MANUFACTURING CHEMISTS ASSOCIATION
1872 A CENTURY OF SERVICE 1972
1825 CONNECTICUT AVENUE, N.W. WASHINGTON, D.C. 20009 (202) 483-6126

October 10, 1972

To: FOOD, DRUG, AND COSMETIC CHEMICALS COMMITTEE

Subject: Review of Recommended International Food Standards

Gentlemen:

Attached for your information is a copy of the Notice of Proposed Rule Making which appeared on pages 21102 through 21135 of the October 5 FEDERAL REGISTER.

This particular notice would seem to be of primary concern to food manufacturers. Involved are standards for certain edible oils, certain nutritive sweeteners, frozen peas, and canned sweet corn.

Sincerely yours,

M. M. Hoover, Secretary
Food, Drug, and Cosmetic
Chemicals Committee

MMH:gr

Attachment

Distribution "B"

Discussed with T J Sansville on 11/3/72
Proposed Frozen peas reg 01% - any edible organic acid acceptable. "Canned Corn" reg lists only citric acid as optional acidic ingred but we have no food processor using malic in vegetables & therefore a weak case. Food processor should indicate suggestion with regard to citric acid in edible oils use here is as chelating agent to sequester metals. Malic may also sequester but we do not have solid experimental evidence to support and economics do not favor malic here. All things considered we do not have good ammunition to suggest that malic acid be listed in these proposed regs

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DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Food and Drug Administration

[21 CFR Part 10]

REVIEW OF RECOMMENDED INTERNATIONAL FOOD STANDARDS

Notice of Proposed Rule Making

The Codex Alimentarius Commission is an international agency created in 1963 under the joint sponsorship of the Food and Agriculture Organization (FAO) and the World Health Organization (WHO) of the United Nations. Its function is to develop and administer a program of drafting recommended international food standards which, when adopted by participating countries, will be applied by those countries to their domestic products as well as to their imports and exports. The objective of these standards is to insure fair practices in the food trade by providing for wholesome food products with informative labeling. A decision to initiate work on a standard for any food will be based on the consumer protection a standard would afford, from the point of view of health and fraudulent practices; the volume of production and consumption in individual countries and the volume and pattern of trade between countries; the differences in national legislation and apparent resultant impediments to international trade; and the amenability of the food to standardization.

Since its creation, the Codex Alimentarius program has been actively supported by a large number of countries, including the United States. Work has been carried on concurrently in developing standards for many food products. A substantial number of completed standards have now been submitted to participating countries for their acceptance or rejection. The United States is obligated to review these standards for possible adoption. A country may accept a Codex standard fully with no reservations, or it may accept it with changes, or it may conclude not to accept it.

In order for the United States to accept a Codex standard fully or with minor changes, it will be necessary to have in effect a standard promulgated under sec. 401 of the Federal Food, Drug, and Cosmetic Act (except for meat and poultry products) which will have requirements corresponding to those of the Codex standard. In many instances, this will require promulgation of standards where none exist at present; in others, it will require amending existing standards.

Before proposing adoption of a codex standard as a new U.S. standard under sec. 401 of the act on his own initiative, which would require a substantial amount of FDA resources, the Commissioner of Food and Drugs will ordinarily request review and informal comment and suggestions from consumers, academic circles, the affected food industry, professionals, and other interested persons on the overall value and desirability of adopting in whole or in part the provisions of each particular codex standard under consideration. An invitation to comment informally on a codex standard is not in substitution for, and should not be confused with, the opportunity to comment on any proposal to establish a standard pursuant to sec. 401 of the act. Should the Commissioner conclude that a formal proposal is appropriate, such a proposal will be published in the FEDERAL REGISTER with time for comment.

To initiate this procedure, the Commissioner is publishing elsewhere in this issue of the FEDERAL REGISTER, in their entirety, the recommended international standards for edible cottonseed oil, maize oil (corn oil), mustardseed oil, arachis oil (peanut oil), rapeseed oil, safflowerseed oil, sesameseed oil, soya bean oil (soybean oil), and sunflowerseed oil, and invites all interested parties to comment within 120 days on the desirability and need for standards for these foods, on the specific provisions of each codex standard, on additional or different requirements that should be incorporated, and on any other pertinent points.

In some instances, interested persons have already reviewed a Codex standard and have submitted to the Commissioner a petition for its adoption with or without changes. Where this occurs, there is no need to utilize the procedure under which the Codex standard will itself be published for informal review and comment. If reasonable grounds for the petition are provided, the petition will be published as a formal proposal for comment. In publishing such petitions, however, the Commissioner will either also publish the Codex standard in its entirety, or will identify the ways in which the proposal deviates from the Codex standard, in order to permit comment on these deviations.

To initiate this procedure, the Commissioner is publishing elsewhere in this issue of the FEDERAL REGISTER a proposal to establish standards of identity for certain nutritive sweeteners based upon a petition filed by the Corn Refiners Association, Inc., and a proposal, to establish standards of identity and quality for frozen peas based upon a petition submitted by the American Frozen Food Institute. Ninety days are provided for comment.

Finally, the Commissioner may on his own initiative propose that a Codex standard be adopted in whole or in part. This procedure will particularly be used where it involves consideration of possible amendments to an existing U.S. food standard. Amendments to existing food standards will ordinarily not require publication of the Codex standard for review and informal comment because of the existing finding that a standard for the food is desirable and the fact that the provisions contained in the existing standard often have a long history of consideration.

To initiate this procedure, the Commissioner is publishing elsewhere in this issue of the FEDERAL REGISTER a proposal, on his own initiative, to amend the existing food standard for canned sweet corn, 21 CFR 51.20 et seq., to incorporate changes contained in the Codex standard. Ninety days are provided for comment.

Regardless of the alternative procedures used to review a Codex Alimentarius standard, the Commissioner believes it important that different interest groups, such as industry, consumers, members of various professions, and the academic community, be encouraged to meet and discuss these standards before petitions or comments are submitted. Recent experience has shown that such meetings and discussions often resolve misunderstandings and differences of opinion and avoid unnecessary controversy that can result in protracted disagreement and wasteful public hearings. The Commissioner therefore proposes to require that all petitions and comments of this type include a statement with respect to any meetings and discussions that have been held with other interested persons. Particular importance will be attached to any petitions or comments which represent a consensus of different interest groups.

Therefore, pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701(e), 52 Stat. 1046, 1055–1056, as amended by 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371) and in accordance with authority delegated to the Commissioner (21 CFR 2.120), it is proposed to add the following new § 10.8 to Title 21.

§ 10.8 Review of Codex Alimentarius Food Standards.

(a) All food standards adopted by the Codex Alimentarius Commission will be reviewed by the Food and Drug Administration and will be accepted without change, accepted with change, or not accepted.

(b) Review of Codex standards will be accomplished in one of the following three ways:

(1) Any interested person may petition the Commissioner to adopt a Codex standard, with or without change. Any such petition shall specify any deviations from the Codex standard, and the reasons for any such deviations. The Commissioner shall publish such a petition in the FEDERAL REGISTER as a proposal, with an opportunity for comment, if reasonable grounds are provided in the petition. Any published proposal shall state any deviations from the Codex standard and the stated reasons therefor.

(2) The Commissioner may on his own initiative propose by publication in the FEDERAL REGISTER the adoption of a Codex standard, with or without change. Any such proposal shall specify any deviations from the Codex standard, and the reasons for any such deviations.

(3) Any Codex standard not handled under paragraph (b) (1) or (2) of this section shall be published in the FEDERAL REGISTER for review and informal comment. Interested persons shall be requested to comment on the desirability and need for the standard, on the specific provisions of the standard, on ad-

ditional or different provisions that should be included in the standard, and on any other pertinent points. After reviewing all such comments, the Commissioner shall either publish a proposal to establish a food standard pursuant to sec. 401 of the act covering the food involved, or shall publish a notice terminating consideration of such a standard.

(c) All interested persons are encouraged and requested to confer with different interested groups (consumers, industry, the academic community, professional organizations, and others) in formulating petitions or comments pursuant to paragraph (b) of this section. All such petitions or comments shall include a statement on meetings and discussions held with other interest groups. Particular weight will be given by the Commissioner to petitions or comments that reflect a consensus of different interest groups.

Interested persons may, within 60 days after publication hereof in the FEDERAL REGISTER, file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 6-88, 5600 Fishers Lane, Rockville, Md. 20852, written comments (preferably in quintuplicate) regarding this proposal. Comments may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: September 22, 1972.

CHARLES C. EDWARDS,
Commissioner of Food and Drugs.

[FR Doc 72-16642 Filed 10-4-72;8:45 am]

[21 CFR Part 26]

NUTRITIVE SWEETENERS

Request for Comments on Recommended International Standards and a Petition

The Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission has submitted to the United States for consideration for acceptance recommended international standards for dextrose monohydrate, dextrose anhydrous, glucose syrup and dried glucose syrup. The United States, as a member of the Food and Agriculture Organization of the United Nations and of the World Health Organization, is under obligation to consider all codex standards. The rules of procedure of the Codex Alimentarius Commission state that a codex standard may be accepted by a participating country in one of three ways: Full acceptance; target acceptance; and acceptance with minor deviations. A participating country which concludes that it cannot accept the standard in any of these ways is requested to indicate the reasons for the ways in which its requirements differ from the codex standard. Members of the Commission are requested to notify the Secretariat of the Codex Alimentarius Commission—Joint FAO/WHO Food Standards Programme, FAO, Rome, Italy, of their decision.

A petition has been filed by the Corn Refiners Association, Inc., 1001 Connecticut Avenue, Washington, DC 20036, proposing the establishment of definitions and standards of identity for the same four nutritive sweeteners recommended for acceptance by the Codex Alimentarius Commission.

In the opinion of the Commissioner of Food and Drugs, it will benefit consumers and facilitate international trade to adopt as far as practical the recommended worldwide standards for the four nutritive sweeteners. The basis for the Corn Refiners Association proposal is that these codex standards have been submitted to the United States for acceptance. In many respects they are similar to the codex standards.

The codex standards include certain basic labeling requirements that are not considered a part of food standards under section 401 of the Federal Food, Drug, and Cosmetic Act which is the legal basis for the promulgation of food standards. These labeling requirements are, however, a concern of FDA under other sections of the Federal Food, Drug, and Cosmetic Act and, therefore, are not discussed further in this request for comments.

Establishment of standards of identity for dextrose monohydrate, dextrose anhydrous, glucose syrup, and dried glucose syrup will be based upon consideration of the codex standards, Corn Refiners Association proposal, comments and supporting data received, and other available information.

[CAC/RS 7-1969]

RECOMMENDED INTERNATIONAL STANDARD FOR DEXTROSE ANHYDROUS

1. *Description.—Dextrose anhydrous* is purified and crystallized D-glucose without water of crystallization.

2. *Essential composition and quality factors—*

2.1 *D-glucose content*—not less than 99.5 percent m/m., on a dry basis.

2.2 *Total solids content*—not less than 98.0 percent m/m.

2.3 *Sulphated ash*—not more than 0.25 percent m/m., on a dry basis.

3. *Food additives.—*

3.1 *Sulphur dioxide*—not more than 20 mg./kg.

4. *Contaminants.—*

4.1 *Arsenic (As)*—not more than 1 mg./kg.

4.2 *Copper (Cu)*—not more than 2 mg./kg.

4.3 *Lead (Pb)*—not more than 2 mg./kg. (temporarily endorsed).

5. *Hygiene.*—It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC/RCP 1-1969).

6. *Labeling.*—In addition to sections 1, 2, 4, and 6.1 of the General Standard for the Labeling of Prepackaged Foods (Ref. No. CAC/RS 1-1969), the following specific provisions apply.

6.1 *The name of the food.*—All products designated as *dextrose anhydrous* must conform to this Standard, and products not conforming may not be so designated.

6.2 *Net contents.*—The net contents shall be declared by weight in either the metric ("Système International" units) or avoirdupois or both systems of measurement, as required by the country in which the product is sold.

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

6.4 *Country of origin—*

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

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

7. *Methods of analysis and sampling.*—The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of D-glucose content* (reducing sugars expressed as D-glucose: Dextrose equivalent).

According to the ICUMSA method (ICUMSA Methods of Sugar Analysis, 1964, p. 101 c. *Dextrose equivalent;* which is a modification of the Lane and Eynon Volumetric Method, *ibid.*, p. 13). Results are expressed as percent m/m. D-glucose on a dry basis (see 7.2).

7.2 *Determination of total solids content*—According to the ICUMSA method of moisture determination (ICUMSA Methods of Sugar Analysis, 1964, p. 113, e. *Moisture*).

7.2.1 *Calculation and expression of results*—Results are expressed as percent m/m. total solids content calculated as follows:

$$\%\ \text{m/m. total solids content} = \frac{\text{dry sample mass (g)} \times 100}{\text{sample mass (g)}}$$

7.3 *Determination of sulphated ash*—According to the ICUMSA single sulphation method (ICUMSA Methods of Sugar Analysis, 1964, p. 100, b. *Ash*).

7.3.1 *Calculation and expression of results*—Results are expressed as percent m/m. sulphated ash, on a dry basis (see 7.2) calculated as follows:

$$\text{Percentage of ash, sulphated (as is)} = \frac{\text{ash mass (g)} \times 100}{\text{dry sample mass (g)}}$$

7.4 *Determination of sulphur dioxide*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Codex Alimentarius Methods of Analysis for Sugars, CAC/RM 4-1969, *Determination of sulphur dioxide* (according to Monier-Williams method)). Results are expressed as mg. SO_2/kg.

7.5 *Determination of arsenic*—According to the colorimetric (silver diethyldithiocarbamate) method of the Association of Official Analytical Chemists (Official Methods—AOAC 1965, 24.011-24.014, 24.016-24.017, 24.006-24.008). Results are expressed as mg. arsenic/kg.

7.6 *Determination of copper*—According to the ICUMSA method (ICUMSA Methods of Sugar Analysis, 1964, p. 106, b. *Copper*). Results are expressed as mg. copper/kg.

7.7 *Determination of lead*—According to the ICUMSA "wet ashing" method (ICUMSA Methods of Sugar Analysis, 1964, p. 48 c. *"Wet-ashing" Procedure for Low-grade Products*) Results are expressed as mg. lead/kg.

SELECTED BIBLIOGRAPHY

1. International Commission for Uniform Methods of Sugar Analysis (ICUMSA), 23 Avenue d'Iena, Paris 16ème, France:

Report of the proceedings of the 12th session held at the National Bureau of Standards and at the Shoreham Hotel, Washington, D.C., U.S.A., from June 2 to 6, 1958.

Report of the proceedings of the 13th session held at the University of Hamburg and at the Atlantic Hotel, Hamburg, Germany, from Aug. 26 to 31, 1962.

Report of the proceedings of the 14th session held at the A/S De Danske Sukkerfabrikker and at Ingeniorhuset, Copenhagen, Denmark, from May 22 to 27, 1966.

ICUMSA Methods of Sugar Analysis, edited by H. C. S. De Whalley, Elsevier Publishing Co., Amsterdam, London, New York, 1964.

2. Official Methods of Analysis of the Association of Official Agricultural Chemists (10th ed. 1965), A.O.A.C., P.O.B. 540, Benjamin Franklin Station, Washington, D.C.

3. Standard Analytical Methods of the Member Companies of Corn Industries Research Foundation Inc. prepared by the Analytical Procedures Subcommittee of the Technical Advisory Committee, 2d Ed., 1001 Connecticut Ave., Washington, D.C. 20036.

4. United States Pharmacopoeia: 17th Revn. (New York), 1965, Mack Publishing Co. Easton, Pa.

[CAC RS 8–1969]

Recommended International Standard for Dextrose Monohydrate

1. *Description.—Dextrose monohydrate* is purified and crystallized D-glucose containing one molecule of water of crystallization.

2. *Essential composition and quality factors.*—

2.1 *D-glucose content*—not less than 99.5 percent m/m., on a dry basis.

2.2 *Total solids content*—not less than 90.0 percent m/m.

2.3 *Sulphated ash*—not more than 0.25 percent m/m., on a dry basis.

3. *Food additives.*—

3.1 Sulphur dioxide—not more than 20 mg./kg.

4. *Contaminants.*—

4.1 Arsenic (As)—not more than 1 mg./kg.

4.2 Copper (Cu)—not more than 2 mg./kg.

4.3 Lead (Pb)—not more than 2 mg./kg. (temporarily endorsed).

5. *Hygiene.*—It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC/RCP 1–1969).

6 *Labeling.*—In addition to sections 1, 2, 4, and 6.1 of the General Standard for the Labeling of Prepackaged Foods (Ref. No. CAC/RS 1–1969), the following specific provisions apply:

6.1 *The name of the food*—All products designated as *dextrose monohydrate* must conform to this standard, and products not conforming may not be so designated.

6.2 *Net contents*—The net contents shall be declared by weight in either the metric ("Système International" units) or avoirdupois or both systems of measurement, as required by the country in which the product is sold.

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

6.4 *Country of origin*—

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

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

7. *Methods of analysis and sampling.*—The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of D-glucose content* (reducing sugars expressed as D-glucose: Dextrose equivalent).

According to the ICUMSA method (ICUMSA Methods of Sugar Analysis, 1964, p. 101, c. *Dextrose equivalent;* which is a modification of the Lane and Eynon Volumetric Method, *ibid*, p. 13). Results are expressed as percent m/m D-glucose on a dry basis (see 7.2).

7.2 *Determination of total solids content*—According to the ICUMSA method of moisture determination (ICUMSA Methods of Sugar Analysis, 1964, p. 113, e. *Moisture*).

7.2.1 *Calculation and expression of results*—Results are expressed as percent m/m. total solids content calculated as follows:

$$\%\ \text{m/m. total solids content} = \frac{\text{dry sample mass (g)} \times 100}{\text{sample mass (g)}}$$

7.3 *Determination of sulphated ash*—According to the ICUMSA single sulphation method (ICUMSA Methods of Sugar Analysis, 1964, p. 100, b. *Ash*).

7.3.1 *Calculation and expression of results*—Results are expressed as percent m/m. sulphated ash, on a dry basis (see 7.2) calculated as follows:

$$\%\ \text{of ash, sulphated (as is)} = \frac{\text{ash mass (g)} \times 100}{\text{dry sample mass (g)}}$$

7.4 *Determination of sulphur dioxide*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Codex Alimentarius Methods of Analysis for Sugars, CAC/RM 4–1969, *Determination of sulphur dioxide* (according to Monier-Williams method)). Results are expressed as mg SO_2/kg.

7.5 *Determination of arsenic*—According to the colorimetric (silver diethyldithiocarbamate) method of the Association of Official Analytical Chemists (Official CAC/RS 1–1969), the following specific provisions apply:
Methods—AOAC 1965, 24.011–24.014, 24.016–24.017, 24.006–24.008). Results are expressed as mg. arsenic/kg.

7.6 *Determination of copper*—According to the ICUMSA method (ICUMSA Methods of Sugar Analysis, 1964, p. 106, b. *Copper*). Results are expressed as mg. copper/kg.

7.7 *Determination of lead*—According to the ICUMSA "wet-ashing" method (ICUMSA Methods of Sugar Analysis, 1964, p. 48, c. *"Wet-ashing" Procedure for Low-grade Products*). Results are expressed as mg. lead/kg.

Selected Bibliography

1. International Commission for Uniform Methods of Sugar Analysis (ICUMSA), 23 Avenue d'Iena, Paris 16ème, France:

Report of the proceedings of the 12th session held at the National Bureau of Standards and at the Shoreham Hotel, Washington, D.C., U.S.A., from June 2 to 6, 1958.

Report of the proceedings of the 13th session held at the University of Hamburg and at the Atlantic Hotel, Hamburg, Germany, from Aug. 26 to 31, 1962.

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ICUMSA Methods of Sugar Analysis, edited by U.C.S. De Whalley, Elsevier Publishing Co., Amsterdam, London, New York, 1964.

2. Official Methods of Analysis of the Association of Official Agricultural Chemists (10th ed. 1965), A.O.A.C., P.O.B. 540, Benjamin Franklin Station, Washington, D.C.

3. Standard Analytical Methods of the Member Companies of Corn Industries Research Foundation Inc. prepared by the Analytical Procedures Subcommittee of the Technical Advisory Committee, 2d Ed.—1001 Connecticut Ave., Washington, D.C. 20036.

4. United States Pharmacopoeia; 17th Revn. (New York), 1965, Mack Publishing Co., Easton, Pa.

[CAC/RS 9–1969]

Recommended International Standard for Glucose Syrup

1. *Description.—Glucose syrup* is a purified concentrated aqueous solution of nutritive saccharides obtained from starch.

2. *Essential composition and quality factors.*—

2.1 *Total solids content*—not less than 70.0 percent m/m.

2.2 *Reducing sugar content (Dextrose equivalent)*—not less than 20.0 percent m/m., expressed as D-glucose, on a dry basis.

2.3 *Sulphated ash*—not more than 1.0 percent m/m., on a dry basis.

3. *Food Additives.*—

3.1 *Sulphur dioxide*—not more than 40 mg./kg.

3.2 *Sulphur dioxide in glucose syrup for the manufacture of sugar confectionery only*—not more than 400 mg./kg.

