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ECONOMIC COMMISSION FOR EUROPE  
COMMITTEE ON AGRICULTURAL PROBLEMS  
Working Party on Standardization of Perishable Foodstuffs  
AGRI, /362, AGRI/WP. 1/735

ALINORM 72/25

JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX ALIMENTARIUS COMMISSION  
Ninth Session  
Rome, 7-17 November 1972

REPORT OF THE SEVENTH SESSION OF THE JOINT ECE/CODEX GROUP  
OF EXPERTS ON THE STANDARDIZATION OF QUICK FROZEN FOODS  
Geneva, 6-10 December 1971

#### Introduction

1. The Joint ECE/Codex Alimentarius Group of Experts on Standardization of Quick Frozen Foods held its seventh session at the Palais des Nations, Geneva, from 6-10 December 1971 under the Chairmanship of Mr. R. Linden (Belgium); Mr. W. Orłowski (Poland) served as Vice-Chairman.
2. Representatives from 23 countries were present: Algeria, Argentina, Austria, Belgium, Brazil, Cameroon, Canada, Denmark, Finland, France, Federal Republic of Germany, Hungary, Italy, Japan, Netherlands, Poland, Romania, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America. Observers were present from the following international organizations: Association européenne des exploitations frigorifiques (AEEF), Association of Official Analytical Chemists (AOAC), European Economic Community (EEC), International Institute of Refrigeration (IIR) and United Nations Conference on Trade and Development (UNCTAD). The list of participants is contained in Appendix I to this Report.

#### Election of Rapporteur

3. Mr. F. Dunn (USA) agreed to act as Rapporteur and was so appointed by the Group of Experts.

#### Adoption of Agenda

4. The Group of Experts unanimously adopted the provisional agenda for the session.

Matters arising from the Report of the 8th Session of the Codex Alimentarius Commission

5. The Secretariat informed the Group that the Commission had again discussed the use of the term "quick frozen" and "frozen" (paras 115 and 116 of the Report of the Commission ALINORM 71/31). The Standard for Quick Frozen Strawberries was subsequently amended and brought into line with what had been agreed upon in the Recommended Standard for Quick Frozen Peas (CAC/RS 41-1970) by adding a footnote to the text which reads as follows:

"Frozen': This term is used as an alternative to 'quick frozen' in some English-speaking countries."

The English words "quick frozen" and "frozen" would appear in the footnote to the French and Spanish texts (para 144 of ALINORM 71/31).

The Commission had agreed that the attention of Governments should be drawn to this change which was of a general nature and which would also be applicable to the Standards for Quick Frozen Peaches and Bilberries.

6. The Group was further informed that following a proposal made by the delegation of Ireland to the 8th session of the Commission it had been agreed that the attention of the Joint Group of Experts and the Codex Committee on Food Additives be drawn to the growing use of direct contact refrigerants in the quick freezing industry, and to the fact that the use of such refrigerants caused residues in the foods treated. The delegation of Belgium to the 8th session of the Commission offered to supply information on the subject to the bodies concerned (para 117 of ALINORM 71/31) (SEE para 13 of this Report)

7. The Group noted that the Draft Standard for Quick *Frozen* Strawberries had been adopted, by the Commission at Step 8 of the Procedure for the elaboration of worldwide Codex Standards.

8. The Commission had also agreed to advance the Draft Standard for Quick Frozen Peaches and Quick Frozen Bilberries to Step 6 of the Procedure.

9. The Group took note of the Commission's decision to hold the Draft Code of Hygienic Practice for Quick Frozen fruits, Vegetables and their Juices at Step 8 of the Procedure pending review by the Executive Committee of the overall matter of elaborating codes of hygienic and technological practice, e.g. Processing and Handling of Quick Frozen Foods, (paras 202 and 203 of ALINORM 71/31).

Proposed Draft Code of Practice for the Processing and Handling of Quick Frozen Foods

10. The Group considered the above-mentioned Code of Practice at Step 4, which had been revised by the author country (the United Kingdom) after having taken into account government comments thereon.

SECTION I -Scope and Purpose

11. The Group decided to make the following changes:

A new paragraph. 1.1 was introduced which read as follows:

"This Code is intended to provide guidelines to Codex Committees for elaborating codes of practice or standards for specific quick frozen products or groups of products" <sup>1</sup>.

12. The footnote would draw attention to the publication of the International Institute for Refrigeration (IIR) "Recommendations for the Processing and Handling of Quick Frozen Foods". Paragraph 1.1 became 1.2 and the original 1.2 in which reference was made to the General Principle of Food Hygiene was deleted as it was felt that this point was now adequately covered by the new paragraph 1.1 and paragraph 8.2 under Hygiene.

#### SECTION II - Raw Materials and Preparation;

13. The Group decided to amend paragraph 2.1 to read as follows: "Only sound and wholesome raw material should be used for the quick freezing process. Because quick freezing cannot improve the original quality of the foods being treated, only products at an optimum level of freshness and maturity should be quick frozen".

14. In paragraph 2.2 in the second sentence the word "minimize" was substituted for the word "control". The last paragraph in this Section was completely redrafted so as to apply particularly to pre-cooked foods as there was, some difficulty defining what was meant by "prepared foods" The revised paragraph reads as follows:

" To minimize microbiological activity pre-cooked foods intended for quick freezing should not be held in the temperature range +10°C to 60°C. They should be cooled as rapidly as possible in suitable pre-cooling equipment consistent with requirements of hygienic processing. , Whilst it is desirable that cooling and quick freezing should be carried out immediately, where this is not possible" the foods should be held at a temperature above 60°C' (140°F) until cooling and subsequent quick freezing can take place."

#### SECTION III - Quick Freezing

15. The Group took note of the comments which had been made at the Eighth session of the Commission by the delegation of Ireland regarding the growing use of direct contact refrigerants (ALINORM 71/31 para 117). The Group considered that the application of such refrigerants complied with the requirements for quick freezing as specified in the present Code and various standards for quick frozen products.

16. In paragraph 3.2 the range of temperature of maximum crystallization for most products was amended to read -1°C to -5 °C.

17. Some delegations considered that the words "after thermal stabilization" in paragraph 3.3 should be deleted as in their opinion thermal stabilization took place in the cold stores after the freezing process. The Group decided, however, to maintain the existing text.

18. The Group replaced the word "specified" in paragraph 3.3 by the word "recommended" and in paragraph 3.6 the word "ambient" was replaced by the word "higher".

#### SECTION IV - Storage

19. The Group considered the desirability of adding to the provision specifying that the temperature in cold stores should be maintained at -18°C or colder, a passage to the effect that in individual standards or Codex specific temperature provisions for particular products could be made. This proposal was particularly intended to provide for the storage of products such as, fatty fish. The Group was of the opinion, however, that as different quick frozen foods were often stored together it was inappropriate to prescribe specific temperatures for particular quick frozen foods. Moreover the essential factor was considered to be the time of storage and, within limits, not the actual temperature. The

delegation of Switzerland reserved its position as they preferred that provision should be made so that certain products could have a mandatory lower temperature.

20. The Group discussed the problems of limiting product temperature fluctuations. It was agreed that to minimize any detrimental affects fluctuations in the temperature of the air surrounding the product exceeding two Centigrade degrees should be avoided.

21. The Group agreed that temperature checks should be as frequent and exact as possible and that therefore recording thermometers or devices that would continually monitor storage temperatures were desirable. The provision dealing with temperature checks was amended accordingly.

