codex alimentarius commission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

WORLD HEALTH ORGANIZATION

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ALINORM 83/13

CODEX ALIMENTARIUS COMMISSION

Fifteenth Session 1983

REPORT OF THE EIGHTEENTH SESSION OF THE CODEX COMMITTEE ON FOOD HYGIENE

Washington, D.C., 22-26 February 1982

INTRODUCTION

1. The Eighteenth Session of the Codex Committee on Food Hygiene was held in the Main Conference Room, Department of State, Washington, D.C. from 22-26 February by courtesy of the Government of the United States. The Session was attended by representatives and observers from 24 countries and four international organizations (see Appendix I for list of participants). Dr. R.B. Read was Chairman of the Session.

2. The Session was opened by Dr. Robert W. Weik, Assistant to the Director, Bureau of Foods, Food and Drug Administration and U.S. Coordinator for Codex Alimentarius who welcomed participants on behalf of the Government of the U.S.A. and reviewed the future work programme of the Committee. He pointed out that there were enough active topics of major concern to the members of the Codex Alimentatius Commission to require many more sessions of the Committee. It was well recognized that member governments attached a great deal of importance to this Committee and the work to be considered at the present session would be of great service when completed. Dr. Weik noted that a Code of Hygienic Practice for the Salvaging of Damaged Canned Products and the need for a Code of Hygienic Practice for the Preparation of Pre-cooked Meals or for Catering Establishments would be considered; the Committee would also examine a code of hygienic practice for "melange" and decide whether the present Code of Hygienic Practice for Egg Products should be revised.

3. It was anticipated that future sessions of the Committee would examine microbiological criteria for shrimps and prawns, crabmeat, a Code of Practice for Cephalopods and possibly food grade fish concentrates. In addition, the Committee would be required to endorse the hygiene provisions of standards being developed by Codex Committees, particularly the new Committees on Cereals,Pulses and Legumes and on Vegetable Proteins. Codes of hygienic practice under revision, such as the Code of Hygienic Practice for Processed Meat Products, which had been re-written to incorporate the HACCP (Hazard Analysis Critical Control Point) approach would also come before the Committee.

4. Dr. Weik reminded the Committee of the priority items for microbiological criteria listed by the Second Joint FAO/WHO/UNEP Expert Consultation on Microbiological Specifications for Foods. Some of them had already been considered by Working Groups of the Committee but others, including desiccated coconut, cheese, pre-cooked frozen crabmeat and dried fruits still needed examination. Some of these products were of extreme importance to particular countries or particular regions. The Committee should continue to develop the valuable documents on Food Hygiene which had been well received by subsidiary bodies of the Commission, such as the Regional Coordinating Committees, as well as by member governments.

ADOPTION OF THE AGENDA

5. The Chairman appointed two Working Groups, one to examine Annex C to the International Code of Practice for Processed Meat Products "Sampling and Inspection Procedures for Microbiological Examination of Meat Products in Hermetically Sealed Containers" and another to consider the Code of Hygienic Practice for the Collecting, Processing and Marketing of Natural Mineral Waters and the Hygiene Section 5.2, Microbiological Requirements, of the European Regional Codex Standard for Natural Mineral Waters.

6. The agenda was adopted with a minor change to allow the reports of these Working Groups to be made at a later stage.

The Delegation of Australia expressed concern that many of the background documents to agenda items had not been available in time to allow adequate preparation of its Government's comments.

INFORMATION ON ACTIVITIES WITHIN FAO AND WHO OF INTEREST TO THE COMMITTEE

7. The Representative of WHO reviewed the activities of his Organization relating to the work of the Committee.

8. The Director-General of the World Health Organization, Dr. Mahler, during his opening address to the 14th Session in Geneva (29 June to 10 July 1981) had emphasized the importance WHO placed on the work of the FAO/WHO Codex Alimentarius Commission.

9. Various programmes of WHO (Veterinary Public Health, the Food Safety Programme, the Diarrhoeal Diseases Programme, Nutrition, the International Programme on Chemical Safety) contained food hygiene activities, as defined in the 4th Edition of the Procedural Manual of the Codex Alimentarius Commission, that is "conditions and measures necessary for the production, processing, storage and distribution of food designed to ensure a safe, sound, wholesome product fit for human consumption".

10. The World Health Assembly on 21 May 1981 had adopted the WHO/UNICEF International Code of Marketing of Breastmilk Substitutes which contained provisions recommending the application of Codex Standards and the Code of Hygienic Practice for Foods for Infants and Children to products which should meet the requirements of the Code.

11. The World Health Assembly passed a resolution requesting WHO to begin studies on the possible changes in quality, nutritional value and safety in foods for infants and young children living under adverse climatic condition - particularly in arid and tropical regions. As a result, a consultation of experts in nutrition, microbiology, food packaging and toxicology had been convened in Geneva in October 1981, who reviewed current knowledge, identified additional possible sources of information and developed a set of principles for further studies.

12. The Assembly had also requested the FAO/WHO Codex Alimentarius Commission to study fully possible steps to improve the quality standards of infant foods, and to support and promote practice of the International Code.

13. The Veterinary Public Health Department, together with FAO, continued activities directed to developing countries. A joint WHO/FAO mission had visited Rwanda and Kenya and were informed of current local slaughtering techniques and meat hygiene in rural conditions. Discussions had taken place with both national veterinary and medical authorities, particularly on the preparation of guidelines for the design and construction of simple slaughter facilities and on slaughter, meat handling and meat inspection in austere conditions. These guidelines were now in preparation and a first draft should be ready within the next few months.

14. Two practical guidelines had been issued by the Veterinary Public Health Department of WHO on Echinococcosis/Hydatidosis Surveillance, Prevention and Control and on Human Health

Risks Associated with Animals in Urban Areas; other guidelines are under preparation such as those on Surveillance of Foodborne Diseases, Control of Paralytic Shellfish Poisoning, Food Hygiene in Open-air Markets, Prevention and Control of Salmonellosis, Viruses in Foods, etc.

15. Representatives from developing countries of the Mediterranean region and medical and veterinary authorities attended the WHO Expert Consultation on Intersectorial Coordination in Food Hygiene Programmes in Lisbon, 16-18 November 1981. This meeting, organized by the WHO Mediterranean Zoonoses Control Centre, stressed the great importance of the Joint FAO/ WHO Food Standards Programme, and declared that it fully met the requirements of countries represented at the meeting.

16. In accordance with the decision of the 11th Session of the Codex Committee on Processed Meat and Poultry Products, an informal FAO consultation met in Geneva from 17-18 March 1981 and prepared a revision of the Recommended International Code of Hygienic Practice for Processed Meat Products which will be considered further by that Committee in October of this year. (See paragraphs 137 to 141 and Appendix VI).

17. The Veterinary Public Health Department maintained close contact with the International Commission on Microbiological Specifications for Food. (ICMSF). This year ICMSF had held its annual meeting in Switzerland during which time they discussed the revision of Book 2 (Sampling for Microbiological Analysis). A new version of this book was planned for publication in 1983.

18. During the meeting the further development of microbiological specifications for certain foods was discussed, including those of intefest to developing countries, in particular, dessicated coconuts. The members of the Commission agreed that specifications were needed for tree and groundnuts , recognizing that the principal hazards were mould and *Salmonella* contamination of shelled nuts. A draft of these specifications was proposed for consideration by this Committee and suggestions for further action on the subject were requested. (See also paras 159, 160).

19. The comments of countries on microbiological specifications for frozen, cooked and ready-to-eat shrimps and prawns would be considered at the next session of the Codex Committee on Fish and Fishery Products in Bergen (3-8 May 1982).

20. The report of the Working Group on Microbiological Specifications for Dried Milk and Natural Mineral Water (Washington, 1980) had been issued in English and the French and Spanish versions were under preparation.

21. A Joint FAO/WHO Expert Committee on Food Additives was convened in Geneva from 23 March to 1 April 1981 which briefly discussed the problem of hormones in food.

22. A WHO Working Group on Health Aspects of Anabolic Residues in Meat met in Bilthoven from 10-13 November 1981 and was of the opinion that the correct use and administration of exogenous natural steroid anabolic hormones posed no known public health problems to the consumer. On the other hand, it was stressed that stillbene oestrogens should not be used in animal production as anabolic agents because they were orally active, persisted in food and might have a chemical carcinogenic action. Two xenobiotic anabolic agents (trembolone acetate and zeranol) were proposed for safety evaluation by the Joint FAO/WHO Expert Committee on Food Additives.

23. Further work was done on the draft International Code of Practice for Ante-mortem and Post-mortem Judgment of Slaughter Animals and Meat. This Code was now at step 3 and would be discussed in the light of government comments by the Codex Committee on Meat Hygiene in London in October of this year.

24. WHO continued its training activities in the field of food hygiene. At the beginning of this year the second informal consultation on postgraduate training in food microbiology took place in Zeist from 12-13 January 1982. At the present time the Organization

was coordinating four courses on the subject at the University of Surrey, U.K., the Pasteur Institute in Lille, France, the FAO/WHO Collaborating Centre for Research and Training in Food Hygiene and Zoonoses (Berlin (West)), and the Food Technological Institute in Zeist, the Netherlands.

25. During discussion with the Directors of the above-mentioned courses it was stressed that an explanation of Codex Alimentarius activities should form an important part of the course and students should be introduced, not only to the general work performed in this field but also to Codes of Hygienic Practice, Standards, microbiological specifications, etc.

26. The FAO/WHO Collaborating Centre had already prepared for publication the first report of the WHO European Surveillance System on foodborne disease, which would be available in a few months time.

27. The Veterinary Public Health Department actively coordinated and participated in training courses on zoonoses for students from developing countries in Moscow, U.S.S.R. In particular, a lecture was given on prevention and control of foodborne diseases, including a detailed explanation of the objectives and scope of the Codex Alimentarius Commission's activities.

28. Further information on the activities of WHO in the field of food hygiene (particularly concerning the WHO Food Safety Programme and the International Programme on Chemical Safety) could be found in the report of the 14th Session of the Codex Alimentarius Commission.

29. The International Food Irradiation Project, had, after 10 years of extensive work, achieved its primary objective and had closed in December 1981. Nevertheless, the publications of the project entitled "Food Irradiation Information", which now constituted 11 separate volumes covering different aspects of the problem, were still available in Karlsruhe from Dr. P. Elias, Postfach 3640, 7500 Karlsruhe 1, Federal Republic of Germany. These documents contained the conclusions of the Joint FAO/IAEA/WHO Expert Committee meetings, the last of which had given clearance for the irradiation, for preservative purposes, of all foods up to a dose of 10 KGy.

30. The FAO Secretariat reported on activities complementary to the work of the Committee which were carried out by the Food Quality Control service of the Joint FAO/WHO Food Standards Programme.

These activities fell into three categories:

- Strengthening of Food Control Systems
- Food Contamination Monitoring and Control
- Improvement of Food Handling Systems

FAO had or was giving help to several countries, for example Qatar, Tunisia, Algeria, Benin and Turkey, in the development of integrated food control systems, which covered such aspects as training of personnel and strengthening of laboratory facilities. More emphasis is now given to improvement of food handling systems, including post harvest handling and storage of food and the protection of crops from contamination.

31. Several national projects for the training of personnel were in progress, for example in Kuwait, Nigeria and Zimbabwe and international courses had been held, such as those in the Central Food and Technological Research Institute (CFTRI) Mysore, India.

32. Food contamination studies have been organized, some sponsored through Norwegian-financed FAO projects, in India, Nepal, Pakistan and Sri Lanka, and others through various other funding sources, for example in Korea by the FAO Regular Programme and in six countries in Africa by FAO/UNDP/African Groundnut Council resources.

33. FAO was deeply involved in promoting technical cooperation between developing countries in food quality control and the improvement of food handling practices and had consultations for this purpose in Asia and the Pacific and among certain countries of Central America. In the Caribbean region FAO was cooperating with the Pan American Health Organization (PAHO) to develop similar projects.

34. A series of publications on food control which provided information on policies and strategies and on tecnical matters had been issued, including a Food Inspection Manual. Standard reference material for analytical purposes was also supplied to member countries.

35. In its programmes on Food Quality Control, FAO was collaborating closely with WHO so as to avoid duplication of effort.

Activities of ISO

36. Dr. I. Erdman informed the Committee that the 8th Meeting of TC 34/SC 9 was held in Paris 17-18 March 1981, with Dr. Auclair as Chairman. Nine countries and five international organizations were represented.

37. Items dealt with included: the Elevated Temperature Most Probable Number Test for *E. Coli*; a test for *Clostridium perfringens*, where, following discussions, a test recently being advocated (using elevated temperature incubation) was rejected because of basis unfamiliarity with its use and because preference was expressed for the plating method utilizing sulfite cycloserine agar as adopted by SC6 (Sub-Committee on Meat Products). A document dealing with "General Guidance for Microbiological Analysis" was further discussed and would be circulated for comments. A method for the enumeration of Enterobacteriacease was also discussed and will be circulated for comments. The incorporation of a resuscitation step in all microbiological methods was discussed but no final conclusion was reached.

38. SC9 had agreed that next year that it would attempt completion of the work in progress and in addition to develop methods for *Bacillus cerus*, for *Vibrio parahaemolyticus* and a method for the examination of canned foods.

39. The next meeting of TC34/SC9 is planned for September 27-29, 1982, in Budapest.

Status of ISO Work on Microbiological Methods

Work completed:

ISO 4831 - Microbiology - General guidance for the enumeration of coliforms - Most probable number technique at 30°C.

ISO 4832 - Microbiology - General guidance for the enumeration of coliforms - Colony count technique 30°C.

ISO 4833 - Microbiology - General guidance for the enumeration of micro-organisms - Colony count technique at 30°C

ISO 6579 - Microbiology - General guidance on methods for the detection of *Salmonella*

ISO/DIS 6887 - General guidance for the preparation of dilutions for microbiological examination

ISO/DIS 6888 - General guidance for enumeration of *Staphylococcus aureus* Colony count technique

Work in Progress:

- Standard layout for microbiological analysis
- General guidance for enumeration of presumptive Escherichia coli - Most probable number technique after incubation at 35 or 37°C then 45°C
- General guidance for enumeration of Enterobacteriacease - Most probable number technique at 37°C and colony count technique at 37°C
- General guidance for microbiological analysis
- General guidance for enumeration of presumptive *Clostridium perfringens* - Colony count technique at 35-37°C
- General guidance for enumeration of moulds and yeasts
- General guidance for enumeration of *Bacillus cereus*

To be undertaken at next meeting:

- Enumeration of *Vibrio parahaemolyticus*
- Microbiological analysis of canned foods

REVIEW OF MATTERS RELEVANT TO THE COMMITTEE AS DISCUSSED BY THE CODEX ALIMENTARIUS COMMISSION AND VARIOUS CODEX COMMITTEES

40. The Committee had available CX/FH 82/2 which was reviewed briefly by the Secretariat.

Codex Alimentarius Commission, 14th Session, June 29 - July 19, 1981

GENERAL PRINCIPLES FOR THE ESTABLISHMENT AND APPLICATION OF MICROBIOLOGICAL CRITERIA FOR FOODS

41. The Committee noted that the Commission had agreed with its recommendation to publish the criteria as a separate document as soon as possible. It also agreed that the text would be included verbatim in the next addition of the Procedural Manual.

42. The Committee noted that the other subjects considered by the Commission were on the Agenda of its present session and agreed to discuss them at the appropriate time.

ENDORSEMENT OF HYGIENE PROVISIONS IN CODEX STANDARDS

Codex Committe on Fats and Oils

Draft Standard for Fat Spreads/Spreadable Table Fats.

Codex Committee on Processed Fruits and Vegetables

Draft Standard for Canned Palmito, Canned Mangoes and Mango Chutney.

43. The Committee noted that the hygienic provisions contained in the above draft standards were identical to those already endorsed in other Standards elaborated by the respective committees and agreed to endorse these provisions.

Codex Committee on Cereals, Pulses and Legumes

Draft Standard for Maize at Step 6

44. The Committee noted that the above standard had originated from the Codex Coordinating Committee for Africa as a Regional Standard and as decided by the Commission, had been transferred to the Codex Committee for Cereals and Cereal Products for further elaboration as a worldwide standard. The original hygiene provisions of the Regional Standard had been adapted by that Committee in an attempt to cover the provisions of the scope section of this draft standard which applied to maize for direct human consumption and not to processed maize.

45. Some doubts were expressed with regard to Section 5.3 (a) which read the product "shall be free from micro-organisms in amounts which may represent a hazard to health".

