	Generally applicable.
f.	Near-net-shape casting for thin slabs and beam blanks followed by rolling	See Section 1.7.1.	Only applicable to plants adjacent to continuous casting and within the limitations of the plant layout and product specifications.

Table 1.22

BAT-associated environmental performance levels (BAT-AEPLs) for specific energy consumption in rolling

Steel products at the end of the rolling process	Unit	BAT-AEPL (yearly average)
Hot rolled coils (strips), heavy plates	MJ/t	100–400
Bars, rods	MJ/t	100–500 (¹)
Beams, billets, rails, tubes	MJ/t	100–300

(¹) In the case of high-alloy steel (e.g. austenitic stainless steel), the higher end of the BAT-AEPL range is 1 000 MJ/t.

The associated monitoring is given in BAT 6.

1.2.2. Material efficiency

BAT 40. In order to increase material efficiency, and to reduce the quantity of waste sent for disposal from feedstock conditioning, BAT is to avoid or, where that is not practicable, to reduce the need for conditioning by applying one or a combination of the techniques given below.

Technique		Description	Applicability
a.	Computer-aided quality control	The quality of slabs is controlled by a computer which allows the adjustment of the casting conditions to minimise surface defects and enables manual scarfing of the damaged area(s) only rather than scarfing of the entire slab.	Only applicable to plants with continuous casting.
b.	Slab slitting	The slabs (often cast in multiple widths) are slit before hot rolling by means of slitting devices, slit rolling or torches either manually operated or mounted on a machine.	May not be applicable for slabs produced from ingots.

c.	Edging or trimming of wedge-type slabs	Wedge-type slabs are rolled under special settings where the wedge is eliminated by edging (e.g. using automatic width control or a sizing press) or by trimming.	May not be applicable for slabs produced from ingots. Only applicable to new plants and major plant upgrades.

BAT 41. **In order to increase material efficiency in rolling for the production of flat products, BAT is to reduce the generation of metallic scrap by using both of the techniques given below.**

Technique		Description
a.	Crop optimisation	The cropping of the feedstock after roughing is controlled by a shape measurement system (e.g. camera) in order to minimise the amount of metal cut off.
b.	Control of the feedstock shape during rolling	Any deformations of the feedstock during rolling are monitored and controlled in order to ensure that the rolled steel has as rectangular a shape as possible and to minimise the need for trimming.

1.2.3. Emissions to air

BAT 42. **In order to reduce emissions to air of dust, nickel and lead in mechanical processing (including slitting, descaling, grinding, roughing, rolling, finishing, levelling), scarfing and welding, BAT is to collect the emissions by using techniques (a) and (b) and in that case to treat the waste gas by using one or a combination of the techniques (c) to (e) given below.**

Technique		Description	Applicability
Collection of emissions			
a.	Enclosed scarfing and grinding combined with air extraction	Scarfing (other than manual scarfing) and grinding operations are carried out completely enclosed (e.g. under closed hoods) and air is extracted.	Generally applicable.
b.	Air extraction as close as possible to the emission source	Emissions from slitting, descaling, roughing, rolling, finishing, levelling and welding are collected, for example using hood or lip extraction. For roughing and rolling, in the case of low levels of dust generation, e.g. below 100 g/h, water sprays can be used instead (see BAT 43).	May not be applicable for welding in the case of low levels of dust generation, e.g. below 50 g/h.
Waste gas treatment			
c.	Electrostatic precipitator	See Section 1.7.2.	Generally applicable.

d.	Fabric filter	See Section 1.7.2.	May not be applicable in the case of waste gases with a high moisture content.
e.	Wet scrubbing	See Section 1.7.2.	Generally applicable.

Table 1.23

BAT-associated emission levels (BAT-AELs) for channelled emissions of dust, lead and nickel to air from mechanical processing (including slitting, descaling, grinding, roughing, rolling, finishing, levelling), scarfing (other than manual scarfing) and welding

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm³	< 2–5 (¹)
Ni		0,01–0,1 (²)
Pb		0,01–0,035 (²)

(¹) When a fabric filter is not applicable, the higher end of the BAT-AEL range may be higher and up to 7 mg/Nm³.