22. The Group considered a proposal made by the observer of the Association Européenne des exploitations frigorifiques (AEEF) that the distance between the top of the product and the ceiling should be at least 10 per cent of the stacked height of the room. It was agreed that the specification for a minimum of 10 cm. free space up to the ceiling was sufficient to provide protection for the product. The delegation of Italy drew the attention of the Group to the work concerning refrigerated transport at present being elaborated by the ECE's Working Party on Transport of Perishable Foodstuffs and the Group agreed to consider this document in the further elaboration of the draft Code.

#### SECTION V - Transport and Distribution

23. The delegation of the USA proposed and the Group agreed to add to the provision dealing with the equipment used for transport a clause stating that:

"Vehicles should be precooled to +10°C (50° F) or lower prior to loading and should be equipped with devices to record temperatures during transport".

The Group discussed at great length the other provisions of the section on transport and distribution. The Group was particularly concerned with the rise in temperature of the product during transport and the upper temperature limit which could be tolerated. It was agreed that a temperature increase up to —15°C would still be acceptable. At the same time it was specified, however, that as soon as practicable the temperature should be returned again to -18°C or lower, i.e. during transport or immediately following arrival of the consignment at the store. The text of the provisions was amended accordingly. The Group agreed that it would be very useful to be able to follow the temperature history of a shipment and the desirability of a method to measure and record the temperature during transport was highlighted. The delegation of the USA undertook to provide the Group with information regarding such equipment.

#### SECTION VI - Retail Sale

24. A number of delegates were of the opinion that cabinets for retail sale of quick frozen products should be equipped with a thermometer. Although there was some difference of opinion as to where exactly the thermometer should be placed, it was considered that in any case a thermometer would encourage the retailer to correctly handle the cabinets and it could also serve as an indicator to the consumer. The relevant provision (6.2) was amended accordingly to read: "The cabinets should be capable of maintaining and be so operated as to maintain a product temperature of -18°C (0°F) and should be fitted with a thermometer".

25. In discussing the upper limit of the temperature of the quick frozen products in the retail cabinets, some delegates were of the opinion that -12°C should be allowed. The Group decided to retain the maximum of -15°C but to amend the text of the sub-section to allow for higher temperatures for the top layer taking into account the

influence of, e.g. radiant heat. The delegation of Japan reserved its position as to the provision for the higher temperature. The Group also noted that ISO was at present elaborating standards for freezing cabinets.

26. The Group also agreed to increase the margin between the product (top layer) temperature and the air temperature in the cabinet from more than 6 and up to 10 Centigrade degrees (11 to 18 Fahrenheit degrees). It was agreed that governments should be specifically requested to inform the Group about their experience regarding maintaining a product temperature in a freezing cabinet at -18°C in all but the top layer and also to indicate which temperatures are found in the top layer.

27. The Group considered the possibility that non-quick frozen foods be offered for sale in freezing cabinets together with quick-frozen products and agreed that, apart from certain risks involved this also amounted to deceiving the consumer. The Group subsequently decided to exclude all such products from storage in cabinets together with quick frozen foods, with the exception of edible ices.

#### SECTION VII - Packaging

28. The Group decided to slightly re-arrange this section and to insert a clause in the text stating that the packaging should protect the product as far as practicable against heat accumulation by radiation, in order that due attention be given to this point when designing packages for quick frozen products.

29. A majority of the Group considered that exceptionally, quick frozen foods might be offered for retail sale in an unpackaged form as for example, glazed fish. The delegations of the Federal Republic of Germany, France and Italy reserved their positions as in their opinion all quick frozen goods brought onto the market should only be in pre-packaged form.

30. The delegation of Romania requested that the word "sensoric" should replace the word "organoleptic" in all cages. The Group considered that as this was a problem which applied not only to quick frozen foods but to many other products as well, the delegation of Romania should raise this as a general point at the next session of the Commission.

#### Status of the Draft Code

31. The Group agreed to submit the amended Draft Code to the Commission at Step 5 of the Procedure. The amended Code is attached as Appendix II to this Report.

#### Methods for Checking Temperatures of Quick-Frozen Foods

32. The Group decided that as the document of Methods for Checking the Temperature of Quick-Frozen Foods prepared by the delegation of the United States and attached as an Appendix to the Draft Code, had only been considered superficially it should therefore be sent to governments for comments. It was agreed that comments should be sent to the Rapporteur (Mr. F. Dunn, USA) who would revise the document in the light of comments received. The Group would then examine the amended version at Step 4 of the Procedure at its next session.

#### Consideration at Step 7 of the Draft Standard for Quick-Frozen Raspberries

33. The Group had before it Appendix IV of ALINORM 70/25 (AGRI/WP.1/638) which contained the Draft Standard for Quick-Frozen Raspberries. The Group also had before it documents CX/QFF 71/3 (AGRI/WP.1/707) and CX/QFF 71/3 Add.1 (AGRI/WP.1/707/Add.1) and Conf. Room Doc. No. 173 which contained government comments on the Draft Standard.

## SECTION I - Scope

34. The Group decided to delete the reference to size grading as it was not applicable to raspberries. The Group also decided to replace the word "labelled" in the last sentence with the word "indicated" in order to bring the standard into line with the standards for Quick-Frozen Strawberries and Quick-Frozen Peas.

## SECTION II - Description

35. The Group agreed that this section should be brought as much as possible into line with the standard for quick-frozen strawberries. The delegations of the Federal Republic of Germany, France and Italy proposed that mandatory provisions regarding the maintenance of low temperatures during transport and storage should be inserted into the standards. However, many delegations were of the opinion that such mandatory provisions would be extremely difficult to enforce and though recognizing that such provisions would be desirable nevertheless felt that it was preferable that they be of an advisory nature only and put into the Draft Code for the Processing and Handling of Quick Frozen Foods.

## SECTION III — Essential Composition and Quality Factors

36. The Group noted the editing changes which had been made in the draft standard for quick frozen strawberries and agreed to make similar amendments in this section.

### Raspberries Prepared with Dry Sugars

37. The Group agreed to amend the figures for the total soluble solids content of the extracted liquid to 35% m/m and 18% m/m respectively. The delegations of Belgium, Denmark, the Federal Republic of Germany, Finland, France and Italy reserved their positions in favour of a maximum figure of 30% m/m.

### Raspberries Prepared with Syrup

38. The Group agreed with a proposal of the delegation of the U. S. A. to amend the total soluble solids content of the extracted liquid to not more than 30% m/m nor less than 15% m/m on the grounds that raspberries contained more acid than strawberries and that the present range was too narrow as it might eliminate otherwise acceptable products.

### Definition of "Defective"

39. A majority of delegations considered that a tolerance of 5% m/m soluble solids should be permitted in order to take into account those products which might fall outside the permitted limits and which would be considered as "defectives". Some delegations were opposed to the inclusion of such a tolerance as in their opinion the range was already broad enough. The Group agreed to include a tolerance of 5% m/m soluble solids, noting, however, that governments would be asked to comment specifically on this point.

40. The Group agreed to reframe the entire section on Essential Composition and Quality Factors as they considered that sampling acceptance procedures should be set out for all those requirements for which tolerances were prescribed, i.e. composition, analytical characteristics, free-flowing characteristics and physical defects. In preparing the revised text it was deemed essential that "defectives" should be clearly defined in order that there would be no misunderstanding regarding the application of the acceptance procedure to specific requirements or characteristics in the draft standard.

