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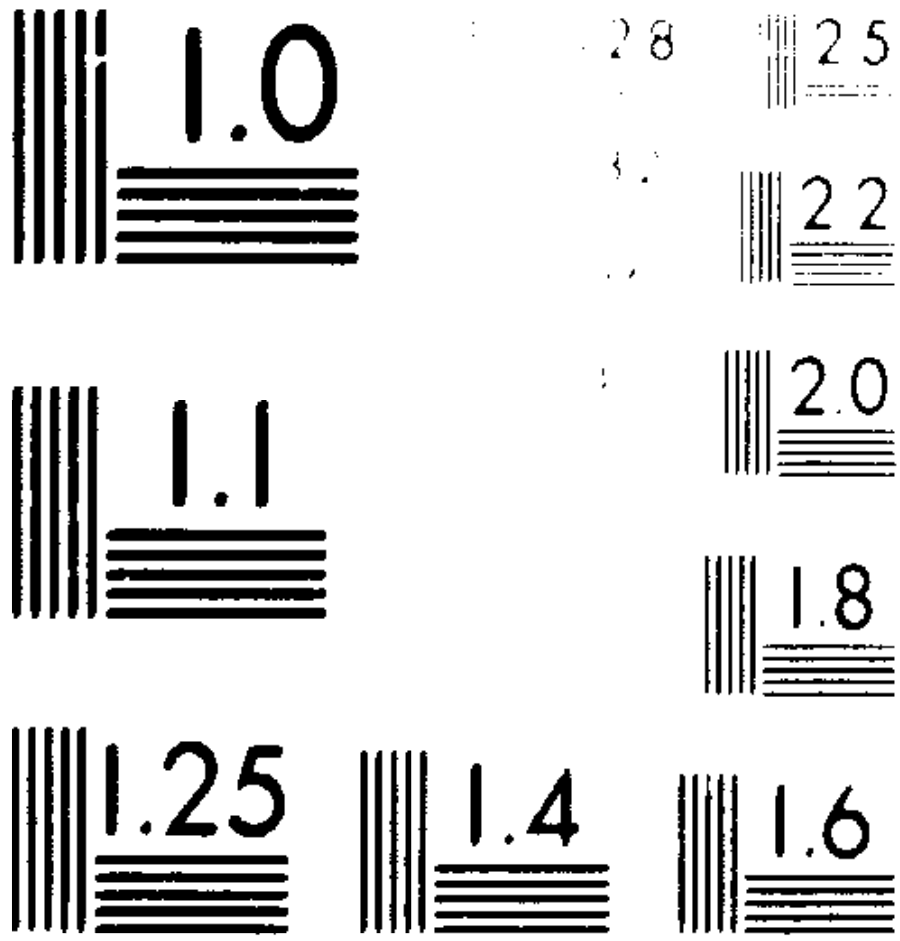
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DP/ID/SER.A/356
22 April 1982
English

# CONSOLIDATION OF THE MEXICAN INSTITUTE FOR ASSISTANCE TO THE INDUSTRY

DP/MEX/78/011

MEXICO

## Technical report: Food package and standardization*

Prepared for the Government of Mexico
by the United Nations Industrial Development Organization,
executing agency for the United Nations Development Programme

Based on the work of Loa Karjalainen, Expert
in food package standardisation

003066

United Nations Industrial Development Organization
Vienna

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## A. INTRODUCTION

The Government of Mexico and the United Nations Industrial Development Organization UNIDO are consolidating the Packaging Division at the Laboratorios Nacionales de Fomento Industrial, LANFI.

One of the subjects in which UNIDO is providing LANFI with consultancy help is standardization. In 1980 the project was visited by consultant Colin Swinbank and in early 1981 by consultant John Salisbury. In this report, the implementation of the both consultant's recommendations is surveyed and further advice given for improvement in the standardization activities.

The subject of packaging education that has been previously handled by consultant Karoly Lotz focusses in this report on basic training in packaging, aimed at serving the Mexican industry.

The third subject handled in this report, packaging of fresh eggs for mechanical protection is aimed at assistance to the LANFI testing laboratories in their study on this topic.

## B. SUMMARY

### I. PACKAGING EDUCATION

During the short time of her mission and having visited some enterprises of the packaging and package using industry the author has realized that the knowledge on basic packaging technology is poor and that there is urgent need for training in the whole field (packaging techniques, materials, storing, handling, distribution). A national packaging institute being the natural centre of all packaging information, an extensive programme for basic packaging education is proposed in this report (chapter D I, Appendix 4) As for higher packaging education in Mexico, for the near future it might be appropriate to send students abroad for selected courses.

The system of packaging information is closely linked with packaging education. There is an apparent need for some practical implementation already before the plans described in the excellent PIRA - report (DP/MEX/80/110/DR of January 1981) will be put into effect. Using the short term services of an expert on information (UNIDO or ITC) is therefore suggested and a draft job description for him is presented in Appendix 3.

## II STANDARDIZATION

A follow up of the two previous reports on Food Standardization is described in this report and the valuable instructions and recommendations in them are underlined.

The author has rather than giving advice in elaborating of individual standards, strived for improvement of the mode and principles in preparing new standards specifically to gain a more affirmative attitude from the industry (Appendix 8).

It is obvious that within the standards section improvement is needed also in the knowledge on basic packaging technology and additionally in the opportunities to obtain relevant information for the preparation of new standards.

## III PACKAGING OF FRESH EGGS FOR MECHANICAL PROTECTION

Although a few studies have been carried out on the packaging and distribution of eggs at LANFI and IMAI, there have been so far, no practical solutions in order to improve the situation of protection against mechanical damages.

The author has, in cooperation with consultant Elhanan Feingold and Ing. Hildaberto López Cervantes, worked out a testing programme for some alternative packages, planned to be utilized for a cost close to the present one or not much higher.

## C. CONDUCT OF MISSION

The author arrived in Mexico on 26 September after a fact - finding stop-over in Genova (ISO, ITC) and briefing in Vienna.

During the first weeks, there was a familiarizing period including participation in some sub-committee meetings and a few field visits. Consequently, the job description was changed to what is seen on the next page. In addition, it was agreed later on that the authors participated still in a third project: packaging of fresh eggs for mechanical protection (Chapter D III).

The standardization follow-up was carried out by discussions with the standards section , both as a group and with individual members.

The elaboration of a Blueprint on packaging education was based on findings by the author during field visits, on discussions with the personnel and on previous experience in working out a similar programme.

During her last days in Mexico, the author gave two lectures at a seminar organized by consultant William Simms. The topics were "Importance of Standardization in Packaging Food Products" and "Integrated package planning".

The author left Mexico in the evening of 17 November for debriefing in Vienna.

List of places visited, see Appendix 1.

## JOB DESCRIPTION

1. Get acquainted with the present status of food packaging and especially with the standardization in this field by paying visits to the industry and distribution enterprises.

2. Follow up the realization of the instructions given in the two previous reports on food packaging standardization.

3. Co-operate with the counterparts in the preparation of drafts for national food package standards.

4. Join the Packaging Machinery consultant in presenting a seminar on food packaging planning and standardization.

5. Elaborate a blueprint on packaging education for the food packaging industry in Mexico, to be realized by LANFI. In this context, the expert will carry out periodic talks to selected trainers of the LANFI staff.

## D. CONCLUSIONS AND RECOMMENDATIONS

### I. PACKAGING EDUCATION IN MEXICO

The most important areas of operation of any national institution of packaging may be listed as follows (without any particular order of priority):

1. General promotion of packaging
2. Contacts with national / international bodies
3. Compiling and dissemination of information
4. Education in packaging
5. Research
6. Testing and quality control
7. Consulting on techniques (and design)

Out of the proportions in this list, LANFI's activities have been directed mainly to points 5, 6 and 2. General promotion of packaging (point 1) which is one of the most important tasks for any national packaging institution, has been implemented in not a too large extent mostly by giving seminars on different topics, whereas point 3 and 4 have been left without serious consideration. Consulting (point 7) is possible only if the staff of the Institute possesses an adequate knowledge.

As information and education on packaging are always securely tied together and as the present level of packaging know-how within the package using industry in Mexico does not seam to be but very low, there is an apparent and urgent need for the implementation of collecting and disseminating of information and by establishing a basic training programme on packaging technology and promotion for this industry.

RECOMMENDATIONS

a) An expert on collecting, organizing and disseminating of packaging information should be asked for soonest possible. The work programmed for this expert is suggested in Appendix 3.

b) A blueprint on basic packaging education is presented in Appendix 4.

For the efficient implementation of such a training programme, a group of the LANFI staff should be trained ("Training of the Trainers") by:

- Sending one or two persons to (e.g.) PIRA or Michigan State University for an intensive course in basic packaging technology.

- Giving internal training for the future lecturers in lecturing techniques and in subjects to be handled on the courses.

- Creating a special field study programme including factory visits for learning the practice of production techniques, problems, solutions, marketing situation, distribution, etc. The programme should also include interviews with relevant persons in the industry, distribution, marketing, transport and insurance branches in order to make the trainers well informed of all practical problems and of the general situation related to packaging.

This kind of activity, besides giving a more accurate picture of the whole branch than any textbooks has the advantage of creating more valuable links between LANFI and the industry.

N.B. The blueprint is not aimed for scientists on highly qualified packaging professionals but for the average man within the package using industry, involved in the planning, process and purchasing of packaging, etc. It is here the overall level of know-how has to be improved especially having in mind that in the export industry there is a most urgent need for information about acceptable and protective packaging for goods to be exported.

## II STANDARDIZATION

According to the author's job description the recommendations and instructions given in the two previous reports on food packaging standardization are reviewed in the following pages. The implementation of the recommendations is described and the author's own comments and recommendations are attached to each position.

### A. Follow up of recommendations given by Mr. Colin Swinbank, expert of UNIDO (report of 20 February, 1980.)

This excellent report could with good reason, be used as a manual in the standardization work. The recommendations, which are divided in 21 positions are, however partly directed to DGN rather than to LANFI. Those positions are thus not reviewed here.

