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CODEX ALIMENTARIUS COMMISSION
Forty-sixth Session**

OTHER MATTERS RELATED TO CODEX SUBSIDIARY BODIES

Proposal for an amendment of the *General Standard for Fruit Juices and Nectars (CXS 247-2005)*

(Prepared by Codex Secretariat)

1. Introduction

A proposed amendment to the *General Standard for Fruit Juices and Nectars (CXS 247-2005)* was submitted to the Codex Secretariat by Brazil in 2022. This standard was developed by the ad hoc Codex Intergovernmental Task Force on Fruit and Vegetable Juice (TFFJ), which was dissolved by CAC26 in 2005, and is currently under the purview of the Codex Committee on Processed Fruits and Vegetables (CCPFV), which was adjourned *sine die* by CAC43 in 2020.

The proposed amendment concerns the annex of CXS 247-2005 where it is proposed to stratify the referred single Minimum Brix Level for grape juice into two groups; one group for *Vitis vinifera* and hybrids thereof, keeping the current Minimum Brix Level of 16.0, and another group for *Vitis labrusca* and hybrids thereof, with a proposed Minimum Brix Level of 14.0.

The table below illustrates the proposed amendment:

Botanical Name	Fruit's Common Name	Minimum Brix Level for Reconstituted Fruit Juices and Reconstituted Purée	Minimum Juice and/or Purée Content (% v/v) for Fruit Nectars
<i>Vitis vinifera</i> L. or hybrids thereof	Grape	16.0	50.0
<i>Vitis labrusca</i> or hybrids thereof		<u>14.0</u>	

The proposed amendment was presented to the 83rd Session of the Executive Committee of the Codex Alimentarius Commission (CCEXEC83)¹. This included the project document prepared by Brazil².

2. CCEXEC83's recommendations and CAC45's decision

CCEXEC83 noted the proposed amendment to the *General Standard for Fruit Juices and Nectars (CXS 247-2005)* and its justification³ and that the Codex Secretariat would issue a Circular Letter (CL) requesting the views of Members and Observers on the proposed amendment, which would feed into the critical review by CCEXEC84 and its recommendation to CAC46⁴.

CAC45 agreed with CCEXEC83's recommendations⁵.

¹ CX/EXEC 22/83/2 Add.3, Paragraphs 8-13, Annexes II and III

² CX/EXEC 22/83/2 Add.3, Annex III

³ CX/EXEC 22/83/2 Add.3, Paragraphs 8-13

⁴ REP22/EXEC2, Paragraph 55

⁵ REP22/CAC, Paragraph 166

3. Circular Letter

In line with the information provided to CCEXEC83 and CAC45, the Codex Secretariat issued on 14 April 2023 a CL⁶ requesting the views of Members and Observers on the proposed amendment. The CL was closed on 9 June 2023 after an extension of 12 days.

Comments were received from Brazil, Cuba, Egypt, European Union, Iraq, Türkiye, and Uruguay, International Commission for Uniform Methods of Sugar Analysis (ICUMSA), International Fruit and Vegetable Juice Association (IFU), and Organisation internationale de la vigne et du vin (OIV)⁷. The comments were presented to CCEXEC84 and are re-attached in Appendix 1 herein.

4. CCEXEC84 recommendation

It was recalled at the critical review by CCEXEC84 that the Guide to the Procedure for the Amendment and Revision of Codex Standards and Related Texts in the Codex Procedural Manual in particular paragraph 32 applied, which states in its final sentence: "In cases where replies do not appear to offer an uncontroversial solution then the Commission should be informed accordingly and it would be for the Commission to determine how best to proceed."

As the comments received in response to the CL did not offer an uncontroversial solution, CCEXEC84 recommended that the Codex Secretariat request Brazil to respond to comments received in response to the CL and thereafter prepare a document for CAC46 for decision on how to proceed, which would include the original proposal for amendment by Brazil, the responses to the CL, any further observations that Brazil might want to make on the responses to the CL, and any procedural guidance that would be helpful to the Commission in deciding how to proceed⁸.

5. Response from Brazil to comments received

Brazil, as the proposer of the amendment was asked to review and respond to the comments received. Their replies including additional explanations of the proposal are contained in Appendix 2 herein.

6. For CAC46 consideration

In line with Codex procedures, CAC46 is invited to determine how best to proceed.

If there is consensus, the Commission may decide to adopt the proposed amendment.

However, the comments to the CL and the responses to these from Brazil, highlight the highly technical nature of the proposed amendment and that opinions are divided on the need for the proposed amendment.

If a further technical discussion is needed, it should take place outside the Commission itself.

If there is support to further discuss the technical aspects of this proposal, then the Commission could consider establishing an EWG under CAC to further address the issue and make a recommendation to CAC47 for a decision on the matter, or that a subsidiary body take on the further work on this issue.

If there is no clear support for continuing the discussions on the proposed amendment, the Commission may consider to discontinue the consideration of the proposed amendment to the annex of the *General Standard for Fruit Juices and Nectars* (CXS 247-2005).