41. A revised text of section III, "Essential Composition and Quality Factors" was, therefore, prepared and submitted to the Group. This revised text covered general requirements for Quick-Frozen Raspberries, acceptance procedures for composition requirements, a specification for a "free-flowing" style, analytical characteristics, definition of defects, tolerances for defined defects, a precise definition of "defective" as related to the various provisions of the section and a lot acceptance procedure. In addition, a revised text of section 3.2 "Composition" was submitted to the Group for consideration - such revised text including acceptance procedures based upon the Sampling Plans.

42. After extensive discussion it was agreed that the new presentation was much more precise and clear however, the Group considered that the extent of the revision and the introduction of new concepts of sampling acceptance procedures would make it difficult to advance the Standard to Step 8 without more time for study.

43. The delegation of the USA agreed to prepare an explanatory paper that would outline the principles of acceptance sampling and that this paper would be submitted to governments, through the Secretariat, for information purposes.

#### Contaminants

44. The Group agreed to delete this Section in conformity with the decision of the Commission at its Seventh Session (para 66, ALINORM 70/43;.

#### Hygiene

45. This Section was amended slightly to bring it into line with the Standard for Quick-Frozen Strawberries.

#### Labelling

46. The Group agreed to revise the section so as to bring it into line with the Standard for Quick-Frozen Strawberries.

#### Name of the Food

47. The Delegation of Finland proposed that the declaration of the style (free-flowing or non- free-flowing) should be made mandatory for Quick-Frozen Raspberries in bulk. However, the Group mainly considered that this point was optional and really a matter between the buyer and seller.

48. The delegation of the United States proposed that a provision should be added which would permit the sale of products which could not conform with the soluble solids requirements of the standard. The Group was of the opinion, however, that although this might well be an eventual issue for governments to consider what to do with products not conforming to the requirements of the standard, it was not prepared to deal with this problem at this stage of the development of standards.

#### List of Ingredients

49. The delegation of the Federal Republic of Germany proposed that a provision should be included in the Standard so that a quantitative indication of the added sugars and/or syrup could be made in connection with the designation common in trade. The delegation of Finland supported this proposal. The Group decided, however, to maintain the existing text.

### Country of Origin

50. The delegation of Argentina repeated its position regarding the mandatory declaration of the country of origin on the package level. The delegation of France supported this view.

### Packaging

51. The Group decided to replace the text which was in the draft standard by the text which they had adopted for the Draft Code for the Processing and Handling of Quick-Frozen Foods. The revised text appears in Appendix III to this Report.

52. The delegation of the Federal Republic of Germany, supported by the delegation of France, requested that a provision be included in the standard to the effect that only quick-frozen foods which had been pre-packaged should be offered for final sale.

### Status of the Standard

53. The Group decided, in the light of the considerable amendments which had been made, to return the Standard to Step 6 of the Procedure and to request governments for a further round of comments.

### Consideration at Step 7 of the Draft Standard for Quick-Frozen Spinach

54. The Group had before it the above-named standard as contained in Appendix V of ALINORM 70/25 (AGRI/WP. 1/638) and the government comments on the standard as presented in document CX/QF 7/4 (AGRI/WP. 1/708).

### Scope

55. The Group agreed to a small amendment in the text of the Scope Section to bring it into line with the Standards for Quick-Frozen Peas and Strawberries.

### Description

56. The Group decided to rearrange this Section in accordance with the set-up agreed to for the standards it had dealt with earlier, whereby product and process definitions became separate sub-sections.

57. The Group agreed to a slight amendment of the product definition proposed "by the delegations of the Netherlands and the USA, respectively, "Quick-frozen spinach is the product prepared from fresh, clean, sound, edible parts of spinach....." during normal marketing cycles, properly drained and which conforms to the characteristics of the species Spinacia oleracea L." The reference to "parts of" spinach was made to accommodate the product which had been mechanically harvested and further allow for the spinach customarily marketed in Japan whereby only the root was removed from the plant, leaving the crown attached to the leaves. It was further considered that, especially for spinach, it was of great importance that the product be properly drained after blanching,

58. The delegations of Argentina, the Federal Republic of Germany, France and Italy repeated the view that the term "low temperature" in the process definition was too vague and needed to be defined by the insertion of an upper limit.

### Presentation

59. The delegation of Japan proposed the adding of a new style, whole spinach, to those already listed. The Group agreed to this proposal and also agreed to regard cut leaf and chopped spinach as two separate styles so that there would be five styles in all.

The size of the cut leaf would be generally larger than 20 mm in the smallest dimension. The dimensions of chopped spinach particles were of the order of 3-6 mm. It was agreed not to specify the size of chopped leaf and indicate only that spinach of this style would be comminuted into much smaller pieces than cut leaf.

60. There was some discussion on whether the term "sliced" should be accepted as synonymous to "cut". To avoid confusion, the Group agreed not to have two different designations and to retain the word "cut".

#### Optional Ingredients

61. The delegations of the Netherlands and the USA had in their written comments proposed to add salt as an optional ingredient. The delegation of France pointed out that spinach was often used as a dietetic food and that, therefore, the addition of salt should not be allowed without proper declaration. The Group agreed to allow for the addition of salt and also agreed to provide for this in the labelling Section. The delegation of Finland reserved its position regarding the addition of salt. The Federal Republic of Germany also reserved its position regarding the addition of salt as in its opinion the presence of salt in determining the total dry matter of the finished product should be considered by specifying that the analyses should be done on the unsalted finished product.

#### Organoleptic and Other Characteristics

62. A proposal to harmonize the text of this sub-section with the text in the Recommended Standard for Quick-Frozen Peas was made by the Netherlands delegation and, with some amendments, agreed to by the Group.

#### Definition of Defects

63. The delegation of the Netherlands had in their written comments made proposals for a new revision for this sub-section. The Group agreed to substitute this for the existing text.

#### Tolerances

64. The Group decided to adopt as a basis for discussion a proposal made by the delegation of the Netherlands for tolerances for visual defects. The Group agreed that for whole spinach, whole and cut leaf a sample unit of approximately 500 g was needed, but that for chopped spinach and puree 100 g would suffice. The Group agreed that governments should be asked to make proposals and comment specifically on Sections 3.2.4 and 3.2.5. The delegation of the USA proposed that mention should be made in the standard that the examination of defects could be facilitated by floating the spinach in a pan of water. The Group agreed to this insertion.

#### Contaminants

65. The Group agreed to delete this Section in order to conform with the decision of the Commission at its Seventh Session (para 66, ALINORM 70/43).

#### Hygiene

66. The Group also agreed that this Section should be amended so as to bring it into line with that of the Standard for Quick-Frozen Strawberries.

#### Labelling

67. It was agreed that this Section should be brought in line with the Standard for Quick-Frozen Strawberries.

### Name of the Food

68. Some delegations considered that the addition of salt should be declared on the label in close proximity to the name of the product. Other delegations were of the opinion that a declaration in the list of ingredients was sufficient. Several delegations took the view that consumers suffering from various heart disorders or circulatory diseases who were on low sodium diets should be informed explicitly that the product contained added salt. It was pointed out that this problem not only concerned dietetic foods but also many other ordinary products such as canned foods or quick-frozen foods and was, therefore, of a much more general nature. The Group agreed that governments should be asked to comment specifically on this matter and also that the Codex Committee on Food Labelling should examine this problem and try to make a decision as to what line should be adopted for all foods.