46. There was difficulty in interpreting 5.3 (a) as to which organisms were concerned and under what conditions they might be considered pathogenic. It was pointed out that some micro-organisms such as *Bacillus cereas* could present a hazard to health even after cooking. In addition, the provision did not take adequate account of micro-organisms, including moulds which might develop during storage.

47. Concerning Section 5.3 (b) which read the products "shall not contain any substances originating from micro-organisms in amounts which exceed the tolerances or criteria established by the official agency having jurisdiction", the Committee noted that this text was taken from the Code of Hygienic Practice for Peanuts (Groundnuts) which also contained a proposed screening method for mould-contaminated peanuts.

48. The Committee decided that in view of the difficulty of covering the above considerations in a standard for grains, to refer the matter back to the Codex Committee for Cereals, Pulses and Legumes and to ask that Committee whether it might not be desirable to develop a General Code of Hygienic Practice for the storage of grains.

Draft Standard for Wheat Flour at Step 6

49. The Committee noted that Sections 6.2 (a) and 6.2 (b) were standard provisions in many Codex Standards which had already been endorsed. Those under 6.2 (c) requiring freedom from poisonous or deleterious substances other than those originating from micro-organisms in amounts which may represent a hazard to health, had been added because it was thought that section 3.2.4 "To the extent possible in G.M.P., the wheat flour shall be free from objectionable matter" was out of place in the hygiene section. The delegation of Australia suggested that in the Draft Standards for Wheat Flour and for Maize the provisions

should be aligned with the wording used in recently completed Codex Standards/Codes of Hygienic Practice.

50. The Committee pointed out that other wording, such as the End Product Specifications of the Codex Code of Hygienic Practice for Processing of Froglegs might, when suitably adapted, be more appropriate. The text read as follows:

> "8. Appropriate methods should be used for sampling and examination to determine the compliance with the following specifications:
>
> 8.1 Froglegs should, to the extent possible in good manufacturing practice, be free from objectionable matter and parasites.
>
> 8.2 (Froglegs) should be free from micro-organisms in amounts harmful to man, free from parasites harmful to man and should not contain any substances originating from micro-organisms in amounts which may represent a hazard to health.
>
> 8.3 (Froglegs) should be free from chemical pollutants in amounts which may represent a hazard to health.
>
> 8.4 (Froglegs) should comply with any requirements set forth by the Codex Alimentarius Commission on pesticide residues and food additives as contained in permitted lists of Codex Commodity Standards, or should comply with the requirements on pesticide residues and food additives of the country in which the (froglegs) will be sold."

51. After further discussion the Committee agreed to refer the hygiene provisions of both the Draft Standard for Maize and the Draft Standard for Wheat Flour back to the Codex Committee on Cereals, Pulses and Legumes for information on whether there were specific micro-organisms of concern in these products, in which case it might be necessary to develop microbiological methods of analysis and sampling; or whether the above suitably modified end-product specifications could be adapted as hygiene provisions in these standards.

MICROBIOLOGICAL CRITERIA IN THE CODE OF HYGIENE PRACTICE FOR FOODS FOR INFANTS AND CHILDREN

52. The Committee was informed at its 14th Session the Commission had adopted the Microbiological Specifications for Foods for Infants and Children and methods of Microbiological Analysis for Foods for Infants and Children at Step 8 of the Procedure. It was noted nevertheless that there was some concern among countries where microbiological specifications were mandatory, about including microbiological limits for pathogens in advisory texts.

53. Some delegations to the Commission had made technical comments: the delegation of Egypt had pointed out that children were more at risk to *Salmonella* infection and that the number of samples specified in the present specifications should therefore be increased. The importance of referring to the absence of *E. Coli* in coliform counts was also stressed by the Delegation. The Delegation of Poland thought that the microbiological criteria were insufficient and should, among other things, include limits for *Staphylococcus aureus*. Further written comments on the specifications had been made by the U.S.A. and Thailand.

54. With regard to the nature, mandatory or otherwise of the Specifications the Committee had decided at its previous session that in accordance with the General Principles for the Establishment and Application of Microbiological Criteria for Foods these were strictly of an advisory nature and a preface to this effect had been added to the Code.

55. Referring to the comments of the Delegation of Egypt the Committee confirmed that the specifications as they stood, reflected the conclusions and recommendations of the Second Joint FAO/WHO Expert Consultation on Microbiological Specifications for Foods (E.C. Microbiol 77/2) which, on the basis of the information available had concluded that

sufficient information on the hygienic quality of the foods concerned was obtained by enumerating the mesophilic bacteria and by performing the coliform and *Salmonella* tests.

56. The Committee noted that the method recommended for the enumeration of coliforms was ISO 4831 (Enumeration of coliforms at 30°C). Since the significance of MPN tests was well known it was agreed to delete the explanatory note 2 and associated references in the table since the method itself was referenced.

57. Concerning the opinion expressed by the delegation of Poland that specifications for *Staphyloccoccus aureus* should be included, the Committee again referred to the report of the Joint FAO/WHO Expert Consultation referred to above and to the conclusions of the Joint FAO/WHO Consultation on Monitoring Foods for Contaminants (Rome, 1974) which had stated:

> "*Clostridium perfringens*, *Staphyloccoccus aureus*, *Bacillus cereus*, *Clostridium botulinum* and *Vibrio parahaemolyticus* are microbiological contaminants to be excluded from the Programme. These species are ubiquitous in many environments and foods. None of them when found in food constitutes an imminent danger to health, although there is a potential danger, provided a certain quantitative level is attained. Such large populations of these agents are a prerequisite either because of the relatively low virulence of infectious species or for the formation of toxins. In foods handled under normal conditions, the presence of such large populations is not likely."
>
> The Committee reiterated its agreement with these conclusions.

58. The delegation of the United States referred to its comments where a comparison was made to the relative stringency of the National Academy of Sciences/National Research Council (NAS/NRC) and ICMSF sampling plans for *Salmonella* and suggested that while the sampling plans for dried and instant foods were adequate this might not be true for foods in other categories.

59. The Committee noted that ad hoc Working Group on microbiological specifications for Foods for Infants and Children had met in Berlin from 23-25 November 1976 and had thoroughly discussed the ICMSF specifications and decided to make no changes to the present text.

60. The Committeee noted that the delegation of Thailand in its comments referred to the difficulty in its country of maintaining incubation temperature of 30°C given in the ISO 4833 method for the aerobic colony count of mesophilic aerobic bacteria and in the ISO 4831 method for enumeration of coliforms. Concerning the method of analysis for *Salmonella* in ALINORM 78/13 Appendix VI, the comments pointed out that this required more culture media than the AOAC (1980) method and suggested amendments to ALINORM 78/13 Appendix VI, subsection 9.4.1 and 9.5.1.

61. The Committee recognized that often incubation temperatures of 30°C could not be maintained in tropical zones unless refrigerated incubators were available. It noted that changing the growth/incubation conditions could also change the standards but agreed that, provided alternative methods could be adequately correlated and were closely comparable to the endorsed methods, they could be used to control the microbiological criteria of the Code.

62. The delegation of Canada expressed reservations on the correctness the "M" values selected. In its opinion they seemed unnecessarily severe (see also para 99) and might result in the unwarranted rejection of some lots. It was agreed not to change the microbiological criteria already developed and endorsed by the Committee and the Commission but in cases where the method employed differed, to give details of the equivalent method used.

CONSIDERATION OF DRAFT CODE OF HYGIENIC PRACTICE FOR DRIED MILK AT STEP 7

63. The Committee had before it the above code as contained in Appendix IV to ALINORM 81/13 and decided to consider the provisions of this code section by section in the light of Government comments. Written comments had been received from Australia, New Zealand, Poland, Sweden, Switzerland, Thailand, United Kingdom and the United States, and from the IDF (CX/FH 82/5).

General

64. The Committee requested the Secretariat to align, throughout the Code, the text of those provisions which had been taken over from the General Principles of Food Hygiene with the adopted revised text of the General Principles of Food Hygiene.

Section I - Scope

65. No changes were made to this section.

Section II - Definitions

66. Sub-section 2.5: The Committee agreed with a proposal from Canada to include verbatim Articles 2 and 3 of the Code of Principles concerning Milk and Milk Products. (To be included in final version of this report).

67. Sub-section 2.9: The Swiss delegation stated that industrial heat treatment of dried milk was generally carried out at higher temperatures than those indicated in this section. The time/temperature relationship did not cover the requirements for all micro-organisms nor did it make allowance for different requirements in different countries. The delegation also expressed the view that (iii) was too general. These views were supported by several delegations. The Delegation of Canada pointed out that the Code did not include reference to the phosphatase test which would be useful in verifying proper pasteurization. The Committee recalled that this section had been thoroughly discussed at its previous session (paras. 108-110 of ALINORM 81/13) and noted, moreover, that the Milk Committee at its forthcoming session would give consideration to definitions including that of pasteurization. The outcome of the discussions by the Milk Committee would also provide advice for this Committee. The Committee offered to introduce in the meantime the following, more general, text of Section 2.9: "Pasteurization: heating at a time/temperature relationship to ensure an adequate reduction in the number of pathogenic micro-organisms of concern" and to reconsider this section in the light of the Milk Committee's discussion.

Section IV - Establishment: Design and Facilities

68. Sub-section 4.3.7: The Committee agreed to delete the last sentence of the provisions concerning windows which would bring the text into line with the relevant section of the Revised General Principles of Food Hygiene.

69. Sub-section 4.4.2.1: One delegation proposed to relocate Section 4.4.2.1 in Section 7. Others, however, felt that this provision did in fact have implications on the building design (location of pipes) and should, therefore, remain under the heading of Sanitary Facilities together with the provisions for Water Supply. The Committee did not make any change to this provision.

70. Sub-section 4.4.3: The Delegation of New Zealand proposed to substitute "to minimize any" for "to ensure no" since this would be a more realistic provision. Several delegations, however, expressed the view that since the provision was advisory, its present wording was sufficiently flexible. No change was made.

71. Sub-section 4.4.7: It was pointed out that the last word of this provision should read "drains" instead of "drums".

72. Sub-section 4.4.9: The Secretariat was instructed to bring this section in line with the Revised General Principles of Food Hygiene (Section 4.4.6).

73. Sub-section 4.5.2.3: The Delegation of Switzerland pointed out that a flow diversion valve was justified only for pasteuring liquid milk for direct sale and not for the production of milk powder and proposed therefore to delete the part of provision 4.5.2.3 dealing with the flow diversion valve. This view was supported by the Delegation of the Netherlands. The Delegation of Canada, supported by the United States and Norway, felt that for certain equipment it was indeed important to provide for a flow diversion valve. The Delegation of the United States pointed out that pump "cut out" was included in the provision as an alternative in those cases where the flow diversion valve was considered to create bacteriological problems. The Committee agreed not to change sub-section 4.5.2.3, but to extend the underlining to cover also "and liquid milk products".

74. Sub-section 4.5.2.4: The Committee discussed a proposal by Switzerland to amend this section concerning the positioning of sensors by substituting the following wording "adequate means of assessing a sufficient heat treatment for hygienic purposes should be provided". The amended text would cover the complete time/temperature profile in heat treatment. The amendment was generally supported by Canada, The Netherlands, Norway and U.S.A. It was further pointed out by these delegations that pre-heating was part of the pasteurization process and that reference to pre-heating should be deleted. The Committee agreed to retain sub-section 4.5.2.4 but to delete reference to pre-heating.

75. Sub-section 4.5.2.5: The Committee did not agree with a proposal from Switzerland to delete this section. Switzerland held the view that for hygienic reasons the use of sampling cocks could not be recommended. The Committee agreed that the provision did not refer to sampling cocks as such but to appropriate facilities in general.

76. Sub-section 4.5.4.1: The Committee noted the comment from Switzerland that air intake filters were not necessary in all cases for spray dryers and that the quality of the air as such was already covered in Section 4.4.4. The Delegation of Switzerland proposed therefore to delete the first and the last sentence of Sub-section 4.5.4.1. The Committee recognized that the air intake filters were not always necessary, but agreed to retain the provision unchanged. However, the first sentence was amended to begin with the words: "Where necessary".

77. Sub-section 4.5.4.2: The Delegation of Switzerland drew the attention of the Committee to the present text of this provision which required a complete removal of milk solids from exhaust air of dryers might create hygienic hazards. Several delegations expressed the view that milk dust from exhaust air could represent a hygienic problem by contaminating factory buildings and surroundings. The Committee agreed that the provision be changed to read as follows: "Exhaust air from dryers should be treated to remove milk solids to the extent that they will not seriously contaminate factory buildings and surroundings".

78. Sub-section 5.1.2: The Delegation of Switzerland expressed the view that the present text was too restrictive as it was limited to milk solids and to dryers only. The Committee agreed to amend that Section to read as follows: "Special attention should be paid to the maintenance of roofs, guttering and drainage in the area surrounding the exhausts of dryers and of any other processing equipment to prevent contamination of the area".

79. Sub-section 5.1.3: The Delegation of Australia proposed that in spray drying equipment cracks should be specified as "cracks that may provide a source of micro-biological contamination". The Delegation was of the opinion that other processing equipment should be mentioned in this sub-section. The latter was supported by Switzerland. The Delegation of the United States pointed out that this was included in an inspection for all cracks and the Committee agreed that escape of milk powder could result also in problems other than of a microbiological nature.

The Committee retained the present text, and included, however, reference to processing equipment.

80. Sub-section 5.2.2: The Committee agreed to delete the last sentence relating to in-place cleaning since it was recognized that depending on the design of spray dryers, in-place cleaning might increase the risk of contamination.

81. Sub-section 5.2.3: The Delegation of Switzerland expressed the view that in some instances steel wool had to be used to clean dairy equipment or utensils, and that it would therefore be preferable to delete Section 5.2.3. The Delegations of the United States and Canada were of the opinion that the section should be worded in such a way as to promote the use of alternative materials. The Delegation of the United Kingdom proposed that the provision should mention that "great care needed to be observed when using steel wool to avoid contamination with metallic particles". The Committee agreed to the following wording: "If possible, metallic cleaning materials such as steel wool should not be used in the cleaning of dairy equipment or utensils. However, where this is necessary great care should be exercised to avoid the contamination of the product with metallic particles".

82. Sub-section 5.2.4: It was pointed out that recommended rinsing temperatures depended upon the equipment and that in certain cases the use of warm water was not recommended. It was agreed to delete the part of the sentence dealing with the water temperature and to include immediately after that the following sentence: "In certain cases the use of warm water, in general with a temperature not exceeding 45 degrees centigrade, may be recommended". The last sentence was retained; however, "efficient" was deleted and replaced with "effective".

83. Sub-section 6.8: The Delegation of Australia expressed the view that this provision should also refer to Section 6.5. Several delegations pointed out that the provision concerning gloves had been taken over from the "General Principles of Food Hygiene" and the Committee decided therefore not to make any change.

84. Sub-section 7.1.2: The Delegation of Sweden felt that this was too restrictive in that it prohibited accepting contaminated milk for processing in general. The Delegation was of the opinion that it should only apply to processing of products destined for human consumption, whereas there should be no restriction for processing for other purposes, i.e., animal feeding, etc. The Committee agreed with the views expressed by the Delegation of the United States and the United Kingdom that this type of processing should in general not be done in a food establishment and not in the same plant. Sub-section 7.1.2 was retained unchanged.

85. Sub-section 7.2.5: The Delegation of Switzerland did not agree with the wording of this section which was too restrictive, especially in small factories in developing countries where more than one product had to be produced in the same factory. Processing should be permitted for other products "only if this cannot cause any hygiene risk". The Delegation of the United Kingdom drew attention to the difficulty of assessing such risks. It was agreed to substitute "same standard of hygiene" for "same hygiene requirements".

86. Sub-section 7.4.4: The Delegation of New Zealand proposed that the second sentence be amended to read "All milk and liquid products should at least undergo a pasteurization treatment prior to concentrating". The Delegation of the United States pointed out that this would not guarantee that the product had indeed been pasteurized. The Committee recalled that the definition for pasteurization was under consideration by the Milk Committee and decided to give further consideration to this matter when the definition was available from the Committee.

87. Sub-section 7.4.6: The Committee noted that the sequence of paragraph numbers was not correct in Section 7.4 of the English version. The Secretariat was requested to correct the error. The Committee also agreed that in the last sentence the appropriate term was "alternately". The Delegation of Switzerland indicated that the use of twin feed-balance

tanks should be prevented if possible as they might represent an additional hygienic risk. No maximum time limits could be given since the time intervals between cleaning depended on the conditions of use. The Committee agreed to delete the last sentence and replace it by the following wording: "If twin feed-balance tanks have to be used these should be used alternately. Feed-balance tanks should be cleaned and sterilized as often as necessary, depending on the conditions of their use".