Please refer to Appendix 6, where the recommendations are set forth as a whole.

1. "The initiative of IMAI in seeking membership of the International Association of Packaging Research Institutes (IAPRI) should be supported as this will lead to a closer association with packaging laboratories which have accumulated considerable experience over the past 30 years."

- LANFI is a member of IAPRI since 1980.

2. "Every opportunity should be taken, by visits and other means, to familiarize the IMAI staff with the practices and needs of the industries they are endeavouring to serve, i.e. the production, filling and closing, handling, storage, transport and distribution of packages."

- Although the staff of the standards section has paid some visits to the industry their knowledge of basic packaging technology and of the needs and practics of the industry is still inadequate. This lack of know-how is recognized by the staff as a shortcoming in their work and should be eliminated by active training in packaging, distribution and marketing techniques as well as by frequent personal contacts with the industry. Also the cooperation with the laboratory has necessarily to be improved: the staff of Standards Section should spend more time in the laboratory and the lab-personnel should, in turn, participate in every subcommittee meeting.

3. "The practice of circulating only the "contents page" of packaging journals received in the library should be reviewed having in mind that the news items and advertisements in such journals contribute to an individual's total knowledge."

4. "The staff should be made aware of the sources of information available to LANFI/IMAI and the circumstances under which such sources may be used, e.g. enquiries to the UNIDO Industrial Inquiry Service or the PIRA computer base."

- At present there is no circulation of packaging journals or their contents page. The staff is aware of the sources of information available to LANFI but opportunities to use them have been scarce out of economical reasons. This situation will be improved in 1982 according to information given by the Director of Packaging Division. (The entire system of packaging information is handled in Chapter D I and Appendix 3).

5. "The editorial practice in the preparation of standards should be reviewed and, where reference to another standard is essential, consideration given to simply making reference to it in mandatory terms, e.g. "... shall comply with the requirements of NOM-EE-1234", omiting the year of publication from the reference."

- Of the practice in preparation of new standards there is a proposal in this report ("Code of Conduct for the Preparation of New Standards", Appendix 8).

6. "Wherever practicable standards for manufactured packages should have the widest possible application rather than be restricted to specific products."

- Although some standards with general application already exist (e.g. NOM-EE-11-S-1980, NOM-EE-79-1980), it is difficult for the staff to extend the application of standards for manufactured packages due to the lack of know-how described above. The author has, however, underlined the importance of it and it can be expected that together with improving knowledge there will be more possibilities to widen the scope of elaborating new standards.

7. "Every opportunity should be taken to develop a rational range of capacities for each type of rigid package, e.g. drums, bottles, cans and jars, preferably based on a 1 - 2.5 - 5 - 10 type of progression."

The capacities of rigid packages have not been standardized at the moment of preparing this report. Capacities of 1 - 2.5 - 5 - 10 type of progression have to be kept in mind and especially if the packages are intended for goods to be exported.

8. "Following the rationalisation of capacities of rigid packages every encouragement should be given to industry to adopt standardised shapes, and hence standardised dimensions, for such packages."

- Promoting the adoption of standards has not been possible due to the limited know-how of the staff. In the planning of future seminars every opportunity should be utilised to include one lecture of standarization in each seminar. These lectures should deal with the philosophy and necessity of standardization rather than describing certain standards in detail. Including lectures of standardization in general seminars is also to be recommended rather than organizing special seminars only on that topic.

12. "Wherever Mexico has voted in favour of an ISO standard, and in all other cases unless there is a strong objection to the contrary, the ISO standard should be adopted without change as a DGN standard."

- At present, ISO-standards are mostly found only in the bibliographies of DGN-standards. It would be advisable to adopt ISO-standards without change in Mexico in a wider extent, Mexico being a member of ISO and having accepted most of its standards officially.

13. "In the planning of future standardisation programmes consideration should be given to the specific items listed in section 2.8, plus some of the more important national and international (non-ISO_ standards listed in Appendix 4)."

- In the programme for 1982 elaborated by the staff with assistance of the author, recommendations by Mr. Swinbank in this context have been considered.

14. 'IMAI should become thoroughly familiar with the regulations of the FDA, and the EEC regarding packages and materials used in contact with food, in order to provide support to Mexican exporters, whether the support be in the form of advice, testing facilities or standards preparation.'

- The standards section is aware of the FDA regulations but the EEC directives are here unknown. The author has provided the Head of the Section with a list of EEC directives (Appendix C) and with copies of the most important directives.

19. 'Consideration should be given to the possibility of a member of IMAI staff being seconded to PIRA for a short period in order to gain first hand experience of the UN testing, approval and certification procedures.'

- A member of the LANFI staff although not from the Standards Section has been trained at PIRA in Leatherhead, United Kingdom.

21. "When the immediate task of consolidating the position of IMAI is well advanced IMAI should become thoroughly familiar with other trends in distribution (e.g. the use of freight containers, shrink-wrapped or stretch-wrapped unit loads whether on a pallet base or using an expendable sling, cage pallets and other retailing devices, and intermediate bulk containers for, say, 1000 litres or 1000 kg of liquid or solids) in order to be able to offer such advice and encouragement as is necessary to Mexican industry, to prepare the necessary standards, and provide test facilities to ensure a high degree of safety."

- The sub-committee for transport and handling as well as the testing laboratory are dealing with the present and future problems of distribution and they will be able to assist the industry in these matters in the near future.

B. Follow up of recommendations given by Mr. John Salisbury, expert of UNIDO (report of 30 June, 1981).

The staff of the Standards Section has not yet received this report (and neither Mr. Swinbank's) but the recommendations have been discussed between the staff and Mr. Salisbury during his stay in Mexico.

The report deals mostly with the means and ways in the preparation of new standards from a meaningful point of view.

Although the recommendations are to a large extent general or even philosophical, the substance of them are here considered from both Mr. Salisbury's & the author's point of view (Appendix 7).

1. INFORMATION

Throughout his report Mr. Salisbury emphasizes the importance of adequate information, not only about the subjects under discussion but about general information and know-how in packaging, as well (e.g. pp 13, 14).

The autnor would like to stress further this need. Besides the recommendations in pos. A 2 it is strongly recommended that the staff members participated in the Basic Course No. 1 of Packaging (Appendix 4) if implemented.

The information system of LANFI has been handled before

2. INDUSTRY'S ROLE IN STANDARDS PREPARATION.

Mr. Salisbury has noticed, as well as the author that industry members of the sub-committees are not too willing to participate in the standardization work (during the short period of the author's stay in Mexico, already three sub-committee meetings had to be cancelled due to lack of participants). This reluctant attitude from the industry is, however, easy to understand: As only information for the elaboration of a new standard the industry members get a draft ante-proyecto

written by the co-ordinator. This draft might seem strange and far from any practical usefulness to the reader due to the inadequate information and know-how of the writer. Besides such a document hardly encourages the industry members to intervene, it might have another disadvantage: The co-ordinator, making some innocent mistake in her draft, "looses her face" thus creating decreasing confidence in her (and LANFI's) work.

The recommendation of Mr. Salisbury "Industry must play a more important role in standards preparation" has so to be converted into a practical solution. For that purpose, the author has worked out a working programme (Appendix 8) aimed to arouse more interest and activity among the industry on the other hand and to reduce the frequency of meetings (for one group of industry members) to once a month, on the other. Additionally, in the code of conduct described in Appendix 8, ther is no risk for "loosing the face" of the co-ordinators.

## 3. THE WORDING OF STANDARDS

The majority of standards worked out at LANFI are non-mandatory. Mr. Salisbury has observed the strict wording even of the voluntary standards and recommends such phrazes as "debe ser", "tener que", etc. to be softened. The author supports this recommendation as one tool to [illegible] affirmative attitude from the industry.

A simple and neutral way to avoid imperative expressions is to use the verb form "es" instead of "debe ser" as is the practice in most standards outside Mexico.

## 4. THE FUTURE PROGRAMME

Throughout his report Mr. Salisbury gives practical advice and recommendations for the planning of standards in the near future always emphasizing the importance of concentrating

on those aspects which LANFI is best equipped to handle, i.e. scientific aspects and especially measurement. The author agrees to that but has to point out in this context that the standards section is burdened with a large quota of standards to be elaborated yearly: it results in hunting for topics which leads to elaboration also of such standards that might not be of great service for the industry.

These heavy quantitative requirements have thus to be reconsidered in order to achieve qualitatively high class and practical results in the standardization work.

## D III. PACKAGING OF FRESH EGGS FOR MECHANICAL PROTECTION.

### 1. FINDINGS

The findings are based partly on a study carried out by Ing. Hildeberto López Cervantes (report of April 1981) and partly on own observations made in retailshops, wholesalers and one egg producing plant.

Breakage of eggs can only be estimated because persons interviewed in the matter give various figures. The percentage of damaged eggs during handling, transportation and storing was estimated to 40% by a retail handler and to 2% by an official of the poulty farm "El Calvario" in Tehuacán (800,000 chickens). Also other information received during interviews has to be taken with reservation. Consequently, when considering this project only one assumption has been made: The breakage of eggs is too big and has to be reduced.

Handling of fresh eggs is mostly carried out manually in Mexico i.e. the grading in 6 different sizes and classification by cleanliness, color and shape depend on human factors only. Thus it happens frequently that big eggs are placed among smaller ones on the same tray which is the most fatal fact concerning breakage. According to the study by Ing. López, height of the egg varies between 55 and 64 mms. and diameter between 40 and 46 mms. (Figure 4)

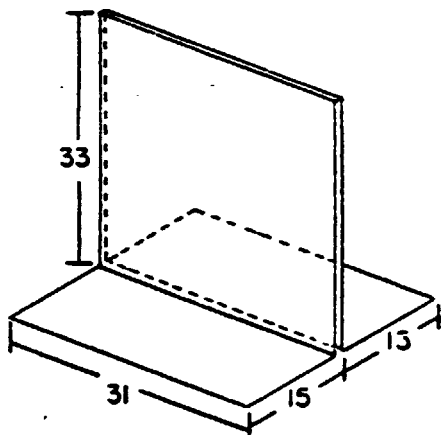
Handling during transport and distribution is careless although not extremely rough.