### Country of Origin

69. The delegation of Argentina once more stressed his government's position regarding a mandatory declaration of the country of origin on the package label.

### Additional Requirements

70. The Group agreed to replace the word "thawing" by the word "cooking".

### Packaging

71. The Group agreed to adopt the same wording as it had for the Draft Coda on the Processing and Handling of Quick-Frozen Foods.

### Methods of Analysis and Sampling

72. In dealing with this chapter, the Group took note of the Report of the Codex Committee on Methods of Analysis and Sampling (para 41, ALINORM 71/23) in which that Committee suggested that the Joint 3CE/Codex Alimentarius Group of Experts on Quick-Frozen Foods reconsider the test procedure for mineral impurities in Quick-Frozen Strawberries. It was pointed out that the USA had elaborated a new method which the Group might find more acceptable than ISO Method R 762 <sup>1</sup>.

<sup>1</sup> During the discussion it was pointed out that the "discontinuous" extraction procedure of ISO R 762, using 1000 ml. beakers, appeared to be essentially the same as the method developed by the USA. It was noted, however, that the latter method included a final step of treating the residual ash with HC1.

73. The Group observed that the matter of mineral impurities was common to several of the draft standards for Quick-Frozen fruits and vegetables (including raspberries and spinach) and not to strawberries alone. It was also pointed out that the treatment of the residue (after ashing) with hydrochloric acid might be unnecessary and even undesirable, particularly in the case of limestone soils. It was agreed that the matter should be studied in greater depth before recommending a suitable method for mineral impurities and that governments should be invited to specifically comment on the method for mineral impurities considering also the need for desirability of treating the residual ash with ECU The delegation of Denmark pointed out that as far as sand was concerned, a lower tolerance might be necessary.

74. On the matter of total dry matter, some delegations pointed out that the optional use of salt as an ingredient would be reflected in the total dry matter and an adjustment should be made for such added salt. The delegation of France drew the attention of the Group to ISO Recommendation 1026 as a suitable procedure for total dry matter. The delegation of the USA suggested that the requirement be expressed as "salt-free dry matter" in order to make an adjustment for any added salt. The Group decided, as it had

done with mineral impurities, to invite further government comments on this test procedure,

75. On the matter of solid matter in quick-frozen spinach, the Group had before it a paper on the "Determination of Drained Weight of Quick-Frozen Spinach" - QFF/MAS 71/1 (AGRI/WP.1/712). The delegate of the Netherlands offered a brief explanation of the method and its possible use to control excess water in frozen spinach. The Group postponed any action on the document pending an opportunity to study it in greater depth. It was, therefore, agreed to invite government comments on the document together with the procedures for mineral impurities and dry matter.

76. The delegation of Finland drew the attention of the Group to the potential hazard of excess oxalates and nitrites in quick frozen spinach. It was noted that the risks of nitrite absorption from spinach, particularly for infants under four months would refer particularly to dietetic foods and that these would be subject to specific regulations. It was further noted that if it was considered necessary to protect infants against methaemoglobinaemia, then the nitrate and nitrite content would have to be controlled not only in spinach but also in numerous other foodstuffs.

77. The Group took note that for some spinach products instructions that the spinach should not be re-heated, appeared on the label. The Group decided not to put a provision for nitrites and nitrates in the draft standard.

#### Status of the Standard

78. The Group decided that as the text of the draft standard had been considerably revised, the standard should be returned to Step 6 for a further round of government comments.

#### Draft Standards for Quick-Frozen Peaches and Bilberries

79. The Group agreed, in the light of these decisions which it had taken on the draft standards for Quick-Frozen Raspberries and Spinach, that the draft standards for Quick-Frozen Peaches and Bilberries should be retained at Step 7.

#### Proposed Draft Standard for Quick-Frozen Brussel Sprouts

80. The Group agreed that as they had not had time to consider this proposed draft standard, it should be retained at Step 4.

#### Proposed Draft Standards at Step 2

81. As regards the Proposed Draft Standards for Quick-Frozen Green Beans, Broccoli, Cauliflower, Blueberries, Red Sour Cherries and Leeks, the Group agreed that these should be revised editorially by the Secretariat in order to bring them into line with the standard for Quick-Frozen Peas and Strawberries and then sent out to governments for comments at Step 3 of the Procedure.

#### Alternative Method of Determination of Alcohol-Insoluble Solids Content

82. The Group had before it Appendix VI of ALINORM 71/25, which contained an alternative method for the determination of alcohol-insoluble solids content in quick frozen peas prepared by the Netherlands delegation, and document CX/QFF 71/7 (AGRI/WP. 1/711) which contained government comments thereon. The delegation of the Netherlands stated that in the light of the government comments, which had for the most part indicated their preference for the existing method in the standard, they had decided to withdraw their proposal. The Group, therefore, decided to maintain the existing text in the standard.

### Nomination of Chairman and Vice Chairman for the Eighth Session

83. The delegation of Denmark proposed that Mr. F. Dunn (USA) be elected as Chairman and Mr. R. Linden (Belgium) and Mr. W. Orłowski (Poland) be elected as Vice-Chairmen until the end of the Eighth Session of the Joint Group of Experts. This proposal was seconded by the delegation of Sweden. The delegation of France, seconded by the delegation of Finland, proposed that the present Chairman Mr. R. Linden (Belgium) be re-elected.

84. The Group was of the opinion that there was insufficient time to proceed with a ballot and, therefore, decided to defer any elections until the beginning of the Eighth Session of the Joint Group of Experts. It was agreed that governments should notify the Secretariat of any other nominations for Chairman and Vice-Chairmen not later than 1 July 1972. It was further agreed that governments should be informed of all nominations at least six months before the next session of the Joint Group of Experts.

### Other Business

85. The delegation of Denmark proposed that a small informal Technical Group meet to discuss, in particular, the degree of importance in stating specific temperatures in standards, where and when to measure temperatures and how the temperatures should be measured. The reason for the creation of such a Working Group would be to enable technical experts to discuss in detail these problems and hopefully expedite the work of the Joint Group.

86. During the meeting an ad hoc working group of delegates met to discuss this proposal and recommended to the Group of Experts that a small Technical Working Party should consider these problems. The aim of the Technical Working Party would be to provide a forum for essential technical discussion which would enable government comments to be sought on the report of the Technical Working Party to the next session of the Group of Experts.

87. The Group agreed that such a Technical Working Party would be of great value and requested the delegation of Denmark, with the assistance of the Secretariat, to approach countries with a view to ascertaining which countries would be interested in nominating a technical expert to participate in the work of the Technical Working Party. The Group also considered that it would be desirable to have representatives from the IIR and the ISO participating in this work. The proposals of the mentioned ad-hoc working group for the provisional scope and working programme of the Technical Working Party are attached as Appendix V to this Report.

88. The Secretariat informed the Group that both FAO and WHO would have budgetary difficulties in endeavouring to service an unscheduled meeting. Several delegations thought, however, that the meeting could be in English only and that all that would be required would be a meeting room and some secretarial assistance. The Secretariat undertook to see what arrangements could possibly be made to facilitate a meeting of such a Technical Working Party.

### Date and Place of Next Session

89. The Secretariat informed the Group that according to the decisions of the Commission on the timetable of Codex sessions for 1972-1975, "the next session of the Group was scheduled for Rome in July 1973.

90. The Group expressed the desire that after their next session the meetings of the Group could be on a more or less annual basis as they felt that their work programme was sufficiently heavy to warrant more frequent meetings.