4. *Contaminants.*—

4.1 *Arsenic (As)*—not more than 1 mg./kg.

4.2 *Copper (Cu)*—not more than 5 mg./kg.

4.3 *Lead (Pb)*—not more than 2 mg./kg. (temporarily endorsed).

5. *Hygiene.*—It is recommended that the products covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC/RCP 1–1969).

6 *Labeling.*—In addition to sections 1, 2, 4 and 6.1 of the General Standard for the Labeling of Prepackaged Foods (Ref. No.

6.1 *The name of the food*—All products designated as *glucose syrup* must conform to this standard, and products not conforming may not be so designated.

6.2 *Net contents*—The net contents shall be declared either by weight or volume in either the metric ("Système International" units) or avoir-dupois or both systems of measurement as required by the country in which the product is sold.

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

6.4 *Country of origin*—

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

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

7. *Methods of analysis and sampling.*—The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of total solids content*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Codex Alimentarius Methods of Analysis for Sugars, CAC/RM 1–1969, *Determination of total solids content*). Results are expressed as percent m/m. total solids content.

7.2 *Determination of reducing sugar content*—According to the Lane and Eynon method (ICUMSA Methods of Sugar Analysis, 1964; p. 101, c. *Dextrose Equivalent*, which is a modification of the Lane and Eynon Volumetric Method, *ibid.*, p. 13).

7.2.1 *Calculation and expression of results*—Results are expressed as percentage m/m. reducing sugars (calculated as dextrose) on a dry basis (see 7.1).

7.3 *Determination of sulphated ash*—According to the ICUMSA single sulphation method (ICUMSA Methods of Sugar Analysis, 1964, p. 100, b. *Ash*).

7.3.1 *Calculation and expression of results*—Results are expressed as percentage m/m. sulphated ash, on a dry basis (see 7.1) calculated as follows:

$$\%\ \text{of ash, sulphated (as is)} = \frac{\text{ash mass (g)} \times 100}{\text{dry sample mass (g)}}$$

7.4 *Determination of sulphur dioxide*—According to the FAO/WHO Codex Alimen-

tarius Method (FAO/WHO Codex Alimentarius Methods of Analysis for Sugars, CAC/RM 4-1969, *Determination of sulphur dioxide* (according to Monier-Williams method)). Results are expressed as mg. SO_2/kg.

7.5 *Determination of arsenic*—According to the colorimetric (silver diethyldithiocarbamate) method of the Association of Official Analytical Chemists (Official Methods—AOAC 1965 *24.011*–24.014, 24.016–24.017, 24.006–24.008) Results are expressed as mg. arsenic/kg.

7.6 *Determination of copper*—According to the ICUMSA method (ICUMSA Methods of Sugar Analysis, 1964, p. 106, b. *Copper*). Results are expressed as mg. copper/kg.

7.7 *Determination of lead*—According to the ICUMSA "wet-ashing" method (ICUMSA Methods of Sugar Analysis, 1964, p. 48, c. *"Wet-ashing" Procedure for Low-grade Products*). Results are expressed as mg. lead kg.

SELECTED BIBLIOGRAPHY

1. International Commission for Uniform Methods of Sugar Analysis (ICUMSA), 23 Avenue d'Iena, Parish 16eme, France:

Report of the proceedings of the 12th session held at the National Bureau of Standards and at the Shoreham Hotel, Washington, D.C., U.S.A., from June 2 to 6, 1958.

Report of the proceedings of the 13th session held at the University of Hamburg and at the Atlantic Hotel, Hamburg, Germany, from Aug. 26 to 31, 1962.

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2. Official Methods of Analysis of the Association of Official Agricultural Chemists (10th ed. 1965), A.O.A.C., P.O.B. 540, Benjamin Franklin Station, Washington, D.C.

3. Standard Analytical Methods of the Member Companies of Corn Industries Research Foundation Inc., prepared by the Analytical Procedures Subcommittee of the Technical Advisory Committee, 2d Ed.—1001, Connecticut Ave., Washington, D.C. 20036

4. United States Pharmacopoeia; 17th Revn. (New York), 1965, Mack Publishing Co., Easton, Pa.

[CAC/RS 10-1969]

RECOMMENDED INTERNATIONAL STANDARD FOR DRIED GLUCOSE SYRUP

1. *Description.—Dried glucose syrup* is *glucose syrup* from which the water has been partially removed.

2. *Essential composition and quality factors*—

2.1 *Total solids content*—not less than 93.0 percent m/m.

2.2 *Reducing sugar content (dextrose equivalent)*—not less than 20.0 percent m/m. expressed as D-glucose, on a dry basis.

2.3 *Sulphated ash*—not more than 1.0 percent m/m. on a dry basis.

3. *Food additives.*—

3.1 *Sulphur dioxide*—not more than 40 mg./kg.

3.2 *Sulphur dioxide in dried glucose syrup for the manufacture of sugar confectionery only*—not more than 150 mg./kg.

4. *Contaminants.*—

4.1 *Arsenic (As)*—not more than 1 mg./kg.

4.2 *Copper (Cu)*—not more than 5 mg./kg.

4.3 *Lead (Pb)*—not more than 2 mg./kg. (temporarily endorsed).

5. *Hygiene.*—It is recommended that the products covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC RCP 1-1969).

6. *Labeling.*—In addition to sections 1, 2, 4, and 6.1 of the General Standard for the Labeling of Prepackaged Foods (Ref. No. CAC/RS 1-1969), the following specific provisions apply:

6.1 *The name of the food*—All products designated as *dried glucose syrup* must conform to this standard, and products not conforming may not be so designated.

6.2 *Net contents*—The net contents shall be declared by weight in either the metric ("Système International" units) or avoirdupois or both systems of measurement, as required by the country in which the product is sold.

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

6.4 *Country of origin*—

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

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

7. *Methods of analysis and sampling.*—The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of total solids content*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Codex Alimentarius Methods of Analysis for Sugars, CAC/RM 1-1969, *Determination of total solids content*). Results are expressed as percent m/m. total solids content.

7.2 *Determination of reducing sugar content*—According to the Lane and Eynon method (ICUMBA Methods of Sugar Analysis, 1964, p. 101, c. *Dextrose equivalent*, which is a modification of the Lane and Eynon Volumetric Method, *ibid.*, p. 13).

7.2.1 *Calculation and expression of results*—Results are expressed as percent m./m. reducing sugars (calculated as dextrose) on a dry basis (see 7.1).

7.3 *Determination of sulphated ash*—According to the ICUMSA single sulphation method (ICUMSA Methods of Sugar Analysis, 1964, p. 100, b. *Ash*).

7.3.1 *Calculation and expression of results*—Results are expressed as percent m./m. sulphated ash, on a dry basis (see 7.1) calculated as follows:

$$\%\ \text{of ash, sulphated (as is)} = \frac{\text{ash mass (g)} \times 100}{\text{dry sample mass (g)}}$$

7.4 *Determination of sulphur dioxide*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Codex Alimentarius Methods of Analysis for Sugars, CAC/RM 4-1969, *Determination of sulphur dioxide* (according to Monier-Williams method)). Results are expressed as mg. SO_2/kg.

7.5 *Determination of arsenic*—According to the colorimetric (silver diethyldithiocarbamate) method of the Association of Official Analytical Chemists (Official Methods—AOAC, 1965, *24.011*–24.014, 24.016–24.018, 24.006–24.008). Results are expressed as mg. arsenic. kg.

7.6 *Determination of copper*—According to the ICUMSA method (ICUMSA Methods of Sugar Analysis, 1964, p. 106, b. *Copper*). Results are expressed as mg. copper/kg.

7.7 *Determination of lead*—According to the ICUMSA "wet ashing" method (ICUMSA Methods of Sugar Analysis, 1964, p. 47, c. *'Wet-ashing' Procedure for Low-grade Products*). Results are expressed as mg. lead/kg.

The following are the proposed Corn Refiners Association proposed standards of identity for dextrose monohydrate, dextrose anhydrous, glucose syrup, and dried glucose syrup:

§ 26.1 Dextrose monohydrate; identity.

(a) Dextrose monohydrate is purified and crystallized D-glucose containing one molecule of water of crystallization with each molecule of dextrose.

(b) The food shall meet the following specifications:

(1) The reducing sugar content (dextrose equivalent) expressed as D-glucose is not less than 99.5 percent calculated on a dry basis, and the total solids shall be not less than 90.0 percent m./m.

(2) The sulfated ash content shall not exceed 0.25 percent m./m. calculated on a dry basis, and the sulfur dioxide content shall not exceed a level of 20 mg./kg. (20 parts per million).

(c) The name of the food is "dextrose monohydrate" or "dextrose."

(d) Dextrose monohydrate or dextrose shall be prepared in accordance with the relevant provisions of 21 CFR Part 128.

(e) For the purposes of this section, the methods of analysis to be used to determine if the food meets the specifications of paragraph (b) (1) and (2) of this section are:

(1) Determination of reducing sugar content. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 31.212.

(2) Determination of total solids content. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 31.005.

(3) Determination of sulfated ash. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 31.208.

(4) Determination of sulfur dioxide. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 20.090–20.095.

§ 26.2 Dextrose anhydrous; identity.

(a) Dextrose anhydrous is purified and crystallized D-glucose without water of crystallization, and conforms to the specifications of 21 CFR 26.1, except that the total solids content of dextrose anhydrous is not less than 98.0 percent m./m.

(b) The name of the food is "dextrose anhydrous" or "anhydrous dextrose."

§ 26.3 Glucose syrup; identity.

(a) Glucose syrup is the purified, concentrated, aqueous solution of nutritive saccharides obtained from edible starch.

(b) The food shall meet the following specifications:

(1) The total solids of glucose syrup shall be not less than 70 percent m./m., of which not less than 20 percent m./m. (calculated on a dry basis) shall be reducing sugar content (dextrose equivalent) expressed as D-glucose.

(2) The sulfated ash content of glucose syrup shall not exceed 1 percent m./m. calculated on a dry basis, and the sulfur dioxide content shall not exceed a level of 40 mg./kg. (40 p.p.m.) in the finished syrup.

(c) The name of the food is "glucose syrup"; provided, that when derived from a specific type of starch the product may be called "_____ syrup," the blank to be filled in with the name of the starch; for example, "corn syrup," "tapioca syrup," "wheat syrup."

(d) Glucose syrup shall be prepared in accordance with the relevant provisions of 21 CFR Part 128.

(e) For the purposes of this section, the methods of analysis to be used to determine if the food meets the specifications of paragraph (b) (1) and (2) of this section are:

(1) Determination of reducing sugar content. "Official Methods of Analysis of the Associaton of Official Analytical Chemists," 11th Ed., 1970, 31.212.

(2) Determination of total solids content. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 31.200-31.201.

(3) Determination of sulfated ash. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 31.208.

(4) Determination of sulfur dioxide. "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th Ed., 1970, 20.090-20.095.

§ 26.4 **Dried glucose syrup: identity.**

(a) Dried glucose syrup is glucose syrup from which the water has been partially removed, and meets the specifications of 21 CFR 26.3, except that total solids shall be not less than 93 percent m./m.

(b) The name of the food is "dried glucose syrup"; provided that when derived from a specific type of starch the product may be called "dried _____ syrup," the blank to be filled in with the name of the starch.

In most respects the provisions of the Codex Standards and the Corn Refiners Association's proposal are identical. The following, however, are features of the proposal on which the Commissioner particularly requests comments, with any available supporting data, and the action the Commissioner proposes to take in the event no comments are received:

1. In the United States, analytical testing procedu res forthedetermination ing procedures for the determination of reducing sugar content, total solids content, sulfated ash and sulfur dioxide are performed by the methods in the "Official Methods of Analysis of the Association of Official Analytical Chemist" (AOAC), 11th Ed., 1970, rather than FAO/WHO "Method of Analysis for Sugars, "International Commission for Uniform Methods of Sugar Analysis" (ICUMSA), and "Standard Analytical Methods of the Member Companies" (Corn Refiners Association). The Codex Standards state that the methods of analysis contained therein are not necessarily intended to replace routine methods, but are for use as international referee methods of analysis for the settlement of international disputes. The Commissioner proposes to recognize the methods of the AOAC as the official methods for these standards.

2. The Codex Standards provide for 400 mg. per kg. of sulfur dioxide in glucose syrup and dried glucose syrup for confectionery purposes. These high sulfur dioxide containing products are not distributed in the United States and, therefore, the Commissioner proposes that standards of identity for glucose syrup and dried glucose syrup not provide for these food additives.

3. The Codex Standards for the additional nutritive sweeteners, white sugar, powdered or icing sugar, soft sugars, and lactose will be dealt with at a later date.

Pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701(e), 52 Stat. 1046, 1055-1056, as amended 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371) and in accordance with authority delegated to the Commissioner of Food and Drugs (21 CFR 2.120), interested persons are invited to submit their views in writing (preferably in quintuplicate) regarding this proposal within 90 days after its date of FEDERAL REGISTER publication. Such views and comments should be addressed to the Hearing Clerk, Department of Health, Education, and Welfare, Room 6-88, 5600 Fishers Lane Rockville, Md. 20852, and may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: September 25, 1972.

SAM D. FINE,
Associate Commissioner for Compliance.

[FR Doc 72-16643 Filed 10-4-72;8:45 am]

[21 CFR Part 50]

FROZEN PEAS

Request for Comments on a Recommended International Standard and a Petition

The Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission has submitted to the United States for consideration for acceptance a recommended international standard for quick frozen peas. The United States, as a member of the Food and Agriculture Organization of the United Nations and of the World Health Organization, is under obligation to consider all Codex standards. The rules of procedure of the Codex Alimentarius Commission state that a Codex standard may be accepted by a participating country in one of three ways: Full acceptance; target acceptance; and acceptance with minor deviations. A participating country which concludes that it cannot accept the standard in any of these ways is requested to indicate the reasons for the ways in which its requirements differ from the Codex standard. Members of the Commission are requested to notify the Secretariat of the Codex Alimentarius Commission—Joint FAO, WHO Food Standards Programme, FAO, Rome, Italy, of their decision.

A petition has been filed by the American Frozen Food Institute (AFFI), 919 18th Street NW., Washington, DC 20006, proposing the establishment of a definition and standards of identity and quality for frozen peas. In the opinion of the Commission of Food and Drugs, it will benefit consumers and facilitate international trade to adopt as far as practicable the recommended worldwide standard for quick frozen peas hereinafter referred to as the Codex standard. The basis for the AFFI proposal is that the Codex standard has been submitted to the United States for acceptance. In many respects the AFFI proposal is similar to the Codex standard.

The Codex standard provides that sampling and allowances for defects be in accordance with the Codex "Sampling Plans for Prepackaged Foods, 1969," developed by the Codex Committee on Processed Fruits and Vegetables and are being considered by the Codex Committee on Sampling and Analysis. No sampling plans have been proposed by AFFI. The Codex sampling plans have not reached the final step of development and therefore may be subject to further modification prior to submission to the United States for formal acceptance. The Commissioner believes that this is an opportune time to elicit comments on sampling plans and therefore proposes, on his own initiative, to include them for quality factor determinations for frozen peas. The Commissioner, however, proposes that another table be added to the existing table (Inspection Level II) in the Codex sampling plans to express lot size as number of pounds thereby permitting the correlation of sample size of large bulk containers to the sample size for smaller containers. This modification was submitted by the United States in 1970, to the Codex committee, to be incorporated in the Codex sampling plans. The Commissioner further proposes to limit the sampling plans to Codex Inspection Level II which is appropriate where disputes, enforcement, or need for better lot estimate is necessary. Definitions for "lot" and "sample unit" have been expanded to make them more applicable to a wider range of size of primary containers including bulk packs. In addition, definition of "defective" has been reworded to apply directly to the sampling plans for frozen peas. The Commissioner would consider a lot acceptable for quality factor determinations when the number of "defectives" does not exceed the stated "acceptance number" in the sampling plans as follows:

Definitions of terms to be used in the sampling plans are as follows:

Lot. A collection of primary containers or units of the same size, type and style manufactured or packed under similar conditions and handled as a single unit in trade.

Lot size. The number of primary containers, or units (pounds when in bulk), in the lot.

Sample size (n). The total number of sample units drawn for examination from the lot.

Sample unit. A container, the entire contents of a container, a portion of the contents of a container, or a composite

mixture of product from small containers that is sufficient for the examinations or testing as a single unit.

Defective. Any sample unit shall be regarded as defective when any quality defects or conditions are present in excess of the defect tolerances.

Acceptance number (c). The maximum number of defective sample units permitted in the sample in order to consider the lot as meeting the specified requirements.

Acceptable quality level (AQL). The maximum percent of defective sample units permitted in a lot that will be accepted approximately 95 percent of the time.

ACCEPTABLE QUALITY LEVEL 6.5

Lot size	Size of container	
Number of primary containers:	Net weight equal to or less than 1 kilogram (2.2 pounds)	
	n	*c*
4,800 or less	13	2
4,801 to 24,000	21	3
24,001 to 48,000	29	4
48,001 to 84,000	48	6
84,001 to 144,000	84	9
144,001 to 240,000	126	13
Over 240,000	200	19
Number of pounds:	Net weight greater than 1 kilogram (2.2 pounds)	
	n	*c*
20,000 or less	13	2
More than 20,000 to 100,000	21	3
More than 100,000 to 200,000	29	4
More than 200,000 to 400,000	48	6
More than 400,000 to 600,000	84	9
More than 600,000 to 1,000,000	126	13
More than 1,000,000	200	19

n = number of sample units.
c = acceptance number.

The Codex standard uses the metric system whereas the AFFI proposal provides that the units of measurement for sizing peas be expressed in both inches and millimeters and the standard of quality be in ounces as well as grams and that in the methodology the units be in the metric system only. The Commissioner recognizes that the International (metric) System is used throughout the world and in the United States for technical analyses and may eventually be adopted by this country as the common usage for measurements. The Commissioner, therefore, proposes that the metric system be used in the standards for frozen peas with the equivalent units of the U.S. Customary System shown parenthetically except that the units of measurements in the methodology be in the metric system only.

The Codex standard also includes hygiene requirements and certain basic labeling requirements that are not considered a part of food standards under sec. 401 of the Federal Food, Drug, and Cosmetic Act which is the legal basis for the promulgation of food standards. Hygiene and the other factors are, however, a concern of FDA under other sections of the Federal Food, Drug, and Cosmetic Act and, therefore, are not discussed further in this request for comments.

RECOMMENDED INTERNATIONAL STANDARD FOR QUICK FROZEN PEAS

1. Scope. This standard shall apply to quick frozen peas of the species *Pisum sativum* L. as defined below and offered for direct consumption without further processing, except for size grading or repacking if required. It does not apply to the product when indicated as intended for further processing, or for other industrial purposes.

2. Description.

2.1 *Product definition.* Quick frozen peas are the product *prepared* from fresh, clean, sound, whole, immature seed of peas which have been washed, sufficiently blanched to insure adequate stability of color and flavor during normal marketing cycles and which conform to the characteristics of the species *Pisum sativum* L.

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

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

2.3 *Presentation.*

2.3.1 Types.

2.3.1.1 Any suitable variety of pea may be used.

2.3.1.2 The product shall be presented as "peas" or may be presented as "garden peas" provided they meet the organoleptic and analytical characteristics of the type, e.g. "Kelvedon Wonder," "Dark Skin Perfection" and others.

2.3.2 Sizing.

2.3.2.1 Quick frozen peas of either type may be presented sized or unsized.

2.3.2.2 If peas are size graded they shall conform to one of the two following systems of specifications for the size names:

SPECIFICATIONS A FOR SIZING

Size designation	*Round hole sieve size in mm.*
Small	up to 8.75
Medium	up to 10.2
Large	over 10.2

SPECIFICATIONS B FOR SIZING

Size designation	*Round hole sieve size in mm.*
Extra small	up to 7.5
Very small	up to 8.2
Small	up to 8.75
Medium	up to 10.2
Large	over 10.2

3. Essential composition and quality factors.

3.1 *Optional ingredients.*

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

3.1.2 Salt;

3.1.3 Condiments, such as spices and herbs.

3.2 *Quality factors.*

3.2.1 Organoleptic and other characteristics.

3.2.1.1 The product shall be of a reasonably uniform green color according to type, whole, clean, practically free from foreign matter, free from any foreign taste or smell and practically free from damage by insect or diseases.

3.2.1.2 The product shall have a normal flavor, taking into consideration any seasonings or ingredients added.

3.2.2 Analytical characteristics. The alcohol-insoluble solids content as determined by the method specified in subsection 8.2 of this standard must not exceed: for peas, 23 percent m./m.; for garden peas, 19 percent m./m.

3.3 *Definition of defects.*

3.3.1 "Blond Peas" means peas which are yellow or white but which are edible (that is, not sour or rotted).

3.3.2 "Blemished Peas" means peas which are slightly stained or spotted.

3.3.3 "Seriously Blemished Peas" means peas which are hard, shrivelled, spotted, discolored or otherwise blemished to an extent that the appearance or eating quality is seriously affected. These shall include worm-eaten peas.

3.3.4 "Pea Fragments" means portions of peas, separated or individual cotyledons, crushed, partial or broken cotyledons and loose skins, but does not include entire intact peas with skins detached.