Packaging

At the poultry farms, eggs are packaged on trays of 30 eggs. 12 trays are packed in standard size transport cartons (Figure 1). The trays serve as retail packs, as well, being covered with thin PE-film only by the retailer. In some cases the trays are halved thus getting retail units of 15 eggs. All eggs are sold by weight the retail price being controlled by the government.

# SISTEMA DE ENVASADO COMUN
## FIGURA No. I

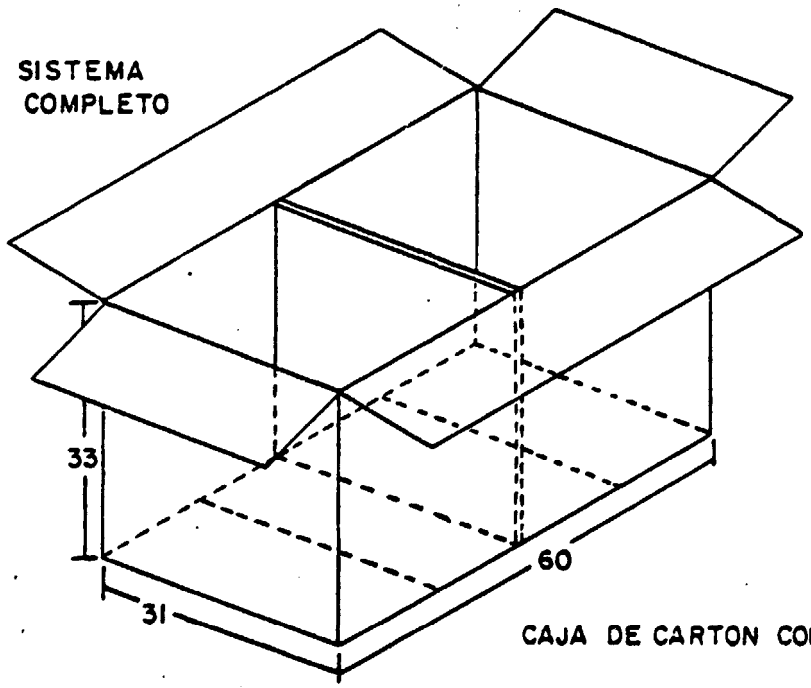
Acotaciones en: cm




SEPARADOR DE
CARTON CORRUGADO

CHAROLA 29 X 30 DE
CELULOSA MOLDEADA

SISTEMA
COMPLETO




CAJA DE CARTON CORRUGADO

# SISTEMA DOCENERA.

## FIGURA No. 2

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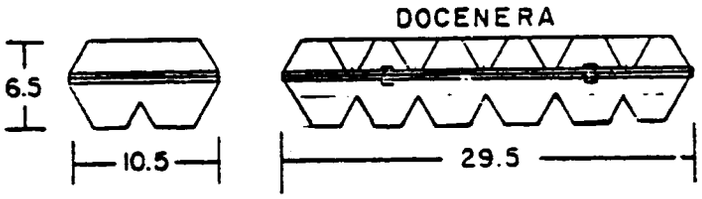


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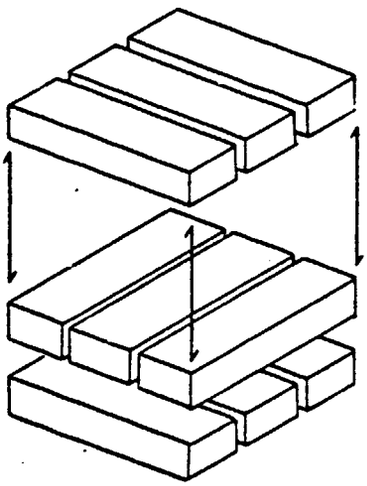
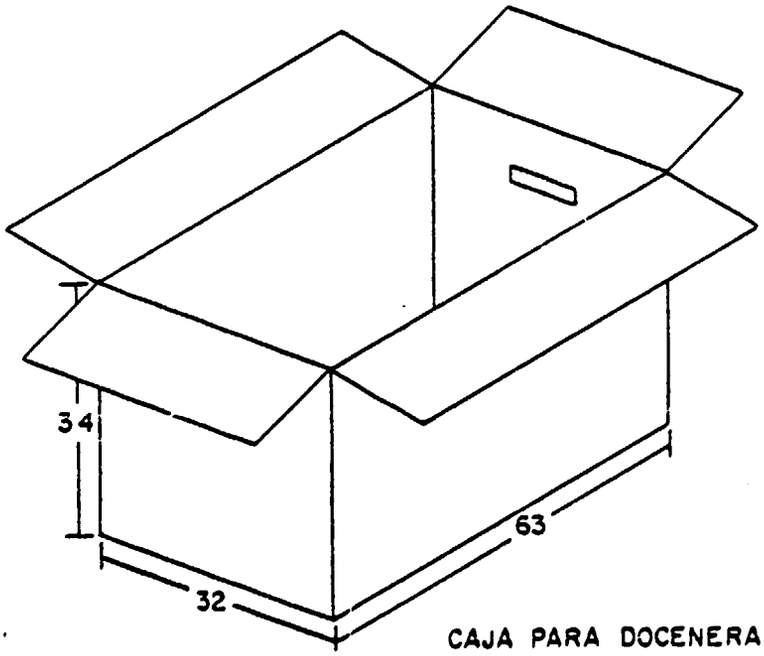
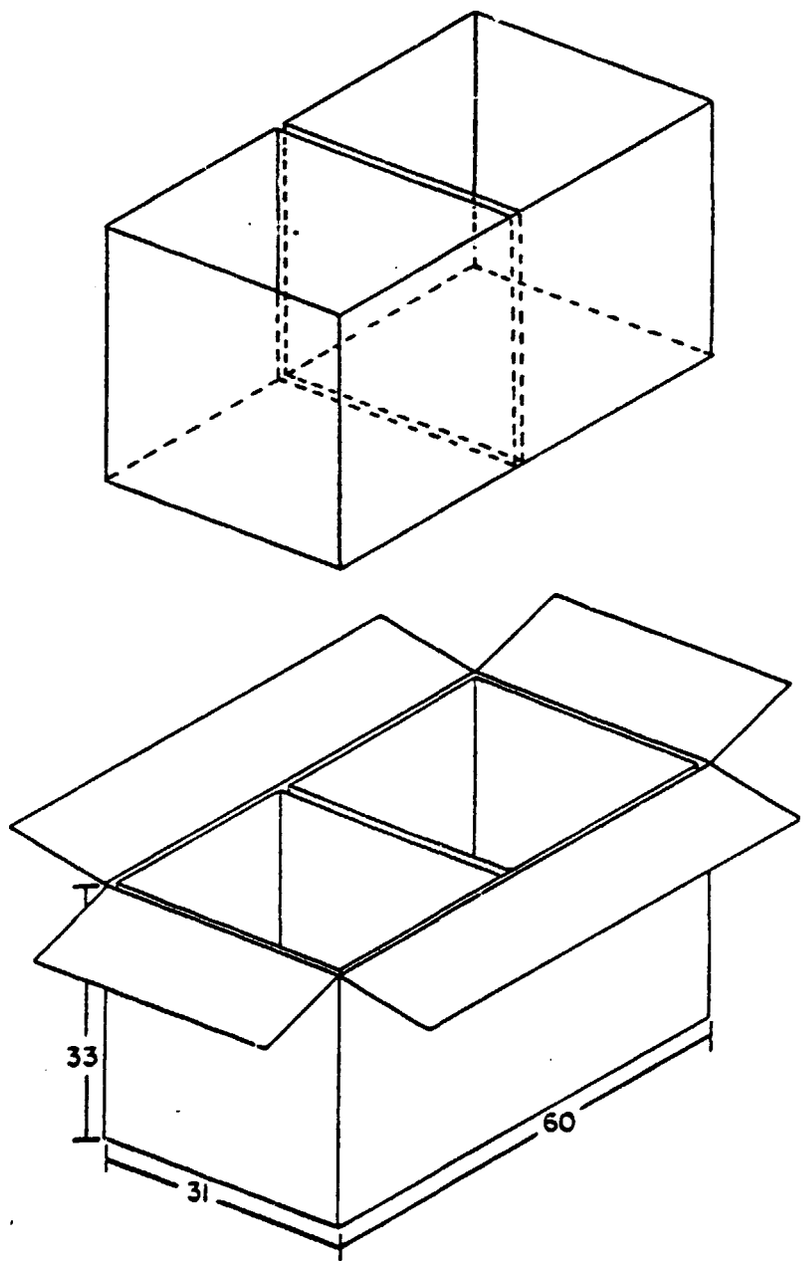