88. Sub-section 7.4.7: The Delegation of Australia proposed the following text for this section: "Concentrated products may be transported to the drying plant, provided that they are transported under such conditions of temperature and time as will prevent development of micro-organisms and toxins during transport and provided, where necessary, they receive adequate heat treatment in accordance with sub-section 7.4.4. Records of temperature and time during transport should be kept. It should be recognized however that pasteurization reduces the number of micro-organisms but may not destroy some toxins". The Delegation of Switzerland felt it would be too restrictive to require absence of all micro-organisms and proposed to retain the present text. The Delegation of the United States pointed out that "Pasteurized" did indeed include re-pasteurization. The Delegation of Canada supported this and found the present text acceptable. The Delegation of Switzerland indicated that contamination resulting from insufficiently disinfected tanks should also be taken into consideration in addition to microbial growth. The Committee agreed to await the definition of pasteurization and to re-discuss this provision in the light of that definition at its next Session.

89. Sub-section 7.4.8: The Committee agreed to delete reference to heat treatment from this section.

90. Sub-section 7.4.10: The Committee agreed that the English text should be brought in line with the French version.

91. Sub-section 7.5.3: The Delegation of Sweden proposed to delete reference to "brushed" from this section since it was part of cleaning. This was supported by the United Kingdom. The Committee agreed to delete "brushed or".

92. Sub-section 7.7.1: The Delegation of Australia proposed an improved wording for that provision and the Committee agreed to amend Section 7.7.1 as follows: "The establishment should have access to adequate laboratory facilities to carry out routine testing needed to effect continuous control of all operations".

93. Sub-section 7.7.3: It was agreed that the introductory sentence should read: "The following should be monitored by a laboratory": It was also agreed to make specific reference to pasteurization in (iii) processing and manufacturing stages. In view of the recommendation by the Working Group on Microbiological Specifications for Dried Milk (VPH 81.32, WHO) the Committee agreed to insert a new item (xi) concerning microbiological monitoring of the environment within and immediately outside the plant. This was considered appropriate since the environmental control formed part of the operational control.

94. Sub-section 7.7.6: In view of the fact that examination other than microbiological examinations were also carried out, the Committee agreed to delete the term "microbiological".

Microbiological Criteria for Dried Milk - Annex I

95. The Committee gave further consideration to the following note in the Introductory Section of Annex I: "This proposal does not apply to dried milk products intended for use by high risk population such as infants and children, invalids and geriatrics. These are special dietary foods and therefore are not covered herein".

96. The Delegation of the United Kingdom pointed out that milk products used by elderly people did usually not differ from other milk products. Several delegations also alluded to the fact that the final consumer was often not known to the manufacturer. However, if a

product was intended to be used for infants and children, it would be useful for the manufacturer to be advised that these products were not covered by this code. The Committee decided to delete "invalids and geriatrics" from the first sentence and the whole of the second sentence from the above note.

Section I - Sampling Plans and Microbiological Limits

97. The Committee accepted a proposal from Australia for editorial amendment of certain sections pertaining to (a) *mesophilic aerobic bacteria* and (b) *coliform bacteria*. The Secretariat was instructed to include these amendments in the revised text (see Appendix II).

98. The Committee agreed to delete the square brackets from the figure of sample units in the sub-section dealing with *Salmonellae* since the figures were now judged to be acceptable.

99. The Delegation of Canada pointed out that in the selection of "M" values in three-class Acceptance Plans, the values chosen for "M" should clearly reflect at least one of the following conditions (a) product is approaching spoilage (b) product verges on being a health hazard (c) a condition of gross insanitation existed. "M" values should not be used as a measure of compliance with Good Manufacturing Practice. This was determined by the "m" and "c" values in three-class Acceptance Plans. Figures of "M" = 500,000 for mesophilic aerobic bacteria and "M" = 100 for coliform bacteria were more realistic. The Delegation of Switzerland recalled that the values of "M", as well as the whole text of this annex, were of an advisory nature and the present values had been therefore acceptable. It was also noted that these values had been examined and approved by the Expert Working Group prior to the 17th Session of this Committee and by the International Dairy Federation. The Committee decided to leave the values for "M" for mesophilic aerobic bacteria and for coliform bacteria unchanged.

100. Several delegations shared the concern expressed by Switzerland that it might not be always clearly understood that the microbiological criteria and the Codes in general were of an advisory nature and that these "M" values might be mis-used for legal enforcement purposes. The Committee recalled that an explanatory panel as to the nature of these codes had been included in the Code of Hygienic Practice for Foods for Infants and Children (Appendix VII to ALINORM 81/13) and decided to include the same panel into the Code of Hygienic Practice for Dried Milk. The Committee decided that this panel should also be included in new Codes of Hygienic Practice and be introduced into existing Codes as and when they were revised.

101. The observer from IDF drew attention to IDF's written comments and pointed out that IDF was not in agreement with not including appropriate criteria for *Staphylococcus aureus* into the document. Indeed, at its recent Annual Session, the majority of IDF had been in favour of establishing appropriate specifications for *Staphylococcus aureus*, and it was therefore proposed that this Committee might reconsider the matter at a future session. The Committee noted that his proposal had also been made by Poland in their written comments.

102. The Committee recalled that the Expert Working Group had considered this matter and a detailed report was given in Section 3.4 (Other Micro-organisms) of the report of that Group (VPH 81.32).

Number of Field Samples from a Lot

103. The Committee agreed to delete the square brackets from these figures as they were generally accepted.

Sampling Methods

104. The Committee agreed to delete the square brackets from the figure concerning the size of field samples.

105. The Delegation of the Netherlands questioned the use of an alcohol lamp, however, the Delegation of the United Kingdom commented that it had been successfully used in the United Kingdom. No change was made. The Committee agreed with the proposal from Canada to change the title to read "Equipment for Aseptic Sampling".

106. The Committee discussed at great length the meaningfulness of removing the top layer while taking the sample. It was agreed that this was done to avoid contamination from outside and the cover of the container which would not in all cases (e.g. cartons etc.) be well cleaned. The Committee decided to include after the second sentence the following new sentence: "Where possible, the container should be cleaned before sampling".

107. The observer from IDF drew attention to an existing IDF standard (50A) for sampling which had been elaborated in collaboration with ISO and AOAC. He also indicated that the reference numbers of IDF standards would be changing soon and the Secretariat would be informed accordingly.

108. The Committee agreed that the samples concerned were microbiologically stable and therefore could be stored at ambient temperatures. However, it was important to advise on the type of sample containers to be used. The Committee agreed to replace the last sentence concerning methods with the following text provided by the Representative from WHO: "samples should be stored tightly sealed at ambient temperature and analysis should take place as soon as possible after collection".

Definition of a Lot

109. Several delegations questioned whether the footnote defining "lot" was indeed appropriate for this purpose. The Delegation of Switzerland pointed out its written comments and to the definition of lot which had been elaborated by the Expert Working Group: "A lot is a quantity of food manufactured under essentially identical conditions, all packages of which should bear a marking that will allow the identification of the source(s) of raw material(s), conditions of manufacture and day of final packing". He expressed the view that the latter reflected more precisely the practice of manufacturing dried milk products. The time span between production and packaging was quite flexible.

110. It was pointed out that in the case of dried milk products, it was important to know both the dates of manufacture and packaging. The Delegation of the United Kingdom pointed out that the microbiological status of the products could not be maintained over an indefinite period of time; it should apply to a certain (determined) point after manufacture.

111. The Delegation of Canada felt that there was a significant difference between a code lot and a sampling lot. The sample lot would not necessarily consist of a single code lot only. The definition would therefore be different.

112. The Delegation of New Zealand stated that it would propose under "Other Business" that the definition of "lot" should be re-examined with a view to alignment where possible throughout Codex documents. (see para. 155).

The Committee agreed to replace the present footnote to read in para. 109 above.

Microbiological Guidelines - Sampling Plans and Microbiological Limits

113. The Committee noted that the figures in these sections had been placed in square brackets in order to obtain more information on them from governments.

114. The Delegation of Switzerland, supported by the Netherlands, New Zealand, United Kingdom and U.S.A. stressed that the circumstances in different factories were vastly different, and that therefore no generally applicable figures could be given. The Delegation proposed to delete the present section 5 entirely and replace it by the wording

elaborated by the Expert Working Group, which read as follows: "The manufacturer should define his own sampling plan for microbiological purposes and establish limits that will ensure that limits in microbiological end product specifications will be, as a minimum, achieved and preferably bettered. Special consideration should be given to monitoring the establishment samples for *Salmonella* spp. and susceptible intermediate process stages for the build-up of *Staphylococcus aureus*. The latter may be done either by monitoring for *Staphylococcus aureus* or possibly for thermonuclease".

Status of the Code

115. The Committee decided to advance the Code of Hygienic Practice for Dried Milk including Annex I to Step 8 of the Procedure. The Code and Annex I are contained in Appendix II to this report.

CONSIDERATION OF DRAFT CODE OF HYGIENIC PRACTICE FOR THE PROCESSING OF FROGLEGS AT STEP 7

116. The Committee had before it the above Code as contained in Appendix VI to ALINORM 81/13. The 14th Session of the Commission had advanced the Code to Step 6 of the Procedure. No government comments had been received on the Code.

Section II - Definitions

117. The Delegation of India pointed out that the Code applied to all species of frogs, whereas only three species were normally used for the production of froglegs. He proposed to limit Section 2.5 to these three species.

118. The Delegation of the United Kingdom, supported by the United States, indicated that there were other edible species of frogs and since the Code covered the processing of froglegs and did not constitute a standard, reference to species should not be included. The Committee agreed not to change Section 2.5.

Section III - Hygiene Requirements in Production/Harvesting Areas

119. The Delegation of India proposed to introduce into Section 3.1.1 a provision that "frogs for processing should not be caught in the breeding season".

120. The Delegation of Canada, supported by the Netherlands, noted that harvesting of frogs in the breeding season was of concern to international institutions dealing with the protection of wildlife and protection of cruelty to animals; it did however, not have any repercussions on the hygienic status of froglegs.

121. The Committee agreed with the view expressed above and recommended that the above institutions should take care of these matters. No change was made to Section 3.1.1.

Section VII - Establishment: Hygienic Processing Requirements

Sub-section 7.4.1.8

122. The Delegation of France expressed concern about the permitted content of 20-40 ppm of chlorine in water to reduce the growth of micro-organisms in the plant. He felt that this was an excessive dose from the public health point of view and could also influence the organoleptic properties of the product.

123. The Delegation of New Zealand stated that even higher amounts were used, which were usually washed out with potable water. In some countries, the residues were permitted to remain. The amount used could not result in the formation of chloramines which would affect the taste. The Delegation of the United States pointed out that froglegs were normally washed and cooked before consumption.

124. The Delegation of the United Kingdom expressed the view that chlorine in the amounts permitted did not constitute a public health problem. The Delegation of Belgium drew attention to Sub-section 7.4.1.7 which gave individual countries options as to the use of additives.

The Committee did not change Sub-section 7.4.1.8.

Status of the Code

125. The Delegation of the Netherlands expressed regret that due to the lack of comments documents progressed, as in this case, very slowly. He recommended a more intensive involvement of Regional Coordinating Committees in the development of these kinds of Codes. The Committee agreed with this view and recognized further that this was a general problem which merited further consideration.

126. The Committee advanced the Code of Hygienic Practice of the Processing of Froglegs to Step 8 of the Procedure. The Code is contained in Appendix III to this Report.

CONSIDERATION OF THE REPORT OF A WORKING GROUP ON

(A) SECTION 5.2 (MICROBIOLOGICAL REQUIREMENTS) OF THE EUROPEAN REGIONAL CODEX STANDARD FOR NATURAL MINERAL WATERS (AT STEP 9)

(B) PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR THE COLLECTING,PROCESSING AND MARKETING OF NATURAL MINERAL WATERS (AT STEP 4)

127. The Report of the Working Group was introduced by Dr. J. Corry, United Kingdom (see Appendix IV). The Committee thanked the Working Group for its valuable work, considered its valuable work, considered its recommendations and concluded as follows:

Section 5.2 (Microbiological Requirements) of the European Regional Codex Standard for Natural Mineral Waters

128. The Committee agreed with the recommendation of the Working Group to endorse temporarily the provisions for Section 5.2 (Annex 1 to Appendix IV) pending further results from testing the method for mesophilic aerobic bacteria, included in the provision, and its evaluation by a Working Group.

129. The Observer of the EEC recognized that the conclusions of the Working Group were important in that they tried to arrive at a compromise between the views expressed by the Coordinating Committee for Europe and the Expert Working Group which met prior to the previous session of this Committee. However, he pointed out that the EEC directive was limiting for member countries of the EEC.

130. The Delegation of France and the Observer from the EEC regretted that the Working Group had been conducted in English only. The Delegation of France stated that his opposition to the conclusion of the Working Group concerning the method for testing mesophilic aerobic bacteria was related to the principles that the methods concerned had not been sufficiently tested for all types of mineral waters and that the results from some of the studies had not yet been published. He recommended that further tests be carried out and their results published as soon as possible. Taking into account the existence of the EEC directive concerning natural mineral water, the Observer of the EEC considered that he was obliged to make a reservation to the proposal contained in the Working Group's report.

Proposed Draft Code of Hygienic Practice for the Collecting, Processing and Marketing of Natural Mineral Waters at Step 4

131. The Committee agreed with the amendments proposed by the Working Group as contained in Annex II to the report of the Working Group and also to the proposed wording of Section 7.2 - Sampling and Laboratory Control Procedures, contained in the same Appendix.

132. The Delegation of the Netherlands proposed to reinstate the term "domestic" in Section 5.5 since other animals were already covered by Section 5.6 - Pest Control. The Committee decided not to make any change in the wording proposed by the Working Group.

133. Concerning Section 7.4.2, the Committee agreed that the wording of the amended text could be clarified by adding that the bottles had to be cleaned and disinfected prior to rinsing.

134. The Committee noted a comment from the Delegation of France that an increasing amount of sterile containers was used for the bottling of natural mineral waters and that in France 90% of all packaging material was made from substances other than glass. Appropriate wording covering these matters should be included in this provision. The Committee agreed that this was already covered in the present provision.

Section VIII - End Product Specifications

135. The Committee agreed with the proposal by the Working Group to include Annex III as Section VIII in the Code.

Status of the Code:

136. The Committee decided to advance the amended Code of Hygienic Practice for the Collecting, Processing and Marketing of Natural Mineral Waters to Step 5 of the Procedure and requested the Secretariat to refer also to the report of the Working Group when requesting government documents. The amended Code is contained in Appendix V to this Report.

ANNEX C TO THE INTERNATIONAL CODE OF HYGIENIC PRACTICE FOR PROCESSED MEAT PRODUCTS, SAMPLING AND INSPECTION PROCEDURES FOR MICROBIOLOGICAL EXAMINATION OF MEAT PRODUCTS IN HERMETICALLY SEALED CONTAINERS

137. As previously reported (see para 5) the Committee had agreed to establish a Working Group to examine the above Annex which had not previously been referred to this Committee. The report of the Working Group, which consisted of representation of the following delegations: Canada (Chairman and Rapporteur), Australia, Denmark, Federal Republic of Germany, France, Malaysia, Netherlands, New Zealand, Norway, United Kingdom and U.S.A. was presented by the Chairman, Mr. I.E. Erdman.

138. The Working Group listed the points which, in its opinion required clarification before the document could be properly amended and recommended that these should be passed to the Codex Committee on Processed Meat and Poultry Products for its consideration.

139. The Delegation of the U.S.A. stated that other sampling plans should be examined because 200 units did not provide special significance for other sampling plans.

140. The Committee agreed that the Annex should be referred back to the Codex Committee on Processed Meat and Poultry Products for further consideration in the light of the observation of the Working Group. The report of the Working Group is attached as Appendix VI.

141. With regard to provisions for canned seam teardown, the Working Group was of the opinion that these required advance preparation for consideration at the next meeting of the Committee.

The Delegation of the U.S.A. offered to prepare such a document for examination at the next session of the Committee.

PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR THE SALVAGING OF DAMAGED CANNED GOODS

142. The Committee had available document CX/FH 82/7 containing the above Draft Code prepared by an ad hoc Working Group which had met in Washington during the week preceding

the present session of the Committee under the Chairmanship of Mr. I.E. Erdman (Canada).