## SUMMARY STATUS OF WORK

(Prepared by the Codex Alimentarius Secretariat)

Draft Standard for Quick Frozen Raspberries	Returned to Step 6 for a further round of comments
Draft Standard for Quick Frozen Spinach	Returned to Step 6 for a further round of comments
Draft Standard for Quick Frozen Peaches	Retained at Step 7
Draft Standard for Quick Frozen Bilberries	Retained at Step 7
Proposed Draft Standard for Quick Frozen Brussels Sprouts	Retained at Step 4
Proposed Draft Standard for Quick Frozen Green Beans	Advanced to Step 3
Proposed Draft Standard for Quick Frozen Broccoli	Advanced to Step 3
Proposed Draft Standard for Quick Frozen Cauliflower	Advanced to Step 3
Proposed Draft Standard for Quick Frozen Blueberries	Advanced to Step 3
Proposed Draft Standard for Quick Frozen Red Sour Cherries	Advanced to Step 3
Proposed Draft Standard for Quick Frozen Leeks	Advanced to Step 3
Proposed Draft Code of Practice for the Processing and Handling of Quick Frozen Foods	Advanced to Step 5

## MATTERS OF INTEREST TO OTHER COMMITTEES

<u>Codex Committee</u>	<u>Paragraph</u>
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Food Hygiene	9
Food Labelling	68
Methods of Analysis and Sampling	39, 40, 41, 42, 43, 72, 73, 74, 75, 82
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PROPOSED DRAFT CODE OF PRACTICE FOR THE PROCESSING AND HANDLING  
OF QUICK FROZEN FOODS

To be submitted to the Commission at Step 5 of the Procedure

SECTION I - SCOPE AND PURPOSE

1.1 This Code is intended to provide guidelines to Codex Committees for elaborating codes of practice or standards for specific quick frozen products \* or groups of products.

\* Detailed technical information may be found in a publication of the International Institute of Refrigeration "Recommendations for the Processing and Handling of Frozen Foods" (2nd Ed., 1971).

1.2 This Code of Practice is intended to apply to quick frozen foods of all types which have been subjected to the process of quick freezing set out in Section III of this Code and which are offered for sale in the quick frozen state.

1.3 The recommendations are intended as a guide to assist in the production of quick frozen foods in order to maintain their quality up to the time of final sale.

SECTION II - RAW MATERIALS AND PREPARATION

2.1 Only sound and wholesome raw materials should be used for the quick freezing process. Because quick freezing cannot improve the original quality of the foods being treated, only products at an optimum level of freshness and maturity should be quick frozen.

2.2 The selected raw materials should be in prime condition when processing begins. In order to minimize the rate of natural deterioration when storage prior to processing is a necessary stage in stock holding, all raw materials should be stored, for a period dictated by actual trade and material needs, in conditions capable of maintaining a temperature range and degree of relative humidity appropriate to the raw materials concerned.

2.3 To minimize micro-biological activity pre-cooked foods intended for quick freezing should not be held in the temperature range +10°C to 60°C. They should be cooled as rapidly as possible in suitable pre-cooling equipment consistent with requirements of hygienic processing. Whilst it is desirable that cooling and quick freezing should be carried out immediately, where this is not possible the food should be held at a temperature above 60°C (140°F) until cooling and subsequent quick freezing can take place.

SECTION III - QUICK FREEZING

3.1 After preparation the product should be quick frozen without delay. The quick freezing process should be carried out in appropriate equipment in such a way as to minimize physical, biochemical and micro-biological changes.

3.2 To achieve this the freezing operation should be carried out in such a way that the range of temperature of maximum crystallization (for most products -1°C to 5°C) (+30°F to +25° F) is passed quickly.

3.3 The process should not be regarded as complete unless and until the product temperature has reached -18°C (0° F) at the thermal centre after thermal stabilization.

3.4 It would be inappropriate to indicate specific limits for freezing times and speeds, as the requirements for both differ for various foodstuffs. Where necessary, specific indications should be made in individual food standards or codes of practice.

3.5 During storage, transport and distribution up to and including the time of final sale, the product should be maintained at the temperature recommended in the following sections of this Code.

3.6 If the product is exposed to higher temperatures after quick freezing, effective measures should be taken to prevent undesirable rises in the product temperature.

3.7 The recognized practice of repackaging quick frozen products followed by the re-application of the quick freezing process should only be carried out under controlled conditions.

#### SECTION IV - STORAGE

4.1 Cold stores should be operated so as to maintain a product temperature of  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) or lower with a minimum of fluctuation.

4.2 Excessive product temperature fluctuations either in range or frequency are undesirable. They may lead to serious dehydration in susceptible products and to other forms of quality deterioration. Although temperature fluctuations are generally less harmful at lower storage temperatures, variations greater than 2 Centigrade degrees (4 Fahrenheit degrees) in the air temperature should, so far as possible, be avoided.

4.3 Frequent temperature checks should be carried out, preferably with recording thermometers or devices that will continually monitor storage temperatures.

4.4 The air velocity in cold stores should be moderate and no higher than necessary to achieve sufficiently uniform temperatures within the store.

4.5 Products should be stacked so that air circulation is not impaired. No direct contacts with the walls - except in Jacketed rooms - ceiling or floor should be allowed. The distance between the stored products and the walls, ceiling or floor should be at least 10 cm (4 in.)

4.6 A system of controlled stock rotation should be employed in cold stores.

#### SECTION V - TRANSPORT AND DISTRIBUTION

5.1 The transport of quick frozen foods intended for sale as such should be carried out in equipment capable of maintaining and so operated as to maintain a product temperature of  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) or lower. Vehicles should be pre-cooled to  $+10^{\circ}\text{C}$  ( $50^{\circ}\text{F}$ ) or lower prior to loading and should be equipped with devices to record temperatures during transport.

5.2 A temperature rise of the product during transport to  $-15^{\circ}\text{C}$  due to unforeseen circumstances may be tolerated but any product temperature higher than  $-18^{\circ}\text{C}$  should be reduced as soon as possible either during transport or immediately after delivery to  $-18^{\circ}\text{C}$ .

5.3 Loading into and unloading from vehicles and into and from stores should be as fast as practicable and the methods used should minimize product temperature rise.

5.4 Frequent temperature checks should be carried out using appropriate methods. (Methods for checking temperature of quick frozen foods are being developed).

## SECTION VI - RETAIL SALE

- 6.1 Quick frozen foods should be offered for sale from refrigerated cabinets designed for the purpose.
- 6.2 The cabinets should be capable of maintaining and be so operated as to maintain a product temperature of -18°C (0°F) and should be fitted with a thermometer.
- 6.3 A rise in product temperature may be tolerated for short periods but the product should not be allowed to become higher than -15°C (5°F) t except for the top layer where a higher temperature may be tolerated under the circumstances described in sub-section 6.4.
- 6.4 Radiant heat may result in the product temperature in the cabinet being up to 10 Centigrade degrees (18 Fahrenheit degrees) higher than the air temperature in the cabinet. Air currents should not blow directly into the refrigerated space. Cabinets should be located so that the open display area is not subjected to abnormal radiant heat (e.g. not in direct sunlight, under strong artificial light or in direct line with heaters).
- 6.5 The contents of the cabinet should never be stocked outside the load line. Stocks should not be removed from the cabinet except when absolutely necessary.
- 6.6 New Stocks should be placed in refrigerated storage immediately on receipt. Delivery should be refused of any product which is not in a condition appropriate to a quick frozen food.
- 6.7 The packaging of the food is designed to preserve quality and hygienic standards and therefore should be preserved intact up to the time of final sale. Unpacked products are subject to risks of contamination and dehydration and should not be placed in a cabinet which contains quick frozen food.
- 6.8 Foods which are not quick frozen should not be placed in a cabinet which contains quick frozen foods. Prepackaged edible ices may, however, be kept in cabinets containing quick frozen foods.
- 6.9 Stocks should be carefully rotated to ensure that the products are sold on a "First In First Out" basis.