CAJA PARA DOCENERA

FIGURA No. 3

# ALTERNATIVA PARA SEPARADOR DE CARTON CORRUGADO




SISTEMA COMPLETO

DIMENSIONES DE LA CAJA COMO EN LA FIG. 1

## DIMENSIONES EXTREMAS
## DE HUEVO

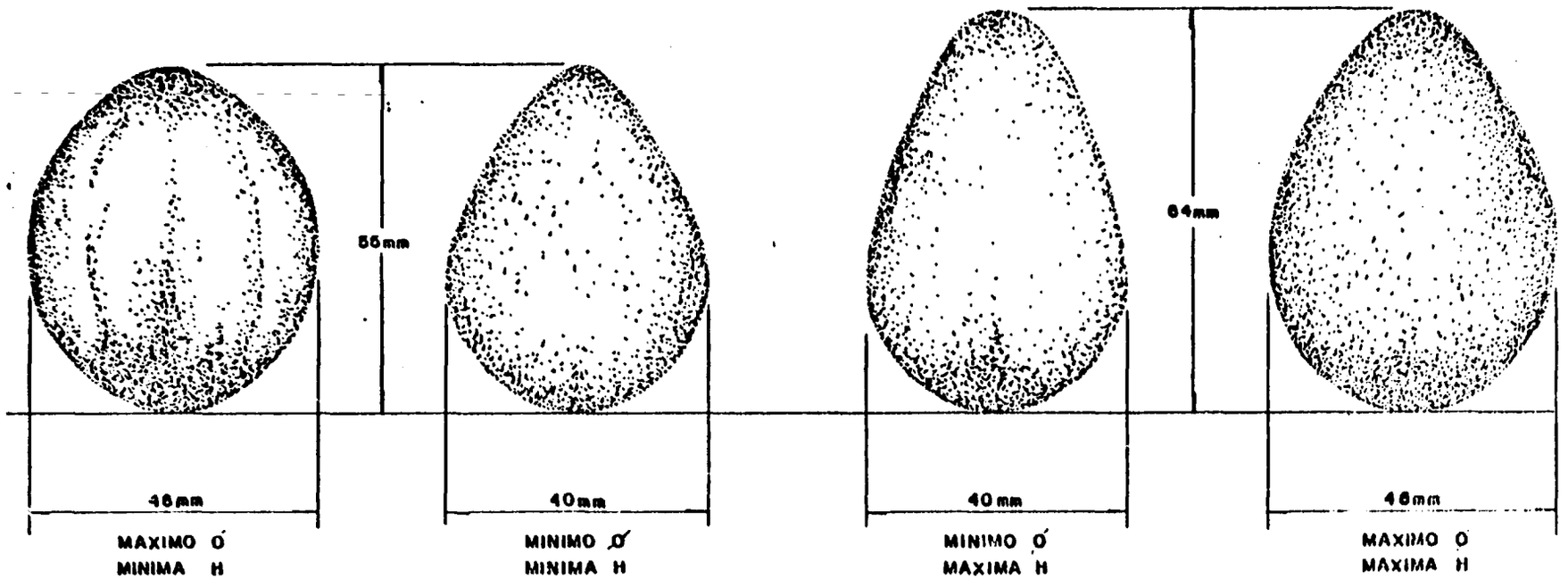



Fig. 4

The author has not found but one size of cavities in the trays (although some producers are said to use different sizes for different grades of eggs). This might give extrem results in the shape of the filled trays, as appears in Figure 5, which in turn results in possible breakage of the tall eggs under compression.

The transport carton does not stand stacking during transport, due to the general quality of corrugated board in Mexico and to the type of partition used (Figure 1).

Another type of packaging is used, although only locally in Sonora, (Figure 2), for packages of a dozen eggs in lidded trays. Here, three sizes of cones are said to be used.

## 2. CONCLUSIONS

It is apparent that the emphasis has to be put on the grading of eggs on the other hand and on the selection of package on the other. It is hardly believable that the way of handling during distribution can be changed.

Also the implementation of the system (used in the USA and Europe) to move the eggs from the open trays of 30 into lidded retail packs of 6 or 12, carried out by wholesalers, can hardly be expected in Mexico.

Thus, a process where the eggs are transported, stored and sold to the ultimate consumer without changing the package has to be developed in order to protect the product and reduce the damage to a level of 1% breakage.

## 3. RECOMMENDATIONS

Grading of eggs should be mechanized wherever possible. In the attachment of this report some leaflets of equipment for the grading are included.

Packaging

In this stage no final recommendations can be given as all alternatives require thorough testing before recommending any of them for practical implementation.

## COLOCACION DE HUEVO SOBRE LA CHAROLA USADA EN MEXICO

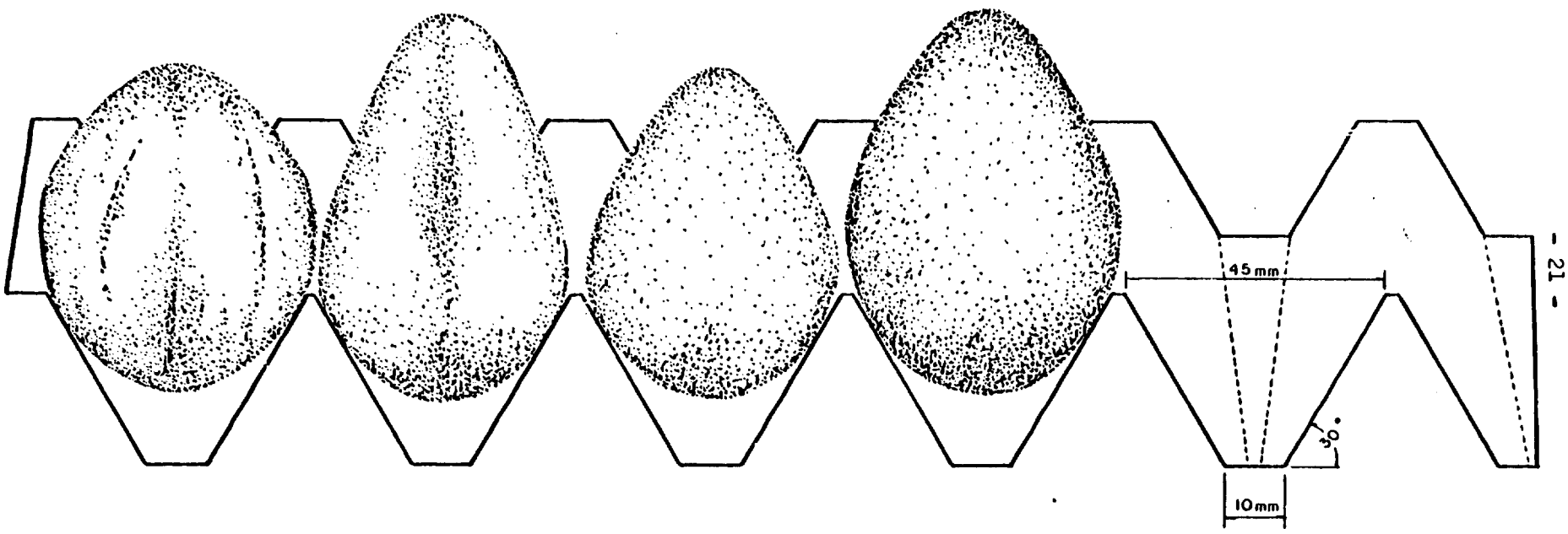



Fig. 5

The alternatives suggested for testing have been limited to as few as possible to avoid a too large amount of eggs to be required for the testing.

Following alternatives were selected for testing:

A. Tray of 30 graded eggs, the size of them fitting the cavities. Transport carton with a partition as in Figure 3.

B. Tray of 30 eggs , ungraded. Transport carton as above.

C. Tray with lid of moulded pulp for 12 eggs without grading. Transport carton as in Figure 2.

D. Tray with lid of foam polystyrene thermoformed. Transport carton as above.

E. Presently used package (comparison pack) with not graded eggs, as Figure 1).

For each type of packaging, five filled transport cartons are needed.

N. B. This is a minimum requirement for efficient testing.

To save products, however, A and B might be combined and C and D as well by filling one end of the transport carton with trays type A and the other with B (respectively C/D).

For complete testing, thus, 15 filled transport cartons and three for replacement of brokens, is required:

18 x 360 = 6, 480 eggs

Testing

In order to simulate the transport conditions on a trailer for 1, 500 - 2, 000 kms. the testing should be carried out as follows:

Testing methods according to ISO 4150/BSI 6082. Conditioning NOM-EE-67-1979 (normal conditions)

- Test 1

Stacking (ISO 2234)

Method: Simulate stacking of 7 cartons by using at least 3 cartons plus extra weight. Stacking time 15 days.

- Test 2

Horizontal impact (ISO 2244)

Method: Use existing skid and an accumulated distance up to a velocity of 2.7 m/sec. Repeat 4 times.

- Test 3

Vertical impact (ISO 2248)

Drop height 25 cm. Drop three times, bottom, bottom short end, bottom other short end.

- Test 4

Vibration

Method: a) Continuously changing frequency 5 - 70 - 5 Hz. duration 9 minutes, intensity 0.5 G. b) Continuously changing frequency 5 - 70 - 5 Hz. duration 9 minutes, intensity 0.75 G. Repeat a) 9 times, b) 2 times, a) 9 times Total duration 180 minutes.

Testing schedule for each type of package:

| CARTON No. | TEST | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| 1 | x | x | x | x |
| 2 | | x | x | x |
| 3 | | | x | x |
| 4 | | x | | x |
| 5 | | | | x |

After each test, open the carton, count and mark the place of broken eggs and replace them with fresh ones.

After finishing the tests make conclusions and present them in a practical and comprehensive way with final recommendations for packages to be used. Economic calculations should be made in a way to show the reader how much he is able to save (breakage in package E — breakage in recommended package compared to higher cost of packaging).

# APPENDIX 1

## PLACES VISITED DURING MISSION

Grand Bazaar Hypermarket, Mexico, D.F.

- with staff of Standards Section and consultant William Simms .

Vidriera México, S.A., México, D.F.

- with five members of Standards Section and Mr. William Simms.

- Ing. Wigberto Villafuerte

Fábrica de Sidra, El Pomar, Tulancingo Hidalgo

- with five members from the Standards Section and Mr. William Simms.

- Q.F.B. Genoveva Diaz

Bremen, S.A., Sándalo, México, D.F.

- with two members from the Standards Section

- Sr. Carlos Gutierrez Mendieta

Oficina Nacional de las Normas DGN, México, D.F.

- with one member from the Standards Section.

- Sr. Guillermo Tajanar

KS de Morelos, S.A., Cuernavaca

- with two members of Standards Section and Mr. William Simms.

- Ing. Armando Escobar

La Merced, México, D.F.

- with consul t E. Feingold and a member of Industrial Design Department

La Granja El Calvario, Tehuacán, Puebla

- with Mr. E. Feingold and a member from the Industrial Design Department.

Novapack S.A., México, D.F.

- with Mr. E. Feingold and a member of Industrial Design Department

Polioles, S.A., México, D.F.

- with Mr. Francisco Muñoz, Mr. E. Feingold and two members of Industrial Design Department

- Ing. Otto Pletencer

# APPENDIX 2

Papers handed over to the staff of the the standards section, aimed at basic training in packaging technology. To improve the usefulness of those papers they will be translated in Spanish.