(²) The BAT-AEL only applies when the substance concerned is identified as relevant in the waste gas stream based on the inventory given in BAT 2.

The associated monitoring is given in BAT 7.

BAT 43. In order to reduce emissions to air of dust, nickel and lead in roughing and rolling in the case of low levels of dust generation (e.g. below 100 g/h (see BAT 42 (b))), BAT is to use water sprays.

Description

Water spraying injection systems are installed at the exit side of each roughing and rolling stand to abate dust generation. The humidification of dust particles facilitates agglomeration and dust settling. The water is collected at the bottom of the stand and treated (see BAT 31).

1.3. *BAT conclusions for cold rolling*

The BAT conclusions in this section apply in addition to the general BAT conclusions given in Section 1.1.

1.3.1. Energy efficiency

BAT 44. In order to increase energy efficiency in rolling, BAT is to use a combination of the techniques given below.

Technique		Description	Applicability
a.	Continuous rolling for low-alloy and alloy steel	Continuous rolling (e.g. using tandem mills) is employed instead of conventional discontinuous rolling (e.g. using reversing mills), allowing for stable feed and less frequent start-ups and shutdowns.	Only applicable to new plants and major plant upgrades. Applicability may be restricted due to product specifications.
b.	Reduction of the rolling friction	See Section 1.7.1.	Generally applicable.

c.	Computer-aided rolling optimisation	The thickness reduction is controlled using a computer to minimise the number of rolling passes.	Generally applicable.

Table 1.24

BAT-associated environmental performance levels (BAT-AEPLs) for specific energy consumption in rolling

Steel products at the end of the rolling process	Unit	BAT-AEPL (Yearly average)
Cold rolled coils	MJ/t	100–300 (1)
Packaging steel	MJ/t	250–400

(1) In the case of high-alloy steel (e.g. austenitic stainless steel), the higher end of the BAT-AEPL range may be higher and up to 1 600 MJ/t.

The associated monitoring is given in BAT 6.

1.3.2. Material efficiency

BAT 45. In order to increase material efficiency and to reduce the quantity of waste sent for disposal from rolling, BAT is to use all of the techniques given below.

Technique		Description	Applicability
a.	Monitoring and adjustment of the rolling emulsion quality	Important characteristics of the rolling emulsion (e.g. oil concentration, pH, emulsion droplet size, saponification index, acid concentration, concentration of iron fines, concentration of bacteria) are monitored regularly or continuously to detect anomalies in the emulsion quality and take corrective action, if needed.	Generally applicable.
b.	Prevention of contamination of the rolling emulsion	Contamination of the rolling emulsion is prevented by techniques such as: — regular control and preventive maintenance of the hydraulic system and the emulsion circulation system; — reducing bacterial growths in the rolling emulsion system by regular cleaning or operating at low temperatures.	Generally applicable.

c.	Cleaning and reuse of the rolling emulsion	Particulate matter (e.g. dust, steel slivers and scale) contaminating the rolling emulsion is removed in a cleaning circuit (usually based on sedimentation combined with filtration and/or magnetic separation) in order to maintain the emulsion quality and the treated rolling emulsion is reused. The degree of reuse is limited by the content of impurities in the emulsion.	Applicability may be restricted due to product specifications.
d.	Optimal choice of rolling oil and emulsion system	Rolling oil and emulsion systems are carefully selected to provide the optimum performance for the given process and product. Relevant characteristics to be considered are, for example: — good lubrication; — potential for easy separation of contaminants; — stability of the emulsion and dispersion of the oil in the emulsion; — non-degradation of the oil over a long idling time.	Generally applicable.
e.	Minimisation of oil/rolling emulsion consumption	The consumption of oil/rolling emulsion is minimised by using techniques such as: — limiting the oil concentration to the minimum required for lubrication; — limiting carry-over of emulsion from the previous stands (e.g. by separating the emulsion cellars, shielding of the mill stands); — using air knives combined with edge suction to reduce the residual emulsion and oil on the strip.	Generally applicable.