143. After a short discussion the Committee agreed that the Code set forth the essential procedures for the salvaging of wholesome canned foods and decided that the Draft Code should be advanced to Step 3 of the Procedure for consideration by this Committee at its next session in the light of Government comments. The Code is attached as Appendix VII.

144. The Committee expressed its appreciation to the Working Group and to the Delegation of Canada for the successful accomplishment of a difficult task.

CODE OF HYGIENIC PRACTICE FOR THE PREPARATION OF PRE-COOKED MEALS AND FOR CATERING

145. The Committee had before it a background document on the subject which had been prepared by Mr. R.J.L. Van Havere (Belgium) as a result of discussions which took place at its previous session (see ALINORM 81/13, paras 170, 171).

146. In introducing this document, Mr. Van Havere pointed out some considerations which justified a need for such a Code. These were:

1. The time/temperature combinations during preparation and storage in, for instance, pre-cooked and chilled foods.

2. The increasing world-wide significance of mass catering.

3. The increasing variety of foods incorporated in pre-cooked meals (including the addition of raw materials such as spices, etc. after the cooking process).

4. The potential large-scale risks involved in mass catering.

147. In a brief resume of the provisions which the proposed Code might cover in addition to those of the "G.P." the following points were made:

148. The scope should be restricted to mass-catering as defined in the WHO Food and Nutrition Technology Glossary and exclude aviation catering and quick frozen meals intended for retail sale. It would include foods prepared for consumption uncooked.

Definitions should include cooked (heated) meals
cooked chilled meals
cooked frozen meals

Hygienic Requirements Establishment - Special section for catering would be required

Hygienic Processing Requirements - The following provisions would be needed:

- Raw materials
- Prevention of cross contamination
- Packaging/portioning
- Storage and transport of end product
- Sampling - Laboratory Control - End-Product Specifications

149. The Delegation of New Zealand believed that the needs of domestic airline catering, from both the animal health and public health point of view, varied from those of international airline catering as such; consideration of domestic airline catering should be included in the proposed code.

150. The Committee noted that there was strong support for the elaboration of such a code and agreed to the formation of a Working Group under the Chairmanship of Belgium which would prepare a draft Code of Hygienic Practice for consideration by the Committee at its next session. The following countries agreed to participate in the Working Group: Belgium,

Brazil, Canada, Federal Republic of Germany, Finland, The Netherlands, Norway, United Kingdom, U.S.A.

151. The Committee expressed its appreciation to the Delegation of Belgium for undertaking the preparation of the valuable background document and the Draft Code.

CODE OF HYGIENIC PRACTICE FOR "MELANGE" - REVISION OF THE CODE OF HYGIENIC PRACTICE FOR EGG PRODUCTS

152. The Committee had available the following documents: the Code of Hygienic Practice for Egg Products (CAC/RCP 15-1976) and document CX/FH 82/9 containing draft UN/ECE provisions for hygiene provisions for source material not prepared in an egg products processing establishment; and comments on the subject from the Netherlands.

153. The Committee noted that a brief discussion had taken place at its previous session (see ALINORM 81/13 para 172, 173) at which time it had been agreed that the question of revising the Code should be studied.

In the discussion that followed, it was noted that the Code as it stood excluded melange as defined in the UN/ECE document.

154. The Committee accepted an offer by the Delegation of the Netherlands to prepare a revision of the Code of Hygienic Practice for Egg Products which would include hygiene provisions for certain specific melanges and for crushing and centrifugation. The Delegation of the United Kingdom offered its assistance in the preparation of the revised Code which the Committee agreed to consider at its next session in the light of Government comments.

OTHER BUSINESS

DEFINITION OF "LOT"

155. The Delegation of New Zealand referred to its remark, made earlier during the session that there was a need to align the definitions of "lot" included in different codes of practice. The Delegation was of the opinion that for work on the codes it would be possible to achieve a uniform text. However, he also pointed out that in other cases, such as the code for dried milk there may be requirements for a somewhat different definition.

156. The Delegation of Canada expressed the view that further consideration of this matter should be extended to cover sampling lots. The lot for sampling purposes might differ according to the sources of processing of the product.

157. The Committee was informed that the definition of lot was also under consideration by other Codex Committees, i.e., by (a) the Codex Committee on Food Labelling in connection with the revision of the General Standard for the Labelling of Prepackaged Foods, (b) the Codex Committee on Processed Fruits and Vegetables in connection with the revision of the Codex Sampling Plans and (c) the Codex Committee on Methods of Analysis and Sampling in a Working Group on Sampling (other than for microbiological purposes); some of these Committees considered also a definition for "consignment".

158. The Representative of WHO informed the Committee that a glossary of pertinent definitions would also be discussed by the forthcoming WHO Expert Consultation on Food Safety.

159. The Committee was of the opinion that it would be very useful to collect all the relevant information, including that arising from the work of other Committees and instructed the Secretariat to prepare a paper for the next session summarizing the definitions of lot and related matters.

MICROBIOLOGICAL SPECIFICATIONS FOR DESICCATED COCONUT

160. The WHO Representative drew the attention of the participants to the conference room document with regard to draft recommendations of ICMSF on microbiological specifications for desiccated coconuts. It was mentioned that the Code for these products already existed and it would be reasonable to consider the possibility of elaboration of microbiological criteria for desiccated coconuts as end product specifications.

161. The Committee decided to send the Code of Hygienic Practice for Desiccated Coconuts to participating countries with the ICMSF recommendations for microbiological criteria. In addition a questionnaire would be issued asking governments to provide information on the Microbiological Specifications for Desiccated Coconut which were in force in their countries. In the light of such information the subject would be discussed in more detail at the next session of the Committee.

DATE AND PLACE OF NEXT SESSION

162. The Committee noted that the next 15th Session of the Codex Alimentarius Commission would take place in July 1983.

163. The Committee was of the opinion that in view of the heavy workload and the need for extensive background documentation that there would be insufficient time to prepare for the 19th Session of the Committee sufficiently in advance of the 15th Session of the Commission.

164. It was therefore agreed that the 19th Session of the Codex Committee on Food Hygiene would be held in autumn 1983; the exact date and place of the meeting would be fixed by agreement between the United States Government and the Codex Secretariat.

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APPENDIX I

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DRAFT CODE OF HYGIENIC PRACTICE FOR DRIED MILK

Advanced to Step 8

The following Code of Hygienic Practice is of an advisory nature. The microbiological specifications attached to it are also of an advisory nature in accordance with the General Principles for the Establishment and Application of Microbiological Criteria for Foods (Ref. ....). The specifications are intended to increase assurance that the provisions of hygienic significance have been met but should not be regarded as mandatory.

SECTION I - SCOPE

1. The Code of Practice applies to dried milk products as defined. It recommends general hygiene and technological practices for use in the handling (including the production, preparation, processing, packaging, storage, transport and distribution) of dried milk products for human consumption to ensure safe, sound and wholesome dried milk products.

SECTION II -DEFINITIONS

2. For the purposes of this Code the following expressions have the meaning stated:

2.1	Adequate	sufficient to accomplish the intended purpose of this Code
2.2	Cleaning	the removal of food residues, soil, dirt, grease or other objectionable matter
2.3	Contamination	the occurrence of any objectionable matter in the product
2.4	Disinfection	the reduction, without adversely affecting the food by means of hygienically satisfactory chemical agents and/or physical methods, of the number of micro-organisms to a level that will not lead to harmful contamination of food
2.5	Dried milk	roller dried or spray dried milk products or composite milk products as defined in Articles 2 and 3 respectively of the Code of Principles concerning Milk and Milk Products, Seventh Edition (CAC/M 1-1973) as follows:

Article 2

MILK PRODUCTS

2.1 The terms used to designate milk products shall only be employed for those products which are exclusively derived from milk as defined in Article 1.

2.2 Notwithstanding Article 2.1, the terms used for each milk product may be employed when substances necessary for the manufacturing process are added, provided that these substances are not intended to take the place in part or in whole of any milk constituent.

2.3 The terms used to designate milk products may also be used in association with a word or words to designate the type, grade, origin and/or intended use of such milk products or to describe the physical treatment or the modification in composition to which they have been subjected in accordance with Articles 1.3 and 2.2.

N.B. For the convenience of the reader, those portions of the Revised General Principles of Food Hygiene (CAC/RCP 1-1969 Rev. 1) which are applicable to this Code are written in full. Sidelined portions indicate material which is particular to this Code of Hygienic Practice.

Article 3

COMPOSITE PRODUCTS

3. The term "milk" and the terms used for milk products may also be employed together with a word or words to designate composite products of which no part takes or is intended to take the place of any milk constituent and of which milk or a milk product as referred to in Articles 1 and 2 is an essential part either by quantity or for characterization. If such composite products are designated in terms which are suggestive of milk or milk products or the dairy industry, the label shall indicate the milk or milk product used as well as the other essential constituents.

2.6	Establishment	any building(s) or area(s) in which dried milk products are prepared, processed, handled, packed or stored and the surroundings under the control of the same management
2.7	Food Handling	any operation in the production, preparation, processing, packaging, storage, transport and distribution and sale of food
2.8	Liquid milk products	except for milk, the raw materials from which dried milk products are prepared, including intermediate evaporated or concentrated products used in the process of preparing dried milk products
2.9	Pasteurization	heating: at a time/temperature relationship sufficient to ensure adequate reduction of the number of pathogenic micro-organisms of concern
2.10	Pests	

SECTION III - HYGIENE REQUIREMENTS IN THE MILK PRODUCTION AREA

Hygienic considerations in regard to milk production are not covered in this Code

For Raw Material Requirements, see Section VII of this Code

SECTION IV - ESTABLISHMENT: DESIGN AND FACILITIES

4.1 Location

Establishments should be located, in areas which are free from objectionable odours, smoke, dust or other contaminants and are not subject to flooding

4.2 Roadways and Yards

Roadways and yards serving the establishment and which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for wheeled traffic. There should be adequate drainage and provision should be made to allow for cleaning.

4.3 Buildings and Facilities

4.3.1 Buildings and facilities should be of sound construction and maintained in good repair

4.3.2 Adequate working space should be provided to allow for satisfactory performance of all operations

4.3.3 The design should be such as to permit easy and adequate cleaning and to facilitate proper supervision of food hygiene

4.3.4 The buildings and facilities should be designed to prevent the entrance and harbouring of pests and the entry of environmental contaminants such as smoke, dust, etc.

4.3.5 Buildings and facilities should be designed to provide separation, by partition, location or other effective means, between those operations which may cause cross-contamination

4.3.6 Buildings and facilities should be designed to secure hygienic operations by means of a regulated flow in the process from the arrival of the raw material at the premises to the finished product, and should provide for appropriate temperature conditions for the process and the product.

4.3.7 In food handling areas:

- Floors, where appropriate, should be of water-proof, non-absorbent, washable, non-slip and non-toxic materials, without crevices, and should be easy to clean and disinfect. Where appropriate, floors should slope sufficiently for liquids to drain to trapped outlets

- Walls, where appropriate, should be of water-proof, non-absorbent, washable and non-toxic materials and should be light coloured. Up to a height appropriate for the operation they should be smooth and without crevices, and should be easy to clean and disinfect

- Ceilings should be so designed, constructed and finished as to prevent the accumulation of dirt and minimize condensation, mould development and flaking, and should be easy to clean

- Windows and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with screens. Screens should be easily movable for cleaning and kept in good repair. Internal window sills, if present, should be sloped to prevent use as shelves

- Doors should have smooth, non-absorbent surfaces, and, where appropriate, be self-closing and close fitting

- Stairs, lift cages and auxiliary structures such as platforms, ladders, chutes, should be so situated and constructed as not to cause contamination to food. Chutes should be constructed with inspection and cleaning hatches.

4.3.8 In food handling areas all overhead structures and fittings should be installed in such a manner as to avoid contamination directly or indirectly of food and raw materials by condensation and drip, and should not hamper cleaning operations. They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould development and flaking. They should be easy to clean

4.3.9 Living quarters, toilets and areas where animals are kept, should be completely separated from and should not open directly on to food handling areas

4.3.10 Where appropriate,establishments should be so designed that access can be controlled

4.3.11 The use of material which cannot be adequately cleaned and disinfected, such as wood, should be avoided, unless its use would clearly not be a source of contamination

4.4 Sanitary Facilities

4.4.1 Water supply

4.4.1.1 An ample supply of water in compliance with section 7.3 of this Code under adequate pressure and of suitable temperature should be available with adequate facilities for its storage where necessary and distribution, and with adequate protection against contamination. The standards of potability should not be less than those contained in the latest edition of "International Standards of Drinking Water" (WHO).

4.4.1.2 Non-potable water should be carried in completely separate lines, identifiable preferably by colour, and with no cross-connection with or backsiphonage into the system carrying potable water (see also section 7.3.2). It should not be possible to connect lines carrying non-potable water to any equipment or cleaning-disinfection apparatus used in handling food. The facilities for non-potable water should be approved by the official agency having jurisdiction

4.4.2 Steam

4.4.2.1 An adequate supply of steam, or other heating medium, should be provided to ensure satisfactory operation of all heat treatment, evaporating and drying equipment during the production of dried milk products, and also provide the necessary heat for cleaning, disinfection and other operations.

4.4.2.2 Steam used in direct contact with food or food contact surfaces should contain no substances including volatile boiler water compounds which may be hazardous to health or may contaminate the food

4.4.3 Refrigeration

Sufficient refrigeration capacity should be available to chill and maintain raw and pasteurized milk and liquid milk products at a temperature sufficiently low to ensure no adverse effect on the hygienic quality of the product (see 7.4.3)

4.4.4 Air

An adequate supply of air should be provided for the drying, conveying, cooling or air-sweeping of the product. Where necessary, precautions should be taken to remove oil, moisture, dirt, micro-organisms, insects, odours and all other objectionable matter, from such air. Compressed air which comes into contact with milk products or product contact surfaces should also conform to these requirements

4.4.5 Effluent and waste disposal

Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All effluent lines (including sewer systems) should be large enough to carry peak loads and should be so constructed as to avoid contamination of potable water supplies

4.4.6 Changing facilities and toilets

Adequate, suitable and conveniently located changing facilities and toilets should be provided in all establishments. Toilets should be so designed as to ensure hygienic removal of waste matter. These areas should be well lit, ventilated and where appropriate heated and should not open directly on to food handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand cleaning preparation, and with suitable hygienic means of drying hands should be provided adjacent to toilets, and in such a position that the employee must pass them when returning to the processing area. Where hot and cold water are available,mixing taps should be provided. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near to each washing facility. Taps of a non-hand operable type are desirable. Notices should be posted directing personnel to wash hands after using the toilet.

4.4.7 Hand washing facilities in processing areas

Adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands. Where appropriate, facilities for hand disinfection should also be provided. Warm or hot and cold water and a suitable hand-cleaning preparation should be provided. Where hot and cold water are available, mixing taps should be provided. There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility. Taps of non-hand operable type are desirable. The facilities should be furnished with properly trapped waste pipes leading to drains.

4.4.8 Disinfection facilities

Where appropriate, adequate facilities for cleaning and disinfection of working implements and equipment should be provided. These facilities should be constructed of corrosion-resistant materials, capable of

being easily cleaned, and should be fitted with suitable means of supplying warm and cold water in sufficient quantities

4.4.9 Lighting

Adequate natural or artificial lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colours and the intensity should not be less than:

540 lux (50 foot candles) at all inspection points

220 lux (20 foot candles) in work rooms

110 lux (10 foot candles) in other areas

Light bulbs and fixtures suspended over food materials in any stage of production should be of a safety type and protected to prevent contamination of food in case of breakage

4.4.10 Ventilation

Adequate ventilation should be provided to prevent excessive heat, steam, condensation and dust and to remove contaminated air. The direction of the air flow should never be from a dirty area to a clean area. Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material. Screens should be easily removable for cleaning

4.4.11 Facilities for storage and disposal of waste and inedible material

Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of food, potable water, equipment, building or roadways

4.5 Equipment and Utensils

4.5.1 Materials

All equipment and utensils used in food handling areas and which may contact food should be made of material which does not transmit toxic substances, odour or taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning and disinfection. Surfaces should be smooth and free from pits and crevices. The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would clearly not be a source of contamination. The use of different materials is such a way that contact corrosion can occur should be avoided.

4.5.2 Sanitary design, construction and installation

4.5.2.1 All equipment and utensils should be so designed and constructed as to prevent hygienic hazards and permit easy and thorough cleaning and disinfection and, where practicable, be visible for inspection. Stationary equipment should be installed in such a manner as to permit easy access and thorough cleaning.