⁶ CL 2023/27/OCS-EXEC

⁷ CX/EXEC 23/84/2 Add.2, Annex 1 of Appendix 4

⁸ REP23/EXEC1, Paragraph 77

Appendix 1

COMMENT	MEMBER / OBSERVER
<p>Brazil would like to thank Codex Alimentarius Members for evaluating this proposal and also would like to reinforce the relevance of this matter.</p> <p>It is imperative to underpin that this proposal is precisely to amend the standard CXS 247-2005, concerning the brix level for reconstituted grape juice, this is in line with the rising production and consumption of grape juices worldwide, and also with the incentive to promote non-alcoholic products derived from grapes.</p> <p>Brazil expressed its willingness to bring this situation to the attention of the Executive Committee of the Codex Alimentarius Commission as it would be important to evaluate whilst current standard may be reviewed to provide better guidance to all member countries and the grape juice industry, taking into account that a unique Minimum Brix Value for both grape species, as recommended in the Annex, may not be inclusive for all grape varieties, bringing prejudice to the <i>V. labrusca</i> L. and hybrids thereof from some countries.</p> <p>When the Codex <i>General Standard for Fruit Juices and Nectars</i> was developed, in 2005, it was based on data that presented a limited number of countries. On that occasion, Brazil did not have any representative data to share and unfortunately, its reality is not reflected in the current standard. It is also important to mention that more exact analytical techniques are available nowadays. It is observed that according to the records of the session reports 24th, 25th, 26th, and 28th of the Joint FAO/WHO Food Standards Programme Codex Alimentarius Commission, the Task Force noted that for certain fruit juices, there were data missing from some of the main producing countries and the grape juice was part of this group. Specifically in the 26th session, due to insufficient international diversity of data, the Task Force was unable to set up a final minimum Brix level for grape, guava, mandarine/tangerine, mango, passion fruit, and pineapple juice.</p> <p>Taking into account the limitation of the data that was used to establish the Minimum Brix Level adopted in the Codex Alimentarius standard for grape juice, Brazil conducted a study that covered 1500 samples collected in a period of 10 years, which reflects the maturation conditions of grapes in our country. The data collected for this study were obtained by the government, based on the mean Brix of directly expressed fruit juice over 2012 to 2021 vintage.</p> <p>The conclusion of this study was that the Minimum Brix Level of 16.0 for reconstituted grape juice, which is adopted today in Codex Alimentarius Standard is not representative for Brazilian juices, which use the grape specie <i>V. labrusca</i> L. The lower Brix levels found in the specie <i>V. labrusca</i> compared to <i>V. vinifera</i> is probably associated with its lower sugar content because, although the determination of Brix level provides only an approximate measurement of sugar concentration, generally, the fermentable sugar concentration of grape must accounts for 90 to 95% of the total soluble solids¹. In this way, Brazil proposed the change in the Minimum Brix Level of reconstituted grape juice from 16.0 to 14.0 in case of juices that use <i>V. labrusca</i> L. grapes.</p> <p>We believe that this very specific change will improve both the precision and coverage of the Codex Standard for better adoption and transparency in the trade of grape juices, as the Codex Alimentarius standards are elaborated on a worldwide basis.</p> <p>It is important to note that this proposal does not intend to create distinctions for labeling and/or for market transactions. We do not intend to start attesting subspecies or varieties in the grape juice trade. In this sense, the suggestion is that the grape juice will remain as a single product, consequently, the amendment will not require any change in the labeling or methods of analysis currently set in the CXS 247-2005.</p> <p>Even if other countries reach higher Brix levels, the proposal will not pose a negative impact, even commercially, as a lower Brix level continues to be inclusive for all member countries. Furthermore, the standard will incorporate data from regions producing grape juice in different edaphoclimatic conditions, which complies with Codex principles to establish standards reflecting the reality of the different countries in the regions.</p>	<p>Brazil</p>

<p>Proceeding with this amendment, which is in accordance with the core values of Codex Alimentarius, will allow inclusiveness to reflect the grape production in Brazil. It is worth mentioning the alignment with Codex Strategic Plan 2020-2025, which states that the establishment and revision of international food standards should address current and emerging issues considering the needs of Members. The outcomes from Strategic Goal 1 (Address current, emerging and critical issues in a timely manner) reveal that while identifying needs and emerging issues (Objective 1.1) Codex should improve its ability to develop standards relevant to the needs of its members. In addition, while prioritizing needs and emerging issues (Objective 1.2), Codex should timely respond to emerging issues and the needs of members.</p> <p>Moreover, it has to be highlighted that Objective 2.2 of Strategic Goal 2 (Develop standards based on science and Codex risk-analysis principles) states the need to promote the submission and use of globally representative data in developing and reviewing Codex standards.</p> <p>With all of the above mentioned, Brazil highly recommends the amendment of the standard CXS 247-2005 considering the proposal in this CL, which is based on solid scientific data.</p> <p>Reference:</p> <p>[1] ZOECKLEIN, B. W.; FUGELSANG, K. C.; GUMP, B. H. Practical methods of measuring grape quality. <i>Managing Wine Quality</i>, p. 107–133, 2010.</p>	
<p>Cuba Agradece la oportunidad de comentar que apoyamos la propuesta que se describe en el Apéndice1 sobre la enmienda a la Norma General de Jugos de frutas.</p>	<p>Cuba</p>
<p>Egypt agrees on the proposed amendment with no comments.</p>	<p>Egypt</p>
<p>The EU is not supporting this proposal for the following reason:</p> <p>The CL 2023/27/OCS-EXEC includes a separate minimum Brix level of 14 °Bx for grape juices for a new group from <i>Vitis labrusca</i> and hybrids thereof, keeping the minimum Brix level of 16 °Bx for the existing group of <i>Vitis vinifera</i> and hybrids thereof.</p> <p>No method is known by now to distinguish the grape juices from <i>Vitis vinifera</i> from those of <i>Vitis labrusca</i> properly. Only the anthocyanin malvidine-3-5-diglucoside may serve as a parameter for this. But as this could only be done in red grape juices the control of the legal implementation would not be possible. The introduction of two Brix values would require a new method to be added to the <i>General Standard for Fruit Juices and Nectars</i> (CXS 247-2005) in order to differentiate between the two types of grape juice. This would probably require the use of DNA testing for an accurate assessment, resulting in additional and unnecessary costs for the industry.</p> <p>Establishing different Brix levels for different grape species could set a challenging precedent for the fruit and vegetable juice industry. It could make it difficult to manage and potentially hinder international trade.</p> <p>A lower minimum Brix level could make it easier to adulterate the product by adding water. Adulteration of fruit juices and nectars is a significant issue in the industry, and lowering the minimum Brix level could make it more difficult to detect such practices.</p> <p>The current amendment considers the minimum Brix level for reconstituted fruit juices and purée, indicating that it is not a limit for direct juice. Therefore, the existing Brix value of 16 is not a restricting factor. This minimum Brix value is justified by the utilization of fruit juices with Brix values both below and above 16 during the processing of the fruit juice concentrate used for reconstitution. Furthermore, the average Brix shown in the Brazilian discussion paper CRD07 (Figures 02 and 03) is 16, which supports the validity of the current minimum Brix.</p> <p>Establishing different Brix values within the same genus of fruit could be analogous to establishing Brix values for different geographic areas. Defining Brix values for the various species belonging to the genus <i>Vitis</i> could set a precedent for the fruit and vegetable juice industry that could be difficult to manage (i.e., establishing Brix levels for multiple species of fruits and vegetables) and hinder international trade.</p> <p>The Brix of fruit is influenced by the growing environment and conditions. To enhance the Brix level, farmers prune excess buds, ensuring that they were able to meet industry</p>	<p>European Union</p>