3.3.5 "Extraneous Vegetable Material (E.V.M.)" means any vine or leaf or pod material from the pea plant, or other vegetable material such as poppyheads or thistles.

3.4 *Tolerances for defects.* Based on a sample unit of 500 g. the end product shall have not more than the following:

3.4.1 Blond peas, 2 percent m./m.

3.4.2 Blemished peas, 5 percent m./m.

3.4.3 Seriously blemished peas, 1 percent m./m.

3.4.4 Pea fragments, 12 percent m./m.

3.4.5 E.V.M., 0.5 percent m./m. but not more than 12 $cm.^2$ in area.

3.5 *Tolerances for sizes.* If size graded, the product shall contain not less than 80 per cent either by number or mass of peas of the declared size or of smaller sizes. It shall contain no peas of sizes larger than the next two larger sizes nor more than 20 percent either by number or mass of peas of the next two larger sizes, if such there be. Not more than one-quarter of these peas whether by number or mass, shall belong to the larger of the next two sizes.

3.6 *Classification of defectives.* Any sample unit from a sample taken in accordance with the Sampling Plans for Prepackaged Foods, 1969, shall be regarded as "defective" when any of the defects listed under 3.3 is present in more than twice the amount of the specified tolerance for the individual defect as listed under 3.4 or if the total of 3.4.1 to 3.4.4 inclusive exceeds 15 percent m./m.

3.7 *Lot acceptance.* A lot is considered acceptable when the number of such "defectives" as specified in 3.6 does not exceed the acceptance number (c) of the Sampling Plans for Prepackaged Foods, 1969.

4. Food additives.

	Maximum level of use
Natural flavors and their identical synthetic equivalents except those which are known to represent a toxic hazard (*).	Not limited

(*) Temporarily endorsed.

5. Hygiene. It is recommended that the product covered by the provisions of this standard be prepared in accordance with the Code of Hygienic Practice for Quick Frozen Fruit, Vegetables and Their Juices recommended by the Codex Alimentarius Commission (in the process of elaboration).

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

6.1 *The name of the food.* The name of the product shall only include: ----------

6.1.1 The designation "peas," except that where peas are presented in conformity with 2.3.1.2 the designation shall be "garden peas" or the equivalent designtaion used in the country in which the product is intended to be sold. The words "quick frozen" shall also appear on the label, except that the term "frozen"[1] may be applied in countries where this term is customarily used for describing the product processed in accordance with subsection 2.2 of the standard;

6.1.2 Where a characterizing flavoring or ingredient has been added, this shall be stated as "with x," as appropriate;

6.1.3 Where a statement of size is made, either the sieve size or the words "extra small," "very small," "small," "medium" or "large," as appropriate, shall be indicated.

6.2 *List of ingredients.* A complete list of ingredients shall be declared, in descending order of proportion.

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

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

6.5 *Country of origin.*

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

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

6.6 *Additional requirements.* Information for keeping and thawing of the product shall be given on retail packs.

6.7 *Bulk Packs*—In the case of quick frozen peas in bulk the information required in 6.1 to 6.6 must either be placed on the container or be given in accompanying documents, except that the name of the food accompanied by the words "quick frozen" (the term "frozen" may be applied in countries where this term is customarily used for describing the product processed in accordance with subsection 2.2 of this standard) and the name and address of the manufacturer or packer must appear on the container.

7. Packaging.—Packaging used for quick frozen peas must protect the organoleptic and quality characteristics of the product; protect the product from bacteriological and other contamination (including contamination from the packaging material itself); protect the product from moisture loss, dehydration, and, where appropriate, leakage as far as technologically practicable; and not pass on to the product an odour, taste, colour or other foreign characteristics.

8. Methods of analysis, sampling and examination.—The methods of analysis, sampling, and examination described hereunder are international referee methods.

8.1 *Sampling*—Sampling shall be in accordance with the *Sampling Plans for Prepackaged Foods*, 1969.

8.2 *Determination of the alcohol-insoluble solids content.* (Ref. No. CAC/RM 35-1970.)

8.2.1 Principle of the method—The alcohol-insoluble solids in peas consist mainly of insoluble carbohydrates (starch) and protein. A weighed quantity of the sample is boiled with slightly diluted alcohol. The solids are washed with alcohol until the filtrate is clear. The alcohol-insoluble solids are dried and weighed. The percentage by mass present is used as a guide to maturity.

8.2.2 Reagents.

8.2.2.1 *Ethanol (95 percent)* or *denaturated ethanol* (ethanol denaturated with 5 percent v/v methanol).

8.2.2.2 *Diluted ethanol or diluted denaturated ethanol 80 percent v/v*—(dilute 8 parts by volume of reagent under 8.2.2.1 to 9.5 parts by volume with H_2O).

8.2.3 Apparatus.

8.2.3.1 Analytical balance;

8.2.3.2 Beaker, 600 ml., if sample is boiled or 250 ml. (standard taper ground-glass joint) flask with reflux condenser if refluxed;

8.2.3.3 Buchner funnel;

8.2.3.4 Drying dish with lid, flat bottomed;

8.2.3.5. Hot plates or boiling water bath for refluxing or boiling;

8.2.3.6 Clamps or weights to prevent agitation of package in water bath during thawing;

8.2.3.7 Desiccator with active desiccant;

8.2.3.8 Drying oven, well ventilated and thermostatically controlled and adjusted to operate at 100±2° C.

8.2.3.9 Filter paper, Whatman No. 1 or equivalent;

8.2.3.10 Macerator or blendor;

8.2.3.11 Plastic bag of sufficient capacity to hold the entire sample for thawing;

8.2.3.12 "Policemen" on glass rods, bent so as to facilitate cleaning flask or beaker;

8.2.3.13 Water bath, with continuous flow at room temperature or regulated at room temperature for thawing.

8.2.4 Preparation of test sample—Place frozen peas or frozen peas with sauce in plastic bag and tie off. Immerse sample in water bath with continuous flow at room temperature or regulated at room temperature. Avoid agitation of package during thawing by using clamps or weights if necessary. When completely thawed, remove package from bath. Blot off adhering water from the plastic bag. Transfer the peas from container to a sieve, the meshes of which are made by so weaving wire as to form square openings of 2.8 mm. by 2.8 mm.[4] If sauce is present, wash with gentle spray of water at room temperature until the sauce is removed. Without shifting the peas, incline the sieve as to facilitate drainage, and drain 2 minutes. Wipe the bottom of the sieve. Weigh 250 g. peas into blendor, add 250 ml. distilled water and macerate to a smooth paste. If there is less than 250 g. sample, use the entire sample of peas with an equivalent quantity by mass of distilled water and macerate to a smooth paste.

8.2.5 Procedure.

8.2.5.1 Dry a filter paper in flat-bottomed dish, lid off, for 2 hours at 100±2° C. Cover dish, cool in a desiccator, and weigh accurately. (The filter paper should be larger than the base of the funnel and folded at the circumference to facilitate subsequent removal without loss of solids.)

8.2.5.2 Weigh 20 g.±0.01 g. paste into a 250 ml. ground-joint flask, add 120 ml. *denatured ethanol* or *ethanol*, and swirl to mix. Reflux on a steam or water bath for 30 minutes.

If boiling rather than refluxing is preferred, weigh 40 g.±0.01 g. paste into a 600-ml. beaker. Add 240 ml. *denatured ethanol* or *ethanol*, stir, and cover beaker. Bring solution in the beaker to a boil and simmer slowly for 30 minutes on a hotplate.

Immediately filter with suction on a Buchner funnel through the dried and weighed filter paper. Decant most of the supernatant liquid through the filter paper. Wash the solids in the flask or beaker without delay with small portions of *80 percent denatured ethanol* or *80 percent ethanol* until the washings are colourless, decanting through the filter paper each time. Do not allow solids to become dry during the washing. Transfer solids to the filter paper, spreading the solids evenly.

8.2.5.3 Remove the filter paper containing the residue from the funnel, transfer to the dish used in preparing the filter paper and dry uncovered in an air oven for 2 hours at 100± 2° C. Cover the dish, cool in a desiccator, and weigh accurately. The weight of the *dry residue* is the difference between the weight under 8.2.5.1 and this final weight.

8.2.6 Calculation and expression of results.

8.2.6.1 Method of calculation.—Calculate the alcohol-insoluble solids content of the sample by means of the following formula:

If 20 g. sample is refluxed:

$$\text{Alcohol-insoluble solids content } (\%\ \text{m/m}) = 10\ M$$

where:

M = the mass in g. of *dry residue* (see 8.2.5.3)

If 40 g. sample is refluxed:

$$\text{Alcohol-insoluble solids content } (\%\ \text{m/m}) = 5\ M$$

where:

M = the mass in g. of *dry residue* (see 8.2.5.3)

8.2.7 Repeatability of results—The difference between results of duplicate determination (results obtained simultaneously or in rapid succession by the same analyst) should not exceed 0.6 g. alcohol-insoluble solids for 100 g. of the product.

8.2.8 Expression of results—Results are expressed as g. alcohol-insoluble solids per 100 g. of the product (% m/m).

8.3 *Net Weight Determination of Frozen Fruits and Vegetables* (Doc. No. CAC/RM 34-1970).

8.3.1 Principle of the method—The weight of the container including the product therein is determined. The weight of the container itself is determined. The net weight is calculated from the difference of these two weights.

8.3.2 Apparatus.

8.3.2.1 Balance of adequate capacity having a sensitivity of 0.25 g. (or 0.01 oz.), for containers not in excess of 2 kg. (or 5 lb.).

8.3.2.2 Balance of adequate capacity having a sensitivity of 0.70 g. (or 0.025 oz.), for containers in excess of 2 kg. (or 5 lb.).

8.3.3 Procedure.

8.3.3.1 Set balance on firm, level support and adjust indicator to zero. Remove container from low temperature storage and with a towel remove frost and ice from outside of the container. Weigh unopened container immediately and record as *gross weight* (G).

8.3.3.2 Open container and remove contents including product particles, frost or ice crystals that may be adhering to the container. Blot-off free water with a towel and air dry empty container at room temperature. Weigh the dry, empty container and record as tare weight (T).

8.3.4 Calculation and expression of results—The net weight of the sample is given by the following formula:

$$\text{Net weight} = G - T$$

where:

G = the gross weight found under 8.3.3.1.
T = the tare weight found under 8.3.3.2.

8.4 *Thawing and cooking procedures* (to be used prior to examination, as appropriate).

8.4.1 Thawing procedure—According to the FAO/WHO Codex Alimentarius Method:

[1] "Frozen": This term is used as an alternative to "quick frozen" in some English speaking countries.

[4] cf. ISO Recommendation R 565. Such sieve can be replaced by U.S. sieve with No. 8 standard screen (size of opening 2.38 mm.).

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

8.4.2 Cooking procedure—According to the FAO/WHO Codex Alimentarius Method: FAO/WHO Codex Alimentarius Standard Procedure for Cooking of Quick Frozen Fruits and Vegetables, CAC RM 33-1970.

8.4.2.1 The cooking time for quick frozen peas may vary within the range of 3-5 minutes depending upon variety, maturity and size of peas.

The following are the proposed AFFI standards of identity and quality for frozen peas which are similar in many respects to the Codex standard:

(a) Frozen peas is the food in "package" form as that term is defined in 21 CFR 1.1(b), prepared from the succulent seed of the species *Pisum sativum* L. of the pea plant. It is blanched, drained, and preserved by freezing in such a way that the range of temperature of maximum crystallization is passed quickly. The freezing process shall not be regarded as complete until the product temperature has reached −18° C. (0° F.) or lower at the thermal center.

(b) Frozen peas may be prepared from the following optional pea varieties:

(1) Sweet green wrinkled peas.

(2) Smooth-skin or substantially smooth-skin peas, such as Alaska type peas.

(c) If the peas are graded for size they shall conform to the following specifications for the size names:

Size designation	Diameter of circular openings of sieve			
	Will not pass through		Will pass through	
	Inches [1]	mm.	Inches [1]	mm.
Extra small			19/64	7.5
Very small	19/64	7.5	21/64	8.2
Small	21/64	8.2	22/64	8.75
Medium	22/64	8.75	26/64	10.2
Large	26/64	10.2		

[1] Nearest 64th-inch equivalent to Codex designation shown in millimeters.

(d) Optional ingredients may be used as follows:

(1) Salt.

(2) Sucrose, invert sugar, dextrose, fructose, glucose sirup, and dried glucose sirup.

(3) Spices.

(4) Safe and suitable substances as follows, within the limitations provided by paragraph (e) of this section:

(i) Seasonings and natural and artificial flavorings alone or in safe and suitable carriers.

(ii) Monosodium glutamate and other glutamic acid salts.

(iii) Edible organic acids, antioxidants, and stabilizers.

(iv) Formulated sauces (including concentrates) such as butter sauce, onion sauce, cream sauce, and mushroom sauce, in an amount by weight of the finished food not more than necessary to produce the desired flavoring effect.

(v) Vitamins in an amount required to restore the vitamin content of the food to the level for fresh raw shelled peas, set forth in Item No. 1515 of "Composition of Foods," Agriculture Handbook No. 8 of the U.S. Department of Agriculture, 1963.

(5) Vegetables, nuts, or mixtures of these, such as onions, mushrooms, red or green peppers, and almonds as garnishes in an amount sufficient to impart to the food a flavor or other attribute characteristic of the garnish ingredient or ingredients, but not more than 20 percent by weight of the finished food.

(e) The optional ingredients referred to in paragraph (d)(4) of this section are substances which are not food additives as defined in section 201(s) of the Federal Food, Drug, and Cosmetic Act, or if they are food additives as so defined, they are used in conformity with regulations established pursuant to section 409 of the Act. If such substances perform a useful function, they are regarded as suitable.

(f) (1) The label shall state the name "peas." In the case of varieties specified in paragraph (b)(1) of this section, the terms "green," "sweet green," "wrinkled," "garden," or "sweet" shall precede or follow the name. In the case of varieties specified in paragraph (b)(2) of this section, the terms "early," "June," or "early June" shall precede or follow the name.

(2) If one or more of the optional ingredients provided for in paragraph (d)(3), (d)(4) (i) and (iv), and (d)(5) of this section is used, in addition to the names of such ingredients as required under paragraph (f)(3) of this section, the label shall bear, in conjunction with the product name, or in conjunction with the name of the optional pea variety, the statement or statements hereinafter set forth following the indicated provisions of such paragraph.

(i) If spice or flavoring as provided for in paragraph (d)(3) and (4)(i) of this section are used, the label shall bear the statement "spices added," "Seasoned," "with selected seasonings," "with seasonings" or "Seasoned with _____," or "Flavored with _____," the blank being filled in with the name of the ingredient.

(ii) If the formulated sauces as provided for in paragraph (4)(iv) of this section are used, the label shall bear the statement, "in _____" or "with _____," the blank being filled in with the name of the sauce ingredient, such as "butter sauce."

(iii) If garnishes as provided for in paragraph (d)(5) of this section are used, the label shall bear the statement, "with _____" or "garnished with _____," the blank being filled in with the name of the ingredient; for example, "with onions," or "garnished with mushrooms."

If statements set forth in more than one of the paragraphs (f)(2) (i), (ii), or (iii) of this section are used, they may be combined as, for example, "green peas with onions in butter sauce," or "early peas with onions and selected seasonings."

(3) Whenever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the words and statements required in paragraph (f) of this section shall immediately and conspicuously precede or follow the name without intervening written, printed, or graphic matter, except that the specific varietal name of the peas may so intervene.

(4) The optional ingredients specified in paragraph (d)(1) through (5) of this section, including the ingredients used in formulating the sauces specified in paragraph (d)(4)(iv) of this section, shall be listed in order of predominance by weight by their common or usual names, on the principal display panel or panels or any appropriate information panel without obscuring design, vignettes, or crowding. The declaration shall appear in conspicuous and easily legible letters of boldface print or type the size of which shall be not less than one-half of that required by Part 1 of this chapter for the statement of net quantity of contents appearing on the label, but in no case less than one-sixteenth of an inch in height. The entire ingredient statement shall appear on at least one panel of the label and in lines generally parallel to the base on which the container rests as it is designed to be displayed.

(5) When an optional ingredient specified in paragraph (d)(4)(v) of this section is used the label shall bear the words "Vitamin _____ content restored to the level of fresh raw shelled peas," the blank being filled in with the common name of the vitamin restored. When two or more vitamins are used, their names may be combined; for example, "Vitamin A and C content restored to the level of fresh raw shelled peas."

(6) If the peas are size graded, the size designations specified in paragraph (c) of this section may precede or follow the name of the food. However, the optional descriptive words "petite" or "tiny" may be used in conjunction with the product name when an average of 80 percent or more of the peas will pass through a circular opening of a diameter of 22/64 inch (8.75 mm.) or less for the optional ingredient provided for in paragraph (f)(b)(1) of this section and 21/64 inch (8.2 mm.) for the optional ingredient provided for in paragraph (b)(2) of this section.

§ 50.2 Frozen peas; quality; label statement of substandard quality.

(a) The sample unit of frozen peas used in determining compliance with the standard of quality is 17.64 ounces (500 g.) exclusive of any sauce.

(b) The standard of quality, for a sample unit of frozen peas, shall not exceed the following:

(1) Not more than 0.3 ounces (9 g.) peas are seriously spotted or otherwise materially blemished.

(2) Not more than 0.5 ounces (14 g.) are yellow, overly mature peas.

(3) Not more than 2.5 ounces (71 g.) are pieces of peas and loose skins.

(4) Not more than 0.08 ounce (2.3 g.) of harmless, extraneous vegetable material but not more than 2 square inches

(12.90 square centimeters) of flat material.

(5) The alcohol-insoluble solids of the variety of frozen peas provided for in 21 CFR 50.1(b)(1) shall be not more than 19 percent and the alcohol-insoluble solids of the variety provided for in 21 CFR 50.1(b)(2) of this chapter, shall be not more than 23 percent, as determined pursuant to paragraph (c) of this section.

(6) Not more than 15 percent by count of variety provided for in 21 CFR 50.1(b)(1) of this chapter shall sink in a solution containing 16 percent by weight of salt, as determined pursuant to paragraph (d) of this section.

(c) Determination of alcohol-insoluble solids.[1]

(1) Extracting solutions:

(i) One hundred parts of ethanol denatured with five parts of methanol volume to volume (formula 3A denatured alcohol,[2] or

(ii) A mixture of 95 parts of formula 3A denatured alcohol and five parts of isopropanol v/v.[3]

(2) Eighty percent alcohol (8 liters of extracting solutions (1)(i) or (1)(ii) diluted to 9.5 liters with water).

(3) Drying dish—a flat-bottom dish with a tight fitting cover.

(4) Drying oven—a properly ventilated oven thermostatically controlled at 100±2° C.

(5) Procedure—Transfer frozen contents of package to plastic bag; tie bag securely and immerse in water bath with continuous flow at room temperature. Avoid agitation of bag during thawing by using clamps or weights. When sample completely thaws, remove bag, blot off adhering water, and transfer peas to U.S. No. 8 sieve, using (20 cm.) size for container of less than 3 lb. net weight and (30.5 cm.) for larger quantities. If sauce is present, remove with gentle water spray at room temperature. Without shifting peas, incline sieve to aid drainage, drain 2 minutes. With cloth wipe surplus water from lower screen surface. Weigh 250 g. of peas into high-speed blender, add 250 g. of water and blend to smooth paste. For less than 250 g. sample, use entire sample with equal weight of water. Weigh 20 g. ±10 mg. of the paste into 250 ml. distillation flask, add 120 ml. of extracting solutions specified in (1)(i) or (1)(ii) of this section, and reflux 30 minutes on steam or water bath or hotplate. Fit into a buchner funnel a filter paper of appropriate size (previously prepared by drying in flat-bottom dish for 2 hours in drying oven, covering, cooling in desiccator, and weighing). Apply vacuum to buchner funnel and transfer contents of beaker so as to avoid running over edge of paper. Aspirate to dryness and wash material on filter with 80 percent alcohol until washings are clear and colorless.

Transfer paper and alcohol-insoluble solids to drying dish used to prepare paper, dry uncovered for 2 hours in drying oven, cover, cool in desiccator, and weigh at once. From this weight deduct weight of dish, cover, and paper. Calculate percent by weight of alcohol-insoluble solids.

(d) Brine flotation test.

(1) Explanation—The brine flotation test utilizes salt solutions of various specific gravities to separate the peas according to maturity. The brine solutions are based on the percentage by weight of pure salt (NaCl) in solution at 20° C. In making the test the brine solutions are standardized to the proper specific gravity equivalent to the specified "percent of salt solutions at 20° C." by using a salometer spindle accurately calibrated at 20° C. A 250 ml. glass beaker or similar receptacle is filled with the brine solution to a depth of approximately 50 mm. The brine solution and sample (100 peas per container) must be at the same temperature and should closely approximate 20° C.

(2) Procedure—After carefully removing the skins from the peas, place the peas into the solution. Pieces of peas and loose skins should not be used in making the brine flotation test. If cotyledons divide, use both cotyledons in the test and consider the two separated cotyledons as 1 pea; and, if an odd cotyledon sinks, consider it as one pea. Only peas that sink to the bottom of the receptacle within 10 seconds after immersion are counted as "peas that sink."