## SECTION VII - PACKAGING

- 7.1 The packaging should be designed to:
- 7.1.1 protect the organoleptic and other quality characteristics of the product;
  - 7.1.2 protect the product against micro-biological and other contamination;
  - 7.1.3 protect as far as practicable against dehydration, heat accumulation by radiation, and, where appropriate, leakage;
  - 7.1.4 not pass on to the product any odour, taste, colour or other foreign characteristics, throughout the processing (where applicable) and distribution of the product up to the time of final sale.

## SECTION VIII - HYGIENE

- 8.1 The maintenance of good hygiene is important throughout the preparation, freezing process, transport and distribution right up to and including the time of final sale.
- 8.2 Quick frozen foods should always comply with the provisions of the General Principles of Food Hygiene and, where appropriate, with Codes of Hygienic Practice relating to particular quick frozen foods.

DRAFT STANDARD FOR QUICK FROZEN RASPBERRIES

(Returned to Step 6 of the Procedure for further comments)

1. SCOPE

This standard shall apply to quick frozen raspberries of the species Rubus idaeus L. as defined below and offered for direct consumption without further processing, except for repacking if required. It does not apply to the product when indicated as intended for further processing or for other industrial purposes.

2. DESCRIPTION

2.1 Product Definition

Quick frozen raspberries are the product prepared from fresh, clean, sound, ripe and stemmed raspberries of firm texture conforming to the characteristics of Rubus idaeus L. (red, yellow or black varieties).

2.2 Process Definition

Quick frozen raspberries are the product subjected to a freezing process in appropriate equipment and complying with the conditions laid down hereafter. This freezing operation shall be carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18C (0° F) at the thermal centre after thermal stabilization. The product shall be maintained at a low temperature such as will maintain the quality during transportation, storage and distribution up to and including the time of final sale.

The recognized practice of repacking quick frozen products under controlled conditions followed by the re-application of the quick freezing process as defined is permitted.

2.3 Presentation

2.3.1 Style

2.3.1.1 Quick frozen raspberries may be presented as free-flowing (i.e. as individual berries not adhering to one another) or non free-flowing (i.e. as a solid block).

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Optional Ingredients

Sugars (sucrose, invert sugar, dextrose, fructose, glucose syrup, dried glucose syrup).

3.2 Composition

3.2.1 Raspberries prepared with dry sugars:

The total soluble solids content of the liquid extracted from the thawed, comminuted sample shall be not more than 35% m/m nor less than 18% m/m expressed as sucrose, as determined by refractometer at 20°C.

3.2.2 Raspberries prepared with syrup:

The amount of syrup used shall be no more than that required to cover the berries and fill the spaces between them. The total soluble solids content of the liquid

extracted from the thawed, comminuted sample shall be not more than 30% m/m nor less than 15% m/m expressed as sucrose, as determined by refractometer at 20°C.

### 3.2.3 Definition of "Defective"

Any sample unit that falls outside the limits for the soluble solids range specified in 3.1.1 and 3.1.2 shall be regarded as a "defective" provided it does not exceed the limits of the range by more than 5% soluble solids.

### 3.2.4 Lot Acceptance for Composition

A lot is considered acceptable for Compositional Criteria when the number of "defectives" does not exceed the acceptance number (c) for the appropriate sample size of the "Sampling Plans for Prepackaged Foods (1969)".

## 3.3 Quality Factors

### 3.3.1 General Requirements

Quick frozen raspberries shall be:

- free from foreign flavour and odour;
- clean, practically free from sand, grit and other foreign matter;
- of good colour;
- practically free from stalks, calyces, leaves or other extraneous vegetable material;
- sound, practically free from damage or blemishes due to pathological injury or pests;
- normally developed;
- reasonably intact and not materially disintegrated;
- of similar varietal characteristics in each package;
- when presented as free-flowing, practically free from berries adhering one to another which cannot be easily separated when in the frozen state,

### 3.3.2 Analytical Characteristics

Mineral impurities (sand) - not more than 0.05% m/m on the whole product (berries and packing medium, if any).

### 3.3.3 Free-Flowing Characteristics

When presented as "free-flowing" a tolerance of 10% m/m shall be allowed for berries which are stuck together and not easily separated in the frozen state.

### 3.3.4 Definition of Visual Defects

- (a) Partially uncoloured - berries with more than 25% of the outer surface (drupelets) uncoloured
- (b) Completely uncoloured - berries that are white or green
- (c) Stalks (Cap stems) - a stalk or portions of stalk, either loose or attached to the berry, and greater than 3 mm in length
- (d) Extraneous vegetable material (EVE) - calyces or portion of calyces, leaves or other harmless extraneous vegetable material

- (e) Blemished - any damage whether due to pathological injury or pests which materially affects the appearance of the berry
- (f) Not normally developed - berries containing shrivelled parts in the fruit "flesh (drupelets)
- (g) Dissimilar varieties - berries that are significantly different in colour or shape due to varietal characteristics
- (h) Disintegrated or not intact - berries in which more than 25% of the berry is missing or berries which are crushed, broken or smashed into small pieces or flattened into a pulpy mass.

3.3.5 Tolerances for Visual Defects

Based on a sample unit of 500 gramme a of drained berry ingredient the product shall have no more than the following:

		<u>Points</u>
(a)	Particularly uncoloured . . . . .	5% m/m 5
(b)	Completely uncoloured . . . . .	1 by number 1
(c)	Stalka (Cap stems) . . . . .	3 by number 3
(d)	Extraneous vegetable Material (EVM) . . . . .	3 sq. cm. 3
(e)	Blemished . . . . .	5% m/m 5
(f)	Not normally developed . . . . .	5% m/m 5
(g)	Dissimilar Varieties . . . . .	5% m/m 5
(h)	Disintegrated - Not Intact . . . . .	35% m/m 35

The total of defects (a) through (g) must not exceed 20 points.

"Drained Berry Ingredient

- (1) Thaw the product until the berries are practically free from ice crystals and can be separated without damage.
- (2) Place the thawed product on a flat tray inclined to about a 17 angle.
- (3) Allow the syrup to drain to the lower end of the tray.
- (4) Carefully remove the berries to another tiered tray until 500 grammes are obtained to make up the standard sample unit required for the evaluation of defects.
- (5) Add to the drained berry ingredient any stalks or extraneous vegetable matter that may be found in the syrup".

3.3.6 Definition of "defective" for Quality Criteria

Any sample unit taken in accordance with the "Sampling Plans for Pre-packaged Foods (1969)" shall be regarded as a "defective" for the respective characteristics as follows:

- (a) any sample unit that exceeds the tolerance for Mineral Impurities (paragraph 3.3.2)
- (b) any sample unit that exceeds the tolerance for "free-flowing" (paragraph 3.3.3)
- (c) any sample unit that fails the Tolerances for Visual Defects (paragraph 3.3.5) in one or more of the following respects:
  - (i) the total defects (a) through (g) exceeds 20 points
  - (ii) defect (h) exceeds 35% m/m

- (iii) two or more of the individual defects (a) through (g) exceeds the individual tolerance
- (iv) a single defect (a) through (g) exceeds twice the individual tolerance <sup>1</sup>

<sup>1</sup> A single defect (a) through (g) will be permitted up to twice the amount allowed and not be a "defective" provided the total of (a) - (g) does not exceed 20 points.