<p>standards. Since processors will not accept grapes below the 16 Brix standard, there are no records of grapes received at a lower Brix value. The juice industry must consider standards that represent the industry rather than a specific growing region.</p> <p>Brazil's vineyard area is relatively small compared to other major grape-producing regions, such as Spain, China, and the USA. When the <i>Codex General Standard for Fruit Juices and Nectars</i> was developed, it was based on data that was presented from various regions of the world that grew grapes for nonalcoholic purposes including Brazil. This information was studied in great detail and the Brix of 16.0 was agreed by all stakeholders based on that data.</p>	
<p>Agree with the proposal.</p>	<p>Iraq</p>
<p>Türkiye is located on the most suitable climatic zone of the world for viticulture. It has an extremely old and deep-rooted viticulture culture as well as being the gene center of the vine. The history of viticulture culture in Anatolia is quite old. From the archeological excavations, the viticulture culture in Anatolia dates back to 3500 BC .</p> <p>In the 2020/2021 production season, 4.2 million tons of grapes were produced on 3.9 million hectares in Türkiye. Export amount in 2020/2021 is 1.3 million tons. On the other hand in 2020, 78 million tons of grapes were produced in an area of 6.9 million hectares in the world. Spain, China, France rank first in fresh grape production and 4.8 million tons of fresh grape export in 2021 in the world. In addition, in the world, 821 thousand tons of dried grapes export in 2021 and Türkiye meets 31.3% of world dried grapes exports. It means that most important product is dried grape for Türkiye for international trade . Table grape production (%) in the world lead by countries which are Spain, China and France.</p> <p>On the other hand, converting the amount of concentrated grape juice (Brix level >30 and >67) to ready-to-drink grape juice (min Brix level 16.0), the volume of trade is increasingly changed. In Türkiye, export amount (Tonnes) and value (US Dollar) of concentrated grape juice is nearly 1.500 Tonnes and 2 Billion US Dollar, respectively.</p> <p>Vitis labrusca L. is a fragrant grape variety that is widely grown in Türkiye and the world. This variety, which is rich in phenolic compounds. In this paper (DOI: 10.31594/commagene.1016721) published by Turkish researches, the soluble solids % (Brix) is ranged between 16.0-20.0; not lower than the level 16.0.</p> <p>"Concentrated fruit juice" is defined in the <i>General Standard for Fruit Juices and Nectars</i> (CXS 247-2005) that "the product that complies with the definition given in Section 2.1.1 above, except water has been physically removed in an amount sufficient to increase the Brix level....."</p> <p>In general, fruit juices are internationally traded in concentrated form. Therefore, Türkiye does not support the amendment of the related <i>Standard for Fruit Juices and Nectars</i> (CXS 247-2005) proposed by Brazil. Our main reasons for this are:</p> <ul style="list-style-type: none"> • A lower minimum Brix level could support the adulteration of the grape juice. • In order to provide fair trade, it should be tested all grape juice either it is produced by <i>V. vinifera</i> or <i>V. labrusca</i> by using genetic methods. Additional trade barrier is occurred because of using time consuming and expensive analyzing methods. • Mixing of the different varieties <i>V. labrusca</i> is possible to produce Brix level compatible with level set in Codex Standard (CXS 247-2005). It is stated in the CRD07, the maximum Brix levels of Bordô variety are higher than the others. <p>Therefore, the related Codex standard has competent/adequate definitions and specifications of fruit juices, which are necessary for providing fair trade and preventing consumers from misleading.</p>	<p>Türkiye</p>
<p>Uruguay comparte la propuesta de enmienda presentada.</p>	<p>Uruguay</p>
<p>It is valid to distinguish between grape varieties. It is questionable to use the term "Brix".</p> <p>The amendment to recognise the different sugar content of the juices for the different varieties is valid. The use of "Brix" is questionable, as it is archaic and would be better to use the term RDS (refractometric dry substance). The assumption made when using "Brix" is that the solids as measured are sugars, but any dissolved solids will result in a RDS value.</p>	<p>ICUMSA</p>