(e) If the quality of the frozen peas falls below the standard prescribed in paragraph (a) of this section, the label shall bear the general statement of substandard quality specified in the Code of Federal Regulations but in lieu of the words prescribed in the second line of the rectangle the following words may be used where the frozen peas fall below the standard in only one respect: "Below standard in quality _____," the blank to be filled in with the specific reason for substandard quality as listed in the standard.

In many respects the AFFI proposal and the Codex standard are identical, but in certain instances there are variations. The following is a comparison of what, in the opinion of the Commissioner, are differences between the AFFI proposal and the Codex standard not previously discussed on which the Commissioner particularly requests comments with available supporting data.

Items of comparison	Proposal	Codex standard
1. Certain optional ingredients	MSG and glutamic acid salts. Organic acids, antioxidants, stabilizers. Sauces, including concentrated sauces. Sufficient vitamins to restore vitamin content to the level of raw peas.	Not provided for.
2. Name of the food:	Garnishes	
(a) Sweet pea varieties	"Green peas," "sweet green peas," "wrinkled peas," "garden peas," or "sweet peas."	"Garden peas" or an equivalent designation used in the country in which the product is intended to be sold.
(b) Smooth-skin pea varieties	"Early peas," "June peas," or "early June peas."	"Peas."
3. Label statement of ingredients	In boldface type of minimum size specified in Part 1 of Title 21 CFR, but not less than 1/16 inch in height; entire statement on one panel of the label and in lines parallel to the base of the container.	Clear, prominent, readily legible by the consumer under normal conditions of purchase and use.

DIAMETER OF CIRCULAR OPENINGS OF SIEVE

Size	Will not pass through		Will pass through		Codex standard
	Inches[4]	mm.	Inches[4]	mm.	
4. Designation:					
Extra small			19/64	7.5	For peas up to 7.5 mm.
Very small	19/64	7.5	21/64	8.2	For peas up to 8.2 mm.
Small	21/64	8.2	24/64	8.75	For peas up to 8.75 mm.
Medium	22 3/4	8.75	26/64	10.2	For peas up to 10.2 mm.
Large	26/64	10.2			For peas over 10.2 mm.
	The size designations may precede or follow the name of the food. Or the words "petite" or "tiny" may be used for sweet peas up to 23/64-inch diameter and for smooth-skin peas up to 21/64-inch in diameter.				Where a statement of size is made either the sieve size or one of the above-verbal designations, as appropriate, shall be stated. If size graded the product shall contain no peas larger than the next 2 larger sizes nor more than 20 percent either by number or mass of peas of the next 2 larger sizes, if such there be. Nor more than 1/4 of these peas whether by number or mass, shall belong to the larger of the next 2 sizes.
5. Definitions of defects	Not defined				Included in item 6.

[1] The method was adopted as official, first action at the 1970 meeting of the Association of Official Analytical Chemists It has been published under the title "Determination of Alcohol-Insoluble Solids in Frozen Peas" by F. H. Winter (Food Science and Technology, University of California, Davis, CA. 95616), JAOAC vol. 54, No. 1 (1971), pp. 54–55; "Changes in Methods," JAOAC, vol. 54, No. 2, p. 472 (1971). This is also the method proposed in the Codex Standard.

[2] U.S. Treasury Department, Internal Revenue Service, 26 CFR 212.19.

[3] U.S. Treasury Department, Internal Revenue Service, 26 CFR 211.199.

Size	Will not pass through		Will pass through		Codex standard
	Inches[1]	mm.	Inches[1]	mm.	
6. Defect tolerances maximum per 500 g.	When any defect listed below exceeds the tolerance the sample unit fails to meet the standard of quality. There is no sampling plan for lot acceptance (quality).				Any sample unit shall be regarded as defective when any of the defects listed below are present in more than twice the amount of the specified tolerance for the individual defect or if the total percentage defects found exceeds 15 percent by weight.
	"Seriously spotted or otherwise materially blemished" 0.3 oz. (8.5 g.), 1.7 percent by weight.				"Seriously blemished peas" are hard, shriveled, spotted, discolored, or otherwise blemished to an extent that the appearance or eating quality is seriously affected, 1 percent by weight.
					"Blemished peas" are slightly stained or spotted, 5 percent by weight.
	"Yellow, overly mature" 0.5 oz. (14.2 g.), 2.8 percent by weight.				Overly mature peas not provided for.
	Blond peas are distinctly removed during processing.				"Blond Peas" are yellow or white and edible, 2 percent by weight.
	"Pieces of peas and loose skins", maximum 2.5 oz. (71.0 g.), 14.2 percent by weight.				"Pea fragments" are portions of peas, separated or individual cotyledons, crushed, partial or broken cotyledons, and loose skins, but does not include entire intact peas with skins detached, maximum 12 percent by weight.

Regarding	Proposal	Codex standard
7. Maturity	Not more than 15 percent by 100 count per container of sweet peas shall sink in a 16 percent by weight of salt solution at 20° C.	Brine flotation test not provided for.
8. Units of measurement:		
(a) Identity standard	Inches as well as millimeters	Millimeters.
(b) Quality standard	Ounces as well as grams	Grams.

[1] Nearest 64th-inch equivalent to Codex designation shown in millimeters.

The following are features of the AFFI proposal on which the Commissioner particularly requests comments, with any available supporting data, and the action the Commissioner proposes to take in the event no comments are received:

1. *Vitamin restoration.* 21 CFR 50.1(d)(4)(v) proposes the optional addition of vitamins. The Commissioner recognizes that peas contribute significant quantities of certain vitamins to the diet some of which may be reduced during the production of frozen peas. The petitioner proposes optional restoration of the vitamin content of frozen peas to the level of immature raw peas as set forth in Item No. 1515 of "Composition of Foods," Agriculture Handbook No. 8 of the U.S. Department of Agriculture, 1963. When the vitamin content is compared with the same source reference for raw peas which have been boiled and drained (Item No. 1516), with frozen peas not thawed (Item No. 1529), and with frozen peas which have been boiled and drained (Item No. 1530) the Commissioner is of the opinion that the losses are not nutritionally significant. Therefore to provide for the restoration of lost vitamins and to permit label references thereto would, in his opinion, mislead the consumer into believing that the vitamin content of the food had been altered in a nutritionally significant manner. In view of the foregoing the Commissioner proposes that the standard of identity not provide for the optional addition of vitamins.

2. *Addition of Sauces.* 21 CFR 50.1(d)(4)(iv) proposes formulated sauces (including concentrates) as optional ingredients, namely butter sauce, onion sauce, cream sauce, and mushroom sauce, are a liquid or a sauce dressing that may contain finely divided particles of onions or mushrooms added as such or as a concentrate to the peas. The proposed identity standard does not specify the amounts of sauces that may be used or the minimum amounts of butter, onion, cream, or mushroom used in the sauce. The Commissioner, therefore, concludes that in the absence of such limitations, that frozen peas with sauces are nonstandardized foods and may be continued to be marketed as nonstandardized foods. Furthermore, since in the Commissioner's opinion the proposed optional ingredients provided for in 21 CFR 50.1(d)(4)(iii), namely edible organic acids, antioxidants, and stabilizers, appear to be suitable only as ingredients in sauces, he proposes not to provide for such ingredients.

3. *Garnishes.* The garnishes, provided for in 21 CFR 50.1(d)(5) as optional ingredients, are distinct units or particles of other vegetables, nuts, or mixtures of these, such as onions, mushrooms, red or green peppers, and almonds and are added to the peas in an amount sufficient to impart a flavor or other attribute (including color contrast) characteristic of the garnish ingredient(s), but not more than 20 percent by weight of the finished food. In the Commissioner's opinion frozen peas containing more garnish than 20 percent by weight of the finished food, would constitute a mixture of two foods and therefore would not be subject to the proposed identity standard.

4. *Size designations.* The terms "petite" or "tiny" are proposed for use in conjunction with the name of the product for frozen peas which pass through a sieve size opening of $^{23}/_{64}$ inch (8.75 mm.) for the optional ingredient provided for in 21 CFR 50.1(b)(1) and $^{21}/_{64}$ inch (8.2 mm.) proposed for the optional ingredient provided for in 21 CFR 50.1(b)(2). The Commissioner, however, recognizes that the current practice is to use the terms "petite" or "tiny" to describe canned peas that pass through a sieve with circular openings of $^{18}/_{64}$ inch (7.14 mm.). It is the Commissioner's opinion that if a consumer purchases a can of tiny sweet peas, a can of tiny Alaska peas, and a package of tiny frozen peas, either sweet or Alaska, they should all be within the same size range and not be different because they have been processed differently. Therefore, he proposes, for the purpose of uniformity that the terms "petite" or "tiny" be used to describe the size of frozen peas (sweet or Alaska) that pass through a sieve with circular openings of $^{18}/_{64}$ inch (7.14 mm.) as is presently the practice for canned peas.

5. *Labeling of optional ingredients.* 21 CFR 50.1(f)(4) provides for label declaration of the optional ingredients used in the food. The Commissioner, in order to provide for the labeling of standardized foods in line with the requirements for nonstandardized foods, proposes that the common name of each of the ingredients used shall be declared on the label as required by the applicable sections of Part 1 of Chapter 21 and shall appear in letters not less than one-half the size of that required by 21 CFR 1.8b for the declaration of net quantity of contents but in no case less than one-sixteenth of an inch in height.

6. *Pieces of peas and loose skins.* 21 CFR 50.2 provides for a maximum of 2.5 ounces (71 g.) of pieces of peas and loose skins per 17.64 ounces (500 g.) of frozen peas (14.2 percent). The Commissioner recognizes that the Codex standard for frozen peas provides for a maximum of 12 percent by weight and that the standard of quality for canned peas (21 CFR 51.2) permits a maximum of 10 percent of the drained weight for this quality factor and is of the opinion that the latter is reasonable for frozen peas. Accordingly, the Commissioner proposes for consideration a maximum of 10 percent by weight of pieces of peas and loose skins in frozen peas.

7. *Spices, seasonings and flavorings.* 21 CFR 50.2(f)(4) requires that where spices as well as safe and suitable seasonings and natural and artificial flavorings alone or in carriers are used in frozen peas, they be listed on the label by common or usual name. The Commissioner cannot require such declaration of spices and flavorings by common or usual name and therefore proposes that this be made optional.

Establishment of standards of identity and quality for frozen peas will be based upon consideration of the Codex standard, AFFI proposal, comments and supporting data received, and other available information.

Pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701(e), 52 Stat. 1046, 1055–1056, as amended 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371) and in accordance with authority delegated to the Commissioner

of Food and Drugs (21 CFR 2.120), interested persons are invited to submit their views in writing (preferably in quintuplicate) regarding this proposal within 90 days after its date of publication in the FEDERAL REGISTER. Such views and comments should be addressed to the Hearing Clerk, Department of Health, Education, and Welfare, Room 6-88, 5600 Fishers Lane, Rockville, Md. 20852, and may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: September 25, 1972.

SAM D. FINE,
Associate Commissioner for Compliance.

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[21 CFR Part 51]

CANNED SWEET CORN

Standards of Identity, Quality, and Fill of Container

The Food and Agriculture Organization/World Health Organization Codex Alimentarius Commission has submitted to the United States for consideration for acceptance a "Recommended International Standard for Canned Sweet Corn." The United States, as a member of the Food and Agriculture Organization of the United Nations and of the World Health Organization, is under obligation to consider all Codex standards. The rules of procedure of the Codex Alimentarius Commission state that a Codex standard may be accepted by a participating country in one of three ways: Full acceptance; target acceptance; and acceptance with minor deviations. A participating country which concludes that it cannot accept the standard in any of these ways is requested to indicate the reasons for the ways in which its requirements differ from the Codex standard. Members of the Commission are requested to notify the Secretariat of the Codex Alimentarius Commission—Joint FAO/WHO Food Standards Programme, FAO, Rome, Italy, of their decision. For many years the United States has had definitions and standards of identity (21 CFR 51.20), quality (21 CFR 51.21), and fill of container (21 CFR 51.22) for canned sweet corn, as promulgated by the Commissioner of Food and Drugs, which differ in several respects from the recommended international standard. The basis of this proposal to amend the FDA canned sweet corn standards is the fact that, in the opinion of the Commissioner of Food and Drugs, it will benefit consumers and facilitate international trade to adopt as far as practicable the recommended worldwide standard for canned sweet corn hereinafter referred to as the Codex standard.

The Codex standard references the Codex "Sampling Plans for Prepackaged Foods, 1969," that were developed by the Codex Committee on Processed Fruits and Vegetables and are being considered by the Codex Committee on Sampling and Analysis. There are no sampling plans in any of the FDA food standards. The Codex sampling plans, although they are included in the Codex standard, have not reached the final step of development and therefore may be subject to further modification. The Commissioner, however, believes that this is an opportune time to elicit comments on sampling plans. The Commissioner proposes to limit the sampling plans to Codex Inspection Level II which is appropriate where disputes, enforcement or need for better lot estimate is necessary. Definitions for "Lot" and "Sample unit" have been expanded to make them more applicable to a wider range of size of primary containers. In addition, the definition of "Defective" has been reworded to apply directly to the proposed sampling plans for canned corn. The Commissioner would consider a lot acceptable for quality and fill of container factors (except minimum drained weight of whole-kernel corn) when the number of "Defectives" does not exceed the stated "Acceptance number." Concerning minimum drained weight of whole kernel corn, the Commissioner proposes that it be based on the average drained weight of the sample drawn according to the proposed sampling plans. The Commissioner recognizes that basing the minimum drained weight for whole kernel corn on sample average will allow for considerable variability in the amount of corn among the individual cans within a given lot. However, there is no evidence of slack filling and in the absence of actual data on industry fill practices for individual containers within a lot the proposed approach is deemed to be the most practical. The units of measurements in the FDA standard of quality are stated in ounces, inches, or in some instances the metric system, whereas the Codex standard uses only the metric system. The Commissioner recognizes that the international (metric) system is used throughout the world and in the United States for technical analysis and may eventually be adopted by this country as common usage for measurements. The Commissioner, therefore, proposes that the metric system be used in the FDA standards of quality and fill of container with the equivalent units of the U.S. Customary System shown parenthetically.

The Codex standard also includes hygiene requirements and certain basic labeling requirements that are not considered a part of food standards under sec. 401 of the Federal Food, Drug, and Cosmetic Act which is the legal basis for the promulgation of food standards. Hygiene and the other factors are, however, a concern of FDA under other sections of the Federal Food, Drug, and Cosmetic Act and, therefore, are not discussed further in this proposal.

Amendment of the FDA standards of identity, quality, and fill of container for canned sweet corn will be based upon consideration of the following Codex standard, comments and supporting data received, and other available information.

RECOMMENDED INTERNATIONAL STANDARD FOR CANNED SWEET CORN

1. SCOPE

For the purposes of this standard, canned sweet corn does not include corn-on-the-cob.

2. DESCRIPTION

2.1 *Product Definition—Canned sweet corn* is the product (a) prepared from clean, sound kernels of sweet corn, conforming to the characteristics of *Zea mays L.*, (b) packed with a suitable liquid packing medium, which may be the creamy component from corn kernels, or with suitable nutritive sweeteners, seasoning ingredients, and other ingredients appropriate to the product, and (c) processed by heat, in an appropriate manner, before or after being sealed in a container, so as to prevent spoilage.

2.2 *Colour Type.*

2.2.1 Golden or yellow.

2.2.2 White.

2.3 *Styles.*

2.3.1 Whole Kernel or Whole Grain or Cut Kernel—Whole or substantially whole cut kernels packed with a liquid medium.

2.3.2 Cream Style—Whole or partially whole cut kernels packed in a creamy component from the corn kernels and other liquid or other ingredients to form a product of creamy consistency.

2.4 *Types of Whole Kernel Pack*—Whole Kernel or Whole Grain or Cut Kernel style shall be designated as:

2.4.1 "Brine" or "Liquid Pack" when a salt (NaCl) brine liquid medium is used and except for normal headspace completes the fill of the container; or

2.4.2 "Vacuum pack" or "Vacuum packed" if the liquid packing medium does not exceed 20 percent of the total net weight of product and the container is closed under conditions creating a high vacuum in the container.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 *Other Ingredients.*

3.1.1 Butter: If added it must amount to not less than 3 percent mm. of the final product;

3.1.2 Salt;

3.1.3 Sucrose, invert sugar;

3.1.4 Pieces of green or red peppers or mixture of both, or other vegetables, not exceeding in total 15 percent mm. of the product;

3.1.5 Starches—Natural (native), physically or enzymatically modified—in cream-style corn in a quantity not more than sufficient to insure a smooth consistency;

3.1.6 Starches—Natural (native), physically or enzymatically modified—in whole kernel style, only when used with butter.

3.2 *Quality Criteria.*

3.2.1 Colour—The colour of the product shall be normal for the colour type. The product shall also be reasonably free from "off-variety" kernels. Canned sweet corn containing other permitted ingredients shall be considered to be of characteristic colour when there is no abnormal discolouration for the respective ingredients used.

3.2.2 Flavour—Canned sweet corn shall have a normal flavour and odour free from flavours or odours foreign to the product and canned sweet corn with special ingredients shall have a flavour characteristic of that imparted by the sweet corn and the other substances used.

3.2.3 Texture

The kernels in either cream style or whole kernel corn shall be of a reasonably tender texture offering some resistance when chewed but are not hard or tough.

3.2.4 Consistency—Cream style

The product shall possess a consistency which may be thin but not excessively thin or may be thick and heavy but not excessively dry or pasty, and from which (at the end of two minutes) there may be a moderate but not excessive separation of free liquid.

3.2.5 Defects

With respect to all styles of corn, the finished product shall be substantially free from cob material, silk, husk, discoloured or blemished kernels, extraneous plant material, or other defects not specifically mentioned. Certain common defects shall not be present in amounts greater than the following limitations:

	Whole kernel or whole grain or cut kernel corn, per 400 drained weight	Cream Style Corn per 800 g total contents
Pieces of cob	1 cubic centimetre	1 cubic centimetre.
Pieces of husk	7 square centimetres	7 square centimetres.
Blemished kernels (Brown or black discoloured kernels or pieces)	7 kernels or pieces that are damaged and seriously damaged but not more than 5 may be seriously damaged	10 kernels or pieces that are damaged and seriously damaged but not more than 5 may be seriously damaged
	Per 28 g drained weight	Per 28 g drained weight
All silk	180 mm	150 mm

3.2.6 Classification of "defectives"

A container that fails to meet one or more of the applicable quality requirements, as set out in subsections 3.2.1 through 3.2.5, shall be considered a "defective".

3.2.7 Acceptance

A lot will be considered as meeting the applicable quality requirements referred to in subsection 3.2.6 when the number of "defectives," as defined in subsection 3.2.6, does not exceed the acceptance number (c) of the appropriate Sampling Plan (AQL–6.5) in the Sampling Plans for Prepackaged Foods (1969).

4. FOOD ADDITIVES

		Maximum level of use
4.1	Monosodium glutamate	Not limited.
4.2	Citric acid	Not limited.
4.3	Vegetable gums as follows: [2]	10 g/kg of the additives specified under 4.3 to 4.5 inclusive, singly or in combination.[2]
4.3.1	Arabic gum	
4.3.2	Carrageenan	
4.3.3	Furcellaran	
4.3.4	Guar gum	
4.4	Alginates (Ca, K, Na, NH_4) [1]	
4.4.1	Propylene glycol alginate [1]	
4.5	Modified starches, as follows:	
4.5.1	Acid-treated starches	
4.5.2	Alkali-treated starches	
4.5.3	Bleached starches	
4.5.4	Distarch phosphate (sodium trimetaphosphate treated)	
4.5.5	Distarch phosphate, phosphated	
4.5.6	Monostarch phosphate	
4.5.7	Starch acetate [1]	
4.5.8	Starch, hydroxypropyl [1]	
4.5.9	Distarch adipate, acetylated [1]	
4.5.10	Distarch glycerol, hydroxypropyl [1]	
4.5.11	Oxidized starches [1]	

[1] Temporarily endorsed.

[2] May be used only in whole kernel style and only when butter is an ingredient.

5. HYGIENE

5.1 It is recommended that the product covered by the provisions of this standard be prepared in accordance with the International Code of Hygienic Practice for Canned Fruit and Vegetable Products recommended by the Codex Alimentarius Commission (Ref. CAC/RCP 2-1969).

5.2 To the extent possible in good manufacturing practice the product shall be free from objectionable matter.

5.3 The product shall not contain any pathogenic microorganisms or any toxic substance originating from microorganisms.

5.4 The product shall have received a processing treatment sufficient to destroy all spores of *Clostridium botulinum*.

6. WEIGHTS AND MEASURES

6.1 *Fill of Container*

6.1.1 Minimum Fill

The container shall be well filled with corn, and, except for "vacuum pack" corn, the product (including packing medium) shall occupy not less than 90 percent of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20°C which the sealed container will hold when completely filled.

6.1.2 Classification of "defectives"

A container that fails to meet the requirement for minimum fill (90 percent container capacity) of subsection 6.1.1 shall be considered a "defective".

6.1.3 Acceptance

A lot will be considered as meeting the requirement of subsection 6.1.1 when the number of "defectives", as defined in subsection 6.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5) in the Sample Plans for Prepackaged Foods (1969).