1. General principles in packaging
2. Economy in packaging
3. Flexible packaging
4. Plastics in packaging
5. Semi-rigid packaging
6. Glass packages
7. Formed, semi-rigid containers of plastics
8. Paper packages
9. Printing in packaging
10. Wooden packages
11. Transport hazards
12. Packing for sea transportation
13. Some aspects of packaging for transport
14. Carton board, testing methods.

Additionally, several ISO standard's and EEC directives have been given to the staff.

# APPENDIX 3

## DRAFT JOB DESCRIPTION FOR AN EXPERT ON INFORMATION

1. Get acquainted with the present status of information at LANFI.

2. Organize a system on collecting, processing and disseminating information, both internal and external, especially paying attention to the future implementation of PIRA report ("Organization of the Packaging Information Centre of the Mexican Institute of Assistance to the Industry", January 1981).

3. Give advice in scanning and writing abstracts as well as in improving the classification system on packaging.

4. Elaborate an economical programme for the foundation of an informative publication directed to the Mexican Industry.

5. Give advice in organizing packaging contests on a national level.

6. Work out a step-by-step programme for practical implementation of the Packaging Information Centre mentioned in Pos. 2.

APPENDIX 4

BLUEPRINT FOR PACKAGING EDUCATION IN MEXICO

General Notes

The courses described in the following should be given according to demand but at least once a year. The optimal form of a course would be an intensive course where the participants usually get in close contacts with eachother thus creating constructive discussions and getting a wider scope of the industry problems related to packaging.

Seminars could be arranged on suitable occasions when specialists are available e.g. from abroad.

However, to find out the actual demand for different courses and seminars - a most uneconomical way to decide upon an integrated training programme is to do it without any idea of the number of participants likely to attend - it is recommended to send out special questionnaires regarding the planned programme (Appendix 5).

The aims of this kind of activity are:

- To receive information of the training needs and proper training.
- To give information about the coming events in training and other relevant matters concerning packaging.
- To gain status for the activities and thus facilitate adequate charging for the events.

The questionnaire could be linked with e.g. a Newsletter.

Certain amount of tasteful advertising in connection with the questionnaires is recommendable.

N.B. The questionnaires should be sent to named persons (on executive level) within the industry (as should the possible newsletters) to gain sufficient feed-back.

Each working day consists of four sessions. The duration of a session is 1.5 hours, including discussion.

Participants are given a pre-course assignment of preparing background reports to be presented during the first day. This helps to identify typical problem areas both to the instructors and to the participants.

Participants should be encouraged to discuss and ask questions during the sessions.

Group work and case studies can be carried out during additional evening sessions.

COURSE 1

Four weeks intensive training course in packaging technology and promotion.

This course could be divided into two phases of two weeks each. There might be a time space between the phases of 1-2 months.

Entrance qualifications: High school education and adequate practical experience in the field of packaging.

Phase 1

1st day

1. Opening ceremony, course presentation, administration
2. Participants' reports
3. Participants' reports continued
4. Participants' reports continued

Part A: General Principles in Packaging 12 hours

2nd day

1. Packaging as part of the production process
   - The influence of packaging considerations on all operations from the initial design or formulation of the product to its use.
2. The role of package in distribution
   - Distribution means safe transfer of the

product from manufacturer to ultimate consumer. It consists of physical distribution and marketing.

3. Products and product requirements

   - Physical, chemical and mechanical properties and their protection

4. Food preservation

   - General principles

3rd day

1. Production requirements

   - Especially in food processing, certain requirements have to be considered.

2. Functional requirements

   - Convenience packages, packages easy to handle and pick up, package sizes.

3. Market requirements

   - Local and export markets put different strains on the package mechanically; but the consumer tastes and habits are also highly varying in different markets.

4. Environment and the package

   - Recycling; natural resources; disposal.

Part B: Packaging Materials 42 hours

4th day

1. Cellulosic materials

   - Processing principles

2. Paper

   - Quality properties

3. Board

- Paperboard, fibreboard

4. Corrugated board

- Manufacturing and qualities

5th day

1. Testing methods for cellulosic materials
2. Paper packages
3. Folding boxes
4. Corrugated boxes

6th day

1. Labels

- Materials, properties

2. Flexible packaging; plastics

- General principles
- Main plastic films & properties
- Material combinations
- Cellophane

3. Flexible packaging continued
4. Rigid plastic packages

- Injection molding
- Blow molding
- Thermoforming

7th day

1. Glass and glass packages
2. Metal and metal packages

- Tinplate
- Aluminium
- Can manufacturing

3. Metal packages continued
4. Wooden packages

8th day

1. Textile and indigenous materials
2. Cushioning materials
   - Rigid materials
   - Shock absorbing materials, elastic and non-elastic
3. Testing methods
4. Testing methods continued, visit to testing laboratory

9th day

1. Printing methods
   - Flexographic
   - Rotogravure
   - Offset litho
   - Letterset
2. Printing methods continued
   - Artworks for reproduction
3. Field visit to selected packaging industry
4. Field visit continued

10th day

1. Standardization
   - Material, testing and dimensional standards
   - Mexican standards
   - International standards
2. Economy of packaging materials
   - Material costs
   - Dimensioning a package
3. Group work on selecting packaging materials and sizes
4. Evaluation of group work; general discussion on the Phase I

- Inter-course assignment

Phase II

1st day

1. Opening ceremonies, administration, etc.
2. Evaluation of inter-courses assignments
3. Evaluation continued
4. Evaluation continued

Part C: Packaging Methods — 24 hours

2nd day

1. Packaging of food
   - Migration
   - Contamination
   - Preservation methods
2. Product feeding and measuring
   - Measuring by volume
   - Measuring by weight
   - Measuring by counting
3. Packaging of liquids
   - Dairy products
   - Beverages
4. Packaging of liquids continued

   Packaging of semi-liquids
   - Collapsible tubes

3rd day

1. Field visit to a brewery or other relevant factory
2. Field visit continued
3. Packaging of powdered and free-flowing products
   - Bagging methods
   - Vertical cartoning systems

4. Packaging of toiletries and pharmaceuticals

4th day

1. Packaging of solid items

- Electronics
- Machines
- Carpentry

2. Multi-unit packaging

- Shrink wrapping
- Stretch wrapping

3. Packaging for transport

- Different types of transport packages
- Marking

4. Unit loads

- Pallets
- Strapping
- Standardization

5th day

1. Auxiliarly operations in packaging

- Check-weighing
- Metal-detecting
- Labelling
- Price-marking

2. Auxiliary operations continued

3. Maintenance of packaging machinery

4. Purchasing of packaging equipment

- Capacity calculations
- Cost calculations

Part D: Handling and Storing 6 hours

6th day

1. Materials handling and internal transfer

- Transfer and handling equipment

2. Storing of packaging materials and packaged goods

   - Facilities and equipment
   - Storing conditions

3. Purchasing of packaging materials

   - Specifications
   - Delivery times
   - Samples and testing

4. Packaging costs; case work

Part E — Distribution — 18 hours

7th day

1. Packaging for export

   - Requirements of different export markets

2. Road and railroad transport

3. Air transport

4. Sea transport

8th day

1. Transport hazards and insurance

   - Mechanical hazards
   - Climatical hazards
   - Contamination
   - Principles of transport insurance

2. Containerization

   - Container types and sizes
   - Container handling and maintenance
   - Condensation

3. Visit to port or other terminal

4. Visit continued

9th day 1. Chain of distribution

- Wholesaler
- Retailer
- Consumer

2. Laws and regulations

3. Promotional packaging

- Principles on package design

4. Promotional packaging continued

10th day 1. Packaging planning

- Technical planning
- Integrated planning

2. Case on packaging planning

3. Packaging management

4. Evaluation of the course; closing

Net duration: 80 sessions - 120 hours

After the course, an examination might be implemented in case a certificate or degree is wanted.

The examination (duration one day) should consist of questions in approximately following proportions:

| | |
|---|---|
| General principles in packaging | 5% |
| Product requirements | 15% |
| Packaging materials | 30% |
| Packaging methods | 15% |
| Handling and storing | 5% |
| Distribution | 15% |
| Design and planning | 15% |
| | 100% |

COURSE 2

Basic course in packaging technology and promotion, two weeks

This course is aimed for persons with little experience in packaging or those intending to enter the field. Lecturers should not go too deep into scientific details.

| | | |
|---|---|---|
| 1st day | 1. | Opening ceremony, course presentation administration |
| | 2. | Participants' reports |
| | 3. | Participants' reports continued |
| | 4. | Participants' reports continued |
| 2nd day | 1. | General principles in packaging |
| | 2. | General principles in distribution |
| | 3. | Protection |
| | 4. | Product requirements |
| 3rd day | 1. | Flexible packages and their properties |
| | | - Paper<br>- Plastic films and laminations<br>- Cellophane |
| | 2. | Flexible packages continued |
| | 3. | Rigid packages and their properties |
| | | - Metal<br>- Glass<br>- Rigid plastics |
| | 4. | Rigid packages continued |
| 4th day | 1. | Semi-rigid packages and their properties |
| | | - Folding boxes |

- Corrugated boxes
- Collapsible tubes

2. Semi-rigid packages continued

3. Printing methods and inks

4. Printing continued

5th day

1. Wooden packages and their properties

2. Textile; indigenous materials; compounds

3. Visual design

- Preparing artworks for reproduction

4. Case work on selecting packaging material and package type

6th day

1. Evaluation of case work

2. Auxiliary packaging

- Labelling, marking, check-weighing, metal-detecting

3. Unit loads and containerization

- Pallets, load building, container sizes

4. Standardization

7th day

1. packaging for export

- Different means of transport and their requirements

2. Transport hazards and insurance

3. Visit to port or other terminal

4. Visit continued

8th day

1. Distribution
   - Storing-wholesaler-retailer-consumer
2. Laws and regulations
3. Promotional packaging
4. Promotional packaging continued

Case work on visual design

9th day

1. Evaluation of case work
2. Packaging methods and machines
3. Packaging methods continued
4. Packaging costs

10th day

1. Packaging management
2. Information systems, institutional aspects
3. Integrated packaging planning
4. Evaluation of course; closing

COURSE 3

Extension course in packaging: Specific materials, one week.