<p>The International Fruit and Vegetable Juice Association (IFU) appreciates the opportunity to provide feedback on the proposed amendment of the <i>General Standard for Fruit Juices and Nectars</i> (CXS 247-2005). The proposed amendment concerns the Annex Minimum Brix Level for Reconstituted Fruit Juices and Reconstituted Purée of CXS 247-2005 where it is proposed to stratify the referred single Minimum Brix Level for grape juice into two groups; one group for <i>Vitis vinifera</i> and hybrids thereof, keeping the current Minimum Brix Level of 16.0; and another group for <i>V. labrusca</i> and hybrids thereof, with a proposed Minimum Brix Level of 14.0.</p> <p>Codex Members and Observers were invited to provide comments on the 1) need to proceed with the proposed amendment of the <i>General Standard for Fruit Juices and Nectars</i> (CXS 247-2005) and 2) on the proposed amendment itself.</p> <p>After careful consideration, we believe that there is no need to proceed with the proposed amendment, and therefore, we oppose to it. Our main reasons for this are:</p> <ol style="list-style-type: none"> I. Establishing different Brix levels for different grape species could set a challenging precedent for the fruit and vegetable juice industry. It could make it difficult to manage and potentially hinder international trade. II. A lower minimum Brix level could make it easier to adulterate the product by adding water. Adulteration of fruit juices and nectars is a significant issue in the industry, and lowering the minimum Brix level could make it more difficult to detect such practices. III. The introduction of two Brix values would require a new method to be added to the <i>General Standard for Fruit Juices and Nectars</i> (CXS 247-2005) in order to differentiate between the two types of grape juice. This would probably require the use of DNA testing for an accurate assessment, resulting in additional and unnecessary costs for the industry. IV. The current amendment considers the minimum Brix level for reconstituted fruit juices and purée, indicating that it is not a limit for direct juice. Therefore, the existing Brix value of 16 is not a restricting factor. This minimum Brix value is justified by the utilization of fruit juices with Brix values both below and above 16 during the processing of the fruit juice concentrate used for reconstitution. Furthermore, the average Brix shown in the Brazilian discussion paper CRD07 (Figures 02 and 03) is 16, which supports the validity of the current minimum Brix. V. Considering that most retail 100% juices consist of blends, it would be challenging for bottlers to track the volumes and associated Brix levels of each juice (<i>V. labrusca</i> versus <i>V. vinifera</i>) used in each batch. This would pose a challenge for regulatory authorities in determining the same. Furthermore, conducting authenticity analysis would be complicated due to the varying dilution factors. VI. Establishing different Brix values within the same genus of fruit could be analogous to establishing Brix values for different geographic areas. Defining Brix values for the various species belonging to the genus <i>Vitis</i> could set a precedent for the fruit and vegetable juice industry that could be difficult to manage (i.e., establishing Brix levels for multiple species of fruits and vegetables) and hinder international trade. VII. The Brix of fruit is influenced by the growing environment and conditions. To enhance the Brix level, farmers prune excess buds, ensuring that they were able to meet industry standards. Since processors will not accept grapes below the 16 Brix standard, there are no records of grapes received at a lower Brix value. The juice industry must consider standards that represent the industry rather than a specific growing region. VIII. Brazil's vineyard area is relatively small compared to other major grape-producing regions, such as Spain, China, and the USA. When the Codex <i>General Standard for Fruit Juices and Nectars</i> was developed, it was based on data that was presented from various regions of the world that grew grapes for nonalcoholic purposes including Brazil. This information 	IFU
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<p>was studied in great detail and the Brix of 16.0 was agreed by stakeholders based on data.</p> <p>IX. Lastly, the proposed amendment would impact international trade as the Brix value of the juice has an economic impact. If juice from a single geographic region has a lower codified Brix level, it will have a lower cost when diluted to single strength. This will skew international trade as much as a tariff or a retaliatory tariff.</p> <p>In conclusion, we believe that the proposed amendment to the <i>General Standard for Fruit Juices and Nectars</i> (CXS 247-2005) should not be pursued.</p>	
<p>OIV Comments</p> <p>These comments do not commit Member States of the OIV in the comments and views that they might provide or express separately</p> <p>The objective of the proposed amendment is to improve the precision of the General Standard for Fruit Juices and Nectars (CXS 247-2005), to correctly reflect the minimum Brix level for reconstituted grape juice elaborated with <i>V. labrusca</i> and hybrids thereof by adding to the Annex of the Standard a specific limit for this specie.</p> <p>In 2019, the International Organisation of Vine and Wine (OIV) started to work on the Definition of Reconstituted Grape Juice (Provisional Draft Resolution VITI-SCRAISIN 20-678B), in the Sub-commission Table Grapes, Raisins and Unfermented Vine Products (SCRAISIN), as proposed initially by the Brazilian delegation, based on the Codex standard CXS 247/2005.</p> <p>Based on the analytical data provided by the Brazilian delegation, the OIV member states have proposed to distinguish 2 different limits of Brix level according to the type of <i>Vitis</i> species. one at 16° Brix level for <i>Vitis vinifera</i> species, as the CODEX standard currently indicates and a new category at 14° Brix level for <i>vitis Labrusca</i>.</p> <p>The analytical data are also provided within the Codex and summarising in the CRD7 of the last CCLAC meeting.</p> <p>The proposed OIV standard has been endorsed by the member states of the OIV at step 7, the final step of procedure during las OIV meetings in Mexico in 2022.</p> <p>However, the formal adoption of the OIV standard has been postponed to the next OIV General Assembly pending on the decision of the Codex Alimentarius Commission to start the revision of the Codex standard on reconstituted fruit juice.</p> <p>This decision is based on the fact that the OIV, for consistency point of view, and in view of the relationship between our 2 intergovernmental organisations, do not wish the existence of 2 international standards for reconstituted grape juice.</p> <p>Therefore, for consistency, the OIV supports the amendment of the standard CXS 247/2005 as it is proposed in the annex of the CL.</p>	<p>Organisation internationale de la vigne et du vin</p>

Appendix 2**Brazil's response to the comments in replies to CL 2023/27/OCS-EXEC and additional explanations****(Prepared by Brazil)****1. Introduction**

1.1 Considering the discussions and conclusion from CCEXEC84 that recommended that the Codex Secretariat request Brazil to respond to comments received in response to the CL 2023/27/OCS-EXEC, Brazil would like to present the following considerations.

1.2 Brazil would like to express its appreciation to the countries and organizations that supported the proposed amendment to the *General Standard for Fruit Juices and Nectars* (CXS 247-2005), reinforcing the relevance of this topic and the possibility to improve this standard and make it more inclusive, in accordance with Codex Alimentarius principles.

1.3 Brazil reinforces that this proposal aims at correctly reflecting the minimum Brix level for reconstituted grape juice elaborated with *V. labrusca* and hybrids thereof by adding to the annex of the standard a specific limit for this species.

1.4 The proposed amendment concerns the annex of CXS 247-2005 where it is proposed to stratify the referred single Minimum Brix Level for grape juice into two groups; one group for *Vitis vinifera* and hybrids thereof, keeping the current Minimum Brix Level of 16.0; and another group for *V. labrusca* and hybrids thereof, with a proposed Minimum Brix Level of 14.0.

2. Response to comments provided by the European Union (EU)

2.1 It is important to note that this proposal does not intend to create distinctions for labeling and/or for market transactions. There is no intention to start attesting subspecies or varieties in the grape juice trade. In this sense, the suggestion is that the grape juice will remain as a single product, consequently, the amendment will not require any change in the labeling or methods of analysis currently set in the CXS 247-2005. Besides that, normally, the elaboration of grape juice in each producing country is carried out with one of the species (*Vitis labrusca* L. and hybrids thereof or *Vitis vinifera* L. and hybrids thereof). Countries rarely produce juice with both species.