6.1.4 Minimum Drained Weight

6.1.4.1 The drained weight of Whole Kernel corn shall be not less than 61 percent of the weight of distilled water at 20°C which the sealed container will hold when completely filled.

6.1.4.2 The requirements for minimum drained weight shall be deemed to be complied with when the average drained weight of all containers examined is not less than the minimum required, provided that there is no unreasonable shortage in individual containers.

7. LABELING

In addition to Sections 1, 2, 4, and 6 of the General Standard for the Labeling of Prepackaged Foods (Ref. CAC/RS 1-1969), the following specific provisions apply:

7.1 *The Name of the Food*

7.1.1 The name of the product shall include:

(a) the designation: "corn", "sweet corn" or "sugar corn", as appropriate;

(b) a declaration of any seasoning which characterizes the product, e.g. "with X", when appropriate;

(c) if the colour type is white, the colour "white".

7.1.2 The following shall be so stated on the label as to be easily discernible to the consumer:

(a) the type: "whole kernel", "whole grain", "cut kernel" or "cream style", as appropriate;

(b) where the type is whole kernel, the style of pack: "in brine", "liquid pack", "vacuum pack" or "vacuum packed", as appropriate.

7.2 *List of Ingredients*

A complete list of ingredients shall be declared on the label in descending order of proportion in accordance with subsections 3.2(b), (c) and (d) of the General Standard for the Labeling of Prepackaged Foods.

7.3 *Net Contents*

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

7.4 *Name and Address*—The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the product shall be declared.

7.5 *Country of Origin*—

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

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

8. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

8.1 *Method of Sampling*—Sampling shall be in accordance with the Sampling Plans for Prepackaged Foods (1969).

8.2 *Determination of Drained Weight*—According to the FAO/WHO Codex Alimentarius method (FAO/WHO Codex Alimentari-

ns Methods of Analysis for Processed Fruits and Vegetables, CAC/RM 36-1970, *Determination of Drained Weight*—Method I). Results are expressed as percent m/m, calculated on the basis of the mass of distilled water at 20° C. which the sealed container will hold when completely filled.

In many respects the provisions of the present FDA standards and the Codex Standard are identical, but in certain instances there are significant variations. The following is a comparison of what, in the opinion of the Commissioner, are the primary differences between the FDA standards and the Codex Standard on which the Commissioner particularly requests comments with available supporting data. Following each item of comparison is the action the Commissioner proposes to take in the event no comments are received.

COMPARISON OF IDENTITY ASPECTS AND PROPOSED COURSE OF ACTIONS

Items of comparison	Food and Drug Administration standard	Codex standard
1. Removal of the tip caps in preparation of canned sweet corn.	Covered under product definition (21 CFR 51.20(a))	Not specifically provided for.

No change. The requirement for removal of tip caps in the FDA standard be accepted as being covered by Codex since the requirement for "texture" in Codex (3.2.3) requires that the kernels be of reasonably tender texture offering some resistance when chewed but not hard or tough (tip caps are sometimes hard) and there is a limit on the amount of cob in the finished food which is related to removal of tip caps.

Items of comparison	Food and Drug Administration standard	Codex standard
2. The product be prepared from clean, sound kernels of sweet corn conforming to the characteristics of *Zea mays* L.	Not provided for.	Provided for. (2.1(a))

No change. Adulteration is covered under section 402 of the Federal Food, Drug, and Cosmetic Act and not under section 401 of the act which is the basis for the promulgation of food standards. Furthermore, *Zea mays* L. is the scientific name for the food; the common or usual name in the United States is corn, sweet corn or sugar corn.

Items of comparison	Food and Drug Administration standard	Codex standard
3. Canned corn shall consist of succulent sweet corn.	Provided for. (21 CFR 51.20(b))	Reference to succulent sweet corn not specifically provided for.

No change. The Codex requirement (3.2.3) that the kernels be of reasonably tender texture offering some resistance when chewed but not be hard or tough provides by inference that the food consist of succulent sweet corn.

Items of comparison	Food and Drug Administration standard	Codex standard
4. Color type	White or yellow (golden) or mixture of the two (21 CFR 51.20(b))	Golden or yellow (2.2.1) or white (2.2.2).

No change. The FDA requirement provides the consumer with mixtures of yellow (golden) and white corn that are not provided for under Codex. We have no basis to make a change in the FDA requirement. In this respect the FDA and the Codex would differ.

Items of comparison	Food and Drug Administration standard	Codex standard
5. Style of pack (definitions): (a) Fritter	Pieces of particulate portion of the corn kernel separated naturally from husk. (21 CFR 51.20(b)(2))	Not provided for.

No change. Fritter style of pack be retained in the FDA standard in the absence of any support for deletion.

Items of comparison	Food and Drug Administration standard	Codex standard
(b) Ground	Ground kernels from which the hulls have not been separated. (21 CFR 51.20(b)(3))	Not provided for.

No change. The ground style of pack be retained in the FDA standard in the absence of any support for deletion.

Items of comparison	Food and Drug Administration standard	Codex standard
(c) Cream style	A mixture of whole kernel with fritter and/or ground corn. When necessary to insure smoothness, starch may be added, in a quantity not more than sufficient for that purpose. (21 CFR 51.20(b)(4))	Whole or partially whole cut kernels packed in a creamy component from the corn kernels and other liquid or other ingredients to form a product of creamy consistency. (2.3.2)

No change. Codex meets the FDA requirement by the reference to "packed in a creamy component from the corn kernels and other liquid or other ingredients" and permits the use of fritter and/or ground corn.

Items of comparison	Food and Drug Administration standard	Codex standard
(d) Evaporated	Cut and cooked kernels from which most of the moisture has been evaporated. (21 CFR 51.20(b)(5))	Not provided for.

No change. The evaporated style of pack be retained in the FDA standard in the absence of support for deletion.

Items of comparison	Food and Drug Administration standard	Codex standard
6. Optional ingredients: (a) Starches in whole kernel style when butter is added.	As safe and suitable emulsifiers or stabilizers, or both, in a quantity not more than reasonably necessary to accomplish the intended effect. Such emulsifiers and stabilizers are deemed to be safe if they are not food additives as defined in sec. 201(s) of the Federal Food, Drug, and Cosmetic Act, or if they are food additives as so defined, they are used in conformity with regulations established pursuant to sec. 409 of the Act.[2] (21 CFR 51.20(d)(7))	Natural (native) physically or enzymatically modified. The chemically modified starches that may be used are specifically stated as follows: Acid-treated starches (4.5.1) Alkali-treated starches (4.5.2) Bleached starches (4.5.3) Distarch phosphate (sodium trimetaphosphate treated) (4.5.4) Distarch phosphate, phosphated (4.5.5) Monostarch phosphate (4.5.6) Starch acetate (4.5.7) Starch, hydroxypropyl (4.5.8) Distarch adipate, acetylated (4.5.9) Distarch glycerol, hydroxypropyl (4.5.10) Oxidized starches (4.5.11) 10 g./kg. of the starches and vegetable gums inclusive, singly or in combination.

No change. The specific starches and the maximum level in Codex are permitted under 21 CFR 121.1031.

Items of comparison	Food and Drug Administration standard	Codex standard
(b) Starches in cream style	Starch only.[2] (21 CFR 51.20(a)(4))	Natural (native), physically or enzymatically modified. (3.1.5)

Physically or enzymatically modified starch be provided for as an alternative to natural (native) starch.

Items of comparison	Food and Drug Administration standard	Codex standard
(c) Citric acid	Not provided for	Specifically provided for as a food additive. (4.2)

Citric acid be provided for as an optional ingredient. The addition of citric acid to corn prior to cooking permits an adequate process to be more easily attained.

Items of comparison	Food and Drug Administration standard	Codex standard
(d) Invert sugar	Not provided for	Provided for. (3.1.3)

Invert sugar sirup be provided for as an additional optional sweetening agent. Invert sugar is not commercially available in this country. Invert sugar sirup is presently permitted in the standards for soda water (carbonated beverages) and many canned fruit products.

See footnotes on p. 21117.

Items of comparison	Food and Drug Administration standard	Codex standard
(e) Vegetables	Green peppers or red peppers either of which may be sweet or hot and may be dried, mint leaves, onions and garlic either of which may be dried, and horseradish.[2] (21 CFR 51.20(d)(1) through (5))	Pieces of green or red peppers or mixtures of both, or other vegetables not exceeding in total 15 percent mass/mass of the product. (3.1.4)

The optional addition of any vegetable(s), including pieces of green or red peppers or mixtures of both, either of which may be sweet or hot and may be dried, be provided for with a maximum limit not to exceed 15 percent by weight of the finished food. Permitting the use of any vegetable provides a greater variety of products to the consumer.

Items of comparison	Food and Drug Administration standard	Codex standard
(f) Other optional ingredients	Disodium inosinate and disodium guanylate when complying with 21 CFR 121.1090 and 121.1109 respectively of the Food Additive Regulations, hydrolyzed vegetable protein, and autolyzed yeast extract.[2] (21 CFR 51.20(c) (3) through (6)) Lemon juice or lemon juice concentrate.[1] (21 CFR 51.20(d)(6)) Spice and flavoring (not artificial) providing neither simulate the color or flavor imparted by butter.[2] (21 CFR 51.20(c)(8) and (9))	Not provided for.

No change. The additional optional ingredients provided for by the FDA permit a wider choice of ingredients and the FDA has no basis to make any deletions.

Items of comparison	Food and Drug Administration standard	Codex standard
7. Labeling: (a) Color group	The name of the color group used, "white," "yellow" or "golden," or with the names of the color groups used, "white and yellow" or "white and golden," when the white color group predominates, and "yellow and white" or "golden and white," when the yellow color group predominates.[1] (21 CFR 51.20(e)(1)) When the varietal name immediately precedes or follows the name or intervenes between parts of the name of the food and it accurately designates the color of the corn ingredient, no other designation of the color group need be made.[1] (21 CFR 51.20(e)(2))	The name of the product shall include the color type "white" for "white corn." (No provision is made for labeling of "yellow" ("golden") corn or mixtures of "white" and "yellow.") (7.1.1(c))

No change. FDA has no basis to recommend deletion of required label declaration for "yellow" corn or mixture of "yellow" and "white" corn.

Items of comparison	Food and Drug Administration standard	Codex standard
(b) Styles (types): "Whole kernel," "whole grain" or "cut kernel."	Provided for with the exception of "cut kernel." (21 CFR 51.20(e)(1)(i))	To be stated on the label as to be easily discernible to the consumer. (7.1.2(a))

"Cut kernel" be provided for as an alternative name for "whole kernel," or "whole grain" since the FDA identity standard presently contains the term "cut kernel" in the definition for such food.

Items of comparison	Food and Drug Administration standard	Codex standard
(c) Styles of whole kernel pack.	"Vacuum pack" or "vacuum packed" [1] (21 CFR 51.20(e)(1)(ii))	"In brine," "liquid pack," "vacuum pack" or "vacuum packed" as appropriate shall be so stated on the label as to be easily discernible to the consumer. (7.1.2(b))

The FDA standard be amended to require the term "in brine" or as an alternative "liquid pack" to be so stated on the label to provide additional information to the consumer when the product contains more than 20 percent liquid.

Items of comparison	Food and Drug Administration standard	Codex standard
(d) Seasonings and/or garnishings.	If one or more of the optional seasoning ingredients listed in 21 CFR 51.20(d) are used, the word "seasoned" may immediately precede the name of the optional corn ingredient.[2] (21 CFR 51.20(e)(2)) If one or more of the optional seasoning or garnishing ingredients listed in 21 CFR 51.20(d) are used, the label shall bear the statement "Seasoned with . . .," the blank being filled in with the name "green peppers," "dried green peppers," "red peppers," "dried red peppers," specifying in each instance whether such peppers are sweet or hot, "mint leaves," "onions," "dried onions," "garlic," "dried garlic," "horseradish," "lemon juice," "concentrated lemon juice," "butter," or a combination of these names as appropriate, except that the presence of the specified optional seasoning or garnishing ingredient green peppers or red peppers may be shown without the word "seasoned." The word "dehydrated" may be used in lieu of the word "dried." [3] (21 CFR 51.20(e)(5))	The name of the product shall include a declaration of any seasoning which characterizes the product; e.g., "with x," when appropriate. (7.1.1(b))

The name of the product shall include a declaration of any seasoning or garnishing ingredients used in the product, including those presently provided for.

See footnotes on p. 21117.

Items of comparison	Food and Drug Administration standard	Codex standard
(e) Spice or flavoring	If spice or flavoring is added, the label shall bear the word or words "spiced" or "with added spice" or "spice added" or "with added flavoring" or "flavoring added," as appropriate. In lieu of the words "spice" or "flavoring" in such statement, the common or usual name of such spice or flavoring may be used [2] (21 CFR 51.20(e)(3))	Spice or flavoring not provided for.

Delete. Declaration of spice or flavoring is included under item 7(i). The Federal Food, Drug, and Cosmetic Act provides that spices and flavorings may be designated as spices and flavorings rather than naming each by common name.

Items of comparison	Food and Drug Administration standard	Codex standard
(f) Emulsifiers or stabilizers	Any optional emulsifiers or stabilizers (item 6(f)) used in connection with butter shall be designated on the label by its common or usual name.[4] (21 CFR 51.20(e)(4))	Provided for.

Delete. Provided for by item 7(i).

Items of comparison	Food and Drug Administration standard	Codex standard
(g) Starch in cream style corn	When the optional starch ingredient specified for "cream style" is used, the label shall bear the statement "Starch added to insure smoothness." [2] (21 CFR 51.20(e)(6))	Requires optional starch ingredient to be included in ingredient statement (item 7(i)).

Delete since not required by Codex and starch should not be singled out as the sole ingredient to be declared by its functionality.

Items of comparison	Food and Drug Administration standard	Codex standard
(h) Certain optional ingredients listed under item 6(f).	If one or more of the optional ingredients named in item 6(f) are used, the label shall bear the statement ". . . added" or "With added . . .," the blank being filled in with the name(s) of the ingredient(s) used. (21 CFR 51.20(e)(1))	Label declaration is provided under item 7(i).

Delete since the complete listing of all optional ingredients is proposed under item 7(i).

Items of comparison	Food and Drug Administration standard	Codex standard
(l) A complete listing of ingredients.	Not provided for	A complete list of ingredients shall be declared on the label in descending order of proportion. (7.2)

The common name of each of the optional ingredients used be declared on the label as required by 21 CFR Part 1, and as provided for by Codex including order of proportion. In addition, the declaration of ingredients be in letters not less than one-half of that required by 21 CFR 1.8b, for the declaration of net quantity of contents, but in no case less than one-sixteenth of an inch in height. The Food and Drug Administration issued a policy statement (21 CFR 3.88) in the FEDERAL REGISTER of March 10, 1972 (37 F.R. 5120) which stated that there is significant consumer interest that the labels of standardized foods bear complete information of the ingredients contained in the food. In the absence of legal authority to require that the label bear such information, the Food and Drug Administration encouraged all manufacturers, packers, and distributors to voluntarily make such disclosure. The Food and Drug Administration further stated that it intended to amend the definitions and standards of identity of food by setting into motion as rapidly as possible the provisions of sec. 401 of the act to require label declaration of all optional ingredients with the exception of optional spices and flavorings which may continue to be designated as such without specific ingredient declaration.

Codex

Provided for under the "Recommended International General Standard for the Labeling of Prepackaged Foods."

FDA

[1] Wherever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, such words shall immediately and conspicuously precede or follow such name, without intervening written, printed or graphic matter, except that the varietal name of the corn used may so intervene. (21 CFR 51.20(f) (1)

No change. This is a specific requirement on labeling that does not appear elsewhere in this standard.

[2] Such words or statements in addition to salt and monosodium glutamate but excluding sugar shall be set forth on the label with such prominence and conspicuousness as to render them likely to be read and understood by the ordinary individual under customary conditions of purchase.

Requires a complete listing of ingredients on the label in descending order of proportion.

If two or more such optional ingredients are present, such statements as are required may be combined; for example, "With added salt, spice, flavoring, and monosodium glutamate." (21 CFR 51.20(f) (2))

Delete this paragraph (footnote 2) as item 7(i) provides requirement regarding the listing of each optional ingredient.

COMPARISON OF THE QUALITY ASPECTS AND PROPOSED COURSE OF ACTIONS

Items of comparison	Food and Drug Administration standard	Codex standard
1. Color criteria	Not provided for	The color of product shall be normal for the color type. The product shall be reasonably free from "off-variety" kernels. Canned sweet corn containing other permitted ingredients shall be considered to be of characteristic color when there is no abnormal discoloration for respective ingredients used. (3.2.1)

No change. The Codex language is not specific enough to be useful in enforcing a legal requirement and therefore inclusion in the FDA quality standard is not proposed.

Items of comparison	Food and Drug Administration standard	Codex standard
2. Flavor criteria	Not provided for	Canned sweet corn shall have a normal flavor and odor free from flavors or odors foreign to the product and canned sweet corn with special ingredients shall have a flavor characteristic of that imparted by the sweet corn and the other substances used. (3.2.2)

No change. Abnormal odor or flavor would make the food adulterated under section 402 of the Federal Food, Drug, and Cosmetic Act.

Items of comparison	Food and Drug Administration standard	Codex standard
3. General overall statement on defects.	Not provided for	The finished product shall be substantially free from cob material, silk, husk, discolored or blemished kernels, extraneous plant material, or other defects not specifically mentioned. (3.2.5)

No change. The Codex language is not specific enough to be useful in enforcing a legal requirement and therefore inclusion in the FDA quality standard is not proposed.

Items of comparison	Food and Drug Administration standard	Codex standard
4. Specific requirements on defects in whole kernel corn (and evaporated corn in case of FDA).		
(a) Blemished kernels	Not more than one brown or black discolored kernel or piece of kernel for each 2 ozs. of drained weight (21 CFR 51.21(a)(1)(i))	Seven kernels or pieces that are dimensional (brown or black discolored kernels or pieces (and seriously damaged but not more than 5 may be seriously damaged per 400 g of drained weight. (3.2.5)
	1 blemished kernel per 2 ozs. or 56.7 g	7 blemished kernels/400 g. or 1 blemished kernel/57.1 g

FDA is essentially equivalent to the Codex requirement. In the absence of a definition for "seriously damaged" in the Codex, differentiation of "damaged" from "seriously damaged" would be impractical in the FDA requirement.

Items of comparison	Food and Drug Administration standard	Codex standard
(b) Pieces of cob	Not more than 1 cm² for each 14 oz. of drained weight. (21 CFR 51.21(a)-(1)(ii)) 14 oz. = 397 g.	1 cubic centimeter per 400 grams of drained weight. (3.2.5)

FDA is equivalent to the Codex requirement.

Items of comparison	Food and Drug Administration standard	Codex standard
(c) Pieces of husk	Not more than 1 sq. in. of husk for each 14 oz. of drained weight. (21 CFR 51.21(a)(1)(iii)) 6.45 cm² = 1 sq. in. 14 oz. = 397 g.	7 square centimeters per 400 grams of drained weight. (3.2.5)

FDA is essentially equivalent to the Codex requirement.

Items of comparison	Food and Drug Administration standard	Codex standard
(d) Silk	Not more than 7 in. of silk for each 1 oz. of drained weight. (21 CFR 51.21(a)-(1)(iv)) 7 in. = 178 mm.	180 mm. per 28 g. of drained weight. (3.2.5)

FDA is essentially equivalent to the Codex requirement.

Items of comparison	Food and Drug Administration standard	Codex standard
5. Specific requirements on defects in cream style (also fritter and ground styles in case of FDA).		
(a) Blemished kernels	Not more than 1 brown or black discolored kernel or piece of kernel for each 2 oz. of net weight. (21 CFR 51.21(a)(2)(i)) 1 blemished kernel/56.7 g.	10 kernels or pieces that are damaged and seriously damaged but not more than 5 may be seriously damaged per 600 g. (total content). (3.2.5). 3 blemished kernel/60.0 g.

The allowance for blemished kernels in the FDA requirement is essentially equivalent to the Codex requirement. In the absence of a definition for seriously damaged in the Codex, differentiation of damaged from seriously damaged would be impractical in the FDA requirement.

Items of comparison	Food and Drug Administration standard	Codex standard
(b) Pieces of cob	Not more than 1 cm² for each 20 oz. of net weight. (21 CFR 51.21(a)(2)(ii)) 20 oz. = 567 g.	1 cm² per 600 g (total contents). (3.2.5)

FDA is essentially equivalent to the Codex requirement. FDA does require a sample size of about 6 percent smaller than Codex, however, the difference that would result in analysis using the larger sample in the Codex is within the experimental variance of the method.

Items of comparison	Food and Drug Administration standard	Codex standard
(c) Pieces of husk	Not more than 1 sq. in. of husk for each 20 oz. of net weight. (21 CFR 51.21(a)(2)(iii)) 20 oz. = 567 g.	7 square centimeters per 600 grams (total contents). (3.2.5) 1 sq. in. = 6.45 cm.²

The FDA requirement is essentially equivalent to the Codex.

Items of comparison	Food and Drug Administration standard	Codex standard
(d) Silk	Not more than 6 in. of silk for each 1 oz. of net weight. (21 CFR 51.21(a)(2)(iv)) 6 in. = 152.4 mm.	150 mm. of silk per 28 g. of drained weight. (3.2.5)

FDA has no basis for proposing a change from net weight to drained weight.