### 3.3.7 Lot Acceptance for Quality Criteria

A lot is considered acceptable when the number of "defectives" as defined in paragraph 3.3.6 does not exceed the acceptance number (c) for the appropriate sample size as specified in the "Sampling Plans for Prepackaged foods (1969)".

In applying the acceptance procedure each "defective" (sub-paragraphs (a), (b) or (c) of 3.3.6) is treated individually for the respective characteristics,

#### 4. FOOD ADDITIVES

None permitted.

#### 5 HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the Codex Alimentarius Code of Hygienic Practice for Quick Frozen Fruits, Vegetables and their Juices.

#### 6. LABELLING

In addition to Sections 1,2,4 and 6 of the General Standard for the Labelling of Prepackaged Foods (Ref. No, CAC/RS 1-1969) the following specific provisions apply:

##### 6.1 The Name of the Food

6.1.1 The name of the food as declared on the label shall include "raspberries". The words "quick frozen" shall also appear on the label, except that the term "frozen" (1) may be applied in countries where this term is customarily used for describing the product processed in accordance with sub-section 2.2 of the standard.

(1) "frozen": this term is used as an alternative to "quick frozen" in some English speaking countries.

6.1.2 In addition, there shall appear on the label in conjunction with, or in close proximity to the word "raspberries": (a) a reference to the colour for varieties other than the red variety; (b) the packing medium: "with (name of sweetener and whether as such or as the syrup)".

##### 6.2 List of Ingredients

A complete list of ingredients shall be declared, in descending order of proportion in accordance with sub-section 3.2 (c) and (d) of the General Standard for the Labelling of Prepackaged Foods (1969).

##### 6.3 Net Contents

The net contents shall be declared by weight in either the metric system ("Système International" units) or avoirdupois or both systems of measurement as required by the country in which the food is sold.

##### 6.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

## 6.5 Country of Origin

6.5.1 The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

6.5.2 When the product undergoes processing in a second country which changes its nature, the country in which the processing is performed shall be considered to be the country of origin for the purposes of labelling.

## 6.6 Additional Requirements

Information for keeping and thawing of the product shall be given on retail packs.

## 6.7 Bulk Packs

In the case of quick frozen raspberries in bulk the information required in 6.1 to 6.6 must either be placed on the container or be given in accompanying documents, except that the name of the food accompanied by the words "quick frozen" (the term "frozen" may be used in accordance with sub-section 6.1.1 of this standard) and the name and address of the manufacturer or packer must appear on the container,

## 7. PACKAGING

7.1 Packaging used for quick frozen raspberries must:

7.1.1 protect the organoleptic and other quality characteristics of the product;

7.1.2 protect the product against micro-biological and other contamination;

7.1.3 protect as far as practicable against dehydration, heat accumulation by radiation, and, where appropriate, leakage;

7.1.4 not pass on to the product any odour, taste, colour or other foreign characteristics, throughout the processing (where applicable) and distribution of the product up to the time of final sale.

## 8. METHODS OF EXAMINATION, ANALYSIS AND SAMPLING

The methods of examination, analysis and sampling described hereunder are international referee methods which are to be endorsed by the Codex Committee on Methods of Analysis and Sampling.

### 8.1 Sampling

Sampling shall be carried out in accordance with the Sampling plans for Prepackaged Foods (1969).

### 8.2 Thawing Procedure

According to the FAO/WHO Codex Alimentarius Method, FAO/WHO Codex Alimentarius Standard Procedure for Thawing of Quick Frozen Fruits and Vegetables, CAC/RM 32-1970.

### 8.3 Test Procedure

Net weight determination of Frozen Fruits and Vegetables (Ref. No. CAC/RM 24-1970)

### 8.4 Analysis

8.4.1 Determination of mineral impurities, such as sand (to be elaborated).

8.4.2 Determination of total soluble solids content: According to the FAO/WHO Codex Alimentarius Method, FAO/WHO Codex Alimentarius Standard Procedure for Determination of Total Soluble Solida Content in Frozen Fruits (Ref. No. CAC/RM 36-1970).

DRAFT STANDARD FOR QUICK FROZEN SPINACH

(Returned to Step 6 of the Procedure for further comments)

1. SCOPE

This standard shall apply to quick frozen spinach of the species Spinacia oleracea L. as defined below and offered for direct consumption without further processing except for repacking if required. It does not apply to the product when indicated as intended for further processing or for other industrial purposes.

2. DESCRIPTION

2.1 Product Definition

Quick frozen spinach is the product prepared from fresh, clean, sound, edible parts of spinach which have been sorted, washed, sufficiently blanched to ensure adequate stability of colour and flavour during normal marketing cycles, properly drained and which conform to the characteristics of the species Spinacia oleracea L.

2.2 Process Definition

Quick frozen spinach is the product subjected to a freezing process in appropriate equipment and complying with the conditions laid down hereafter. This freezing operation shall be carried out in such a way that the range of temperature of maximum crystallization is passed quickly. The quick freezing process shall not be regarded as complete unless and until the product temperature has reached -18°C (0°F) at the thermal centre after thermal stabilization. The product shall be maintained at a lower temperature such as will maintain the quality during transportation, storage and distribution up to and including the time of final sale.

The recognized practice of repacking of quick frozen products under controlled conditions followed by the re-application of the quick freezing process as defined is permitted.

2.3 Presentation

2.3.1 Style

- whole spinach      whole spinach with the root cut off;
- leaf spinach:      whole leaves of spinach;
- cut leaf:            parts of leaves of spinach generally larger than 20 mm in the smallest dimension;
- chopped spinach: parts of leaves of spinach comminuted into much smaller pieces than "cut leaf";
- spinach puree:     mashed spinach

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Optional Ingredients

- salt
- condiments, such as spices and herbs

## 3.2 Quality factors

### 3.2.1 General Requirements

Quick frozen spinach shall be:

- free from foreign flavour and odour taking into consideration any seasonings added;
- clean, practically free from sand, grit and other foreign matter;
- of a normal green colour;
- practically free from extraneous vegetable material;
- sound, and for whole spinach, leaf spinach and cut leaf, practically free from leaves or parts of leaves which are discoloured;
- practically free from flower stems (seed heads), crowns, flower buds and root material, except in the case of whole spinach style where crowns may be present;
- practically free from fibrous material.

For whole spinach:

- practically free from loose leaves.

For whole spinach and leaf spinach:

- the leaves may have no more mechanical damage than caused by normal industrial processing and must be practically free from pierced leaves.

### 3.2.2 Analytical Characteristics

3.2.2.1 The total dry matter of the finished product (excluding eventually added salt), determined by drying over sand for 4 hours at 105°C should not be lower than 5.5%.