This kind of training is aimed at students with profound experience in packaging; entrance qualifications should be at least attending course 2.

1st day
1. Opening ceremonies, course presentation, administration
2. Participants' reports
3. Participants' reports continued
4. General principles in packaging

2nd day
1. Standardization
2. Distribution
3. Packaging planning
4. Economy in packaging

ALTERNATIVE PROGRAMMES FOR 3 AND 4 DAY:

Alternative 3.1: Cellulosic Materials

3rd day
1. Paper
   - Manufacturing, qualities, properties
2. Paperboard
   - Manufacturing, qualities, properties
3. Corrugated board
   - Manufacturing, qualities, properties
4. Laminated/coated materials,
   - Manufacturing, qualities, properties

4th day 1. Packages of paper and laminates

2. Folding boxes

3. Corrugated boxes

4. Printing methods

Alternative 3.2: Plastic Materials

3rd day 1. Basic chemistry of plastics

2. Polythene

- Manufacturing, types, use and properties

3. Polypropene

- Manufacturing, types, use and properties

4. Polystyrene

- Manufacturing, types, use and properties

4th day 1. PVC, PVDC

- Manufacturing, types, use and properties

2. PA and newly invented plastic materials, cellophane

- Manufacturing, types, use and properties

3. Plastic packages

- Rigid packages
- Flexible packages

4. Printing methods

Alternative 3.3: Metal and Glass

3rd day 1. Metal

- Manufacturing and converting of tinplate and aluminium
- Printing methods

2. Metal continued
3. Metal cans
4. Collapsible tubes and foil

4th day

1. Glass
   - Manufacturing and properties
2. Bottles
   - Sizes, standards and use
3. Jars and closures
4. Printing methods

For all alternatives:

Case work on technical design and dimensioning

5th day

1. Evaluation of case work
2. Testing methods in the related field
3. Visit to laboratory
4. Evaluation of course and closing

SUBJECTS FOR SPECIAL SEMINARS

Duration of a seminar in most cases is one day. Only if specialist speakers on the subject are temporarily available and the usefulness of the seminar thus granted, it might be extended to two days.

A. Consumer Packaging in Specific countries / regions.

1. Laws and regulations

2. General information

- Economy
- Households
- Market situation

3. Consumer habits for related products

4. Existing packages for related products

B. Packaging of Specific Products

1. Product processing when related to packaging, Product requirements

2. Existing package types and possible packaging methods

3. Consumer expectations (in different countries)

4. Packaging for export

- Standardization
- Unit loads
- Coding and marking
- Mechanical strains

C. Food Preservation

1. Sterilizing methods and freezing

2. Canning

3. Flexible packaging

   - Vacuum
   - Gas

4. Aseptic packaging

D. Packaging Management

1. Product development

2. Integrated packaging planning

3. Responsibilities and organization

4. Purchasing

E. Economy in packaging

1. Packaging costs

   - Material
   - Labour
   - Methods
   - Energy

2. Standardization

3. Transport hazards and insurance

4. Evaluation of packaging costs versus marketing value of the product, case work

F. Visual Design (2 days)

1. Laws and regulations

2. Code marking

   - EAN
   - UPC

3. Printing methods

4. Artworks for reproduction

5. Principles of promotional design

6-8 Workshop

# APPENDIX 5

Suggestion for a draft letter to be sent to the General Managers of all or as many as possible) industries in Mexico involved in packaging.

Consideraciones para aquellos que esten relacionados con el envase:

- El volúmen de la Industria del Envase en México ya excede los dos billones de dólares.
- Está controlado el costo de su sistema de envases?

Breve descripción de los Laboratorios Nacionales de Fomento Industrial (LANFI) y de sus actividades.

LANFI sabe que se necesitan muchos conocimientos en el campo del envase en México para:

- Economizar en los materiales, espacio, energía y mano de obra necesarios
- Racionalización
- Intensificar las operaciones mercantiles tanto locales como de exportación.

Por esta razón estamos preparados para extender nuestras actividades en entrenamiento a través de cursos y seminarios de temas diferentes, especialmente en tecnología básica de envases.

Debido a que LANFI desea proporcionar el mejor servicio posible, solicitamos su opinión sobre los eventos de entrenamiento:

Solamente deseamos conocer los temas de más interés para usted, cuantos empleados le gustaría enviar y cuales meses prefiere para cursos de entrenamiento.

Favor de regresar el cuestionario adjunto completamente lleno, ésto no representará ninguna obligación para usted pero nos ayudará enormemente a servirlo mejor para incrementar la importancia del conocimiento dentro de su Empresa.

Agradecemos su colaboración

Laboratorios Nacionales de Fomento Industrial

# C U E S T I O N A R I O

Compañía

Firma Título

---

Nuestra Empresa podría beneficiarse con la participación en los siguientes eventos de entrenamiento de personal (por favor marca V)

☐ CONSERVACION DE ALIMENTOS Lugar _____
Costo _____

Seminario de un día con temas como los métodos de esterilización, envases al gas y al vacío, congelamiento y envases esterilizados.

Meses favorables : _____

Participantes que probablemente asistirán : _____

---

☐ CURSO BASICO DE TECNOLOGIA DE ENVASES Y PROMOCION

Lugar _____ Costo _____

Curso intensivo de entrenamiento de dos semanas para personas con alguna experiencia en el campo. Se darán sesiones del pre-curso a los participantes al informar del curso. Cada día consistirá de 4 sesiones, con una duración para cada sesión de 1.5 horas. Ejemplo, los siguientes temas:

- Principios generales del envase
- Protección
- Requerimientos del producto
- Requerimientos del mercado
- Accesorios de diferentes materiales de envase
- Envases para exportación
- Diseño visual
- Maquinaria y métodos de envase
- Excursiones, , etc.

Meses favorables : _____
Participantes que probablemente asistirán : _____
etc. etc.

APPENDIX 6

## 3. RECOMMENDATIONS.

1. The initiative of IMAI in seeking membership of the International Association of Packaging Research Institutes (IAPRI) should be supported as this will lead to a closer association with packaging laboratories which have accumulated considerable experience over the past 30 years.

2. Every opportunity should be taken, by visits and other means, to familiarise the IMAI staff with the practices and needs of the industries they are endeavouring to serve, i.e. the production, filling and closing, handling, storage, transport and distribution of packages.

3. The practice of circulating only the 'contents page' of packaging journals received in the library should be reviewed having in mind that the news items and advertisements in such journals contribute to an individual's total knowledge.

4. The staff should be made aware of the sources of information available to LANFI/IMAI and the circumstances under which such sources may be used, e.g. enquiries to the UNIDO Industrial Inquiry Service or the PIRA computer base.

5. The editorial practice in the preparation of standards should be reviewed and, where reference to another standard is essential, consideration given to simply making reference to it in mandatory terms, e.g. " ... shall comply with the requirements of NOM-EE-1234", omitting the year of publication from the reference.

6. Wherever practicable standards for manufactured packages should have the widest possible application rather than be restricted to specific products.

7. Every opportunity should be taken to develop a rational range of capacities for each type of rigid package, e.g. drums, bottles, cans and jars, preferably based on a 1 - 2.5 - 5 - 10 type of progression.

8. Following the rationalisation of capacities of rigid packages every encouragement should be given to industry to adopt standardised shapes, and hence standardised dimensions, for such packages.

9. A review should be made of Mexico's participation in the work of the ISO technical committees and sub-committees which are listed in section 2.6 and which are concerned with packaging and distribution.

10. Consideration should be given to monitoring the work of such ISO committees and sub-committees whatever grade of membership is thought to be appropriate.

11. It is strongly recommended that the terms of reference of the COMEE and its sub-committees be amended to cover "all national and international standards work" in their defined areas of interest, and thus bring about a closer
12. identity of purpose in national and international standards making.

    Wherever Mexico has voted in favour of an ISO standard, and in all other cases unless there is a strong objection to the contrary, the ISO standard should be adopted without change as a DGN standard.

13. In the planning of future standardisation programmes consideration should be given to the specific items listed in section 2.8, plus some of the more important national and international (non-ISO) standards listed in Appendix 4.

14. IMAI should become thoroughly familiar with the regulations of the FDA and the EEC regarding packages and materials used in contact with food, in order to provide support to Mexican exporters, whether the support be in the form of advice, testing facilities or standards preparation.

15. IMAI should become thoroughly familiar with the various international and national regulations regarding the classification, packaging, labelling and transport of dangerous goods listed in Appendix 5, in order to be able to offer expert advice to industry.

16. IMAI should seek clarification of the intentions of the Government Departments responsible for sea, road, rail and air transport regarding the implementation of the UN recommendations, having in mind the international developments referred to in section 2.9.

17. In the light of the foregoing IMAI should proffer such advice as is thought to be appropriate on the setting up of a scheme for the UN testing and certification of packages, having in mind that Mexican exporters may be required, at some future time, to use UN certified packages. Care should be taken not to seek a monopoly of such UN testing as this might antagonise industry; care should also be taken to avoid a premature mandatory requirement for the use of UN tested packages because of the physical problems of testing large numbers of packages which are already in use.

18. IMAI, having assessed the equipment necessary to carry out the UN tests, the need to accommodate several large drums at a time in cold and hot rooms, and the safety problems involved in the handling of and the drop, stack and hydraulic pressure testing of such large packages up to 250 kg in weight, should take urgent action to obtain such additional facilities as are necessary to enable them to act as an official testing station for the approval and certification of packages for dangerous goods.

19. Consideration should be given to the possibility of a member of IMAI staff being seconded to PIRA for a short period in order to gain first hand experience of the UN testing, approval and certification procedures.

20. UNIDO should consider the publication of a detailed guide to the various regulations concerning the packaging of dangerous goods for transport as there is a serious lack of knowledge amongst developing and developed countries alike. The author would be prepared to consider the preparation of such a document.