2.2 The degree of maturation reached by most of the grapes of the species *Vitis labrusca* L. and hybrids thereof, in Brazil, normally have a lower soluble solids content than the *Vitis vinifera* L. specie, as clearly demonstrated in the project document.

2.3 The possibility of adulteration should not "invalidate" the technical and scientific justifications on this matter. There are analytical resources as a form of control, such as isotopic analysis, for the case of water addition. Besides that, it is important to highlight that there are other discussions related to food fraud in Codex Alimentarius, including the development of guidance on the prevention and control of food fraud on the premises of Codex Committee of Food Import and Export Inspection and Certification Systems (CCFICS), that could assist in addressing any concerns related to adulteration. The aim is that the international standard becomes more inclusive, for all countries.

2.4 Even if for reconstituted grape juice it is possible to dilute the concentrated grape juice up to 16.0 °Brix, indicated at the international standard, this could lead to a lack of chemical and sensorial balance in the product, in addition to an increase in the sugar content (undesirable from a health point of view), among other consequences. The average Brix presented in Brazil's proposal is 16°, representing approximately 56 percent of the population, in this sense, 44 percent of the grape juice analyzed is below the current standard.

2.5 In this case, establishing different Brix values within the same genus of fruit is extremely relevant as there are differences between species. The review of a standard with a well-established technical and scientific basis should not be considered a negative precedent, but rather, it is what is expected for the review of an international standard, without establishing arbitrary limits that do not represent the reality of the Codex Members.

2.6 It is worth noting that in Brazilian terroir, even using different prune techniques, it is not possible, for some species, to reach a concentration of 16 °Brix. Training systems for *Vitis labrusca* L. and hybrid grapes are specific to ensuring adequate sun exposure for fruit maturation. Brazil is a reference in the development of tropical wine production techniques, whose edaphoclimatic conditions, especially taking into account a country with such a wide territorial extension, presents great variability in soils, solar exposure, rainfall, altitude, and latitude.

2.7 Brazilian conditions, in general, are completely different from those found in wine production in most European regions, with such diversity of varieties and rootstocks, as shown by studies carried out by Embrapa Uva e Vinho (e.g. Da Silva, *et al.* 2018; Da Silva, *et al.* 2019).

2.8 In scientific articles, such as in the study of Rizzon & Link, 2006, grape juices from the *Vitis labrusca* species have a content of soluble solids, expressed in °Brix, lower than those from *Vitis vinifera*, and even the juices made from the latter species, possibly below 14°Brix. In the study by Kaltbach *et al.* 2022, the variability in soluble solids content between different harvests can also be observed.

2.9 It is evident that a large part of Brazilian grape production comes from family farming and cooperative organizations, whose techniques and realities are completely different from the large grape production found in other countries.

2.10 Even though Brazil has a smaller wine growing area than other producing countries, its production conditions must be foreseen and must be part of this Codex international standard. When the *General Standard for Fruit Juices and Nectars* was developed, in 2005, it was based on data presented by a limited number of countries. On that occasion, Brazil did not have any representative data to share, thus its reality was not reflected during the edition of the current standard. It is also important to mention that more accurate analytical techniques are available nowadays. According to the reports of the 3rd and 4th Sessions of the Ad Hoc Codex Intergovernmental Task Force on Fruit and Vegetal Juices, it was noted that for certain fruit juices, there were data missing from some of the main producing countries, including data for grape juice. Specifically, in the report of the 3rd Session of the Task Force, it is registered that due to insufficient international diversity of data, the Task Force was unable to set up a final minimum Brix level for grape, guava, mandarine/tangerine, mango, passion fruit, and pineapple juice.

2.11 Brazil is developing new techniques to adapt to its conditions. Likewise, it is possible that other countries, especially developing ones, have similar or comparable situations, and their viticulture could also benefit from the amendment and improvement of this standard.

3. Response to comments provided by Türkiye

3.1 Brazil understands that Turkish comments are similar to the ones submitted by the European Union. In this sense, it is necessary to reinforce that this proposal was established based on technical and scientific justifications and should not be invalidated based on adulteration argument. It is clear that any standard of any type of products may be subject to an illegal adulteration, which should be dealt by inspection and control measures.

3.2 It is important to note that this proposal does not intend to create distinctions for labeling and/or for market transactions. There is no intention to start attesting subspecies or varieties in the grape juice trade.

3.3 It is possible to make blends of different varieties of *Vitis labrusca* grapes in order to reach the soluble solids content of 16° Brix. However, from a sensory, nutritional and marketing point of view it is not desirable, as it harms the quality of the product itself. Among other consequences, there may be a lack of balance between sugar content and acidity, and a higher sugar content. In the elaboration of a grape juice, it should not be aimed to reach a soluble solids content higher than the natural content of the grape, but rather to obtain a balanced product.

3.4 It is worth to mention that the article entitled "Soluble solids profile of Brazilian *Vitis labrusca* and hybrid grape musts, from the 2012 to 2022 harvest" was accepted for publication in an International Scientific Journal, where more information about the study can be consulted and that supported the Brazilian request..

4. Response to comments provided by ICUMSA

4.1 The expression of the soluble solids content in juices is internationally established in °Brix. It is important to note that from the current *General Standard for Fruit Juices and Nectars* (CXS 247-2005), the soluble solids content in juices is expressed in °Brix.

5. Response to comments provided by IFU

5.1 The comments submitted by IFU are very similar to those of the European Union. In this sense, those comments already provided in response to the EU are reinforced.

6. Additional Considerations provided by Brazil

6.1 The General principles of the Codex Alimentarius described in the Procedural Manual state that for the revision of Codex standards:

"The Codex Alimentarius Commission (CAC) and its subsidiary bodies are committed to revision, as necessary, of Codex standards and related texts to ensure that they are consistent with and reflect current scientific knowledge and other relevant information. When required, a standard or related text shall be revised or removed in accordance with the procedures for the elaboration of Codex standards and related texts. Each Member of the CAC is responsible for identifying, and presenting to the appropriate committee, any new scientific and other relevant information which may warrant revision of any existing Codex standards or related texts."