Items of comparison	Food and Drug Administration standard	Codex standard
6. Quality tenderness and texture:		
(a) Whole kernel	The weight of the alcohol-insoluble solids of whole kernel corn (21 CFR 51.20(b)(1)) does not exceed 27 percent of the drained weight, when tested by the method prescribed under item 10(a). (21 CFR 51.21(a)(3)(i))	The kernels (in either cream style or whole kernel corn) shall be of a reasonable tender texture offering some resistance when chewed but are not hard or tough. (3.2.3)
(b) Cream style	The weight of the alcohol-insoluble solids of the washed drained material of cream style corn (21 CFR 51.20(b)(1)) does not exceed 27 percent of the weight of such material when tested by the method prescribed under item 10(b). (21 CFR 51.21(a)(3)(ii))	See above.

No change. No support exists for the deletion of the AIS requirement from the FDA standard which provides a more objective measurement than does the Codex requirement.

Items of comparison	Food and Drug Administration standard	Codex standard
7. Consistency in cream style	The average diameter of the approximately circular area over which the prescribed sample spreads does not exceed 12 in. (21 CFR 51.21(a)(2)(v)). The washed drained material of which contains more than 20 percent of alcohol-insoluble solids, the average diameter of the approximately circular area over which the prescribed sample spreads does not exceed 10 in. (21 CFR 51.21(a)(2)(v))	The product shall possess a consistency which may be thin but not excessively thin or may be thick and heavy but not excessively dry or pasty, and from which (at the end of 2 minutes) there may be a moderate but not excessive separation of free liquid.

No change. FDA has no basis to delete the test for consistency from the standard as it provides a specific test not available in the Codex.

Items of comparison	Food and Drug Administration standard	Codex standard
8. Sampling and acceptance procedure for quality factors.	Not provided for.	A container that fails to meet one or more of the applicable quality requirements, as set out in subsections 3.2.1 through 3.2.5, shall be considered a "defective." (3.2.6) A lot will be considered as meeting the applicable quality requirements referred to in subsection 3.2.6 when the number of "defectives," as defined in subsection 3.2.6 does not exceed the acceptance number (c) of the appropriate Codex Sampling Plan (AQL-6.5) in the Sampling Plans for Prepackaged Foods (1969). (3.2.7)

The sampling and acceptance procedure for quality factors shall be based on the Codex Sampling Plans.

Items of comparison	Food and Drug Administration standard	Codex standard
9. Methods for determining quality: (a) Whole kernel corn	Contains specific methods for determining the quality of whole kernel corn as well as evaporated corn including the use of woven-wire cloth sieve complying with specifications set forth under "2380 Micron (No. 8)" in Table I of "Standard Specifications for Sieves," published Mar. 1, 1940, in L.C. 584 of the U.S. Department of Commerce, National Bureau of Standards (21 CFR 51.21(b))	Not provided for.

FDA has no basis to delete methods from the standard. The references to specifications for cloth sieve be amended in accordance with the "Definitions of Terms and Explanatory Notes," page xviii, of the "Official Methods of Analysis of the Association of Analytical Chemists," 11th edition, 1970. Also the angle of the sieve to facilitate drainage be stated as approximately 17–20°.

Items of comparison	Food and Drug Administration standard	Codex standard
Cream style corn	Contains specific methods for determining quality of cream style corn that applies also to fritter corn and ground corn. (21 CFR 51.21(c)(1))	Not provided for.

No change. FDA has no basis to delete methods from the standard.

Items of comparison	Food and Drug Administration standard	Codex standard
10. Substandard in quality labeling provision.	Provides for substandard in quality labeling of canned corn where the product does not meet the quality standards for discolored kernels, cob, husk, silk or liquid. (21 CFR 51.21(d))	Not provided for.

No change. FDA has no basis to delete the substandard legend in quality provision. The Codex standard is silent on what disposition is to be made of canned corn that does not meet the requirements of the standard. This is left entirely to the individual country accepting the standard.

COMPARISON OF FILL OF CONTAINER ASPECTS AND PROPOSED COURSE OF ACTIONS

Items of comparison	Food and Drug Administration standard	Codex standard
1. Minimum fill	A fill of not less than 90 percent of the total capacity of the container, as determined by the general method for fill of containers prescribed in § 10.6(b) of this chapter. (Does not cover whole kernel corn.) (21 CFR 51.22(a))	The container shall be well-filled with corn, and, except for "vacuum pack" corn, the product (including the packing medium) shall occupy not less than 90 percent of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20° C which the sealed container will hold when completely filled. (6.1.1)

Minimum fill requirement shall include whole kernel corn except that which is vacuum pack. Data are not presently available for determining minimum fill requirement for vacuum pack whole kernel corn.

Items of comparison	Food and Drug Administration standard	Codex standard
2. Sampling and acceptance procedures.	Not provided for	A container that fails to meet the requirement for minimum fill (90 percent container capacity) of subsection 6.1.1 shall be considered a "defective." (6.1.2) A lot will be considered as meeting the requirement of subsection 6.1.1 when the number of "defectives," as defined in subsection 6.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan (AQL-6.5) in the Sampling Plans for Prepackaged Foods (1969). (6.1.3)

The sampling and acceptance procedure for minimum fill shall be based on the Codex Sampling Plans.

Items of comparison	Food and Drug Administration standard	Codex standard
3. Minimum drained weight for whole kernel corn.	Not provided for	The drained weight shall not be less than 61 percent of the weight of distilled water at 20° C which the sealed container will hold when completely filled. (6.1.4.1) The requirements for minimum drained weight shall be deemed to be complied with when the average drained weight of all containers examined is not less than the minimum required, provided there is no unreasonable shortage in individual cans. (6.1.4.2)

The following are the minimum drained weights in ounces and the percent fill calculated on the basis of the water capacity of the container in the United States voluntary grade standards issued by USDA for whole kernel corn except vacuum pack.

Container size or designation	Grade A		Grades B, C, and substandard for tenderness or maturity	
	Ounces	Percent	Ounces	Percent
8 oz., tall	5.25	60.7	5.50	63.6
No. 1 (picnic)	6.75	61.9	7.00	64.2
No. 300	9.25	60.9	9.50	62.5
No. 303	10.50	62.3	10.75	63.9
No. 2	12.75	62.2	13.25	64.6
No. 10	70.00	84.0	72.00	85.8

The drained weight of the corn ingredient, as determined by sections 32.001 and 32.002 Canned Products—Drained Weight—Procedure, in "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th edition, 1970, page 559, for whole kernel (whole grain or cut kernel) corn (including vacuum pack) shall be not less than the following based on the average of all containers analyzed:

(a) Sixty-two percent of the water capacity of the container, if such water capacity is 245 g. (8.65 oz. avdp.) or less (8 ounce tall or smaller containers).

(b) Sixty-three percent of the water capacity of the container, if such water capacity is more than 245 g. (8.65 oz. avdp.) but less than 3.103 kg. (109.45 oz. avdp.), (No. 1 (picnic)), (No. 300, and No. 2 containers).

(c) Sixty-five percent of the water capacity of the container, if such water capacity is 3.103 kg. (109.45 oz. avdp.) (No. 10 container).

Items of comparison	Food and Drug Administration standard	Codex standard
(4) Labeling of substandard fill....	If canned fritter corn, canned ground corn, or canned cream-style corn falls below the standard of fill of container prescribed in paragraph (a) of this section, the label shall bear the general statement of substandard fill specified in § 10.7(b) of this chapter, in the manner and form therein specified (21 CFR 51.22(b))	No such provision in Codex.

FDA requirement shall include whole kernel corn except that which is vacuum pack.

Accordingly, the Commissioner proposes on his own initiative (21 CFR 2.120) that the existing canned sweet corn standards of identity (21 CFR 51.20), quality (21 CFR 51.21), and fill of container (21 CFR 51.22) be amended as set forth below to provide for certain features, based on the Codex standard that would, in his opinion, promote honesty and fair dealing in the interest of consumers.

§ 51.20 Canned corn, canned sweet corn, canned sugar corn; identity; label statement of optional ingredients.

(a) Canned corn, canned sweet corn, canned sugar corn is the food consisting of one of the corn ingredients specified in paragraph (b) of this section, with water necessary for proper preparation and processing. In preparing each such corn ingredient, the tip caps are removed. The food may contain one or more of the optional ingredients specified in paragraph (c) of this section, and it may be seasoned or garnished with one or more of the optional seasonings or garnishes specified in paragraph (d) of this section. The food is sealed in a container and so processed by heat as to prevent spoilage.

(b) The corn ingredients referred to in paragraph (a) of this section consist of succulent sweet corn of the white or yellow color groups, or mixtures of these, and are as follows:

(1) Cut kernels from which the hulls have not been separated.

(2) Pieces of the inner portion of the corn kernel substantially free from hull.

(3) Ground kernels from which the hulls have not been separated.

(4) A mixture of the form described in subparagraph (1) of this paragraph with one or both of the forms described in subparagraphs (2) and (3) of this paragraph. When necessary to insure smoothness, native starch, which may be physically or enzymatically modified, may be added, in a quantity not more than sufficient for that purpose.

(5) Cut and cooked kernels from which most of the moisture has been evaporated.

(c) The following optional ingredients may be used:

(1) Salt.

(2) Monosodium gultamate.

(3) Disodium inosinate complying with the provisions of § 121.1090 of this chapter.

(4) Disodium guanylate complying with the provisions of § 121.1109 of this chapter.

(5) Hydrolyzed vegetable protein.

(6) Autolyzed yeast extract.

(7) Sugar, invert sugar sirup.

(8) Spice.

(9) Flavoring (except artificial).

→ (10) Citric acid.

(d) The following optional seasonings or garnishings may be used:

(1) Pieces of green peppers or red peppers, or mixtures of both, either of which may be sweet or hot and may be dried, or other vegetables, not exceeding 15 percent by weight of the finished food.

(2) Lemon juice or concentrated lemon juice.

(3) Butter, in a quantity not less than 3 percent by weight of the finished food. When butter is added, safe and suitable emulsifiers or stabilizers, or both, may be added in a quantity not more than reasonably necessary to accomplish the intended effect. Such emulsifiers and stabilizers are deemed to be safe if they are not food additives as defined in section 201(s) of the Federal Food, Drug, and Cosmetic Act, or if they are food additives as so defined, they are used in conformity with regulations established pursuant to section 409 of the act. When butter is added, no spice or flavoring simulating the color or flavor imparted by butter is used.

(e) (1) The name of the food is "corn" or "sweet corn" or "sugar corn" with the name of the color group used, "white," "yellow," or "golden," or with the names of the color groups used, "white and yellow" or "white and golden," when the white color group predominates, and "yellow and white" or "golden and white," when the yellow color group predominates, and with:

(i) The words "whole kernel," "whole grain" or "cut kernels," when the corn ingredient specified in paragraph (b)(1) of this section is used. When the weight of the liquid in the container, as determined by the method prescribed in § 51.21(b)(1), is not more than 20 percent of the net weight, and the container is closed under conditions creating a high vacuum in the container, the words "vacuum pack" or "vacuum packed" are also part of the name. When the weight of the liquid in the container exceeds 20 percent, the words "in brine" or "liquid pack" are to be part of the name.

(ii) The word "fritter," when the corn ingredient specified in paragraph (b)(2) of this section is used.

(iii) The word "ground," when the corn ingredient specified in paragraph (b)(3) of this section is used.

(iv) The words "cream style," when the corn ingredient specified in paragraph (b)(4) of this section is used.

(v) The word "evaporated," when the corn ingredient specified in paragraph (b)(5) of this section is used.

(2) The parts of the name as specified in subparagraph (1) of this paragraph may be arranged in any order of precedence. The varietal name of the corn used may intervene between parts of the name of the food. For the purpose of arrangement of the name, the words "sweet" and "corn" may be treated as separate parts of the name. When the varietal name immediately precedes or follows the name or intervenes between parts of the name of the food and it accurately designates the color of the corn ingredient, no other designation of the color group need be made. If one or more of the optional seasoning ingredients specified in paragraph (d) of this section are used, the word "seasoned" may immediately precede the name of the optional corn ingredient.

(3) If one or more of the optional seasoning or garnishing ingredients named in paragraph (d) of this section are used, the label shall bear the statement "Seasoned with _____" or "with _____," as appropriate, the blank being filled in with the name "green peppers," "dried green peppers," "red peppers," "dried red peppers," specifying in each instance whether such peppers are sweet or hot, "mint leaves," "onions," "dried onions," "garlic," "dried garlic," "horseradish," "lemon juice," "concentrated lemon juice," "butter," or a combination of these names as appropriate, except that the presence of the optional seasoning or garnishing ingredient named in paragraph (d)(1) of this section may be shown without the word "seasoned." The word "dehydrated" may be used in lieu of the word "dried."

(f) (1) Wherever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the words and statements prescribed by paragraph (e) (1) and (3) of this section shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter, except that the varietal name of the corn used may so intervene.

(2) The common name of each of the optional ingredients used shall be declared on the label as required by the applicable sections of 21 CFR Part 1 of this chapter and shall appear in letters not less than one-half the size of that required by § 1.8b of this chapter for the declaration of net quantity of contents, but in no case less than one-sixteenth of an inch in height.

§ 51.21 Canned corn, canned sweet corn, canned sugar corn; quality; label statement of substandard quality.

(a) The standard of quality for canned corn is as follows:

(1) When tested by the method prescribed in paragraph (b) of this section, canned corn in which the corn ingredient is whole-kernel corn (§ 51.20(b)(1)) or evaporated corn (§ 51.20(b)):

(i) Contains not more than seven brown or black discolored kernels or pieces of kernel per 400 g. (14 ounces) of drained weight;

(ii) Contains not more than 1 cubic centimeter of pieces of cob for each 400 g. (14 ounces) of drained weight;

(iii) Contains not more than 7 square centimeters (1.1 square inch) of husk per 400g. (14 ounces) of drained weight; and

(iv) Contains not more than 180 mm. (7 inches) of silk per 28 g. (1 ounce) of drained weight.

(2) When tested by the method prescribed in paragraph (c) of this section, canned corn in which the corn ingredient is fritter corn (§51.20(b)(2)), ground corn (§ 51.20(b)(3)), or cream style corn (§ 51.20(b)(4)):

(i) Contains not more than 10 brown or black discolored kernels or pieces of kernel per 600 g. (21.4 ounces) of net weight;

(ii) Contains not more than 1 cubic centimeter of pieces of cob per 600 g. (21.4 ounces) of net weight;

(iii) Contains not more than 7 square centimeters (1.1 square inch) of husk per 600 g. (21.4 ounces) of net weight;

(iv) Contains not more than 150 mm. (6 inches) of silk for each 28 g. (1 ounce) of net weight; and

(v) Has a consistency such that the average diameter of the approximately circular area over which the prescribed sample spreads does not exceed 30.5 cm. (12 inches), except that, in the case of cream-style corn the washed drained material of which contains more than 20 percent of alcohol-insoluble solids, the average diameter of the approximately circular area over which the prescribed sample spreads does not exceed 25.4 cm. (10 inches).

(3) (i) The weight of the alcohol-insoluble solids of whole-kernel corn (§ 51.20(b)(1)) does not exceed 27 percent of the drained weight, when tested by the method prescribed in paragraph (b) of this section.

(ii) The weight of the alcohol-insoluble solids of the washed drained material of cream style corn (§ 51.20(b)(4)) does not exceed 27 percent of the drained weight of such material, when tested by the method prescribed in paragraph (c) of this section.

(b) The method referred to in paragraph (a) of this section for testing whole-kernel corn (§ 51.20(b)(1)) and evaporated corn (§ 15.20(b)(5)) is as follows:

(1) Determine the gross weight of the container. Open and distribute the contents of the container over the meshes of a U.S. No. 8 circular sieve which has previously been weighed. The diameter of the sieve is 20.3 cm. (8 inches) if the quantity of the contents of the container is less than 1.36 kg. (3 pounds), and 30 5 cm. (12 inches) if such quantity is 1.36 kg. (3 pounds) or more. The bottom of the sieve is woven-wire cloth which complies with the specifications for such sieve set forth in the "Definitions of Terms and Explanatory Notes," page xviii, of the "Official Methods of Analysis of the Association of Analytical Chemists," 11th edition, 1970. Without shifting the material on the sieve, so incline the sieve at approximately 17–20° angle to facilitate drainage. Two minutes from the time drainage begins, weigh the sieve and the drained material. Record, in g. (ounces), the weight so found, less the weight of the sieve, as the drained weight. Dry and weigh the empty container and subtract this weight from the gross weight to obtain the net weight. Calculate the percent of drained liquid in the net weight.

(2) Pour the drained material from the sieve into a flat tray and spread it in a layer of fairly uniform thickness. Count, but do not remove, the brown or black discolored kernels or pieces of kernel and calculate the number per 400 g. (14 ounces) of drained material. Remove pieces of silk more than 12.7 mm. (one-half inch) long, husk, cob, and any pieces of material other than corn. Measure the aggregate length of such pieces of silk and calculate the length of silk per 28 g. (1 ounce) of drained weight. Spread the husk flat, measure its aggregate area, and calculate the area of husk per 400 g. (14 ounces) of drained weight. Place all pieces of cob under a measured amount of water in a cylinder which is so graduated that the volume can be measured to 0.1 cubic centimeter. Take the increase in volume as the aggregate volume of the cob and calculate the volume of cob per 400 g. (14 ounces) of drained weight.

(3) If the corn is whole kernel (§ 51.20(b)(1)), comminute a representative 100 g. sample of the drained corn from which the silk, husk, cob, and other material which is not corn (i.e., peppers) have been removed. An equal amount of water is used to facilitate this operation. Weigh to nearest 0.01 g. a portion of the comminuted material equivalent to approximately 10 g. of the drained corn into a 600 cubic centimeter beaker. Add 300 cubic centimeters of 80 percent alcohol (by volume), stir, cover beaker, and bring to a boil. Simmer slowly for 30 minutes. Fit a Buchner funnel with a previously prepared filter paper of such size that its edges extend 12.7 mm. (one-half inch) or more up the vertical sides of the funnel. The previous preparation of the filter paper consists of drying it in a flat-bottomed dish for 2 hours at 100° C., covering the dish with a tight fitting cover, cooling it in a desiccator, and promptly weighing to the nearest 0.001 g. After the filter paper is fitted to the funnel, apply suction and transfer the contents of the beaker to the funnel. Do not allow any of the material to run over the edge of the paper. Wash the material on the filter with 80 percent alcohol (by volume) until the washings are clear and colorless. Transfer the filter paper with the material retained thereon to the dish used in preparing the filter paper. Dry the material in a ventilated oven, without covering the dish, for 2 hours at 100° C. Place the cover on the dish, cool it in a desiccator, and promptly weigh to the nearest 0.001 g. From this weight subtract the weight of the dish, cover, and paper as previously found. Calculate the remainder to percentage.

(c) The method referred to in paragraph (a) of this section for testing fritter corn (§ 51.20(b)(2)), ground corn (§ 51.20(b)(3)), and cream-style corn (§ 51.20(b)(4)) is as follows:

(1) Allow the container to stand at least 24 hours at a temperature of 68° F. to 85° F. Determine the gross weight, open, transfer the contents into a pan, and mix thoroughly in such a manner as not to incorporate air bubbles. (If the net contents of a single container is less than 510 g. (18 ounces) determine the gross weight, open, and mix the contents of the least number of containers necessary to obtain 510 g. (18 ounces)). Fill level full a hollow, truncated cone so placed on a polished horizontal plate as to prevent leakage. The cone has an inside bottom diameter of 7.62 cm. (3 inches), inside top diameter of 5.08 cm. (2 inches), and height of 12.30 cm. (4⅞ inches). As soon as the cone is filled, lift it vertically. Determine the average of the longest and shortest diameters of the approximately circular area on the plate covered by the sample 30 seconds after lifting the cone. Dry and weigh each empty container and subtract the weight so found from the gross weight to obtain the net weight.

(2) Transfer the material from the plate, cone, and pan onto an U.S. No. 8 sieve as prescribed in paragraph (b)(1) of this section. The diameter of the sieve is 20.3 cm. (8 inches) if the quantity of the contents of the container is less than 1.36 kg. (3 pounds), and 30.5 cm. (12 inches) if such quantity is 1.36 kg. (3 pounds) or more. Set the sieve in a pan. Add enough water to bring the level within 9.53 mm. (three-eighths inch) to 6.35 mm. (one-fourth inch) of the top of the sieve. Gently wash the material on the sieve by combined up-and-down and circular motion for 30 seconds. Repeat washing with a second portion of water. Remove sieve from pan, incline to facilitate drainage, and drain for 2 minutes.