21. When the immediate task of consolidating the position of IMAI is well advanced IMAI should become thoroughly familiar with other trends in distribution (e.g. the use of freight containers, shrunk-wrapped or stretch-wrapped unit loads whether on a pallet base or using an expendable sling, cage pallets and other retailing devices, and intermediate bulk containers for, say, 1000 litres or 1000 kg of liquid or solids) in order to be able to offer such advice and encouragement as is necessary to Mexican industry, to prepare the necessary standards, and provide test facilities to ensure a high degree of safety.

APPENDIX 7

E. RECOMMENDATIONS

1. The co-ordinators should actively seek out information about the subjects under discussion by their subcommittee. A system is needed by which they can obtain photo copies of relevant articles standards etc. The subscription to PIRA abstracts should be re-instated and the 1980/81 gap filled.

2 Industry must play a more important role in standards preparation.

3. The frequency of meetings should be reduced to one per month.

4. A second committee concerned only with test method standardisation should be formed in the case of plastics, metals, technical studies, paper and board, and transportation.

5. Instead of Standards Section Staff specialing in one topic they should specialise in two subjects at least e.g. wood textiles and transportation : technical studies, plastics and paper and board : metals and glass.

6. The first draft document presented to the subcommittee should reflect the doubts and difficulties experienced by the co-ordinator. The points on which committee discussion and agreement is required should be clearly noted, to supplement those raised by the subcommittee members.

7. The future programme should concentrate on those aspects in which LANFI is best equipped to handle, ie scientific aspects. especially measurement.

8. The wording of standards should be softened somewhat in all non mandatory standards. The purpose to help should be more obvious than the purpose to control.

# APPENDIX 8

## CODE OF CONDUCT FOR THE PREPARATION OF NEW STANDARDS

1. Se ha fijado un programa para los próximos años para elaborar normas que se clasifiquen de acuerdo al tipo de Industria de que se trate.

2. Debido a que cada subcómité está trabajando cuando menos en dos normas simultaneamente, la Tabla/Tiempo tiene que construirse en tal forma que evite que cualquier miembro de la industria sea llamado a una reunión más de una vez al mes.

3. Construir la Tabla/Tiempo para todo el año, después de una cuidadosa consideración y dejando tiempo disponible para cada proyecto.

4. Cuando inicie la elaboración de una norma, investigue toda posible información:

   4.a. Existiendo normas en el siguiente orden:

   1. ISO
   2. ANSI
   3. BSI
   4. DIN

   y otras

   Si no existe norma o si aparentemente no es aplicable:

   4. b. Intente con la computadora

5. Pida los artículos (disponibles en México)

6. Ordenar la información obtenida y escribir un extracto de ella que sea comprensible, señalar las diferencias entre varias normas, presentando preguntas adecuadas, etc.

7. Cada miembro del subcomité de la industria deberá recibir toda la siguiente información:

- Normas relevantes
- Lista de terminología
- Especificaciones (si las hay)
- Directivas (por ejemplo reglamentos de etiquetado, directivas relacionadas con la protección al consumidor)
- Estadísticas de la industria (ejemplo: XX Empresas en México producen un total de XXX toneladas de XXXX en el año de 19XX).

Sumario de la información anterior.

8. No escribir un borrador de anteproyecto de norma en este punto.

9. Llamar a los miembros invitados por teléfono e informarles de que LANFI está planeando este tipo de normas para beneficio de la Industria . Explicarles también lo que esperamos obtener: Después de establecer el antecedente de información adecuada esperar la respuesta de la contraparte, que consistirá en su opinión y sugerencias. Dar tiempo límite (después del cual enviarles un recordatorio diariamente).

10. Si el correo es muy lento, usar un mensajero y solicitar a la contraparte que envíe su respuesta el mismo día.

11. Organizar la información recibida enlistando las diferentes opiniones como alternativas para el borrador del anteproyecto.

12. Preparar el borrador del anteproyecto (con alternativas claramente especificadas) para la primera reunión del subcomité.

13. En la reunión leer en voz alta y lentamente el borrador, comentar las alternativas y hacer preguntas. Fomentar discusiones sobre cada punto y no apresurarse en la lectura.

14. Si después de la reunión aún existen dudas, consultar con otros miembros de la Industria.

15. Todas las normas deberán ser aceptadas por la mayoría de los industriales (mayoría en volúmen).

# APPENDIX 9

## PROYECTO DE PROGRAMA DE TRABAJO PARA 1982

### SUBCOMITE No. 1 — PAPEL Y CARTON

- Embalaje.-Cartón.-Cajas para embalar huevo.-Especificaciones
- Envase.-Cartón,-Conos para contener huevo.-Especificaciones
- Envase.-Papel.-Sacos.-Dimensiones
- Envase.-Papel,-Sacos.-Construcción
- Envase.-Papel.-Sacos para materiales de construcción.-Especificaciones.
- Envase,-Papel.-Sacos para productos químicos.-Especificaciones
- Envase.-Papel,-Sacos para productos alimenticios.-Especificaciones.

### SUBCOMITE No. 2 — MADERA

- Embalaje.-Madera.-Corretes para conductores electricos.-Especificaciones.
- Envase y Embalaje.-Madera.-Determinación de dureza.
- Envase y Embalaje.-Madera.-Determinación de contracción
- Envase y Embalaje.-Madera.-Determinación de la resistencia al clivaje.
- Envase y Embalaje.-Madera.-Determinación de cizallamiento.
- Envase y Embalaje.-Madera.-Determinación de la tensión perpendicular y paralela al grano.

- Envase.-Madera.-Barriles para transportar productos pesqueros.-Especificaciones.

SUBCOMITE No. 3 VIDRIO

- Envases para bebidas alcoholicas
- Envases para alimentos en general
- Envases para alimentos infantiles.
- Envases para productos industriales en general.
- Envases de vidrio resistentes a la luz para productos farmaceuticos.
- Frascos goteros para productos farmaceuticos
- Envases farmaceuticos retornables resistentes a la apertura de los ninos.

SUBCOMITE No. 4 PLASTICOS

- Envase.-Plástico.-Películas de celulosa regenerada, generalmente conocida como celofan.-Empleada en envoltura en general.
- Envase.-Plástico.-Película de celulosa regenerada generalmente conocida como "celofan" empleada en la industria cigarrera.
- Envase.-Plástico.-Tapas plasti-lata para leche en polvo.-Especificaciones.
- Envase y Embalaje.-Cajas de plástico para el manejo transporte y almacenaje de botellas.

- Envase.-Plástico.-Botellas de Plástico para contener aceite.

- Envase.-Plástico.-Envases de plástico para yogurt y crema

- Envase y Embalaje.-Plástico.-Película Plástica para embalar alimentos.-Especificaciones.

SUBCOMITE No. 5 TEXTILES

- Envase.-Textiles.-Sacos para envasar café.-Especificaciones.

- Embalaje.-Textiles.-Hilos comerciales para embalar.-Especificaciones.

- Envase.-Textiles.-Sacos para envasar cacahuate.-Especificaciones.

- Envase.-Textiles.-Sacos para envasar cebolla.-Especificaciones.

- Envase.-Textiles.-Sacos para envasar zanahorias.-Especificaciones.

- Envase.-Textiles.-Sacos para envasar sorgos.-Especificaciones

- Envase.-Textiles.-Manta tabaquera.-Especificaciones.

SUBCOMITE No. 6 METALES

- Envase.-Metales.-Envases de hojalata rectangulares para contener sardinas en aceite.-Especificaciones

- Envase'-Metales.-Envases de hojalata de dos piezas para contener cerveza.-Especificaciones

- Envase.-Metales.-Envases de hojalata de dos piezas para contener babidas carbonatadas.-Especificaciones.

- Envase.-Metales.-Envases de hojalata de tres piezas para contener bebidas carbonatadas.-Especificaciones.

- Envase.-Metales.-Tapón corona.-Especificaciones

- Envase.-Metales.-Tapas en general.-Especificaciones.

SUBCOMITE No. 7 ESTUDIOS TECNICOS DE APOYO

- Envase.-Método de prueba para determinar la compatibilidad producto-envase.

- Envase.-Determinación de residuos de monómeros de cloruro de vinilo y estireno en envases alimenticios.

- Envase y Embalaje.-Tintas.-Determinación de la resistencia al agua.

- Envase y Embalaje.-Tintas.-Determinación de la resistencia a alcalis

- Envase y Embalaje.-Tintas determinación de la resistencia a grasas alimenticias.

- Envase y Embalaje.-Tintas.-Determinación de la resistencia a la luz.

SUBCOMITE No. 8 **TRANSPORTACION MANEJO DE CARGA**

- **Embalaje - Tarimas aéreas - Método de prueba**

- Embalaje.-Transporte aéreo.-Plataforma rodante.-"Dolly".-Especificaciones.

- Envase y Embalaje.-Redes aéreas.-Especificaciones

- Transportación y Manejo de Carga.-Terminología

- Envase y Embalaje.-Redes aéreas para contener la carga.-Especificaciones.

- Envase y Embalaje.-Clasificación y definiciones de las mercancias peligrosas.

- Envase y Embalaje.-Definiciones y características generales de los embalajes para mercancias peligrosas.