1.3.3. Emissions to air

BAT 46. In order to reduce emissions to air of dust, nickel and lead from decoiling, mechanical predescaling, levelling and welding, BAT is to collect the emissions by using technique (a) and in that case to treat the waste gas by using technique (b).

Technique		Description	Applicability
Collection of emissions			
a.	Air extraction as close as possible to the emission source	Emissions from decoiling, mechanical predescaling, levelling and welding are collected, for example using hood or lip extraction.	May not be applicable for welding in the case of low levels of dust generation, e.g. below 50 g/h.
Waste gas treatment			
b.	Fabric filter	See Section 1.7.2.	Generally applicable.

Table 1.25

BAT-associated emission levels (BAT-AELs) for channelled emissions of dust, nickel and lead to air from decoiling, mechanical predescaling, levelling and welding

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm³	< 2–5
Ni		0,01–0,1 (1)
Pb		≤ 0,003 (1)

(1) The BAT-AEL only applies when the substance concerned is identified as relevant in the waste gas stream based on the inventory given in BAT 2.

The associated monitoring is given in BAT 7.

BAT 47. In order to prevent or reduce oil mist emissions to air from tempering, BAT is to use one of the techniques given below.

Technique		Description	Applicability
a.	Dry tempering	No water or lubricants are used for tempering.	Not applicable to tinplate packaging products and other products with high elongation requirements.
b.	Low-volume lubrication in wet tempering	Low-volume lubrication systems are employed to supply precisely the amount of lubricants needed for reducing the friction between the working rolls and the feedstock.	Applicability may be restricted due to product specifications in the case of stainless steel.

BAT 48. In order to reduce oil mist emissions to air from rolling, wet tempering and finishing, BAT is to use technique (a) in combination with technique (b) or in combination with both techniques (b) and (c) given below.

Technique		Description
Collection of emissions		
a.	Air extraction as close as possible to the emission source	Emissions from rolling, wet tempering and finishing are collected, for example using hood or lip extraction.

Waste gas treatment		
b.	Demister	See Section 1.7.2.
c.	Oil mist separator	Separators containing baffle packing, impingement plates or mesh pads are used to separate the oil from the extracted air.

Table 1.26

BAT-associated emission level (BAT-AEL) for channelled TVOC emissions to air from rolling, wet tempering and finishing

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
TVOC	mg/Nm^3	< 3–8

The associated monitoring is given in BAT 7.

1.4. BAT conclusions for wire drawing

The BAT conclusions in this section apply in addition to the general BAT conclusions given in Section 1.1.

1.4.1. Energy efficiency

BAT 49. In order to increase the energy and material efficiency of lead baths, BAT is to use either a floating protective layer on the surface of the lead baths or tank covers.

Description

Floating protective layers and tank covers minimise heat losses and lead oxidation.

1.4.2. Material efficiency

BAT 50. In order to increase material efficiency and to reduce the quantity of waste sent for disposal from wet drawing, BAT is to clean and reuse the wire drawing lubricant.

Description

A cleaning circuit, e.g. with filtration and/or centrifugation, is used to clean the wire drawing lubricant for reuse.

1.4.3. Emissions to air

BAT 51. In order to reduce emissions to air of dust and lead from lead baths, BAT is to use all of the techniques given below.

Technique		Description
Reduction of generation of emissions		
a.	Minimisation of carry-over of lead	Techniques include the use of anthracite gravel to scrape off lead and the coupling of the lead bath with in-line pickling.
b.	Floating protective layer or tank cover	See BAT 49. Floating protective layers and tank covers also reduce emissions to air.
Collection of emissions		
c.	Air extraction as close as possible to the emission source	Emissions from the lead bath are collected, for example using hood or lip extraction.

Waste gas treatment		
d.	Fabric filter	See Section 1.7.2.