3.2.2.2 Mineral impurities (sand) - not more than 0.1% m/m on the whole product.

### 3.2.3 Definition of visual defects

- |  |   |   |
|--|---|---|
| (a) Loose leaves                           | - | leaves which are detached from the crown  |
| (b) Discoloured leaves or portions thereof | - | discolouration of any kind, which materially detracts from the appearance of the product; |
| (c) Extraneous vegetable material (EVM)    | - | harmless vegetable material such as grass, weeds, straw, etc. I                           |
| (d) Flower stems (Seed Heads)              | - | the flower bearing portion of the spinach plant, which is longer than 25 mm.;             |
| (e) Flower buds                            | - | the separate flower buds which together form the flowerhead;                              |
| (f) Crowns                                 | - | the solid area of the spinach plant between the root and the attached leaf clusters;      |
| (g) Root material                          | - | any portion of the root, either loose or attached to leaves;                              |
| (h) Fibrous material                       | - | stalks or leaves which are noticeably tough;  |
| (i) Pierced leaves                         | - | leaves with one or more holes, larger than 5 mm in any direction.                         |

### 3.2.4 Tolerances for visual defects

Based on a sample unit of 500 grammas of the thawed product, the product shall have not more than the following:

Defects		Tolerances							
		Whole spinach		leaf/cut leaf		Chopped		Puree	
			points		points		points		points
(a)	Loose leaves								
(b)	Discoloured leaves or portions thereof <sup>1</sup>			100 cm <sup>2</sup>	1	5% m/m	1	-	
(c)	E. V. M. (aggregate length)			300 mm	1	300 mm	1	-	
(d)	Flower stems			3 by number	1	-		-	
(e)	Flower buds			-		2500 by number	1	2500 by number	
(f)	Crowns			5 by number	1	1% m/m	1	-	
(g)	Root material			2 by number	1	0.5% m/m	1	-	
(h)	Fibrous material			2 by number	1	-		-	
(i)	Pierced leaves			5% m/m	1	-		-	
Total points allowed					7		5		

<sup>1</sup> For information: If one leaf measuring about 30 cm weighs 5 gr - 500 gr. corresponds with 3000 cm .

#### General remark:

Defects of all types should not materially detract from the appearance of the product. The examination for defects can be facilitated by floating the spinach in a pan of water.

### 3.2.5 Definition of "defective" for Quality Criteria

Any sample unit taken in accordance with the Sampling Plans for Prepackaged Foods (1969) shall be regarded as a "defective" for the respective characteristics as follows:

- (a) any sample unit that exceeds the tolerance for Mineral Impurities (paragraph 3.2.2.2);
- (b) any sample unit that fails the Tolerances for Visual Defects (paragraph 3.2.4) in one or more of the following respects:

	Points				
	whole	leaf	cut	chopped	puree
(i) the total defects (a) through (i) exceeds					
(ii) two or more of the individual defects (a) through (i) exceed the individual tolerance					
(iii) a single defect (a) through (i) exceeds twice the individual tolerance <sup>1</sup>					
<sup>1</sup> A single defect (a) through (i) will be permitted up to twice the amount allowed and not be a "defective" provided the total of (a) - (i) does not exceed:	•	•	•	•	•

### 3.2.6 Lot Acceptance for Quality Criteria

A lot is considered acceptable when the number of "defectives" as defined in paragraph 3.2.5 does not exceed the acceptance number (c) for the appropriate sample size as specified in the "Sampling Plans for Prepackaged Foods (1969)".

In applying the acceptance procedure each "defective" (sub-paragraph (a) or (b) of 3.2.5) is treated individually for the respective characteristics,

#### 4. FOOD ADDITIVES

None permitted.

#### 5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the Codex Alimentarius Code of Hygienic Practice for Quick Frozen Fruits, Vegetables and their Juices.

#### 6. LABELLING

In addition to Sections 1, 2, 4 and 6 of the General Standard for the Labelling of Prepackaged Foods (Ref. No. CAC/RS I-1969) the following specific provisions apply!

##### 6.1 The Name of the Food

6.1.1 The name of the food as declared on the label shall include "whole spinach", "leaf spinach", "cut leaf spinach", "chopped spinach" or "spinach puree"

The words "quick frozen" shall also appear on the label, except that the term "frozen" <sup>1</sup> may be applied in countries where this term is customarily used for describing the product processed in accordance with sub-section 2.2 of the standard.

<sup>1</sup> "Frozen": this term is used as an alternative to "quick frozen" in some English speaking countries.

##### 6.2 List of Ingredients

A complete list of ingredients shall be declared, in descending order of proportion in accordance with sub-section 3-2 (c) and (d) of the General Standard for the Labelling of Prepackaged Foods (1969).

##### 6.3 Net Contents

The net contents shall be declared by weight in either the metric system ("Système International" units) or avoirdupois or both systems of measurement as required by the country in which the food is sold.

#### 6.4 Name and Address

The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

#### 6.5 Country of Origin

6.5.1 The country of origin of the product shall be declared if its omission would mislead or deceive the consumer.

6.5.2 When the product undergoes processing in a second country which changes its nature, the country in which the processing is performed shall be considered to be the country of origin for the purposes of labelling.

#### 6.6 Additional Requirements

Information for keeping and cooking of the product shall be given on retail packs.

#### 6.7 Bulk Packs

In the case of quick frozen spinach in bulk the information required in 6.1 to 6.6 must either be placed on the container or be given in accompanying documents, except that the name of the food accompanied by the words "quick frozen" (the term "frozen" may be used in accordance with sub-section 6.1.1 of this standard) and the name and address of the manufacturer or packer must appear on the container.

### 7. PACKAGING.

7.1 Packaging used for quick frozen spinach must:

7.1.1 protect the organoleptic and other quality characteristics of the product;

7.1.2 protect the product against micro—biological and other contamination; .

7.1.3 protect as far as practicable against dehydration, heat accumulation by radiation, and, where appropriate, leakage;

7.1.4 prot pass on to the product any odour, taste, colour or other foreign characteristics, throughout the processing (where applicable) and distribution of the product up to the time of final sale

### 8. METHODS OF EXAMINATION, ANALYSIS AND SAMPLING

The methods of examination, analysis and sampling described hereunder are international referee methods which are to be endorsed by the Codex Committee on Methods of Analysis and Sampling.

#### 8.1 Sampling

Sampling shall be carried out in accordance with the Sampling Plans for Prepackaged Foods (1969).

#### 8.2 Analysis

##### 8.2.1 Determination of total dry spinach matter

(To be elaborated)

##### 8.2.2 Determination of mineral impurities, such as Band

(To be elaborated)

##### 8.2.3 Drained weight

(To be elaborated)

TECHNICAL WORKING PARTY ON TEMPERATURE PROBLEMS  
DURING TRANSPORT, STORAGE AND DISTRIBUTION OF QUICK FROZEN FOODS

Provisional Scope

The Technical Working Party should examine problems in connection with the maintaining of the temperature of quick frozen foods at a level which would maintain their quality during transport, storage and distribution up to and including the time of final sale.

Working Programme

The Technical Working Party should study in particular, in connection with the Draft Code for the Handling and Processing of Quick Frozen Foods, the following matters:

- (1) the range of fluctuations in air and product temperatures experienced in quick frozen foods in normal trade conditions during transport and distribution and factors that influence such fluctuations;
- (2) the effect on and the importance of such temperature changes in relation to product quality;
- (3) the practices used and the experience gained by food inspectors in measuring temperatures and controlling product quality;
- (4) recommended methods of temperature measurements, locations for measurements, etc. This study should be based on the information obtained under (1) and (3) above and take into consideration the U. S. delegation's Draft Method for Checking Temperature of Quick Frozen Food (CX/QFF 71/2. Appendix I);
- (5) any additional information that might be useful.