# APPENDIX 10

List of selected EEC Directives on, and Proposals for, certain products, packaging, labelling and consumer protection (status as of 30.8.1980)

(O.J. indicates the date of publication in the Official Journal of the European Communities)

A. Packaging weights, volumes and quantities

| | |
|---|---|
| - Units of measurement | Directive 80/181 of 20.12.1979 (O.J. 15.2.80, L 39) |
| - Making up by volume of certain prepackaged liquids | Directive 75/106 of 19.12.1974 (O.J. 15.2.75, L 42) and amendments 78/891 of 28.9.78 (O.J. 4.11.78, L 311) 79/1005 of 23.11.79 (O.J. 4.12.79, L 308) |
| - Making up by weight or by volume of certain prepackaged products | Directive 76/211 of 20.1.1976 (O.J. 21.2.76, L 46) and amendment 78/891 of 28.9.78 (O.J. 4.11.78, L 311) |
| - Ranges of nominal quantities permitted for certain pre-packaged products | Directive 80/232 of 15.1.1980 (O.J. 25.2.80, L 51) |

B. Consumer protection

| | |
|---|---|
| - Labelling presentation and advertising of foodstuffs for sale to the ultimate consumer | Directive 79/112 of 18.12.1978 (O.J. 8.2.79, L 33) |
| - Misleading and unfair advertising | Proposals COM(77)724 of 22.2.1978 (O.J. 21.3.78, C 70) and COM(79)353 of 6.7.1979 |

C. Materials in contact with foodstuffs

| | |
|---|---|
| - Materials and articles intended to come into contact with foodstuffs, general directive | Directive 76/893 of 23.11.1976 (O.J. 9.12.76, L 340) |
| - Materials and objects in glass intended to come into contact with foodstuffs | Preliminary drafts 687/VI/73 and 2637/VI/75 |
| - Materials and objects in stainless steel intended to come into contact with foodstuffs | Preliminary draft 688/VI/73 |
| - Symbol to accompany materials and articles intended for contact with food | Directive 80/590 of 9.6.80 (O.J. 19.6.80, L 151) |

| | |
|---|---|
| - Materials and objects in ceramics intended to come into contact with foodstuffs | Proposal COM(74)2173 (O.J. 27.2.75, C 46) |
| - Materials and objects in plastics intended to come into contact with foodstuffs | Proposal COM(78)115 (O.J. 16.6.78, C 141) |
| - Materials and articles which contain vinyl chloride monomer and are intended to come into contact with foodstuffs | Directive 78/142 of 30.1.1978 (O.J. 15.2.78, L 44), and Directive 80/766 of 8.7.1980 (O.J. 16.8.80, L 213) |
| - Materials and articles in regenerated cellulose film intended to come into contact with foodstuffs | Preliminary draft 2642/VI/76 |
| - Methods of analysis for verifying the overall limit of migration into simulants by constituents of plastic materials and articles intended to come into contact with foodstuffs | Preliminary draft 1521/III/78 |
| D. Food products and additives | |
| - Additives | Directives and Proposals dealing with anti-oxidants, colouring matters, emulsifiers, stabilizers, thickeners, gelling agents, preservatives, acids, bases, salts, flavourings, solvents and chemically modified starches. |
| - Butter | Draft regulation 3/1973 |
| - Caseins and caseinates | Proposal COM(79)9 (O.J. 24.2.79, C 50) |
| - Cocoa and chocolate products | Directive 73/241 of 29.7.1973 (O.J. 16.8.73, L 228) and amendments 74/411 of 1.8.1974 (O.J. 12.8.74, L 221), 74/644 of 19.12.1974 (O.J. 28.12.74, L 3[illegible] 75/155 of 4.3.1975 (O.J. 11.3.75, L 64), 76/628 of 20.7.1976 (O.J. 16.8.76, L 223) 78/609 of 29.6.1978 (O.J. 22.7.78, L 197) 78/842 of 10.10.1978 (O.J. 17.10.78, L 2[illegible] and Proposal COM(79)232 (O.J. 15.5.79, C 121) |
| - Coffee and chicory extracts | Directive 77/436 of 27.6.1977 (O.J. 12.7.77, L 172), Directive 79/1066 of 13.11.1979 on methods of analysis (O.J. 24.12.79, L 327) |
| - Condiment sauces | Preliminary draft III/3/73 |

| | |
|---|---|
| - Dietary food, low sodium | Proposal COM(70)6 |
| - Egg products | Proposal COM(69)578 |
| - Erucic acids in oils and fats and foodstuffs containing added oils and fats | Directive 76/621 of 20.7.1976 (O.J. 28.7.76, L 202) |
| - Flour | Draft regulation 4073/VI/72 |
| - Flour confectionery | Preliminary draft XI/819/75 |
| - Fresh fruit and vegetables, Labelling requirements (apples, apricots, artichokes, beans, carrots, cauliflower, cherries, chicory, citrus, endive, table grapes, lettuce, onions, peas, peaches, pears, plums, spinach, strawberries and tomatoes) | Regulation 158/66 of 30.6.1968 (products listed must be identified according to standards issued by the United Nations Economic Commission for Europe - ECE). |
| - Fruit juices and similar products | Directive 75/726 of 17.11.1975 (O.J. 1.12.75, L 311) amendment 79/168 of 5.2.1979 (O.J. 13.2.79, L 37) and Proposal COM(79)740 (O.J. 25.1.80, C 20) |
| - Frozen foods, processing and handling | Preliminary draft III/576/77 |
| - Fruit, canned | Preliminary draft, 2/1971 |
| - Honey | Directive 74/409 of 22.7.1974 (O.J. 12.8.74, L 221) |
| - Jams, marmalades, jellies | Directive 79/693 of 24.7.1979 (O.J. 13.8.79, L 205) |
| - Margarine | Draft regulation (O.J. 20.12.68, C 137) |
| - Meat, meat products and poultry; hygienic standards | Directive 64/433 of 29.6.1964 (O.J. 29.7.64) with amendments 66/601 of 25.10.1966 (O.J. 27.10.66), 69/349 of 6.10.1969 (O.J. 11.10.69, L 25 77/99 of 21.12.1976 (O.J. 31.1.77, L 26) Directive 71/118 of 15.2.1971 (O.J. 8.3.71, L 55) with amendments 74/387 of 15.7.74 (O.J. 24.7.74, L 202), 75/431 of 10.7.1975 (O.J. 24.7.75, L 192 77/27 of 22.12.1976 (O.J. 9.1.77, L 6), 78/50 of 13.12.1977 (O.J. 19.1.78, L 15) |
| - Milk, preserved, partly or wholly dehydrated | Directive 76/118 of 18.12.1975 (O.J. 30.1.76, L 24), amendment 78/630 of 19.6.1978 (O.J. 29.7.78, L 206) and Directive 79/1067 of 13.11.1979 on methods of analysis (O.J. 24.12.79, L 32 |

| | |
|---|---|
| - Mineral waters | Directive 80/777 of 15.7.80 (O.J. 30.8.80) |
| - Mustard | Preliminary draft XI/58/75 |
| - Nutritional foods | Directive 77/94 of 21.12.1976, (O.J. 31.1.77, L 26) |
| - Oils, fats | Working document 3130/VI/75 |
| - Pasta products | Proposal COM(68)834 |
| - Soft drinks | Preliminary draft III/200/79 |
| - Soups, etc. | Preliminary draft R/461/73(AGRI 157) |
| - Sugars, certain | Directive 73/437 of 11.12.1973 (O.J. 27.12.73, L 356) and draft proposal III/797/77; Directive 79/786 of 26.7.79 on methods of analysis (O.J. 22.9.79) |
| - Tomato products | Preliminary drafts 1821/VI/76 and 1822/VI/76 |
| - Vegetables, canned | Preliminary draft 6/1972 |
| - Yeast | Proposal COM(73)330 |
| E. Non-food products | |
| - Cosmetic products | Directive 76/768 of 27.7.1976 (O.J. 27.9.76, L 262), Proposals COM(79) (O.J. 2.7.79, C 165) and COM(79)403, Directive 79/661 of 24.7.1979 (O.J. 31.7.79, L 192) |
| - Detergents | Directives 73/404 and 73/405 of 22.11.1973 (O.J. 17.12.73, L 347) |
| - Textile names | Directive 71/307 of 26.7.1971 (O.J. 16.8.71, L 185) supplementary Directive 75/36 of 17.12.1974 (O.J. 20.1.1975, L 14) and Proposal COM(79)778 (O.J. 13.3.80, C 63) |
| - Toys safety requirements | Proposal COM(80)369 (O.J. 8.9.80, C 228) |
| F. Hazardous products | |
| - Classification, packaging and labelling of dangerous substances and preparations, General | Directive 67/548 of 27.7.1967 (O.J. 16.8.67) and Directive 73/146 of 21.5.1973 (O.J. 25.6.73, L 167) and Directive 75/409 of 24.6.1975 (O.J. 14.7.75, L 183) and Directive 76/ of 14.7.1976 (O.J. 30.12.76, L 360) and amending proposal COM(76)433 (O.J.5.11. C 260). Corrigendum to 76/907 (O.J. 2.2.79, L 28), Directive 79/370 of 30.7.1979 (O.J. 7.4.79, L 88), Directive 79/831 of 18.9.1979 (O.J. 15.10.79, L 259) |

| | |
|---|---|
| - Classification, packaging and labelling of dangerous substances not covered by original Directive 67/548 | Preliminary draft III/365/77 |
| - Classification, packaging and labelling of pesticides | Directive 78/631 of 26.6.1978 (O.J. 29.7.78, L 206) |
| - Approval and marketing of pesticides | Proposal COM(76)427 |
| - Aerosol dispensers | Directive 75/324 of 20.5.1975 (O.J. 9.6.75, L 147) |
| - Classification, packaging and labelling of dangerous preparations (Solvents) | Directive 73/173 of 4.6.1973 (O.J. 11.7.73, L 189) and amending Directive 80/781 (O.J. 30.8.80, L 229) |
| - Classification, packaging and labelling of paints, varnishes, glues and related products | Directive 77/728 of 7.11.77 (O.J. 28.11.77, L 303) |
| - Classification, packaging and labelling of dangerous products of general use in the home (household preparations) | Preliminary drafts XI/780/76 and XI/1/76 Rev.1 |
| - Restrictions on the marketing and use of: | |
| - certain dangerous substances and preparations | Directive 76/769 of 27.7.76 (O.J. 27.9.76, L 262) and amending Proposal COM(79)792 of 10.1.80 (O.J. 8.2.80, C 31) |
| - asbestos fibre | Proposal COM(79)419 of 29.2.80 |
| - fancy lamps, ashtrays and other ornamental objects containing thichlorethylene, tetrachlorethylene or carbon tetrachloride | Directive 79/663 of 24.7.79 (O.J. 3.8.79, L 97) |

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