Table 1.27

BAT-associated emission levels (BAT-AELs) for channelled emissions of dust and lead to air from lead baths

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm³	< 2–5
Pb	mg/Nm³	≤ 0,5

The associated monitoring is given in BAT 7.

BAT 52. In order to reduce dust emissions to air from dry drawing, BAT is to collect the emissions by using technique (a) or (b) and to treat the waste gas by using technique (c) given below.

	Technique	Description	Applicability
Collection of emissions			
a.	Enclosed drawing machine combined with air extraction	The entire drawing machine is enclosed in order to avoid dispersion of dust and air is extracted.	Applicability to existing plants may be restricted by the plant layout.
b.	Air extraction as close as possible to the emission source	Emissions from the drawing machine are collected, for example using hood or lip extraction.	Generally applicable.
Waste gas treatment			
c.	Fabric filter	See Section 1.7.2.	Generally applicable.

Table 1.28

BAT-associated emission level (BAT-AEL) for channelled dust emissions to air from dry drawing

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
Dust	mg/Nm³	< 2–5

The associated monitoring is given in BAT 7.

BAT 53. In order to reduce oil mist emissions to air from oil quench baths, BAT is to use both of the techniques given below.

	Technique	Description
Collection of emissions		
a.	Air extraction as close as possible to the emission source	Emissions from oil quench baths are collected, for example using lateral hood or lip extraction.

Waste gas treatment		
b.	Demister	See Section 1.7.2.

The associated monitoring is given in BAT 7.

1.4.4. Residues

BAT 54. In order to reduce the quantity of waste sent for disposal, BAT is to avoid the disposal of lead-containing residues by recycling them, e.g. to the non-ferrous metals industries to produce lead.

BAT 55. In order to prevent or reduce the environmental risk associated with the storage of lead-containing residues from lead baths (e.g. protective layer materials and lead oxides), BAT is to store lead-containing residues separately from other residues, on impermeable surfaces and in enclosed areas or in closed containers.

1.5. *BAT conclusions for hot dip coating of sheets and wires*

The BAT conclusions in this section apply in addition to the general BAT conclusions given in Section 1.1.

1.5.1. Material efficiency

BAT 56. In order to increase material efficiency in continuous hot dipping of strips, BAT is to avoid excess coating with metals by using both of the techniques given below.

Technique		Description
a.	Air knives for coating thickness control	After leaving the molten zinc bath, air jets stretching over the width of the strip blow the surplus coating metal off the strip surface back into the galvanising kettle.
b.	Stabilisation of the strip	The efficiency of the excess coating removal by air knives is improved by limiting the oscillations of the strip, e.g. by increasing strip tension, using low-vibration pot bearings, using electromagnetic stabilisers.

BAT 57. In order to increase material efficiency in continuous hot dipping of wire, BAT is to avoid excess coating with metals by using one of the techniques given below.

Technique		Description
a.	Air or nitrogen wiping	After leaving the molten zinc bath, circular air or gas jets around the wire blow the surplus coating metal off the wire surface back into the galvanising kettle.
b.	Mechanical wiping	After leaving the molten zinc bath, the wire is passed through wiping equipment/material (e.g. pads, nozzles, rings, charcoal granulate) which takes the surplus coating metal off the wire surface back into the galvanising kettle.

1.6. *BAT conclusions for batch galvanising*

The BAT conclusions in this section apply in addition to the general BAT conclusions given in Section 1.1.

1.6.1. Residues

BAT 58. In order to prevent the generation of spent acids with high zinc and high iron concentrations or, where that is not practicable, to reduce their quantity sent for disposal, BAT is to carry out pickling separately from stripping.

Description

Pickling and stripping are carried out in separate tanks in order to prevent the generation of spent acids with high zinc and high iron concentrations or to reduce their quantity sent for disposal.

Applicability

Applicability to existing plants may be restricted by a lack of space in the event that additional tanks for stripping are needed.