(3) From the material remaining on the U.S. No. 8 sieve, count, but do not remove, the brown or black discolored kernels or pieces of kernel and calculate the number per 600 g. (21.4 ounces) of net weight. Remove pieces of silk more than 12.7 mm. (one-half inch) long, husk, cob, and other material which is not corn (i.e., peppers). Measure aggregate length of such pieces of silk and calculate the length per 28 g. (ounce) of net weight. Spread the husk flat and measure its aggregate area and calculate the area per 600 g. (21.4 ounces) of net weight. Place all pieces of cob under a measured amount of water in a cylinder which is so graduated that the volume may be measured to 0.1 cubic centimeter. Take the increase in volume as the aggregate volume of the cob and calculate the volume of cob per 600 g. (21.4 ounces) of net weight. If the corn is cream-style corn (§ 51.20(b)(4)), take a

representative 100 g. sample of the material remaining on the U.S. No. 8 sieve (if such material weighs less than 100 g. take all of it) and determine the alcohol-insoluble solids as prescribed in paragraph (b)(3) of this section for whole kernel corn.

(d) Sampling and acceptance procedure A lot is to be considered acceptable when the number of "defectives" does not exceed the acceptance number in the sampling plans given in subparagraph (2) of this paragraph.

(1) Definitions of terms to be used in the sampling plans in subparagraph (2) of this paragraph are as follows:

(i) *Lot.* A collection of primary containers or units of the same size, type, and style manufactured or packed under similar conditions and handled as a single unit of trade.

(ii) *Lot size.* The number of primary containers or units in the lot.

(iii) *Sample size (n).* The total number of sample units drawn for examination from a lot.

(iv) *Sample unit.* A container, the entire contents of a container, a portion of the contents of a container, or a composite mixture of product from small containers that is sufficient for the examination or testing as a single unit.

(v) *Defective.* Any sample unit shall be regarded as defective when any of the defects or conditions specified in the quality (paragraph (a) of this section) and fill of container (§ 51.22) standards are present in excess of the stated tolerances.

(vi) *Acceptance number (c).* The maximum number of defective sample units permitted in the sample in order to consider the lot as meeting the specified requirements.

(vii) *Acceptable quality level (AQL).* The maximum percent of defective sample units permitted in a lot that will be accepted approximately 95 percent of the time.

(2) Sampling plans and acceptance procedure:

ACCEPTABLE QUALITY LEVEL 6.5

Lot size (Primary Containers)	Size of container	
	Net weight equal to or less than 1 kilogram (2.2 pounds)	
	n	c
1,800 or less	13	2
1,801 to 21,600	21	3
24,000 to 48,000	29	4
48,001 to 84,000	48	6
84,001 to 144,000	84	9
144,001 to 240,000	126	13
Over 240,000	200	19
600 or less	13	2
601 to 2,000	21	3
2,001 to 7,200	29	4
7,201 to 15,000	48	6
15,001 to 21,000	84	9
21,001 to 42,000	126	13
Over 42,000	200	19

Lot size (Primary Containers)	Size of container	
	Net weight greater than 1 kilogram (2.2 pounds) but not more than 4.5 kilograms (10 pounds)	
	n	c
2,400 or less	13	2
2,401 to 15,000	21	3
15,001 to 24,000	29	4
24,001 to 42,000	48	6
42,001 to 72,000	84	9
72,001 to 120,000	126	13
Over 120,000	200	19
600 or less	13	2
601 to 2,000	21	3
2,001 to 7,200	29	4
7,201 to 15,000	48	6
15,001 to 21,000	84	9
21,001 to 42,000	126	13
Over 42,000	200	19

n = number of primary containers in sample.
c = acceptance number.

(e) If the quality of canned corn falls below the standard prescribed in paragraph (a) of this section, the label shall bear the general statement of substandard quality specified in § 10.7(a) of this chapter, in the manner and form therein specified; however, if the quality of the canned corn falls below standard with respect to only one of the factors of quality specified by subdivisions (i) to (iv) of paragraph (a)(1) of this section, or by subdivision (i) to (v) of paragraph (a)(2) of this section, there may be substituted for the second line of such general statement of substandard quality, "Good Food—Not High Grade," a new line as specified after the corresponding subdivision designation of paragraph (a) of this section, which the canned corn fails to meet:

(1)(i) or (2)(i) "Excessive discolored kernels."
(1)(ii) or (2)(ii) "Excessive cob."
(1)(iii) or (2)(iii) "Excessive husk."
(1)(iv) or (2)(iv) "Excessive silk."
(2)(v) "Excessively liquid."

§ 51.22 Canned corn, canned sweet corn, canned sugar corn; fill of container; label statement of substandard fill.

(a) The standard of fill of container for canned corn is:

(1) Except in the case of vacuum pack corn the fill of the corn ingredient and packing medium, as determined by the general method for fill of container prescribed in § 10.6(b) of this chapter, is not less than 90 percent of the total capacity of the container.

(2) In whole kernel corn, the drained weight of the corn ingredient, as determined by sections 32.001 and 32.002 *Canned Products—Drained Weight—Procedure*, in "Official Methods of Analysis of the Association of Official Analytical Chemists," 11th edition, 1970, page 559, is not less than the following:

(i) Sixty-two percent of the water capacity of the container, if such water capacity is 245 g. (8.65 oz. avdp.) or less.

(ii) Sixty-three percent of the water capacity of the container, if such water capacity is more than 245 g. (8.65 oz. avdp.) but less than 3.103 kg. (109.45 oz. avdp.).

(iii) Sixty-five percent of the water capacity of the container, if such water capacity is 3.103 kg. (109.45 oz. avdp.).

(b) (1) A container that falls below the requirement for minimum fill prescribed in paragraph (a)(1) of this section is considered a "defective." The food will be deemed to fall below the standard of fill when the number of defectives exceeds the acceptance number (c) in the sampling plans prescribed in § 51.21(d).

(2) Whole kernel will be deemed to fall below the standard of fill when the average drained weight of all of the containers examined according to the sampling plans prescribed in § 51.21(d) is less than that prescribed in paragraph (a)(2) of this section.

(c) If canned corn falls below the standard of fill of container prescribed in paragraphs (a) and (b) of this section, the label shall bear the general statement of substandard fill specified in § 10.7(b) of this chapter, in the manner and form therein specified.

Pursuant to provisions of the Federal Food, Drug, and Cosmetic Act (secs. 401, 701(e), 52 Stat. 1046, 1055–1056, as amended 70 Stat. 919, 72 Stat. 948; 21 U.S.C. 341, 371) and in accordance with authority delegated to the Commissioner of Food and Drugs (21 CFR 2.120), interested persons are invited to submit their views in writing (preferably in quintuplicate) regarding this proposal within 90 days after its date of FEDERAL REGISTER publication. Such views and comments should be addressed to the Hearing Clerk, Department of Health, Education, and Welfare, Room 6–88, 5600 Fishers Lane, Rockville, Md. 20852, and may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: September 25, 1972.

SAM D. FINE,
Associate Commissioner for Compliance.

[FR Doc.72 16644 Filed 10–4–72;8:45 am]

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Food and Drug Administration

FOOD STANDARDS FOR CERTAIN TYPES OF EDIBLE OILS

Notice of Opportunity for Review and Informal Comment on Recommended International Standards

The United States has received from the Codex Alimentarius Commission final food standards for cottonseed oil, corn seed oil, mustard seed oil, peanut oil, rapeseed oil, safflower seed oil, sesame seed oil, soybean oil, and sunflower seed oil. No food standards for these foods presently exist in the United States. Pursuant to proposed § 10.8, which is published elsewhere in this issue of the FEDERAL REGISTER, the Commissioner is providing an opportunity for review and informal comment on the desirability and need for standards for these foods, on the specific provisions of these standards, on additional or different requirements that should be included in these standards, and on any other pertinent points.

Codex Alimentarius standards generally list permitted food additives and color additives. In view of the separate food additive and color additive provisions contained in sections 409 and 706 of the Federal Food, Drug, and Cosmetic Act, listing of all permitted ingredients is unnecessary in food standards promulgated under section 401 of the Act. Accordingly, the Commissioner would propose to permit any safe and suitable food additives and color additives, except those excluded by the terms of the standard, in the event that a U.S. standard is proposed for the class of foods covered by this notice.

Pursuant to the proposed § 10.8 (21 CFR 10.8), which is published as a proposal in this issue of the FEDERAL REGISTER, the Codex Alimentarius standard for rapeseed oil is being included with other oil standards for comment even though rapeseed oil is not presently permitted for food use in the United States. Any comment should be directed particularly toward the safety of this oil for human consumption.

All persons who wish to submit comments are encouraged and requested to consult with different interested groups (consumers, industry, the academic community, professional organizations, and others) in formulating their comments. All comments shall include a statement on meetings and discussions held with other interested groups. Particular weight will be given to comments that reflect a consensus of different interested groups.

The Codex Alimentarius standards are as follows:

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE SOYA BEAN OIL

1. DESCRIPTION

Soya Bean Oil (synonym: Soybean Oil) is derived from soya beans (the seeds of Glycine max (L.) Merr.).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics.*

2.1.1 Relative density (20° C./water at 20° C.), 0.919–0.925.

2.1.2 Refractive index (n_D 40° C.), 1.466–1.470.

2.1.3 Saponification value (mg. KOH/g. oil), 189–195.

2.1.4 Iodine value (Wijs), 120–143.

2.1.5 Unsaponifiable matter, not more than 15 g/kg.

2.2 *Quality characteristics.*

2.2.1 *Colour.* Characteristic of the designated product.

2.2.2 *Odour and taste.* Characteristic of the designated product and free from foreign and rancid odour and taste.

2.2.3 Acid value, not more than 0.6 mg. KOH/g. oil.

2.2.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

3. FOOD ADDITIVES

3.1 *Colours.* The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not receive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.

		Maximum level of use
3.1.1	Beta-carotene	Not limited.
3.1.2	Annatto[1]	Do.
3.1.3	Curcumin[1]	Do.
3.1.4	Canthaxanthine	Do.
3.1.5	Beta-apo-8'carotenal	Do.
3.1.6	Methyl and ethyl esters of Beta-apo-8'-carotenoic acid.	Do.

3.2 *Flavours.* Natural flavours and their identical synthetic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavours approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour, as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

3.3 *Antioxidants.*

		Maximum level of use
3.3.1	Propyl, octyl, and dodecyl gallates.	100 mg./kg. individually or in combination.
3.3.2	Butylated hydroxytoluene (BHT) Butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.3.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg. but gallates not to exceed 100 mg./kg.
3.3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	Antioxidant Synergists.	
3.4.1	Citric acid	Not limited.
3.4.2	Sodium citrate	Do.
3.4.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.4.4	Monoglyceride citrate	Do.
3.4.5	Phosphoric acid	Do.
3.5	Anti-foaming agent. Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.6	Crystallization inhibitor. Oxystearin.[1]	1250 mg./kg.

[1] Temporarily endorsed.

4. CONTAMINANTS

		Maximum level
4.1	Matter volatile at 105° C.	0.2% m./m.
4.2	Insoluble impurities	0.05% m./m.
4.3	Soap content	0.005% m./m.
4.4	Iron (Fe)	1.5 mg./kg.
4.5	Copper (Cu)	0.1 mg./kg.
4.6	Lead (Pb)	0.1 mg./kg.
4.7	Arsenic (As)	0.1 mg./kg.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC RCP 1-1969).

6. LABELING

In addition to sections 1, 2, 4, and 6 of the General Standard for the Labeling of Prepackaged Foods (Ref. CAC/RS 1-1969) the following specific provisions apply:

6.1 *The name of the food.* 6.1.1 All products designated as soya bean oil or soybean oil must conform to this standard.

6.1.2 Where soya bean oil has been subject to any process of esterification or to processing which alters its fatty acid composition or its consistency the name soya bean oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6.2 *List of ingredients.* 6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with subsection 3.2(c)(ii) of the General Standard for the Labeling of Prepackaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Prepackaged Foods.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9-1969, Determination of Relative Density at t/20° C.)

Results are expressed as relative density at 20° C./water at 20° C.

7.2 *Determination of Refractive index.* According to IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 Refractive Index).

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D^{40}° C.)

7.3 *Determination of saponification value* (I_S). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.2 "Saponification value (I_s)").

Results are expressed as the number of mg. KOH/g. oil.

7.4 *Determination of iodine value* (I). According to the (Wijs) IUPAC Method (1964) (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as % m./m. absorbed iodine.

7.5 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.5.1 and II.D.5.3).

Results are expressed as g. unsaponifiable matter/kg. oil.

7.6 *Determination of acid value* (I_A). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.1.2 Acid value (IA)).

Results are expressed as the number of mg. KOH required to neutralize 1 g. oil.

7.7 *Determination of peroxide value* (I_P). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.13 "Peroxide value").

Results are expressed as milliequivalents active oxygen/kg. oil.

7.8 *Determination of matter volatile at 105° C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.C.1.1 *"Moisture and volatile matter"*).

Results are expressed as % m./m.

7.9 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps. 5th Edition, 1966, II.C.2 "Impurities").

Results are expressed as % m./m.

7.10 *Determination of soap content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13-1969, "Determination of Soap Content").

Results are expressed as % m./m. sodium oleate.

7.11 *Determination of iron.*[2] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14-1969, "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.12 *Determination of copper.*[2] According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023-24.028).

Results are expressed as mg. copper/kg.

7.13 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043), 24.046, 24.047, and 24.048)).

Results are expressed as mg. lead/kg.

7.14 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011-24.014, 24.016-24.017, 24.006-24.008).

Results are expressed as mg. arsenic/kg.

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Supplement 1966 to the above.

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE ARACHIS OIL

1. DESCRIPTION

Arachis Oil (synonyms: Peanut Oil; Groundnut Oil) is derived from groundnuts (the seeds of Arachis hypogaea L.).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics*—

2.1.1 Relative density (20° C./water at 20° C.), 0.914-0.917.

2.1.2 Refractive index (n_D^{40}° C.), 1.460-1.465.

2.1.3 Saponification value (mg. KOH/g./oil), 187-196.

2.1.4 Iodine value (Wijs), 80-106.

2.1.5 Unsaponifiable matter, not more than 10 g./kg.

2.2 *Arachidic and higher fatty acids content*—As determined by either of the methods specified in section 7.6 of this Standard, not less than 48 g./kg.

2.3 *Quality characteristics*—

2.3.1 *Colour.* Characteristic of the designated product.

2.3.2 *Odour and taste.* Characteristic of the designated product and free from foreign and rancid odour and taste.

2.3.3 Acid Value—Virgin oil, not more than 4 mg. KOH/g. oil; nonvirgin oil, not more than 0.6 mg. KOH/g. oil.

2.3.4 Peroxide Value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

3. FOOD ADDITIVES

3.1 *Colours*—The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

		Maximum level of use
3.1.1	Beta-carotene	Not limited.
3.1.2	Annatto[1]	Do.
3.1.3	Curcumin[1]	Do
3.1.4	Canthaxanthine	Do.
3.1.5	Beta-apo-8'-carotenal	Do
3.1.6	Methyl and ethyl esters of Beta-apo-8'-carotenoic acid	Do.

3.2 *Flavours.* Natural flavours and their identical synthetic equivalents, except those which are known to represent atoxic hazard, and other synthetic flavours approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

[1] Temporarily endorsed.

		Maximum level of use
3.3	Antioxidants—	
3.3.1	Propyl, octyl, and dodecyl gallates	100 mg./kg. individually or in combination.
3.3.2	Butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT).	200 mg./kg. individually or in combination.
3.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg. but gallates not to exceed 100 mg./kg.
3.3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	Antioxidant synergists—	
3.4.1	Citric acid	Not limited.
3.4.2	Sodium citrate	Do.
3.4.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.4.4	Monoglyceride citrate	Do.
3.4.5	Phosphoric acid [1]	Do.
3.5	Anti-foaming agent—Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.6	Crystallization inhibitor—Oxystearin [1]	1250 mg./kg.

[1] Temporary endorsed.

4. CONTAMINANTS

		Maximum level of use
4.1	Matter of volatile at 105° C	0.2% m/m.
4.2	Insoluble impurities	0.05% m/m.
4.3	Soap content	0.005% m/m.
4.4	Iron (Fe)	
	Virgin oil	5 mg./kg.
	Nonvirgin oil	15 mg./kg.
4.5	Copper (Cu)	
	Virgin oil	0.4 mg./kg.
	Nonvirgin oil	0.1 mg./kg.
4.6	Lead (Pb)	0.1 mg./kg.
4.7	Arsenic (As)	0.1 mg./kg.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC RCP 1-1969).

6. LABELING

In addition to sections 1, 2, 4, and 6 of the General Standard for the Labeling of Prepackaged Foods (Ref. CAC/RS 1-1969), the following specific provisions apply:

6.1 *The name of the food*—

6.1.1 All products designated as arachis oil, peanut oil or groundnut oil must conform to this standard.

6.1.2 Where arachis oil has been subject to any process of esterification or to processing which alters its fatty acid composition or its consistency the name arachis oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6.2 *List of ingredients*—

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with subsection 3.2(c)(ii) of the General Standard for the Labeling of Pre-packaged Foods.

6.3 *Net contents*—The net contents shall be declared in accordance with subsection 3.3 (a) of the General Standard for the Labeling of Pre-packaged Foods.

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

6.5 *Country of origin*—

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9-1969, "Determination of Relative Density at t°/20° C").

Results are expressed as relative density at 20° C./water at 20° C.

7.2 *Determination of refractive index.*—According to IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index").

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D40° C.).

7.3 *Determination of saponification value* (I_S).—According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as percent m/m. absorbed iodine.

7.5 *Determination of unsaponifiable matter.*—According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.5.1 and II.D.5.3).

Results are expressed as g unsaponifiable matter/kg. oil.

7.6 *Determination of arachidic and higher fatty acids content.*

7.6.1 According to the Modified Renard Test, Official Methods of Analysis of the AOAC (1965), 26.077.

Results are expressed as g arachidic acid/kg. oil or

7.6.2 According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 11-1969, "Arachis Oil Test" (Evers).

7.7 *Determination of acid value* (I_A)—According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.1.2 Acid Value) (I_A).

Results are expressed as the number of mg KOH required to neutralize 1 g. oil.

7.8 *Determination of peroxide value* (I_P).—According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen/kg. oil.

7.9 *Determination of matter volatile at 105° C.*—According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.1.1 "Moisture and Volatile Matter").

Results are expressed as percent m/m.

7.10 *Determination of insoluble impurities*—According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.2 "Impurities").

Results are expressed as percent m/m.

7.11 *Determination of soap content*—According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13-1969, "Determination of Soap Content").

Results are expressed as percent m/m. sodium oleate.

7.12 *Determination of iron.*[2] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14-1969, "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.13 *Determination of copper.*[2]—According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023-24.028).

Results are expressed as mg. copper/kg.

7.14 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043), 24.046, 24.047 and 24.048)).

Results are expressed as mg. lead/kg.

7.15 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011-24.014, 24.016-24.017, 24.006-24.008)

Results are expressed as mg. arsenic/kg.

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Supplement 1966 to the above.

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE COTTONSEED OIL

1. DESCRIPTION

Cottonseed oil is derived from the seeds of various cultivated species of Gossypium.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics.*

2.1.1 Relative density (20°C/Water at 20°C). 0.918–0.926.

2.1.2 Refractive Index (n_D40°C), 1.458–1.466.

2.1.3 Saponification value (mg. KOH/g. oil). 189–198.

2.1.4 Iodine value (Wijs), 99–119.

2.1.5 Unsaponifiable matter, not more than 15 g./kg.

2.2 *Halphen test,*[3] positive.

2.3 *Quality characteristics.*

2.3.1 *Colour.* Characteristic of the designated product.

2.3.2 *Odour and taste.* Characteristic of the designated product and free from foreign and rancid odour and taste.

2.3.3 Acid value, not more than 0.6 mg. KOH/g. oil.

2.3.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

[3] Kapok oil and some other oils give a positive test and fats from animals fed on cottonseed meal may also give a positive test. Different lots of cottonseed oil may react with different intensities. Hydrogenation and heating of cottonseed oil reduce the intensity of the reaction and may destroy it entirely.

3. FOOD ADDITIVES

3.1 *Colours.* The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

		Maximum level of use
3.1.1	Beta-carotene	Not limited.
3.1.2	Annatto[1]	Do.
3.1.3	Curcumin[1]	Do.
3.1.4	Canthaxanthine	Do
3.1.5	Beta-apo-8'-carotenal	Do.
3.1.6	Methyl and ethyl esters of Beta - apo - 8'-carotenoic acid.	Do.

3.2 *Flavours.* Natural flavours and their identical synthetic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavours approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour, as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

[1] Temporarily endorsed.

		Maximum level of use
3.3	Antioxidants.	
3.3.1	Propyl, octyl, and dodecyl gallates	100 mg./kg. individually or in combination.
3.3.2	Butylated hydroxyanisole (BHA), butylated hydroxytoluene (BHT).	200 mg./kg. individually or in combination.
3.3.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg. but gallates not to exceed 100 mg./kg.
3.3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	Antioxidant synergists.	
3.4.1	Citric acid	Not limited.
3.4.2	Sodium citrate	Do.
3.4.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.4.4	Monoglyceride citrate	Do.
3.4.5	Phosphoric acid[1]	Do.
3.5	Anti-foaming agent. Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.6	Crystallization inhibitor. Oxystearin[1]	1250 mg./kg.

[1] Temporarily endorsed.