Equipment should be designed to minimize build-up of moisture of dried product in dryers, lines, bins and packaging equipment.

4.5.2.2 Containers for inedible materials and waste should be leak proof, constructed of metal or other suitable impervious material which should be easy to clean, or disposable and able to be closed securely

4.5.2.3 The equipment for pasteurizing milk and liquid milk products should be provided with a thermometer and an automatic temperature recorder, a flow diversion valve or pump "cut out" as well as a positive pump or timing device to ensure that the proper time/temperature combination is maintained

4.5.2.4 Sensors of the temperature measuring devices should be so positioned as to measure the temperature of the milk or milk products on the completion of the holding section of the pasteurizing process

4.5.2.5 Facilities for the convenient withdrawal of samples for the purpose of control of effective pasteurizing or heat-treatment should be provided where necessary

4.5.2.6 All refrigerated spaces should be equipped with temperature measurement or recording devices

4.5.3 Thermometers and Recording Devices

4.5.3.1 Thermometers which include glass in their construction should not be used in any application where glass may come into contact with milk or milk products

4.5.3.2 Thermometers, temperature recorders and similar instruments should be calibrated against a reference instrument upon installation and periodically at adequate intervals to ensure effective operation

4.5.4 Spray dryers

4.5.4.1 Where necessary, spray dryers should be equipped with adequate air intake filters. Air which is drawn into the dryer should comply with the requirements of Section 4.4.4. In direct gas-fired dryers, precautions should be taken to ensure complete combustion to prevent contamination of the product

4.5.4.2 Exhaust air from dryers should be treated to remove milk solids to the extent that they will not seriously contaminate factory buildings and surroundings

4.5.5 Equipment identification

Equipment and utensils used for inedible or discarded materials should be so identified and should not be used for edible products

SECTION V - ESTABLISHMENT: HYGIENE REQUIREMENTS

5.1 Maintenance

The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition. As far as practicable, rooms should be kept free from steam, vapour and surplus water. Storage rooms should be kept dry

5.1.2 Special attention should be paid to the maintenance of roofs, guttering

and drainage in the area surrounding the exhausts of dryers to prevent contamination of the area.

5.1.3 Spray dryers and processing equipment should be regularly inspected for cracks.

5.2 Cleaning and Disinfection

5.2.1 Cleaning and disinfection should meet the requirements of this Code. For further information on cleaning and disinfection procedures see Annex 1 to the Recommended Code of Practice - Revised General Principles of Food Hygiene.

5.2.2 To prevent contamination of food, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand.

All wet product contact surfaces should be cleaned immediately after use. Dry product contact surfaces should be dry-cleaned by a technique appropriate to the equipment concerned immediately after use, and should be wet-cleaned only as necessary. Where necessary, equipment should be disassembled for cleaning.

5.2.3 If possible metallic cleaning materials such as steel wool should not be used in the cleaning of dairy equipment or utensils. Where this, however, necessary great care should be exercised to avoid contamination of the product with metallic particles.

5.2.4 Equipment and pipelines which are cleaned in place should first be rinsed with water. In certain cases the use of warm water in general with a temperature not exceeding 45°C, may be recommended.

Spray nozzles should be examined periodically to ensure effective distribution of detergent and disinfectant.

Air filters should be checked and cleaned regularly to ensure effective performance.

5.2.5 Cleaned equipment and utensils should normally be disinfected immediately before use, by physical or chemical agents as appropriate to the equipment and the nature of the product. In the case of dry product equipment disinfection immediately before use may not always be necessary. Where chemical agents are used, the equipment should be drained and then rinsed with water in compliance with Section 7.3 of this Code (see also section 7.4.11).

5.2.6 Special clean protective clothing and shoe covers should be used by any person entering the chamber of the spray dryer for the purpose of cleaning or maintenance.

5.2.7 Adequate precautions should be taken to prevent food from being contaminated during cleaning or disinfection of rooms, equipment or utensils by water and detergents or by disinfectants and their solutions. Detergents and disinfectants should be suitable for the purpose intended and should be acceptable to the official agency having jurisdiction. Any residues of these agents on a surface which may come in contact with food should be removed by thorough rinsing with water in compliance with Section 7.3 of this Code before the area or equipment is again used for handling foods.

5.2.8 Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of food handling areas should be thoroughly cleaned.

5.2.9 Changing facilities and toilets should be kept clean at all times.

5.2.10 Roadways and yards in the immediate vicinity of and serving the premises should be kept clean.

5.3 Hygiene Control Programme

A permanent cleaning and disinfection schedule should be drawn up for each establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention. A single individual who should preferably be a permanent member of the staff of the establishment and whose duties should be independent of production, should be appointed to be responsible for the cleanliness of the establishment. He/she should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well trained in cleaning techniques.

5.4 Storage and Disposal of Waste

Waste material should be handled in such a manner as to avoid contamination of food or potable water. Care should be taken to prevent access to waste by pests. Waste should be removed from the food handling and other working areas as often as necessary and at least daily. Immediately after disposal of the waste, receptacles used for storage and any equipment which has come into contact with the waste, should be cleaned and disinfected. The waste storage area should also be cleaned and disinfected.

5.5 Exclusion of Domestic Animals

Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.

5.6 Pest Control

5.6.1 There should be an effective and continuous programme for the control of pests. Establishments and surrounding areas should be regularly examined for evidence of infestation.

5.6.2 Should pests gain entrance to the establishment, eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health resulting from the use of these agents, particularly those hazards which may arise from residues retained in the product. Such measures should only be carried out in accordance with the recommendations of the official agency having jurisdiction.

5.6.3 Pesticides should only be used if other precautionary measures cannot be used effectively. Before pesticides are applied, care should be taken to safeguard all food, equipment and utensils from contamination. After application, contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to being used again.

5.7 Storage of Hazardous Substances

5.7.1 Pesticides or other substances which may represent a hazard to health should be labelled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets, used only for that purpose, and dispensed and handled only by authorized and properly trained personnel or by persons under strict supervision of trained personnel. Extreme care should be taken to avoid contaminating food.

5.7.2 Except when necessary for hygienic or processing purposes, no substance which could contaminate food should be used or stored in food handling areas.

5.8 Personal Effects and Clothing

Personal effects and clothing should not be deposited in processing areas.

SECTION VI - PERSONNEL: HYGIENE AND HEALTH REQUIREMENTS

6.1 Hygiene Training

Managers of establishments should arrange for adequate and continuing training of every food handler in hygienic handling of food and in personal hygiene so that they understand the precautions necessary to prevent contamination of food. Instruction should include relevant parts of this Code.

6.2 Medical Examination

Persons who come in contact with food in the course of their work should have a medical examination prior to their employment if the official agency having jurisdiction, acting on medical advice, considers that this is necessary, either because of epidemiological considerations, the nature of the food prepared in a particular establishment or the medical history of the prospective food handler. Medical examination of a food handler should be carried out at other times when clinically or epideologically indicated.

6.3 Communicable Diseases

The management should take care to ensure that no person, while known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted through food or while afflicted with infected wounds, skin infections, sores or with diarrhoea is permitted to work in any food handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating food with pathogenic micro-organisms. Any person so affected should immediately report to the management that he/she is ill.

6.4 Injuries

Any person who has a cut or wound should not continue to handle food or food contact surfaces until the injury is completely protected by a waterproof covering which is firmly secured, and which is conspicuous in colour. Adequate first-aid facilities should be provided for this purpose.

6.5 Washing of Hands

Every person engaged in a food handling area should wash his/her hands frequently and thoroughly with a suitable hand cleaning preparation under running warm water in compliance with Section 7.3 of this Code while on duty. Hands should always be washed before commencing work, immediately after using the toilet,

after handling contaminated material and whenever else necessary. After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately. Notices requiring hand-washing should be displayed. There should be adequate supervision to ensure compliance with this requirement.

6.6 Personal Cleanliness

Every person engaged in a food handling area should maintain a high degree of personal cleanliness while on duty, and should at all times while so engaged wear suitable protective clothing including head covering and footwear, all of which articles should be cleanable unless designed to be disposed of and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged. Aprons and similar items should not be washed on the floor. During periods when food is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in food handling.

6.7 Personal behaviour

Any behaviour which could result in contamination of food, such as eating, use of tobacco, chewing (e.g. gum, sticks, betel nuts, etc.) or unhygienic practices such as spitting, should be prohibited in food handling areas.

6.8 Gloves

Gloves, if used in the handling of food products, should be maintained in a sound, clean and sanitary condition. The wearing of gloves does not exempt the operator from having thoroughly washed hands.

6.9 Visitors

Precautions should be taken to prevent visitors to food handling areas from contaminating food. These may include the use of protective clothing. Visitors should observe the provisions recommended in Sections 5.8 and 6.7, 6.8 of this Code.

6.10 Supervision

Responsibility for ensuring compliance with all requirements of paragraphs 5.8-6.9 inclusive should be specifically allocated to competent supervisory personnel.

SECTION VII - ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS

7.1 Raw Material Requirements

7.1.1 All milk used in the manufacture of dried milk products should have been produced under hygienic conditions in compliance with the provisions of the official agency having jurisdiction.

7.1.2 No milk which has been contamiated, or subjected to the addition of any harmful substances which render it unfit for human consumption, should be accepted for processing.

7.1.3 No milk or liquid milk product should be accepted by an establishment unless it has been derived from healthy animals. Milk from animals which have been treated with antibiotics and other drugs should be excluded for a period adequate to prevent contamination of the milk.

7.1.4 Inspection should be carried out on incoming milk and milk products to ensure that raw materials are satisfactory for processing.

7.1.5 Where necessary, laboratory tests should be made of the ingredients prior to their use.

7.1.6 Raw materials and other ingredients stored on the premises of the establishment should be maintained under conditions that will prevent spoilage, protect against contamination and minimise damage. Stocks of raw materials and ingredients should be properly rotated.

7.2 Prevention of Cross-Contamination

7.2.1 Effective measures should be taken to prevent contamination of pasteurized products by direct or indirect contact with material at an earlier stage of the process.

7.2.2 Persons handling raw milk or other raw materials or semi-processed products capable of contaminating the end product should not come into contact with any end-product unless and until they discard all protective clothing worn by them during the handling of raw materials or semi-processed products which have come into direct contact with or have been soiled by raw material or semi-processed products and they have changed into clean protective clothing.

7.2.3 If there is a likelihood of contamination, hands should be washed thoroughly between handling products at different stages of processing.

7.2.4 All equipment which has been in contact with raw materials or contaminated material should be thoroughly cleaned and disinfected before being used for contact with pasteurized products.

7.2.5 Every department in which any dried milk product is prepared, processed or stored should be used at that time only for that purpose or for the preparation of other dried milk products or products subject to the same standard of hygiene.

7.3 Use of water

7.3.1 As a general principle only potable water as defined in the latest edition of "International Standards of Drinking Water" (WHO) should be used in food handling.

7.3.2 Non-potable water may be used with the acceptance of the official agency having jurisdiction for steam production, refrigeration, fire control and other similar purposes not connected with food. However, non-potable water may, with specific acceptance by the official agency having jurisdiction, be used in certain food handling areas provided this does not constitute a hazard to health.

7.3.3 Water recirculated for re-use within an establishment should be treated and maintained in a condition so that no health hazard can result from its use. The treatment process should be kept under constant surveillance. Alternatively, recirculated water which has received no further treatment may be used in conditions where its use would not constitute a health hazard and will not contaminate either the raw material or the end product. Recirculated water should have a separate distribution system which can be readily identified. The acceptance of the official agency having jurisdiction should be required for any treatment process and for the use of recirculated water in any food process.

7.4 Processing

7.4.1 Processing should be supervised by technically competent personnel.

7.4.2 All steps in the production process, including packaging, should be performed without unnecessary delay and under conditions which will prevent the possibility of contamination, deterioration, or the development of pathogenic and spoilage micro-organisms.

7.4.3 After inspection and testing, incoming milk or liquid milk products should be processed directly or, if this is not possible, cooled to and held until processing at a temperature sufficiently low to prevent significant microbial growth. Milk which is in cans should be transferred to bulk holding tanks and cooled without delay.

7.4.4 Adequate heat-treatment facilities should be provided. All milk and liquid milk products should be pasteurized prior to concentrating.

7.4.5 The concentrated product leaving the evaporator should be fed directly to the dryer. If this is not possible for technical reasons it should be stored under such conditions of the time and temperature as will prevent development of micro-organisms and toxins during storage. If twin feed-balance tanks have to be used these should be used alternatively. Feed-balance tanks should be cleaned and sterilized as often as necessary, depending on the conditions of their use.

7.4.6 Concentrated products may be transported to the drying plant, provided that, where necessary, they are pasteurized before drying. It should be recognized however that pasteurization reduces the number of viable micro-organisms, but may not destroy some toxins.

7.4.7 A continuous chart recording should be made of all pasteurization steps, and these charts should be dated and kept available for inspection for a period that exceeds the shelf life of the product, but unless a specific need exists they need not be kept for more than two years.

7.4.8 When breakdowns or unplanned discontinuities in processing occur which disrupt the normal flow of the product, the batch should not be released for human consumption unless it is of acceptable hygienic quality. Re-processing, diversion to non-human use or additional testing may be required.

7.4.9 Dried milk products recovered from equipment and which are not obtained from the normal continuous process should not be incorporated in the end-product, unless the recovery process is such that the hygienic quality of these products is maintained.

7.4.10 Dried milk products should not come into contact with wet surfaces and equipment.

7.5 Packaging

7.5.1 All packaging material should be stored in a clean and sanitary manner. The material should be appropriate for the product to be packed and for the expected conditions of storage and should not transmit to the product objectionable substances beyond the limits acceptable to the official agency having jurisdiction. The packaging material should be sound and should provide appropriate protection from contamination.

7.5.2 Product containers should not have been used for any purpose which may lead to contamination of the product. Where practicable containers should be inspected immediately before use to ensure that they are in a satisfactory condition and where necessary cleaned and/or disinfected; when washed they should be well drained before filling. Only packaging material required for immediate use should be kept in the packing or filling area.

7.5.3 Precaution should be taken to minimise product dust and spillage. The packages should be closed immediately after filling or gassing, and the exteriors should be cleaned where necessary to remove any product dust.

7.5.4 Packaging should be done under conditions that preclude the introduction of contamination into the product.

7.5.5 Lot identification

Each container shall be permanently marked in code or in clear to identify the producing factory and the lot. A lot is a quantity of food produced under identical conditions, all packages of which should bear a lot number that identifies the production during a particular time interval, and usually from a particular "line" or other critical processing unit.

7.5.6 Processing and Production Records

Permanent, legible and dated records of pertinent processing and production details should be kept concerning each lot. These records should be retained for a period that exceeds the shelf-life of the product, but unless a specific need exists they need not be kept for more than two years. Records should also be kept of the initial distribution by lot.

7.6 Storage and Transport of the End-Product

7.6.1 The end-product should be stored and transported under such conditions as will preclude contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or damage to the container.

7.6.2 Storage should be in such a manner and in such containers as to prevent moisture absorption. During storage, periodic inspection of the product should take place to ensure that only food which is fit for human consumption is despatched and that end-product specifications should be complied with. The product should be despatched in the sequence of lot numbers.

7.7 Sampling and Laboratory Control Procedures

7.7.1 The establishment should have access to adequate laboratory facilities to carry out routine testing needed to effect continuous control of all operations.

7.7.2 Where appropriate representative samples of the production should be taken to assess the safety and quality of the product.

7.7.3 The following should be monitored by a laboratory:

(i) Incoming milk and liquid milk products

(ii) Other ingredients
(iii) Processing and manufacturing stages, including pasteurization
(iv) Cleaning and disinfection in the plant
(v) Finished products
(vi) Water quality
(vii) Calibration of instruments, for example, gauges, thermometers, etc.
(viii) Packaging materials
(ix) Air quality
(x) Steam quality
(xi) Microbiological monitoring of the environment within and immediately outside the plant.

7.7.4 Laboratory analytical procedures should preferably follow recognized or standard methods in order that the results may be readily interpreted. In many cases Codex methods are available.

7.7.5 Testing for pathogenic micro-organisms should be done within the confines of the establishment only when adequate precautions have been taken to ensure that no contamination of the product arising from the laboratory is possible.

7.7.6 The results of examination should be consistently monitored and in the event of a significant deviation from the normal characteristics appropriate action, including more detailed investigation, should be undertaken immediately.