BAT 59. In order to reduce the quantity of spent stripping solutions with high zinc concentrations sent for disposal, BAT is to recover the spent stripping solutions and/or the $ZnCl_2$ and NH_4Cl contained therein.

Description

Techniques to recover spent stripping solutions with high zinc concentrations on site or off site include the following:

- Zinc removal by ion exchange. The treated acid can be used in pickling, while the $ZnCl_2$- and NH_4Cl-containing solution resulting from the stripping of the ion-exchange resin can be used for fluxing.
- Zinc removal by solvent extraction. The treated acid can be used in pickling, while the zinc-containing concentrate resulting from stripping and evaporation can be used for other purposes.

1.6.2. Material efficiency

BAT 60. In order to increase material efficiency in hot dipping, BAT is to use both of the techniques given below.

Technique		Description
a.	Optimised dipping time	The dipping time is limited to the duration required to achieve the coating thickness specifications.
b.	Slow withdrawal of workpieces from the bath	By withdrawing the galvanised workpieces slowly from the galvanising kettle, the drain-off is improved and zinc splashes are reduced.

BAT 61. In order to increase material efficiency and to reduce the quantity of waste sent for disposal from blowing off excess zinc from galvanised tubes, BAT is to recover zinc-containing particles and to reuse them in the galvanising kettle or to send them for zinc recovery.

1.6.3. Emissions to air

BAT 62. In order to reduce emissions of HCl to air from pickling and stripping in batch galvanising, BAT is to control the operating parameters (i.e. temperature and acid concentration in the bath) and to use the techniques given below with the following order of priority:

- **technique (a) in combination with technique (c);**
- **technique (b) in combination with technique (c);**
- **technique (d) in combination with technique (b);**
- **technique (d).**

Technique (d) is BAT only for existing plants and provided that it ensures at least an equivalent level of environmental protection compared to using technique (c) in combination with techniques (a) or (b).

Technique		Description	Applicability
Collection of emissions			
a.	Enclosed pretreatment section with extraction	The entire pretreatment section (e.g. degreasing, pickling, fluxing) is encapsulated and the fumes are extracted from the enclosure.	Only applicable to new plants and major plant upgrades
b.	Extraction by lateral hood or lip extraction	Acid fumes from the pickling tanks are extracted using lateral hoods or lip extraction at the edge of the pickling tanks. This may also include emissions from degreasing tanks.	Applicability in existing plants may be restricted by a lack of space.
Waste gas treatment			
c.	Wet scrubbing followed by a demister	See Section 1.7.2.	Generally applicable
Reduction of generation of emissions			
d.	Restricted operating range for hydrochloric acid open pickling baths	Hydrochloric acid baths are strictly operated within the temperature and HCl concentration range determined by the following conditions: (a) $4\ °C < T < (80 - 4w)\ °C$; (b) 2 wt-% $< w < (20 - T/4)$ wt-%, where T is the pickling acid temperature expressed in °C and w the HCl concentration expressed in wt-%. The bath temperature is measured at least once every day. The HCl concentration in the bath is measured every time fresh acid is replenished and in any case at least once every week. To limit evaporation, movement of air across the bath surfaces (e.g. due to ventilation) is minimised.	Generally applicable

Table 1.29

BAT-associated emission level (BAT-AEL) for channelled HCl emissions to air from pickling and stripping with hydrochloric acid in batch galvanising

Parameter	Unit	BAT-AEL (Daily average or average over the sampling period)
HCl	mg/Nm^3	< 2–6

The associated monitoring is given in BAT 7.

1.6.4. Waste water discharge

BAT 63. It is not BAT to discharge waste water from batch galvanising.

Description

Only liquid residues (e.g. spent pickling acid, spent degreasing solutions and spent fluxing solutions) are generated. These residues are collected. They are appropriately treated for recycling or recovery and/or sent for disposal (see BAT 18 and BAT 59).