6.2 While presenting this proposal, Brazil is following strictly what is stated in the General principles of the Codex Alimentarius.

- i. Brazil considers necessary to revise the standard as there is new information to be considered. This information was not available at the time the standard was elaborated.
- ii. Brazil, as a Member of CAC, is responsible for identifying and presenting the new information to the other Members.

6.3 Considering this, Brazil presents once again the following data:

6.4 According to the FAO-OIV FOCUS 2016, in recent years, there has been an expressive interest in fermented and non-fermented products elaborated from grapes. Few fruits have attracted as much attention in the health research literature as grapes. The discovery that the grape and, consequently, its by-products contain components that are beneficial to human health has led to rapidly enlarging markets for grapes and their by-products.

6.5 An important non-alcoholic by-product derived from grapes is grape juice, which is also marketed in the concentrated form to obtain the reconstituted grape juice.

6.6 Currently, the definition of reconstituted grape juice is being elaborated within the scope of the International Organization of Vine and Wine (OIV), by the draft resolution VITI-SCRAISIN 20-678B - OIV DEFINITION OF RECONSTITUTED GRAPE JUICE. The inclusion of this definition was proposed by the Brazilian delegation in 2016. In 2018, a working group was created, coordinated by Brazil, to elaborate the first draft resolution. This document advanced to Step 7 during the 2022 spring meeting of the Sub-commission Table Grapes, Raisins, and Unfermented Vine Products (SCRAISIN). However, the sensitive point for its approval on the OIV General Assembly is the amendment in the minimum parameter of soluble solids, expressed in °Brix, in the Codex Alimentarius standard CXS 247-2005, for reconstituted grape juices elaborated with *Vitis labrusca* specie and hybrids thereof. For this purpose, Brazil proposes the stratification of the single Brix reference to encompass the distinction between the *Vitis vinifera* L. and *Vitis labrusca* species, to improve both precision and coverage of the standard for better adoption and transparency in the trade of grape juices. The detailed proposal is presented in Section 7 below.

6.7 According to the OIV (2022), the global vineyard surface area was estimated to be 7.3 mha in 2021. Grape is produced at a commercial scale in 91 countries of the world (FAOSTAT, 2020), and it is one of the world's largest fruit crop, making it available worldwide for direct consumption and for the elaboration of non-alcoholic and alcoholic products.

6.8 The grape juice is a grape-derived product of considerable commercial value. Currently, it ranks third in the world's most exported juices, after orange juice and apple juice (WITS, 2022).

6.9 Data from the World Integrated Trade Solution (WITS, 2022) displays that the total quantity of grape juice exported (including grape must) in 2021 was 797,017.8 tons, representing a total of \$ 901,236 K, worldwide. The top 15 largest grape juice exporting countries are shown in the **Figure 1**.

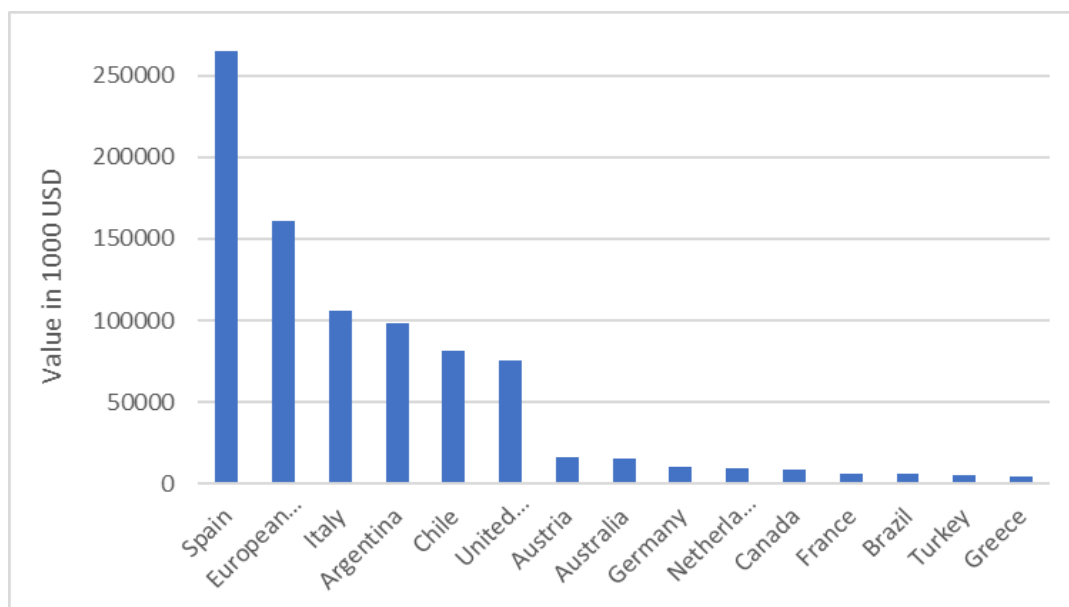


Figure 1. Top 15 largest grape juice exporting countries

6.10 The most used species for the elaboration of grape juices are *Vitis labrusca* and *Vitis vinifera*. In Europe, only grape juices of the *Vitis vinifera* species are allowed for the grape juice elaboration. In contrast, in Brazil and in the United States, the grape juices are elaborated from *Vitis labrusca* and hybrid grapes. In Brazil, the varieties used are the Isabella, “Bordô” and Concord, for the red grape juices, and the White Niagara for the white grape juices. Those grapes have aroma and flavor characteristics appreciated by consumers, as well as a great balance between acidity and sugar.

6.11 In 2021, the top five cultivars in Brazil in quantity were: Isabella (~ 278780 tons), “Bordô” (~ 218416 tons), White Niagara (~ 44928 tons), Rosé Niagara (~ 36454 tons), and Concord (~ 31896 tons). According to data from the Brazilian Ministry of Agriculture, Livestock and Supply (SIVIBE, 2022), the State of Rio Grande do Sul has the largest planted area of vines in Brazil, followed by Pernambuco and Bahia (SIVIBE, 2022). Therefore, the main viticultural estate in Brazil is the Rio Grande do Sul, where the production of *Vitis labrusca* and their hybrids represents approximately 86% of the total grape production (SISDEVIN, 2020).