7.7.7 The records of the examinations should be kept at each establishment for a period that exceeds the shelf-life of the product, but unless a specific need exists they need not be kept for more than two years. It would also be appropriate to retain the records of examinations relating to the various manufacturing processes. All records should be available for inspection if so required. Means of identifying batches with samples should also be provided.

7.7.8 The person in charge of hygiene control should have authority commensurate with the responsibilities associated with planning, coordinating, executing and maintaining the establishment hygiene control programme and he should have a thorough understanding of the significance of contamination and the hazards involved.

SECTION VIII - END-PRODUCT SPECIFICATIONS

8. Standard methods should be used for sampling and examination to determine the compliance with the following specifications:

8.1 To the extent possible in good manufacturing practice, the products should be free from objectionable matter.

They should not contain any substances in amounts which may represent a hazard to health.

8.2(a) When tested by appropriate methods of sampling and examination the products should be free from micro-organisms in amounts which may represent a hazard to health; and

(b) Should not contain any substances originating from micro-organisms, particularly aflatoxins, in amounts which exceed the tolerances or criteria established by the official agency having jurisdiction.

8.3 Microbiological Criteria

Dried milk should comply with the microbiological criteria in Annex I.

ANNEX I

DRAFT MICROBIOLOGICAL CRITERIA FOR DRIED MILK PRODUCTS

This draft proposal for microbiological criteria for dried milk products contains:

(1) Microbiological end-product specifications
(2) Microbiological guidelines

Note: This proposal does not apply to dried milk products intended for use by high risk populations such as infants and children.

MICROBIOLOGICAL END-PRODUCT SPECIFICATIONS

A microbiological end-product specification serves as a guide to the official agency having jurisdiction and is intended to increase assurance that the provisions of hygienic significance in the Code have been met. It may include micro-organisms which are not of direct public health significance.

1. Sampling Plans and Microbiological Limits

Salmonellae: *Salmonella* organisms should not be recovered from any of 15 sample units examined when the test is carried out according to the method described.1/ (n = 15, c = 0, m = 0).

Mesophilic Aerobic Bacteria:

When examined by the method described, mesophilic aerobic bacteria should not be recovered:

(a) in a number exceeding 200,000 per gramme from any of the five samples tested, and

(b) in a number exceeding 50,000 per gramme from more than two of the five samples tested.

(n = 5, c = 2, m = 50.000, M = 200,000)

Coliform Bacteria:

When examined by the method described, coliform bacteria should not be recovered:

(a) in a number exceeding 100 per gramme from any of the five samples tested and

(b) in a number exceeding 10 per gramme from more than one of the five samples tested .

(n = 5, c = 1, m = 10, M = 100).

1/ The method described requires sample units of 25 grammes.

2. Number of Field Samples from a Lot [1/]

Take 15 field samples, all of which are used for detection of *salmonellae*, and select at random 5 of these field samples to be examined also for mesophilic aerobic bacteria and coliform bacteria.

3. Sampling Methods

For all dried milk products take field samples of at least 200 grammes.

Equipment for aseptic sampling: Sterile trier long enough to reach to the bottom of containers to be sampled. Sterile sample containers with tight closures, sterile spoon, alcohol lamp or other burner, cotton, clean cloth or towel and water pail. Where possible the container should be cleaned before sampling.

Methods:

For small packages, randomly take one unopened package for each of the field samples required. If the net weight of the package is less than 200 g. take as many unopened packages as required to make at least 200 g. for each field sample. For larger containers, such as boxes, bags, etc., remove top layer with sterile spoon or other sterile implement, and with a sterile trier remove at least three cores from the centre, midway between the centre and the periphery, and from the periphery respectively. Aseptically transfer the cores to a sterile container. Samples should be stored tightly sealed at ambient temperature and analysis should take place as soon as possible after collection.

4. Reference Methods

4.1 Detection of *Salmonellae*

Dried whole milk, dried skin milk and similar products. The method is that of ISO (DIS 6779).

4.2 Enumeration of mesophilic aerobic bacteria

Dried whole milk, dried skin milk, dried whey and similar products. The method is the reference method of the International Dairy Federation; ref. FIL-IDF 49:1970.

4.3 Enumeration of coliform bacteria

Dried whole milk, dried skim milk, dried whey and similar products. The method is the reference method of the International Dairy Federation; ref. FIL-IDF 64:1971.

MICROBIOLOGICAL GUIDELINES

Microbiological guideline is applied at the establishment at a specified point during or after processing to monitor hygiene. It is intended to guide the manufacturer and is not to be used for official control purposes. It may include micro-organisms other than those regarded in the criteria for microbiological standards and end-product specifications.

1/ A lot is a quantity of food manufactured under essentially identical conditions, all packages of which should bear a marking that will allow the identification of the source(s) of raw material(s), conditions of manufacture and day of final packing.

5. Sampling Plans and Microbiological Limits

The manufacturer should define his own sampling plan for microbiological purposes and establish limits that will ensure that limits in microbiological end-product specifications will be, as a minimum, achieved and preferably bettered.

Special consideration should be given to monitoring the establishment smaples for *Salmonella* spp. and susceptible intermediate process stages for the build-up of *Staphylococcus aureus*. The latter may be done either by monitoring for *Staphylococcus aureus* or possibly for thermonuclease.

DRAFT CODE OF HYGIENIC PRACTICE FOR PROCESSING OF FROGLEGS

(advanced to Step 8)

See APPENDIX VI to ALINORM 81/13

ALINORM 83/13
APPENDIX IV

REPORT OF THE WORKING GROUP ON NATURAL MINERAL WATERS

1. The following countries were represented: Belgium, France, the Netherlands, New Zealand, Norway, Switzerland (Chairman), United Kingdom (Rapporteur), United States of America, the EEC and IDF were present as observers.

2. The Representatives from the countries of the European Community were present only in their personal capacities as scientific experts. They did not represent the official EEC point of view with regard to the areas covered by the EEC Directive on Natural Mineral Waters.

Hygiene Section 5.2 (Microbiological Requirements) of the European Regional Codex Standard for Natural Mineral Waters

3. The Working Group had before it the proposal for Section 5.2 prepared by Switzerland on behalf of the Coordinating Committee for Europe (CX/FH 82/3). The Working Group agreed that advisory microbiological limits should be inserted into the European Regional Standard. These would not be mandatory, but recommendations only, and should receive only temporary endorsement. They will be reconsidered after about 2-3 years, i.e. after the proposed meeting of the Working Group (see para. 7).

4. It was agreed to recommend that two tests should be applied at the marketing stage: 1) no aerobic microbes in 5 x 250 ml, counted on diluted plate count agar at 42°C after 48 hours; 2) no coliforms in 5 x 250 ml at 37°C (see Annex I).

5. It was not recommended to look for any of the other possible organisms (E. Coli, faecal streptococci, sporulated sulphite-reducing anaerobes or Pseudomonas aeruginosa). This followed the conclusions of the Fourth FAO/WHO Working Group on Dried Milk Products and Natural Mineral Waters (VPH/81.32).

6. The EEC Observer and the Representative from France were not in agreement with this recommendation. They considered that the plate count at 42°C should not be included because it had not been sufficiently tested. They considered that at least tests for sulphite-reducing anaerobes and Pseudomonas aeruginosa should be included, as well as a test for coliforms.

7. It was also agreed that any interested countries with established mineral water industries as well as the International Commission for Microbiological Specifications for Foods should be asked to try the proposed tests and report at a future meeting of a Working Group which should be called if possible before one of the future meetings of the Food Hygiene Committee.

Government Comments on the Draft Code of Hygienic Practice for the Collecting, Processing and Marketing of Natural Mineral Waters

8. The Working Group had before it government comments received from Switzerland, Thailand, United Kingdom and the United States on the above draft code as contained in Appendix III to ALINORM 81/13 (CX/FH 82/3).

9. The Working Party suggested the following changes:

3.3 Insert before "Areas wherein natural mineral water .....". "If possible areas wherein.....".

3.4 Change the first sentence to read:

"All possible precautions should be taken within the protected perimeters to avoid any pollution or external influence on the chemical and physical qualities of natural mineral water". In the second sentence, change "It is necessary" to "It is recommended".

4.2 Last sentence. Change "Adequate road signals should" to "Adequate road signals may".

5.5 Delete "domestic" from the heading. Change the wording to: "All possible measures should be taken to exclude animals from establishments".

7.4 Change the heading from "Packaging" to "Packaging material and containers".

7.4.1 and 7.4.2 Transfer the final sentence of 7.4.2 to the end of 7.4.1.

7.4.2 Completely reword (excluding final sentence) as follows:

"Product containers should not have been used for any purpose that may lead to contamination of the product. Used containers, and also new containers if there is a possibility that they have been contaminated, should be cleaned and disinfected. When a chemical disinfectant is used the containers should be rinsed as prescribed under 5.2.3. Containers should be well drained after rinsing. Used and, when necessary, unused containers should be inspected immediately before filling".

7.4.3 and 7.5 Change 7.4.3 to "7.5.1" and 7.5 to "7.5.2". Insert a new heading for both paragraphs: "7.5 Filling and Sealing of Containers".

7.10 Sampling and Laboratory Control Procedures

10. The Working Party suggests that testing for faecal contamination and for *Pseudomonas aeruginosa* should be part of the guidelines and should be carried out in the water at the source and at critical control points. At present there are no standard methods for parasites, but it will be possible in future to test for organisms such as *Giardia*. It is not necessary at this point to carry out a total count at 42°C, but total counts at 20-22°C and 37°C can be made. The suggested wording for Section 7.10 is included in Annex II.

Section VIII - End-Product Specifications

11. The Working Party suggests that the end-product specifications should be the same as those proposed for the European Regional Standard for Natural Mineral Waters (see para.4). The suggested draft for Section VIII is included in Annex III.

ANNEX I

REGIONAL EUROPEAN STANDARD FOR NATURAL MINERAL WATERS

5. HYGIENE

5.1 It is recommended that the products covered by the standard should be prepared in conformity with the applicable sections of the General Principles of Food Hygiene (Ref. No. CAC/RCP 1-1969, Rev. 1).

5.2 Microbiological requirements

At the marketing stage and during marketing:

(1) no aerobic microbes should be found in 5 x 250 ml, counting on 10 times diluted plate count agar medium at 42°C for 48 hours (n = 5 (x250ml), c = 0, m = 0);

(2) no coliform organisms should be found in 5 x 250 ml incubating at 37°C (n = 5 (x250 ml), c = 0, m = 0).

Methodology for the verification of microbiological tests

(1) ISO Method 4833 modified (using 42°C incubation and 10 times diluted plate count agar) see VPH/81.2 Appendix 2.

(2) ISO Method 4831 modified to examine 5 x 250 ml.

ANNEX II

7.10 Sampling and Laboratory Control Procedure

The following are intended as guidelines for testing the water at the source and at critical control points:

Natural mineral water should contain no parasites and should be free from:

	Incubation Temperature	n	c	m	Method
1. Coliforms	37°C	5 (x250 ml)	0	0	ISO methods if they exist; otherwise to be elaborated
2. Faecal streptococci	37°C	5 (x250 ml)	0	0	
3. Spore-forming sulphite-reducing anaerobic bacteria	42°C	5 (x250 ml)	0	0	
4. *Pseudomonas aeruginosa*	42°C	5 (x250 ml)	0	0	
5. Aerobic microbial counts; the maximum permissible total aerobic counts per millilitre at 20-22°C and 37°C depend on the unique characteristics of the source and should be fixed by the authority having jurisdiction.					

ANNEX III

SECTION VIII - END-PRODUCT SPECIFICATIONS

After bottling natural mineral water should be free from:

	Incubation Temperature	n	c	m	Method
1. Coliforms	37°C	5 (x250 ml)	0	0	as for European Regional Standard (see Annex I)
2. Aerobic microbes capable of multiplying on x 10 diluted plate count agar	42°C	5 (x250 ml)	0	0	

DRAFT CODE OF HYGIENIC PRACTICE FOR THE COLLECTING, PROCESSING AND MARKETING OF NATURAL MINERAL WATER

(at Step 5)

SECTION I - FIELD OF APPLICATION

This code recommends appropriate general techniques for collecting natural mineral water, its treatment, bottling, packaging, storage, transport, distribution and sale for direct consumption, so as to guarantee a safe, healthy and wholesome product.

SECTION II - DEFINITIONS

2.1 For the purposes of this code the following expressions have the meaning stated:

2.1.1 Natural mineral waters - all waters meeting the requirements of the European standard for Natural Mineral Waters (CAC/RS 108-1979).

2.1.2 Adequate - sufficient to accomplish the intended purpose of this code.

2.1.3 Cleaning - the removal of soil, food residues, dirt, grease or other objectionable matter.

2.1.4 Contamination - the occurrence of any objectionable matter in the product.

2.1.5 Disinfection - the reduction, without adversely affecting the natural mineral water, by means of hygienically satisfactory chemical agents and/or physical methods, of the number of micro-organisms to a level that will not lead to harmful contamination of natural mineral water.

2.1.6 Establishment - any building(s) or area(s) in which natural mineral water is handled after collection and the surroundings under the control of the same management.

2.1.7 Handling of natural mineral water - any manipulation with regard to collecting, treating, bottling, packaging, storing, the transport, distribution and sale of natural mineral water.

2.1.8 Food Hygiene - all measures necessary to ensure the safety, soundness and wholesomeness of natural mineral water at all stages from its growth, production or manufacture until its final consumption.

2.1.9 Packaging Material - any containers such as cans, bottles, cartons, boxes, cases, or wrapping and covering material such as foil, film, metal paper and wax-paper.

2.1.10 Pests - any animals capable of directly or indirectly contaminating natural mineral water.

2.1.11 Containers - any bottle, carton, can or other container to be filled with natural mineral water, properly labelled and intended for sale.

2.1.12 Aquifers - any solid permeable mass of rocks (layer) containing natural mineral water.

2.1.13 Spring - any natural mineral water discharging genuinely from the ground.

SECTION III - PRESCRIPTIONS OF THE RESOURCES OF NATURAL MINERAL WATERS

A. Protection of alimentary reservoirs and aquifers

3.1 Authorization

Any spring, well or drilling intended for the collection of natural mineral water should be approved by the offficial authority having jurisdiction for this region.

3.2 Determination of the genesis of natural mineral water

As far as it is methodologically possible in each case, a precise analysis should be carried out on the origin of natural mineral waters, the period of their residence in the ground before being collected and their chemical and physical qualities.

3.3 Perimeter of protection

If possible areas wherein natural mineral water might be polluted or its chemical and physical qualities otherwise deteriorated should be determined by a hydrologist. Where indicated by hydrogeological conditions and considering the risks of pollution and physical, chemical and biochemical reactions, several perimeters with separate dimensions may be provided for.

3.4 Protective measures

All possible precautions should be taken within the protected perimeters to avoid any pollution of external influence of the chemical and physical qualities of natural mineral water.

It is recommended that regulations be established for the disposal of liquid, solid or gaseous waste, the use of substances that might deteriorate natural mineral water (by agriculture e.g.) as well as for any possibility of accidental deterioration of natural mineral water by natural occurrences such as a change in the hydrogeological conditions. Particular consideration should be given to the following potential pollutants: bacteria, viruses, fertilizers, hydrocarbons, detergents, pesticides, phenolic compounds, toxic metals, radioactive substances and other soluble organic or inorganic substances. Even where nature provides apparently sufficient protection against surface pollution, potential hazards should be taken into consideration, such as mining, hydraulic and engineering facilities etc.

B. Hygiene prescriptions for the collection of natural mineral water

3.5 Extraction

The withdrawal of natural mineral water (from springs, galleries, genuine or drilled wells) must be performed in conformity with the hydrogeological conditions in such a manner as to prevent any other than the natural mineral water from entering, or, should there be pumping facilities, prevent any extraneous water from entering by reducing the supply. The natural mineral water thus collected or pumped should be protected in such a way that it will be safe from pollution whether caused by natural occurrence or actions of neglect or ill will.

3.6 Materials

The pipes, pumps or other possible devices coming into contact with natural mineral water and used for its collection should be made of such material as to guarantee that the original qualities of natural mineral water will not be changed.

3.7 Protection of the extraction area

In the immediate surroundings of springs and wells, precautionary measures should be taken to guarantee that no pollutant whatsoever can enter the extraction area, that is, an area surrounding the source within a radius of about 60 m. The extraction areas to be established therefore should at least be identical with the areas allocated at the time of construction. These extraction areas should be inaccessible to non-authorized people by providing adequate devices (e.g. enclosure). Any use not aiming at the collection of natural mineral water should be forbidden in these areas.