1.7. *Descriptions of techniques*

1.7.1. Techniques to increase energy efficiency

Technique	Description
Coil boxes	Insulated boxes are installed between the roughing mill and the finishing mill to minimise temperature losses from feedstock during coiling/uncoiling processes and allow for lower rolling forces in hot strip mills.
Combustion optimisation	Measures taken to maximise the efficiency of energy conversion in the furnace while minimising emissions (in particular of CO). This is achieved by a combination of techniques including good design of the furnace, optimisation of the temperature (e.g. efficient mixing of the fuel and combustion air) and residence time in the combustion zone, and use of furnace automation and control.
Flameless combustion	Flameless combustion is achieved by injecting fuel and combustion air separately into the combustion chamber of the furnace at high velocity to suppress flame formation and reduce the formation of thermal NO_X while creating a more uniform heat distribution throughout the chamber. Flameless combustion can be used in combination with oxy-fuel combustion.
Furnace automation and control	The heating process is optimised by using a computer system controlling in real time key parameters such as furnace and feedstock temperature, the air to fuel ratio and the furnace pressure.
Near-net-shape casting for thin slabs and beam blanks followed by rolling	Thin slabs and beam blanks are produced by combining casting and rolling in one process step. The need to reheat the feedstock before rolling and the number of rolling passes are reduced.
Optimisation of the SNCR/SCR design and operation	Optimisation of the reagent to NO_X ratio over the cross-section of the furnace or duct, of the size of the reagent drops and of the temperature window in which the reagent is injected.
Oxy-fuel combustion	Combustion air is replaced fully or partially with pure oxygen. Oxy-fuel combustion can be used in combination with flameless combustion.
Preheating of combustion air	Reuse of part of the heat recovered from the combustion flue-gas to preheat the air used in combustion.
Process gas management system	A system that enables iron and steel process gases to be directed to the feedstock heating furnaces, depending on their availability.
Recuperative burner	Recuperative burners employ different types of recuperators (e.g. heat exchangers with radiation, convection, compact or radiant tube designs) to directly recover heat from the flue-gases, which are then used to preheat the combustion air.
Reduction of the rolling friction	Rolling oils are carefully selected. Pure oil and/or emulsion systems are used to reduce the friction between the working rolls and the feedstock and to ensure minimal oil consumption. In HR, this is usually carried out in the first stands of the finishing mill.
Regenerative burner	Regenerative burners consist of two burners which are operated alternately and which contain beds of refractory or ceramic materials. While one burner is in operation, the heat of the flue-gas is absorbed by the refractory or ceramic materials of the other burner and then used to preheat the combustion air.

Waste heat recovery boiler	Heat from hot flue-gases is used to generate steam using a waste heat recovery boiler. The generated steam is used in other processes of the plant, for supplying a steam network or for generating electricity in a power plant.

1.7.2. Techniques to reduce emissions to air

Technique	Description
Combustion optimisation	See Section 1.7.1.
Demister	Demisters are filter devices that remove entrained liquid droplets from a gas stream. They consist of a woven structure of metal or plastic wires, with a high specific surface area. Through their momentum, small droplets present in the gas stream impinge against the wires and coalesce into bigger drops.
Electrostatic precipitator	Electrostatic precipitators (ESPs) operate such that particles are charged and separated under the influence of an electrical field. Electrostatic precipitators are capable of operating under a wide range of conditions. Abatement efficiency may depend on the number of fields, residence time (size), and upstream particle removal devices. They generally include between two and five fields. Electrostatic precipitators can be of the dry or of the wet type depending on the technique used to collect the dust from the electrodes. Wet ESPs are typically used at the polishing stage to remove residual dust and droplets after wet scrubbing.
Fabric filter	Fabric filters, often referred to as bag filters, are constructed from porous woven or felted fabric through which gases are passed to remove particles. The use of a fabric filter requires the selection of a fabric suitable for the characteristics of the waste gas and the maximum operating temperature.
Flameless combustion	See Section 1.7.1.
Furnace automation and control	See Section 1.7.1.
Low-NO_X burner	The technique (including ultra-low-NO_X burners) is based on the principles of reducing peak flame temperatures. The air/fuel mixing reduces the availability of oxygen and reduces the peak flame temperature, thus retarding the conversion of fuel-bound nitrogen to NO_X and the formation of thermal NO_X, while maintaining high combustion efficiency.
Optimisation of the SNCR/SCR design and operation	See Section 1.7.1.
Oxy-fuel combustion	See Section 1.7.1.
Selective catalytic reduction (SCR)	The SCR technique is based on the reduction of NO_X to nitrogen in a catalytic bed by reaction with urea or ammonia at an optimum operating temperature of around 300–450 °C. Several layers of catalyst may be applied. A higher NO_X reduction is achieved with the use of several catalyst layers.
Selective non-catalytic reduction (SNCR)	SNCR is based on the reduction of NO_X to nitrogen by reaction with ammonia or urea at a high temperature. The operating temperature window is maintained between 800 °C and 1 000 °C for optimal reaction.