6.12 The increase in the production, marketing, and consumption of grape juice has been constant in recent years. This is directly related to consumers' search for products with proven health benefits, due to their characteristics and nutritional properties. The elaboration of this product provides an important economic alternative for the traditional wine industries, small wine producers, and agroindustry.

6.13 In Brazil, according to Table 1 of the Annex to Normative Instruction n. 14, of February 8, 2018 (BRASIL, 2018), the minimum content of soluble solids for grape juices, expressed in °Brix at 20 °C is 14.0. This standard represents, in an inclusive way, the minimum degree of maturation reached by most of the grapes of the species *Vitis labrusca* and hybrids thereof, in Brazil, as they normally have a lower soluble solids content than the *Vitis vinifera* specie.

6.14 For the preparation of this report, values of soluble solids, expressed in °Brix (at 20 °C) were collected from experimental musts of the main *Vitis labrusca* and hybrid grapes used in the elaboration of grape juices in Brazil, from the 2012 to 2022 harvest, totaling 1 500 samples (**Table 1**). The data belongs to a database where the grapes were collected by agricultural inspectors of the Secretary of Agriculture of the State of Rio Grande do Sul (SEAPDR) in each harvest and the musts were obtained and analyzed at the Oenological Reference Laboratory (LAREN) of SEAPDR, by densitometry, using an electronic hydrostatic balance at 20 °C.

Table 1. Minimum, maximum and average values of soluble solids, expressed in °Brix, of experimental musts of *Vitis labrusca* and hybrid grapes, from Brazil

Year	Varietal	Minimum ° Brix	Maximum ° Brix	Average	Standard deviation	n	n Total
2012	"Bordô"	13,4	18,6	16,2	1,3	44	173
	"BRS Cora"	18,5	22,1	20,3	2,5	2	
	Concord	15,5	19,0	17,0	1,6	4	
	Isabella	15,8	21,4	18,1	1,3	94	
	"Isabel Precoce"	15,4	21,0	18,0	2,8	3	
	White Niagara	12,5	19,4	16,5	1,6	22	
	Rosé Niagara	15,7	17,8	16,9	1,0	4	
2013	"Bordô"	15,6	21,1	18,0	1,1	43	148
	Concord	15,5	18,4	16,7	1,1	5	
	Isabella	14,1	20,7	17,6	1,4	53	
	"Isabel Precoce"	17,6	18,9	18,3	0,5	6	
	White Niagara	12,4	19,2	16,9	1,4	27	
	Rosé Niagara	16,1	18,4	17,1	0,7	14	
2014	"Bordô"	14,6	19,6	16,2	1,0	45	130
	"BRS Cora"	17,5	18,0	17,8	0,4	2	
	Concord	14,6	17,0	15,7	0,8	10	
	Isabella	14,4	19,0	16,8	1,1	41	
	"Isabel Precoce"	17,3	19,5	18,5	1,0	4	
	White Niagara	12,9	18,2	15,7	1,3	21	
	Rosé Niagara	13,7	17,7	15,4	1,2	7	
2015	"Bordô"	12,0	16,6	14,0	1,2	38	114
	"BRS Cora"	14,3	14,5	14,4	0,1	2	
	Concord	12,5	16,0	14,2	1,5	4	
	Isabella	13,9	20,0	16,3	1,3	41	
	"Isabel Precoce"	13,4	17,2	15,9	1,5	5	
	White Niagara	12,0	16,2	14,4	1,2	20	
	Rosé Niagara	14,5	15,9	15,1	0,6	4	
2016	"Bordô"	12,2	18,3	15,4	1,4	43	145
	"BRS Cora"	13,5	14,6	14,1	0,8	2	
	Concord	12,9	16,9	14,5	1,0	16	
	Isabella	13,4	18,7	16,1	1,4	41	
	"Isabel Precoce"	15,4	17,7	16,5	1,0	5	
	White Niagara	13,6	18,6	15,6	1,2	33	
	Rosé Niagara	14,9	16,6	15,6	0,8	5	
2017	"Bordô"	12,5	17,3	14,9	1,2	58	178
	"BRS Cora"	12,9	16,3	14,5	1,4	4	
	Concord	13,1	16,1	14,5	0,8	24	
	Isabella	12,41	18,9	15,5	1,1	67	
	"Isabel Precoce"	13,9	17,4	15,2	1,6	5	
	White Niagara	12,8	15,8	14,2	0,9	16	
	Rosé Niagara	13,4	15,3	14,2	0,9	4	
2018	"Bordô"	12,1	23,8	15,3	1,8	50	158
	"BRS Cora"	16,7	18,2	17,2	0,8	3	
	Concord	13,9	18,1	15,7	1,1	13	
	Isabella	14,5	21,2	17,5	1,4	49	
	"Isabel Precoce"	16,5	20,4	17,8	1,4	7	
	White Niagara	11,3	17,6	14,9	1,3	28	
	Rosé Niagara	14,2	17,7	16,1	1,2	8	
2019	"Bordô"	12,0	17,4	14,9	1,1	57	194

Year	Varietal	Minimum ° Brix	Maximum ° Brix	Average	Standard deviation	n	n Total
	"BRS Cora"	15,1	16,7	15,9	0,8	3	
	Concord	12,4	15,9	14,0	1,3	10	
	Isabella	12,8	18,7	16,0	1,2	78	
	"Isabel Precoce"	13,3	16,4	14,8	1,2	8	
	White Niagara	10,9	17,1	14,1	1,4	33	
	Rosé Niagara	12,3	18,1	14,3	2,2	5	
2020	"Bordô"	13,9	19,6	16,8	1,3	35	126
	"BRS Cora"	16,1	19,9	17,9	1,6	4	
	Concord	13,6	18,6	16,4	1,8	7	
	Isabella	15,6	20,8	18,3	1,3	35	
	"Isabel Precoce"	17,9	20,1	18,9	0,7	8	
	White Niagara	14,9	19,6	16,9	1,1	33	
2021	"Bordô"	13,1	23,5	16,6	1,9	39	134
	"BRS Cora"	15,8	18,9	17,6	1,3	4	
	Concord	15,4	18,0	16,6	0,8	8	
	Isabella	12,6	18,9	16,3	1,4	35	
	"Isabel Precoce"	17,0	20,0	18,4	1,3	7	
	White Niagara	13,8	18,9	16,4	1,3	38	
2022	"Bordô"	14,5	22,0	17,5	1,8	36	127
	"BRS Cora"	17,8	20,1	19,1	1,2	3	
	Concord	14,0	17,8	16,1	1,2	9	
	Isabella	14,1	21,3	17,8	1,8	34	
	"Isabel Precoce"	15,4	20,1	18,0	2,0	6	
	White Niagara	14,5	19,5	17,4	1,3	35	
	Rosé Niagara	15,5	17,8	16,7	1,0	4	