3.8 The exploitation of natural mineral water

The condition of the extraction facilities, areas of extraction and perimeters of protection as well as the quality of the natural mineral water should periodically be checked. Should the extraction facilities not guarantee a clear separation of natural mineral water from other waters and should such a separation only be obtainable from pumping stations by limiting the withdrawal, the latter should be adapted to the yielding capacity of natural mineral water. To control the stability of the chemical and physical particulars of the natural mineral water derived - besides the natural variations - automatic measurements of the typical characteristics of water should be carried out and notified (e.g. electrical conductance, temperature, content of carbon dioxide) or frequent partial analyses should be done.

C. Maintenance of extraction facilities

3.9 Technical aspects

Methods and procedures for maintaining the extraction facilities should be hygienic and not be a potential health hazard to humans or a source of contamination to natural mineral water. From the hygiene standpoint, servicing of the extraction installations should meet the same standards as those required for the bottling or treatment.

3.10 Equipment and reservoirs

Equipment and reservoirs used for extraction of natural mineral water should be constructed and maintained in order to minimize all hazards to human health and to avoid contamination.

3.11 Storage at the point of extraction

The quantity of natural mineral water stored at the point of extraction should be as low as possible. The storing should furthermore guarantee protection against contamination or deterioration.

D. Transport of natural mineral water

3.12 Means of transport, piping and reservoirs

Any vehicle, piping or reservoir used in the processing of natural mineral water from its source to the bottling facilities, the latter included, should comply with the necessary requirements and be made of inert material such as ceramic and stainless steel which prevents any deterioration, be it by water, handling, servicing or disinfection; it should allow easy cleaning.

3.13 Maintenance of vehicles and reservoirs

Any vehicle or reservoir should be properly cleaned and if necessary disinfected

and kept in good repair so as not to prevent any danger of contamination to natural mineral water and of deterioration of the essential qualities of natural mineral water.

SECTION IV - ESTABLISHMENT FOR /TREATMENT/ AND BOTTLING OF NATURAL MINERAL WATER - DESIGN AND FACILITIES

4.1 Location

Establishments should be located in areas which are free from objectionable odours, smoke, dust or other contaminants and are not subject to flooding.

4.2 Roadways and areas used by wheeled traffic

Such roadways and areas serving the establishment which are within its boundaries or in its immediate vicinity should have a hard paved surface suitable for wheeled traffic. There should be adequate drainage and provision should be made for protection of the extraction area in accordance with sub-section 3.7 where appropriate and to allow for cleaning. Adequate road signals may be provided to call the attention of road users to the existence of a natural mineral water extraction area.

4.3 Buildings and Facilities

4.3.1 Type of construction

Buildings and facilities should be of sound construction and maintained in good repair.

4.3.2 Disposition of holding facilities

Rooms for recreation, for storing or packaging of raw material and areas for the cleaning of containers to be re-used should be apart from the bottling areas to prevent the end-product from being contaminated. Raw and packaging materials and any other additions which come into contact with natural mineral water should be stored apart from other material.

4.3.3 Adequate working space should be provided to allow for satisfactory performance of all operations.

4.3.4 The design should be such as to permit easy and adequate cleaning and to facilitate proper supervision of food hygiene.

4.3.5 The buildings and facilities should be designed to provide separation by partition, location or other effective means between those operations which may cause cross-contamination.

4.3.6 Buildings and facilities should be designed to facilitate hygienic operations by means of a regulated flow in the process from the arrival of the natural mineral water at the premises to the finished product, and should provide for appropriate temperature conditions for the process and the product.

4.3.7 Natural mineral water handling, storing and bottling areas

- Floors, where appropriate, should be of water-proof, non-absorbent, washable, non-slip and non-toxic materials, without crevices, and should be easy to clean and disinfect. Where appropriate, floors should slope sufficiently for liquids to drain to trapped outlets.

- Walls, where appropriate, should be of water-proof, non-absorbent, washable and non-toxic materials and should be light coloured. Up to a height appropriate for the operation they should be smooth and without crevices, and should be easy to clean and disinfect. Where appropriate, angles between walls, between walls and floors, and between walls and and ceilings should be sealed and coved to facilitate cleaning.

- Ceilings should be so designed, constructed and finished as to prevent the accumulation of dirt and minimize condensation, mould development and flaking, and should be easy to clean.

- Windows and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with screens Screens should be easily movable for cleaning and kept in good repair. Internal window sills, if present, should be sloped to prevent use as shelves.

- Doors should have smooth, non-absorbent surfaces and, where appropriate, be self-closing and close fitting.

- Stairs, lift cages and auxiliary structures such as platforms, ladders, chutes, should be so situated and constructed as not to cause contamination to food. Chutes should be constructed with inspection and cleaning hatches.

- Piping for natural mineral water lines should be independent of potable and non-potable waters.

4.3.8 In natural mineral water handling areas all overhead structures and fittings should be installed in such a manner as to avoid contamination directly or indirectly of natural mineral water and raw materials by condensation and drip, and should not hamper cleaning operations. They should be insulated where appropriate and be so designed and finished as to prevent the accumulation of dirt and to minimize condensation, mould development and flaking. They should be easy to clean.

4.3.9 Living quarters, toilets and areas where animals are kept should be completely separated from and should not open directly on to natural mineral water handling areas.

4.3.10 Where appropriate, establishments should be so designed that access can be controlled.

4.3.11 The use of material which cannot be adequately cleaned and disinfected, such as wood, should be avoided unless its use would clearly not be a source of contamination.

4.3.12 Canalisation, drainage lines

Canalisation and drainage and used water lines as well as any possible waste storage area within the protected perimeter should be built and maintained in such a manner as not to present any risk whatsoever of polluting aquifers and springs.

4.3.13 Fuel storage area

Any storage area or tank for the storing of fuels such as coal or hydrocarbons should be designed, protected, controlled and maintained in such a manner as not to present a risk of aquifers and springs being polluted during the storage and manipulation of these fuels.

4.4 Hygiene Facilities

4.4.1 Water supply

4.4.1.1 An ample supply of potable water in compliance with Section 7.3 of the Codex Code of Practice - General Principles of Food Hygience (CAC/RCP1 1969 Rev. 1) under adequate pressure and of suitable temperature should be available with adequate facilities for its storage, where necessary, and distribution, and with adequate protection against contamination. The standards of potability should not be less than those contained in the latest edition of "International Standards of Drinking Water" (WHO).

4.4.1.2 Natural mineral water, potable water, non potable water for steam production or for refrigeration or any other use should be carried in completely separate lines with no cross connection between them and without back siphonage. It would be desirable that these lines be identified by different colours. Steam used in direct contact with food and food contact surfaces should contain no substances which may be hazardous to health or may contaminate the food.

4.4.2 Effluent and waste disposal

Establishments should have an efficient effluent and waste disposal system which should at all times be maintained in good order and repair. All effluent lines (including sewer systems) should be large enough to carry peak loads and should be so constructed as to avoid contamination of potable water supplies.

4.4.3 Changing facilities and toilets

Adequate, suitable and conveniently located changing facilities and toilets should be provided in all establishments. Toilets should be so designed as to ensure hygienic removal of waste matter. These areas should be well lit, ventilated and where appropriate heated, and should not open directly on to natural mineral water handling areas. Hand washing facilities with warm or hot and cold water, a suitable hand-cleaning preparation, and with suitable hygienic means of drying hands, should be provided adjacent to toilets and in such a position that the employee must pass them when returning to the processing area. Where hot and cold water are available mixing taps should be provided. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near to each washing facility. Care should be taken that these receptacles for used paper towels are regularly emptied. Taps of a non-hand operable type are desirable. Notices should be posted directing personnel to wash their hands after using the toilet.

4.4.4 Hand washing facilities in natural mineral water processing areas

Adequate and conveniently located facilities for hand washing and drying should be provided wherever the process demands. Where appropriate, facilities for hand disinfection should also be provided. Warm or hot and cold water and a suitable hand-cleaning preparation should be provided. Where hot and cold water are available mixing taps should be provided. There should be suitable hygienic means of drying hands. Where paper towels are used, a sufficient number of dispensers and receptacles should be provided adjacent to each washing facility. Taps of a non-hand operable type are desirable. The facilities should be furnished with properly trapped waste pipes leading to drains.

4.4.5 Disinfection facilities

Where appropriate, adequate facilities for cleaning and disinfection of working implements and equipment should be provided. These facilities should be constructed of corrosion resistant materials, capable of being easily cleaned, and should be fitted with suitable means of supplying hot and cold water in sufficient quantities.

4.4.6 Lighting

Adequate natural or artificial lighting should be provided throughout the establishment. Where appropriate, the lighting should not alter colours and the intensity should not be less than:

540 lux (50 foot candles) at all inspection points
220 lux (20 foot candles) in work rooms
110 lux (10 foot candles) in other areas.

Light bulbs and fixtures suspended over natural mineral water in any stage of production should be of a safety type and protected to prevent contamination of natural mineral water in case of breakage.

4.4.7 Ventilation

Adequate ventilation should be provided to prevent excessive heat, steam condensation and dust and to remove contaminated air. The direction of the air flow should never be from a dirty area to a clean area. Ventilation openings should be provided with a screen or other protecting enclosure of non-corrodible material. Screens should be easily removable for cleaning.

4.4.8 Facilities for storage of waste and inedible material

Facilities should be provided for the storage of waste and inedible material prior to removal from the establishment. These facilities should be designed to prevent access to waste or inedible material by pests and to avoid contamination of natural mineral water, potable water, equipment, buildings or roadways on the premises.

4.5 Equipment and Utensils

4.5.1 Materials

All equipment and utensils used in natural mineral water handling areas and which may contact the natural mineral water should be made of material which does not transmit toxic substances, odour or taste, is non-absorbent, is resistant to corrosion and is capable of withstanding repeated cleaning and disinfection. Surface should be smooth and free from pits and crevices. The use of wood and other materials which cannot be adequately cleaned and disinfected should be avoided except when their use would clearly not be a source of contamination. The use of different materials in such a way that contact corrosion can occur should be avoided.

4.5.2 Hygienic design, construction and installation

4.5.2.1 All equipment and utensils should be so designed and constructed as to prevent hygienic hazards and permit easy and thorough cleaning and disinfection.

SECTION V - ESTABLISHMENT: HYGIENE REQUIREMENTS

5.1 Maintenance

The buildings, equipment, utensils and all other physical facilities of the establishment, including drains, should be maintained in good repair and in an orderly condition. As far as practicable, rooms should be kept free from steam, vapour and surplus water.

5.2 Cleaning and Disinfection

5.2.1 Cleaning and disinfection should meet the requirements of this code. For further information on cleaning and disinfection procedures see Annex I, Revised Recommended International Code of Practice - General Principles of Food Hygiene (CAC/RCP 1-1969, Rev. 1).

5.2.2 To prevent contamination of natural mineral water, all equipment and utensils should be cleaned as frequently as necessary and disinfected whenever circumstances demand.

5.2.3 Adequate precautions should be taken to prevent natural mineral water from being contaminated during cleaning or disinfection of rooms, equipment or utensils, by water and detergents or by disinfectants and their solutions. Detergents and disinfectants should be suitable for the purpose intended and should be acceptable to the official agency having jurisdiction. Any residues of these agents on a surface which may come in contact with natural mineral water should be removed by thorough rinsing with water in compliance with 7.3 of the Recommended Code of Hygienic Practice - General Principles of Food Hygiene (Rev. 1) before the area or equipment is again used for handling natural mineral water.

5.2.4 Either immediately after cessation of work for the day or at such other times as may be appropriate, floors, including drains, auxiliary structures and walls of natural mineral water handling areas should be thoroughly cleaned.

5.2.5 Changing facilities and toilets should be kept clean at all times.

5.2.6 Roadways and yards in the immediate vicinity of and serving the premises should be kept clean.

5.3 Hygiene Control Programme

A permanent cleaning and disinfection schedule should be drawn up for each establishment to ensure that all areas are appropriately cleaned and that critical areas, equipment and material are designated for special attention. A single individual, who should preferably be a permanent member of the staff of the establishment and whose duties should be independent of production, should be appointed to be responsible for the cleanliness of the establishment. He should have a thorough understanding of the significance of contamination and the hazards involved. All cleaning personnel should be well-trained in cleaning techniques.

5.4 Storage and Disposal of Waste

Waste material should be handled in such a manner as to avoid contamination of natural mineral water or potable water. Care should be taken to prevent access to waste by pests. Waste should be removed from the natural mineral water handling and other working areas as often as necessary and at least daily. Immediately after disposal of the waste, receptacles used for storage and any equipment which has come into

contact with the waste should be cleaned and disinfected. The waste storage area should also be cleaned and disinfected.

5.5 Exclusion of Animals

Animals that are uncontrolled or that could be a hazard to health should be excluded from establishments.

5.6 Pest Control

5.6.1 There should be an effective and continuous programme for the control of pests. Establishments and surrounding areas should be regularly examined for evidence of infestation.

5.6.2 Should pests gain entrance to the establishment, eradication measures should be instituted. Control measures involving treatment with chemical, physical or biological agents should only be undertaken by or under direct supervision of personnel who have a thorough understanding of the potential hazards to health resulting from the use of these agents, including those hazards which may arise from residues retained in the natural mineral water. Such measures should only be carried out in accordance with the recommendations of the official agency having jurisdiction.

5.6.3 Pesticides should only be used if other precautionary measures cannot be used effectively. Before pesticides are applied, care should be taken to safeguard natural mineral water, equipment and utensils from contamination. After application, contaminated equipment and utensils should be thoroughly cleaned to remove residues prior to being used again.

5.7 Storage of Hazardous Substances

5.7.1 Pesticides or other substances which may represent a hazard to health should be suitably labelled with a warning about their toxicity and use. They should be stored in locked rooms or cabinets used only for that purpose and dispensed and handled only by authorized and properly trained personnel or by persons under strict supervision of trained personnel. Extreme care should be taken to avoid contaminating natural mineral water.

5.7.2 Except when necessary for hygienic or processing purposes, no substance which could contaminate natural mineral water should be used or stored in natural mineral water handling areas.

5.8 Personal Effects and Clothing

Personal effects and clothing should not be deposited in natural mineral water handling areas.

SECTION VI - PERSONNEL HYGIENE AND HEALTH REQUIREMENTS

6.1 Hygiene Training

Managers of establishments should arrange for adequate and continuing training of all food handlers in hygienic handling of natural mineral water and in personnel hygiene so that they understand the precautions necessary to prevent contamination of natural mineral water. Instruction should include relevant parts of this code.

6.2 Medical Examination

Persons who come in contact with food in the course of their work should have a medical examination prior to their employment if the official agency having

jurisdiction, acting on medical advice, considers that this is necessary, whether because of epidemiological considerations, the nature of the food prepared in a particular establishment or the medical history of the prospective food handler. Medical examination of a food handler should be carried out at other times when clinically or epidemiologically indicated.

6.3 Communicable Diseases

The management should take care to ensure that no person, while known or suspected to be suffering from, or to be a carrier of a disease likely to be transmitted through food or while afflicted with infected wounds, skin infections, sores or with diarrhoea, is permitted to work in any natural mineral water handling area in any capacity in which there is any likelihood of such a person directly or indirectly contaminating food with pathogenic micro-organisms. Any person so affected should immediately report to the management that he is ill.

6.4 Injuries

Any person who has a cut or wound should not continue to handle natural mineral water or natural mineral water contact surfaces until the injury is completely protected by a waterproof covering which is firmly secured, and which is conspicuous in colour. Adequate first-aid facilities should be provided for this purpose.

6.5 Washing of Hands

Every person, while on duty in a food handling area, should wash his hands frequently and thoroughly with a suitable hand cleaning preparation under running warm water in compliance with Section 7.3 of the Codex Code of Practice - General Principle of Food Hygiene (CAC/RCP 1-1969 Rev. 1). Hands should always be washed before commencing work, immediately after using the toilet, after handling contaminated material and whenever else necessary. After handling any material which might be capable of transmitting disease, hands should be washed and disinfected immediately. Notices requiring hand-washing should be displayed. There should be adequate supervision to ensure compliance with this requirement.