Wet scrubbing	The removal of gaseous or particulate pollutants from a gas stream via mass transfer to a liquid solvent, often water or an aqueous solution. It may involve a chemical reaction (e.g. in an acid or alkaline scrubber). In some cases, the compounds may be recovered from the solvent.

1.7.3. **Techniques to reduce emissions to water**

Technique	Description
Adsorption	The removal of soluble substances (solutes) from the waste water by transferring them to the surface of solid, highly porous particles (typically activated carbon).
Aerobic treatment	The biological oxidation of dissolved organic pollutants with oxygen using the metabolism of microorganisms. In the presence of dissolved oxygen, injected as air or pure oxygen, the organic components are mineralised into carbon dioxide and water or are transformed into other metabolites and biomass.
Chemical precipitation	The conversion of dissolved pollutants into an insoluble compound by adding chemical precipitants. The solid precipitates formed are subsequently separated by sedimentation, air flotation or filtration. If necessary, this may be followed by microfiltration or ultrafiltration. Multivalent metal ions (e.g. calcium, aluminium, iron) are used for phosphorus precipitation.
Chemical reduction	The conversion of pollutants by chemical reducing agents into similar but less harmful or hazardous compounds.
Coagulation and flocculation	Coagulation and flocculation are used to separate suspended solids from waste water and are often carried out in successive steps. Coagulation is carried out by adding coagulants with charges opposite to those of the suspended solids. Flocculation is carried out by adding polymers, so that collisions of microfloc particles cause them to bond to produce larger flocs.
Equalisation	Balancing of flows and pollutant loads at the inlet of the final waste water treatment by using central tanks. Equalisation may be decentralised or carried out using other management techniques.
Filtration	The separation of solids from waste water by passing them through a porous medium, e.g. sand filtration, microfiltration and ultrafiltration.
Flotation	The separation of solid or liquid particles from waste water by attaching them to fine gas bubbles, usually air. The buoyant particles accumulate at the water surface and are collected with skimmers.
Nanofiltration	A filtration process in which membranes with pore sizes of approximately 1 nm are used.
Neutralisation	The adjustment of the pH of waste water to a neutral level (approximately 7) by the addition of chemicals. Sodium hydroxide (NaOH) or calcium hydroxide ($Ca(OH)_2$) is generally used to increase the pH, whereas sulphuric acid (H_2SO_4), hydrochloric acid (HCl) or carbon dioxide (CO_2) is generally used to decrease the pH. The precipitation of some substances may occur during neutralisation.

Physical separation	The separation of gross solids, suspended solids and/or metal particles from the waste water using for example screens, sieves, grit separators, grease separators, hydrocyclones, oil-water separation or primary settlement tanks.
Reverse osmosis	A membrane process in which a pressure difference applied between the compartments separated by the membrane causes water to flow from the more concentrated solution to the less concentrated one.
Sedimentation	The separation of suspended particles and suspended material by gravitational settling.

ISSN 1977-0677 (electronic edition)
ISSN 1725-2555 (paper edition)

Publications Office
of the European Union
L-2985 Luxembourg
LUXEMBOURG

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