6.15 It is observed that the content of soluble solids of the grape musts varies from year to year, mainly according to the variety, the degree of maturation of the grapes and environmental factors. The minimum concentration of soluble solids of the experimental musts of the white grapes studied in this period was 10.9, in the 2019 harvest, for the White Niagara. And, between red grapes, the "Bordô" cultivar, in the 2019 harvest, showed the lowest content, with an average of 12.0 °Brix.

6.16 Considering the most produced varieties in Brazil, of the species *Vitis labrusca* and hybrids, as well as the ones that presented the lowest values of soluble solids, the "Bordô" variety was chosen as a reference for the study, as representative of the red grapes, and the White Niagara, as a representative of white ones.

6.17 As shown in **Figure 2** below, it is observed that, for the "Bordô" variety, considering one deviation (~68% of the population) of the normalized mean, the average value of soluble solids, expressed in °Brix, is 14.2. Considering two deviations (~95% of the population), this value would change to 12.5° Brix.

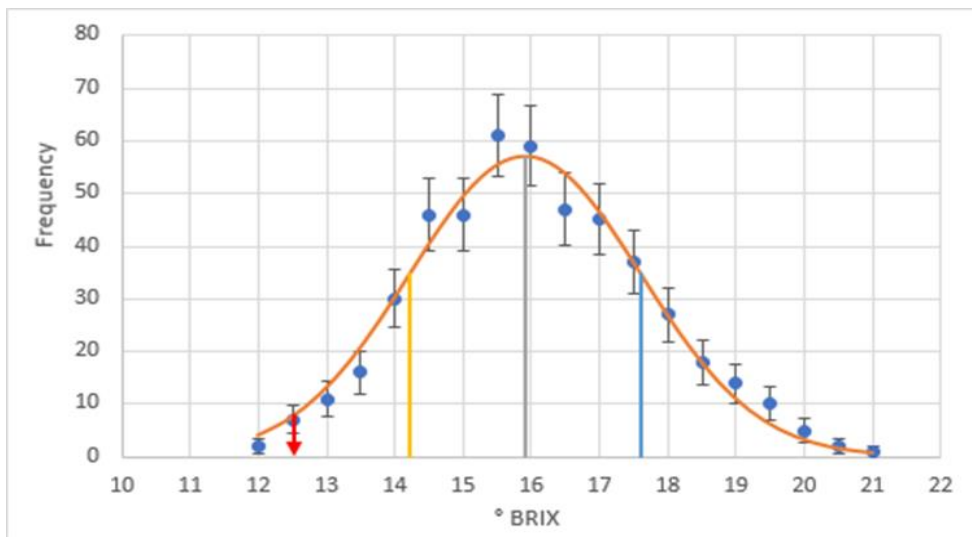


Figure 2. Normalized curve of the soluble solid's values of the "Bordô" variety, from 2012 to 2021

6.18 Analyzing the White Niagara data (**Figure 3**), it is observed that considering one deviation (~68% of the population) of the normalized mean, the average value of soluble solids, expressed in °Brix, is 14.5. Considering two deviations (~95% of the population), this value would change to 12.7° Brix.

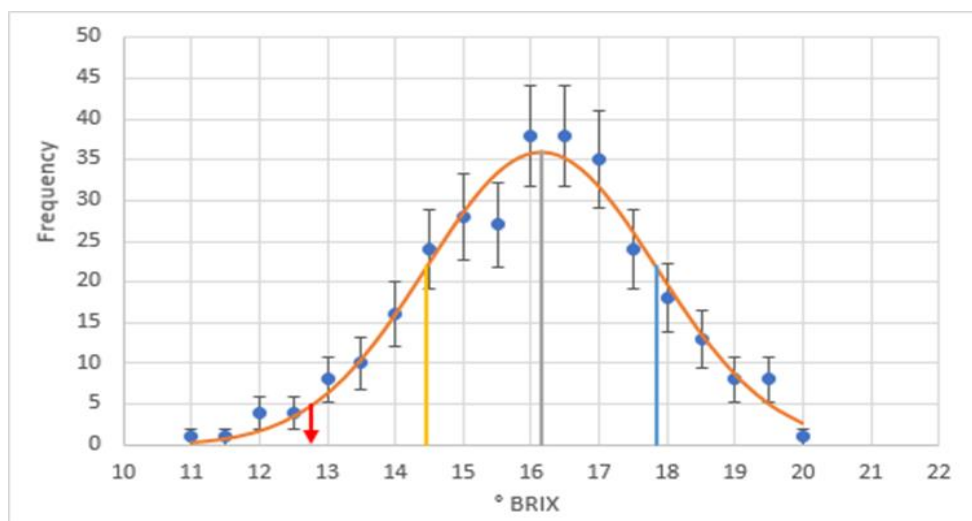


Figure 3. Normalized curve of the soluble solid's values of the White Niagara variety, from 2012 to 2021

7. Recommendation

7.1 Based on the history of this discussion and on the information provided, Brazil strongly recommends the adoption of the proposed amendment, as shown in the table below:

Botanical name	Fruit's common name	Minimum Brix level for reconstituted fruit juices and reconstituted purée	Minimum juice and/or purée content (% v/v) for fruit nectars
<i>Vitis vinifera</i> L. or hybrids thereof	Grape	16.0	50.0
<i>Vitis labrusca</i> or hybrids thereof			
<u><i>Vitis labrusca</i> or hybrids thereof</u>	Grape	14.0	50.0

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