6.6 Personal Cleanliness

Every person engaged in a natural mineral water handling area should maintain a high degree of personal cleanliness while on duty, and should at all times while so engaged wear suitable protective clothing including head covering and footwear, all of which articles should be cleanable unless designed to be disposed of and should be maintained in a clean condition consistent with the nature of the work in which the person is engaged. Aprons and similar items should not be washed on the floor. During periods where natural mineral water is manipulated by hand, any jewellery that cannot be adequately disinfected should be removed from the hands. Personnel should not wear any insecure jewellery when engaged in natural mineral water handling.

6.7 Personal Behaviour

Any behaviour which could result in contamination of natural mineral water, such as eating, use of tobacco, chewing (e.g. gum, sticks, betel nuts, etc.) or unhygienic practices such as spitting, should be prohibited in natural mineral water handling areas.

6.8 Visitors

Precautions should be taken to prevent visitors to natural mineral water handling areas from contaminating food. These may include the use of protective clothing. Visitors should observe the provisions recommended in paragraphs 5.8, 6.3, 6.4 and 6.7 of this code.

6.9 Supervision

Responsibility for ensuring compliance by all personnel with all requirements of Sections 6.1 - 6.9 inclusive should be specifically allocated to competent supervisory personnel.

SECTION VII - ESTABLISHMENT: HYGIENIC PROCESSING REQUIREMENTS

7.1 Raw Material Requirements

To guarantee a good and stable quality of natural mineral water, certain criteria should be monitored regularly, e.g.

7.1.1 Spring discharge, temperature of the natural mineral water;

7.1.2 Appearance of the natural mineral water;

7.1.3 Odour and taste of the natural mineral water;

7.1.4 The conductance of natural mineral water or any other adequate parameter;

7.1.5 The microbiological flora.

7.2 Should there be a perceptible lack in meeting the standards, the necessary corrective measures are immediately to be taken.

7.3 Treatment

The treatment may include decantation, filtration, airing and where necessary application or offtake of carbon dioxide (CO_2).

7.3.1 Processing should be supervised by technically competent personnel.

7.3.2 All steps in the production process, including packaging, should be performed without unnecessary delay and under conditions which will prevent the possibility of contamination, deterioration, or the development of pathogenic and spoilage micro-organisms.

7.3.3 Rough treatment of containers should be avoided to prevent the possibility of contamination of the processed product.

7.3.4 Methods of preservation and necessary controls should be such as to protect against contamination or development of a public health hazard and against deterioration within the limits of good commercial practice.

7.3.5 All contaminated equipment which has been in contact with raw materials should be thoroughly cleaned and disinfected prior to being used in contact with the end-products.

7.4 Packaging material and containers

7.4.1 All packaging material should be stored in a clean and sanitary manner. The material should be appropriate for the product to be packed and for the expected conditions of storage and should not transmit to the product objectionable substances beyond the limits acceptable to the official agency having jurisdiction. The packaging material should be sound and should provide appropriate protection from contamination. Only packaging material required for immediate use should be kept in the packing or filling area.

7.4.2 Product containers should not have been used for any purpose that may lead to contamination of the product. Used containers, also new containers if there is a possibility that they have been contaminated, should be cleaned and disinfected. When chemical disinfectant is used, the container should be rinsed as prescribed under 5.2.3. Containers should be well drained after rinsing. Used and, when necessary, unused containers should be inspected immediately before filling.

7.5 Filling and Sealing of Containers

7.5.1 Packaging should be done under conditions that preclude the introduction of contaminants into the product.

7.5.2 The methods, equipment and material used for sealing should guarantee a tight and impervious sealing and not damage the containers nor deteriorate the chemical, bacteriological and organoleptic qualities of natural mineral water.

7.6 Packaging of Containers

The packaging of containers should protect the latter from contamination and damage and allow appropriate handling and storing.

7.7 Lot Identification

Each container shall be permanently marked in code or in clear to identify the producing factory and the lot. A lot is a quantity of food produced under identical conditions, all packages of which should bear a lot number that identifies the production during a particular time interval, and usually from a particular "line" or other critical processing unit.

7.8 Processing and Production Records

Permanent, legible and dated records of pertinent processing and production details should be kept concerning each lot. These records should be retained for a period that exceeds the shelf life of the product, but unless a specific need exists they need not be kept for more than two years. Records should also be kept of the initial distribution by lot.

7.9 Storage and Transport of the End-Product

The end-product should be stored and transported under such conditions as will preclude contamination with and/or proliferation of micro-organisms and protect against deterioration of the product or damage to the container. During storage, periodic inspection of the end-product should take place to ensure that only natural mineral water which is fit for human consumption is despatched and that end-product specifications should be complied with when they exist.

7.10 Sampling and Laboratory Control Procedure

The following are intended as guidelines for testing the water at the source and at critical control points:

Natural mineral water should contain no parasites and should be free from:

	Incubation Temperature	n	c	m	Method
1. Coliforms	37°C	5 (x250 ml)	0	0	)
2. Faecal streptococci	37°C	5 (x250 ml)	0	0	)
3. Spore-forming sulphite-reducing anaerobic bacteria	42°C	5 (x250 ml)	0	0	) ISO method if they exist; otherwise to be elaborated.
4. *Pseudomonas aeruginosa*	42°C	5 (x250 ml)	0	0	)
5. Aerobic microbial counts; the maximum permissible total aerobic counts per millilitre at 20-22°C and 37°C depend on the unique characteristics of the source and should be fixed by the authority having jurisdiction.					

SECTION VIII - END-PRODUCT SPECIFICATIONS

After bottling natural mineral water should be free from:

	Incubation Temperature	n	c	m	Method
1. Coliforms	37°C	5 (x250 ml)	0	0	) As for European Regional Standard (See Annex I)
2. Aerobic microbes capable of multiplying on x 10 diluted plate count agar	42°C	5 (x250 ml)	0	0	)

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APPENDIX VI

REPORT OF WORKING GROUP ON ANNEX C - "SAMPLING AND INSPECTION PROCEDURES FOR MICROBIOLOGICAL EXAMINATION OF MEAT PRODUCTS IN HERMETICALLY SEALED CONTAINERS

The Working Group recommends that the document on Sampling and Analysis (ALINORM 81/16, Appendix II) be returned to the Codex Committee on Processed Meat and Poultry Products Committee unendorsed. The Group was unable to rewrite the existing document as there were too many specific unanswered questions to permit meaningful alteration by this Group. These are summarized below, and the Group feels that these should also be passed to rhe Codex Committee on Processed Meat and Poultry Products for their consideration.

1. The rationale for the code should accompany the code to permit meaningful reading. (Reference, Annex C, ALINORM 79/16, Appendix III, Preface).

2. The document should be clearly separated into two parts dealing specifically, in turn, with (a) shelf stable meat products heat treated after packaging and (b) non-shelf stable meat products in hermetically sealed containers. These plans with their acceptance/rejection criteria and microbial limits risks should be used as an international code.

3. Scope

   1. The Group did not consider that the sampling plan as presented to be adequate for all investigational situations.

   2. The term "reason to suspect" requires definition.

   3. Products to be included or excluded should be defined.

4. Definitions

   1. Lot - The plan employing this definition would deal only with single code lot shipments. Shipments containing multiple code lots would present a problem. The Group is aware that multiple code lot shipments do occur frequently.

   2. The term "defective" must be defined.

5. Procedure

   1. Shelf-Stable Products

      (1) More detailed instruction is required (viz random numbers) to ensure random selection of the 200 unit sample. A sampling plan for less than 200 units should be included.

   2. Assuming visual examination is non-destruction then such examination would not reveal containers defective by virtue of hidden seam defects, non-gas forming microbial growth or incipient spoilage. Thus lots having these defects would be passed.

   3. In the lot where 1 or 2 (visual) defectives are found, the requested 100% sort would produce only visual defects (see 5.1.2 above). If this inspection required seam tear-down, for example, then the whole lot would be destroyed.

4. Not all "swells" can be considered defective. The reason for the swell should be determined to ensure that is a defective (i.e. not overfilling etc.).

5. Incubation of a sample is not always necessary. However, when necessary it should be applied to the first 200 container sample. The ICMSF Vol II has guidelines for determining when incubation is required. These guidelines should be used in this plan. An incubation temperature of 30°C for 21 days is recommended. Higher temperatures run the risk of inducing thermophilic growth and killing heat damaged but still viable spores.

6. This plan resembles an ICMSF plan which is being revised. It is recommended that this revised plan be consulted.

7. The remainder of the plan requires revision to incorporate the above comments.

8. Operating characteristic curves should be provided to permit intelligent interpretation of the acceptance/rejection criteria.

5.2 Non-Shelf Stable

1. The products and package types to be included in this category need to be defined. For example would prepared cooked meats in hermetically sealed flexible packaging be included?

2. Temperature abuse during transportation and storage is not the sole reason to suspect a lot.

3. The sample size presented would permit examination for the type of defect that is known or suspected to exist and provide identification of grossly defective lots, for example if an entire lot had been temperature abused. It would not deal with a situation where a portion had been so abused but was not detectable by temperature measurements. The plan does not permit identification of defectives other than those due to microbial growth.

4. There are no provisions for checking presence and outgrowth of anaerobes or of aerobes on long-term storage.

5. The criteria of 10,000 mesophilic aerobic organisms per gram may be too restrictive depending upon the scope of the products to be included under this plan. More details concerning the derivation of the microbial standards are required to permit proper evaluation.

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APPENDIX VII

CODE OF HYGIENIC PRACTICE FOR THE SALVAGING OF DAMAGED CANNED PRODUCTS

1. Scope

This code of practice concerns the salvage of commercially sterile foods packed in hermetically sealed containers and having a water activity of 0.85 or greater, which are suspected as having been contaminated. Refrigerated, frozen, dried, semi-dried foods such as nuts, coffee, jams, jellies, etc. and alcoholic beverages are excluded. The purpose is to prevent undue loss of wholesome food while providing protection of the consumers by preventing sale or distribution of unwholesome food.

2. Definitions

1. Commercial Sterility - canning code
2. Hermetically sealed containers - canning code
3. Salvage -- to be elaborated
4. Salvageable (canned) foods -- to be elaborated
5. Non-salvageable (canned) foods -- to be elaborated
6. Canned foods - canning code
7. Distressed foods (see 3.1)
8. Reconditioning -- to be elaborated
9. Contamination - the occurence of any objectionable matter in the products.
10. Disinfection - the reduction, without adversely affecting the food, by means of hygienically satisfactory chemical agents and/or physical methods, of the number of micro-organisms to a level that will not lead to harmful contamination of food.

3. Material Considered for Salvage

3.1 Distressed Food

Any canned food which is suspected as having been contaminated due to accident, fire, flood, adverse weather, or to any other similar cause, or which may have been rendered unsafe or otherwise unsuitable for human consumption except as described in the Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods. Such material also includes canned foods where the means of product identification has been lost.

3.2 At all times the official agency having jurisdiction should be kept informed by the possessors of the occurrence and movement of distressed food.

3.3 Distressed food should be moved from the site of a fire, flood, sewer backup, wreck or other cause as expeditiously as possible after compliance with Section 3.2 so as not to become putrid, infested, or otherwise a menace to public health.

3.4 No international movement of distressed or salvageable food should be made without the prior approval of the official agency having jurisdiction in the country to receive the food.

3.5 Distressed foods should be stored under conditions which provide protection against contamination and minimize damage and deterioration. (This is Section 3.3 of the General Principles of Food Hygiene).

3.6 All salvageable foods should be promptly sorted and segregated from non-salvageable food if necessary to prevent further contamination of the distressed food to be salvaged or offered for sale or distribution.

3.7 Sufficient precautions should be taken to prevent cross-contamination among the various types of foods which are salvageable, salvaged or sound.

4. Establishment Design and Facilities

As in Section 4 of the General Principles of Food Hygiene.

5. Establishment: Hygiene Requirements

As in Section 5 of the General Principles of Food Hygiene.

6. Personnel Hygiene and Health Requirements

As in Section 6 of the General Principles of Food Hygiene.

7. Establishment: Hygiene Processing Requirements

7.1 Distressed Food Requirements and Preparation

7.1.1 As in 7.1.1 of the General Principles of Food Hygiene, with an addition: the following food containers which have been in contact with water, foam, or other deleterious substances as a result of fire fighting efforts, flood, sewer backups or similar mishaps should be deemed unsalvageable: glass containers except ampules; flexible pouches; metal containers with easy opening features such as pull rings or scored areas, except pressurized beverage containers.

7.1.2 Distressed foods should be inspected and sorted to remove individual unsalvageable containers prior to further treatment. Where appropriate, laboratory tests should be made. Swollen containers having no other visible defects should be retained unopened for possible further testing, until a decision has been reached concerning the final disposition of the distressed food.

7.1.3 The following container conditions make the individual containers unsuitable for reconditioning:

containers with any indication of swelling, with the exception of pressurized containers;

glass jars with any indication of a raised or crooked lid, raised button on a lid or showing evidence of loosening of closures;

containers with visible evidence of leaking;

containers with punctures, holes or fractures. (These conditions may be indicated by product on the seams of cans, under the lip of a glass jar, or in the seal of a flexible pouch);

pull-top containers with fractures or dents on the score lines or in the rivet area;

corroded containers with severe pitting such that any reconditioning may result in perforation;

rigid containers crushed to the point where they cannot be stacked

normally on shelves or opened with wheel-type can openers;

cans crushed immediately under the double seam of the body, or dented moderately to severely at the juncture of the side seam and the double seam;

cuts or fractures through the metal on the double seam of cans;

containers with gross seam or seal defects, including heat sealed containers with severe wrinkles in the seal areas;

crushed containers.

7.2 Salvage Operations

7.2.1 All salvageable containers (see 7.1.1 and 7.1.3) should be thoroughly cleaned.

7.2.2 All salvageable containers of food (see 7.1.1 and 7.1.3) which have been in contact with water or other deleterious substances as the result of flood, sewer backup or other reasons should be cleaned and disinfected by methods approved by the agency having jurisdiction (see Annex I, the General Principles of Food Hygiene).

7.2.3 In those instances where salvage is confined to separation of sound from mechanically damaged containers and where there is no concern of contamination of the sound containers, the sound containers may be reconditioned, if necessary, and then upon approval of the agency having jurisdiction, released for human consumption. The containers should be marked in conformity with Section 7.3.

7.2.4 In those containers where there is a concern of contamination in sound sorted containers, appropriate laboratory testing or other evaluation techniques should be carried out on samples of sufficient size of both sound and rejected containers to evaluate the safety of the sound containers. If found safe, this food should be treated as under 7.2.3.

In some circumstances repacking and reprocessing of the contents of the sound containers may be necessary. In other circumstances reprocessing of the sound containers may be sufficient. Repacking and reprocessing should be carried out in compliance with the Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods.

7.2.5 Non-Reconditionable Containers

7.2.5.1 All products from Section 7.1.3 should be examined using appropriate laboratory tests and other methods to determine whether the product is salvageable alone or in combination with reprocessing or repacking and reprocessing.

7.2.5.2 When the results of the appropriate laboratory tests and other measures show that the contents of containers sorted out in 7.1.3 by virtue of having defects which may adversely affect the hermetic seal to be free of evidence of contamination, the product in sound containers may be released to commerce as described in Section 7.2.3.

7.2.5.3 In some instances products from 7.1.3 suspected as being microbially contaminated may be salvaged by either reprocessing

or repacking and reprocessing. However, care should be exercised to ensure that such foods would not be a public health risk nor would spoiled food result. Products released shall comply with Section 7.2.3. All repacking and reprocessing should be carried out in compliance with the Code of Hygienic Practice of Low-Acid and Acidified Low-Acid Canned Foods.

7.3 Coding

Before food is released in its original container, each container shall be indelibly and permanently marked with a legible, visible alphanumeric code to permit its subsequent identification should circumstances warrant.

7.4 Where such foods are released for export, the agency having jurisdiction in the importing country should be notified that the product has been salvaged.

7.5 Non-Salvageable Canned Foods

Non-salvageable canned foods should be suitably disposed of under adequate and proper supervision to assure the protection of the public health. Records should be kept detailing the manner and location of disposal.

8. Quality Assurance

It is important that all salvage and reconditioning operations be properly established, correctly applied, sufficiently supervised and documented to provide positive assurance that the requirements have been met.

The entire Section 8 of the Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods is applicable with the following addition to 8.2.4.

> Records should be kept identifying each lot of salvaged canned foods by its code number as well as the conditions under which the original food became distressed and the means by which it was salvaged.

9. Storage and Transport of Finished Product

As in the Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods.

10. Laboratory Control Procedures

As in the General Principles of Food Hygiene.

11. End-Product Specifications

As in the Code of Hygienic Practice for Low-Acid and Acidified Low-Acid Canned Foods.