4. CONTAMINANTS

		Maximum level
4.1	Matter volatile at 105°C	0.2% m/m.
4.2	Insoluble Impurities	0.05% m/m.
4.3	Soap Content	0.005% m/m.
4.4	Iron (Fe)	1.5 mg./kg.
4.5	Copper (Cu)	0.1 mg./kg.
4.6	Lead (Pb)	0.1 mg./kg.
4.7	Arsenic (As)	0.1 mg./kg.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC/RCP 1–1969).

6. LABELING

In addition to sections 1, 2, 4 and 6 of the General Standard for the Labeling of Prepackaged Foods (Ref. CAC/RS 1–1969) the following specific provisions apply:

6.1 The name of the food.

6.1.1 All products designated as cottonseed oil must conform to this standard.

6.1.2 Where cottonseed oil has been subject to any process of esterification or to processing which alters the fatty acid composition or its consistency the name cottonseed oil shall not be used unless qualified to indicate the nature of the process.

6.2 List of ingredients.

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with sub-section 3.2(c)(ii) of the General Standard for the Labeling of Pre-packaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Pre-packaged Foods.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9–1969, "Determination of Relative Density at t/20° C").

Results are expressed as relative density at 20° C/ water at 20° C.

7.2 *Determination of refractive index.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index").

Results are given as the refractive index relative to the sodium D-line at 40° C (n_D 40° C).

7.3 *Determination of Saponification value* (I_S). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.2 "Saponification Value (I_S)").

Results are expressed as the number of mg. KOH/g. oil.

7.4 *Determination of iodine value* (I_I). According to the (Wijs) IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as % m/m absorbed iodine.

7.5 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.5.1 and II.D.5.3).

Results are expressed as g. unsaponifiable matter/kg. oil.

7.6 *Halphen test.* According to the AOCS method (Official and Tentative Methods of the American Oil Chemists' Society, AOCS Official Method Cb 1-25).

Result is expressed a positive or negative.*

7.7 *Determination of acid value* (I_A). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.1.2 "Acid Value (I_A)").

Results are expressed as the number of mg. KOH required to neutralize 1 g. oil.

7.8 *Determination of peroxide value* (I_P). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen/kg oil.

7.9 *Determination of matter volatile at 105° C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.1.1 "Moisture and Volatile Matter").

Results are expressed as % m/m.

7.10 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis

*See 2.2 Note.

of Oils, Fats and Soaps, 5th Edition, 1966, II.C.2 "Impurities").

Results are expressed as % m/m.

7.11 *Determination of soap content.* According to the FAO WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC RM 13-1969, "Determination of Soap Content").

Results are expressed as % m m sodium oleate

7.12 *Determination of iron*[2] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC RM 14-1969, "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.13 *Determination of copper.*[2] According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023-24.028).

Results are expressed as mg copper/kg.

7.14 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043j, 24.046, 24.047 and 24.048)).

Results are expressed as mg lead kg.

7.15 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011-24.014, 24.016-24.017, 24.006-24.008).

Results are expressed as mg arsenic/kg.

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Supplement 1966 to the above.

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE SUNFLOWERSEED OIL

1. DESCRIPTION

Sunflowerseed Oil (synonym: Sunflower Oil) is derived from Sunflower seeds (the seeds of *Helianthus annuus*).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics.*

2.1.1 Relative density (20° C./water at 20° C.), 0.918-0.923.

2.1.2 Refractive index (n_D 40° C.), 1.467-1.469

2.1.3 Saponification value (mg. KOH/g. oil), 188-194.

2.1.4 Iodine value (Wijs), 110-143.

2.1.5 Unsaponifiable matter, not more than 15 g./kg.

2.2 *Quality characteristics.*

2.2.1 *Colour.* Characteristic of the designated product.

2.2.2 *Odour and taste.* Characteristic of the designated product and free from foreign and rancid odour and taste.

2.2.3 Acid value, virgin oil, not more than 4 mg KOH g./oil; nonvirgin oil, not more than 0.6 mg. KOH g./oil.

2.2.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

3 FOOD ADDITIVES

3.1 Colors. The following colors are permitted for the purpose of restoring natural color lost in processing or for the purpose of standardizing color, as long as the added color does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

		Maximum level of use
3.1.1	Beta-carotene	Not limited
3.1.2	Annatto[1]	Do.
3.1.3	Curcumin[1]	Do.
3.1.4	Canthaxanthine	Do.
3.1.5	Beta-apo-8'-carotenal	Do.
3.1.6	Methyl and ethyl esters of Beta-apo-8'-carotenoic acid.	Do.

3.2 *Flavors.* Natural flavors and their identical synthetic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavors approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavor lost in processing or for the purpose of standardizing flavor, as long as the added flavor does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

3.3 *Antioxidants.*

		Maximum level of use
3.3.1	Propyl, octyl, and dodecyl gallates	100 mg./kg. individually or in combination.
3.3.2	Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.3.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg., but gallates not to exceed 100 mg./kg.
3.3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	Antioxidant synergists.	
3.4.1	Citric acid	Not limited.
3.4.2	Sodium citrate	Do.
3.4.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.4.4	Monoglyceride citrate	Do.
3.4.5	Phosphoric acid[1]	Do.
3.5	Anti-foaming agent—Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.6	Crystallization inhibitor—Oxystearin[1]	1250 mg./kg.

[1] Temporarily endorsed.

4. CONTAMINANTS

		Maximum level percent m./m.
4.1	Matter volatile at 105° C	0.2
4.2	Insoluble impurities	.05
4.3	Soap content	.005

[1] Temporarily endorsed.

		Maximum level mg./kg.
4.4	Iron (Fe):	
	Virgin oil	5
	Nonvirgin oil	1.5
4.5	Copper (Cu):	
	Virgin oil	.4
	Nonvirgin oil	.1
4.6	Lead (Pb)	.1
4.7	Arsenic (As)	.1

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (ref. No. CAC/RCP 1-1969).

6. LABELING

In addition to sections 1, 2, 4, and 6 of the General Standard for the Labeling of Prepackaged Foods (ref. CAC/RS 1-1969) the following specific provisions apply:

6.1 *The name of the food.*

6.1.1 All products designated as sunflowerseed oil or sunflower oil must conform to this standard.

6.1.2 Where sunflowerseed oil has been subject to any process of esterification or any processing which alters its fatty acid composition or its consistency the name sunflowerseed oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6.2 *List of ingredients.*

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with subsection 3.2(c) (ii) of the General Standard for the Labeling of Prepackaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Pre-packaged Foods.

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9-1969, "Determination of Relative Density at t/20° C.").

Results are expressed as relative density at 20° C./water at 20° C.

7.2 *Determination of refractive index.* According to IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index").

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D40° C.).

7.3 *Determination of saponification value* (I_S). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II D.2 "Saponification Value "I_S)).

Results are expressed as the number of mg. KOH/g. oil.

7.4 *Determination of iodine value* (I_I). According to the (Wijs) IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.D.7.1, II D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as % m./m. absorbed iodine.

7.5 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.D.5.1 and II.D.5.3.).

Results are expressed as g. unsaponifiable matter/kg. oil.

7.6 *Determination of acid value* (I_A). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.D.2 "Acid Value" (I_A)).

Results are expressed as the number of mg. KOH required to neutralize 1 g. oil.

7.7 *Determination of peroxide value* (I_P). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II D.13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen/kg. oil.

7.8 *Determination of matter volatile at 105° C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition. 1966, II C 1 1 "Moisture and Volatile Matter").

Results are expressed as % m./m.

7.9 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II. C.2 "Impurities").

Results are expressed as % m./m.

7.10 *Determination of soap content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13-1969, "Determination of Soap Content").

Results are expressed as % m./m. sodium oleate.

7.11 *Determination of iron.*[2] According to the FAO/WHO Codex Alimentarius Method (FAO WHO Methods of Analysis for Edible Fats and Oils. CAC/RM 14-1969, "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.12 *Determination of copper.*[2] According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023-24.028).

Results are expressed as mg. copper/kg.

7.13 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043j, 24.046, 24.047, and 24.048)).

Results are expressed as mg. lead/kg.

7.14 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011-24.014, 24.016-24.017, 24.006-24.008).

Results are expressed as mg. arsenic/kg.

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Supplement 1966 to the above.

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE RAPESEED OIL

1. DESCRIPTION

Rapeseed Oil (synonyms: Turnip Rape Oil; Colza Oil; Ravison Oil; Sarson Oil and Toria Oil) is derived from the seeds of Brassica campestris L., Brassica napus L. Brassica tournefortii Gouan).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics*

2.1.1 Relative density (20°C/water at 20°C), 0.910-0.920.

2.1.2 Refractive index (n_D40°C), 1.465-1.469.

2.1.3 Saponification value (mg KOH/g oil), 168-181.

2.1.4 Iodine value (Wijs), 94-120.

2.1.5 Crismer value, 80-85.

2.1.6 Unsaponifiable matter, not more than 20 g/kg.

2.2 *Quality characteristics*

2.2.1 *Colour.* Characteristic of the designated product.

2.2.2 *Odour and taste.* Characteristic of the designated product, and free from foreign and rancid odour and taste.

2.2.3 Acid Value—Virgin Oil, not more than 4 mg KOH/g oil; Non-virgin Oil, not more than 0.6 mg KOH/g oil.

2.2.4 Peroxide Value, not more than 10 milliequivalents peroxide oxygen/kg oil.

3. FOOD ADDITIVES

3.1 *Colours.* The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.

		Maximum level of use
3.1.1	Beta-carotene	Not limited.
3.1.2	Annatto[1]	Do.
3.1.3	Curcumin[1]	Do.
3.1.4	Canthaxanthine	Do.
3.1.5	Beta-apo-8'-carotenal	Do.
3.1.6	Methyl and ethyl esters of Beta-apo-8'-carotenoic acid.	Do.

3.2 *Flavours.* Natural flavours and their identical synethic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavours approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour, as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

[1] Temporarily endorsed.

		Maximum level of use
3.3	*Antioxidants*	
3.3.1	Propyl, octyl, and dodecyl gallates	100 mg./kg. individually or in combination.
3.3.2	Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.3.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg. but gallates not to exceed 100 mg./kg.
3.3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	*Antioxidant synergists*	
3.4.1	Citric acid	Not limited.
3.4.2	Sodium citrate	Do.
3.4.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.4.4	Monoglyceride citrate	Do.
3.4.5	Phosphoric acid [1]	Do.
3.5	*Anti-forming agent*	
	Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.6	*Crystallization inhibitor*	
	Oxystearin [1]	1250 mg./kg.

[1] Temporarily endorsed.

4. CONTAMINANTS

		Maximum level
4.1	Matter volatile at 105° C.	0.2 percent m./m.
4.2	Insoluble impurities.	0.5 percent m./m.
4.3	Soap content	0.005 percent m./m.
4.4	Iron (Fe):	
	Virgin oil	5 mg./kg.
	Nonvirgin oil	1.5 mg./kg.
4.5	Copper (Cu):	
	Virgin oil	0.4 mg./kg.
	Nonvirgin oil	0.1 mg./kg.
4.6	Lead (Pb)	0.1 mg./kg.
4.7	Arsenic (As)	0.1 mg./kg.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC/RCP 1-1969).

6. LABELING

In addition to sections 1, 2, 4 and 6 of the General Standard for the Labeling of Prepackaged Foods (Ref. CAC/RS 1-1969) the following specific provisions apply:

6.1 *The name of the food.*

6.1.1 All products designated as rapeseed oil, turnip rape oil, colza oil, rayison oil, sarson oil or toria oil must conform to this standard.

6.1.2 Oil produced from the seeds of Eruca sativa Mill and conforming to the standard may be designated jamba rape oil.

6.1.3 Where rapeseed oil has been subject to any process of esterification or to processing which alters its fatty acid composition or its consistency the name rapeseed oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6.2 *List of ingredients.*

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with subsection 3.2(c)(ii) of the General Standard for the Labeling of Prepackaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Prepackaged Foods.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9-1969, "Determination of Relative Density at t 20° C.").

Results are expressly as relative density at 20° C./water at 20° C.

7.2 *Determination of refractive index.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 *Refractive Index*).

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D40° C.)

7.3 *Determination of Saponification value* (I_S). According to the IUPAC (1964) method (IUPAC) Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.2 "Saponification Value (I_S)").

Results are expressed as the number of mg. KOH/g oil.

7.4 *Determination of iodine value* (I_I). According to the (Wijs) IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as percent m./m absorbed iodine.

7.5 *Determination of Crismer value* (I_C). According to the AOCS method (Official and Tentative Methods of the American Oil Chemists' Society; AOCS Official Method Cb 4-35, Crismer Test, Fryer and Weston Modification, and Ca 5a-40, Free Fatty acids, calculating the acidity as oleic acid).

Results are exuressed by a conventional value (I_C) as described in the method.

7.6 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC) Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D 5.1 and II.D.5.3).

Results are expressed as g unsaponifiable matter kg oil.

7.7 *Determination of acid value* (I_A). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.1 2 "Acid Value (I_A)").

Results are expressed as the number of mg KOH required to neutralize 1 g oil.

7.8 *Determination of peroxide value* (I_P). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II D.13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen/kg oil.

7.9 *Determination of matter volatile at 105°C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.1.1 "Moisture and Volatile Matter").

Results are expressed as percent m./m.

7.10 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.2 "Impurities").

Results are expressed as percent m./m.

7.11 *Determination of soap content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13-1969, "Determination of Soap Content").

Results are expressed as percent m./m. sodium oleate.

7.12 *Determination of iron.*[2] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14-1969 "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.13 *Determination of copper.*[2] According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023-24.028).

Results are expressed as mg. copper/kg.

7.14 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043], 24.046, 24.047, and 24.048)).

Results are expressed as mg. lead/kg.

7.15 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011-24.014, 24.016-24.017, 24.006-24.008).

Results are expressed as mg. arsenic/kg.

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Indian Standards Institution. Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 1.

International Organization for Standardization (ISO), General Secretariat, 1, rue de Varembé, 1211 Ceneva 20.

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

Official Methods of Analysis of the Association of Official Agricultural Chemists (10th ed. 1965). A.O.A.C., P.O.B. 540, Benjamin Franklin Station, Washington 4, D.C.
Standard Methods of the Oils and Fats Section of the I.U.P.A.C., Fifth Edition, incorporating First Supplement up-to-date to 1965. Butterworths, London, 1966.
Supplement 1966 to the above.

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE MAIZE OIL

1. DESCRIPTION

Maize oil (synonym: corn oil) is derived from maize germ (*the embryos of Zea mays*).

2 ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics.*

2.1.1 Relative density (20° C./water at 20° C.), 0.917–0.925.

2.1.2 Refractive index (n_D40° C.), 1.465–1.468.

2.1.3 Saponification value (mg. KOH/g. oil), 187–195.

2.1.4 Iodine value (Wijs), 103–128.

2.1.5 Unsaponifiable matter, not more than 28 g./kg.

2.2 *Quality characteristics.*

2.2.1 *Color.* Characteristic of the designated product.

2.2.2 *Odor and taste.* Characteristic of the designated product and free from foreign and rancid odor and taste.

2.2.3 Acid value, virgin oil, not more than 4 mg. KOH/g. oil; nonvirgin oil, not more than 0.6 mg. KOH/g. oil.

2.2.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

3. FOOD ADDITIVES

3.1 *Colors.* The following colors are permitted for the purpose of restoring natural color lost in processing or for the purpose of standardizing color, as long as the added color does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

	Maximum level of use
3.1.1 Beta-carotene	Not limited.
3.1.2 Annatto [1]	Do.
3.1.3 Curcumin [1]	Do.
3.1.4 Canthaxanthine	Do.
3.1.5 Beta-apo-8'-carotenal	Do.
3.1.6 Methyl and ethyl ester of Beta-apo-8'-carotenic acid.	Do.

3.2 *Flavors.* Natural flavors and their identical synthetic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavors approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavor lost in processing or for the purpose of standardizing flavor, as long as the added flavor does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

3.3. *Antioxidants.*

	Maximum level of use
3.3.1 Propyl, octyl, and dodecyl gallates.	100 mg./kg. individually or in combination.
3.3.2 Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.3.3 Any combination of gallates with BHA or BHT, or both.	200 mg./kg., but gallates not to exceed 100 mg./kg.
3.3.4 Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5 Ascorbyl stearate	Do.
3.3.6 Natural and synthetic tocopherols	Not limited.
3.3.7 Dilauryl thiodipropionate	200 mg./kg.
3.4 *Antioxidant synergists.*	
3.4.1 Citric acid	Not limited.
3.4.2 Sodium citrate	Do.
3.4.3 Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.4.4 Monoglyceride citrate	Do.
3.4.5 Phosphoric acid [1]	Do.
3.5 *Anti-foaming agent*—Dimethyl polysiloxane (syn Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg. kg.
3.6 *Crystallization inhibitor*—Oxystearin [1]	1250 mg./kg.

4. CONTAMINANTS

	Maximum level percent m./m.
4.1 Matter volatile at 105° C	0.2
4.2 Insoluble impurities	.05

[1] Temporarily endorsed.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with subsection 3.2(c)(ii) of the General Standard for the Labeling of Prepackaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Prepackaged Foods.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9–1969, "Determination of Relative Density at t/20° C.").

Results are expressed as relative density at 20° C./water at 20° C.

	Maximum level
4.3 Soap content	0.005 percent m./m.
4.4 Iron (Fe):	
Virgin oil	5 mg./kg.
Nonvirgin oil	1.5 mg./kg.
4.5 Copper (Cu):	
Virgin oil	0.4 mg./kg.
Nonvirgin oil	0.1 mg./kg.
4.6 Lead (Pb)	0.1 mg./kg.
4.7 Arsenic (As)	0.1 mg./kg.

8. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC/RCP 1–1969).

9. LABELING

In addition to sections 1, 2, 4, and 6 of the General Standard for the Labeling of Prepackaged Foods (Ref. CAC/RS 1–1969) the following specific provisions apply:

6.1 The Name of the Food.

6.1.1 All products designated as maize oil or corn oil must conform to this standard.

6.2 Where maize oil has been subject to any process of esterification or to processing which alters its fatty acid composition or its consistency the name maize oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6.2 List of Ingredients.

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

7.2 *Determination of refractive index.* According to IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index").

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D 40° C.).

7.3 *Determination of Saponification value* (I_S). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.D.2 "Saponification Value (I_S)").

Results are expressed as the number of mg. KOH/g. oil.

7.4 *Determination of iodine value* (I_I). According to the (Wijs) IUPAC method (1964) (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2, and II.D.7.3 "The Wijs Method").

Results are expressed as % m./m. absorbed iodine.

7.5 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.D.5.1, and II.D.5.3).

Results are expressed as g. unsaponifiable matter/kg. oil.

[1] Temporarily endorsed.

7.6 *Determination of acid value* (I_A). According to the IUPAC (1964) method IUPAC) Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, D 1 2 "Acid Value (I_A)").

esults are expressed as the number of mg. H required to neutralize 1 g. oil.

7 *Determination of peroxide value* (IP). ording to the IUPAC (1964) method PAC Standard Methods for the Analysis Oils, Fats, and Soaps, 5th Edition, 1966, D 13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen/kg oil.

7 8 *Determination of matter volatile at* 105° C. According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II C.1.1 "Moisture and Volatile Matter").

Results are expressed as % m./m.

7.9 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II C 2 "Impurities").

Results are expressed as % m./m.

7 10 *Determination of soap content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13–1969, "Determination of Soap Content").

Results are expressed as % m./m. sodium oleate.

7.11 *Determination of iron.*[2] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14–1969, "Determination of Iron Content").

Results are expressed as mg iron/kg.

7.12 *Determination of copper.*[2] According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023–24.028).

Results are expressed as mg. copper/kg.

7 13 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043], 24.046, 24.047, and 24.048)).

Results are expressed as mg. lead/kg.

7 14 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011–24.014, 24.016–24.017, 24.006–24.008).

Results are expressed as mg. arsenic/kg.

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Indian Standards Institution. Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 1.

International Organization for Standardization (ISO) General Secretariat, 1, rue de Varembé, 1211 Geneva 20.

Official Methods of Analysis of the Association of Official Agricultural Chemists (10th ed. 1965). A.O.A.C., P.O.B. 540 Benjamin Franklin Station, Washington 4, D.C.

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

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Supplement 1966 to the above.

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE SESAMESEED OIL

1. DESCRIPTION

Sesameseed oil (Synonyms: Sesame oil; gingelly oil; benne oil; ben oil; till oil and tillie oil) is derived from sesame seeds (the seeds of Sesamum indicum L.).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2 1 *Identity characteristics.*

2.1.1 Relative density (20° C./Water at 20° C.), 0.915–0 923.

2.1 2 Refractive index (n_D 40° C.), 1.465–1.469.

2.1.3 Saponification value (mg. KOH/g. oil), 187–195.

2 1.4 Iodine value (Wijs), 104–120.

2 1.5 Unsaponifiable matter, not more than 20 g./kg.

2 2 *Modified Villavecchia Test or Sesame Oil Test (Baudouin)*, positive.

2.3 *Quality characteristics.*

2.3 1 *Color.* Characteristic of the designated product.

2 3 2 *Odor and taste.* Characteristic of the designated product and free from foreign and rancid odor and taste.

2.3 3 Acid value, virgin oil, not more than 4 mg KOH/g. oil; nonvirgin oil, not more than 0 6 mg. KOH/g. oil.

2 3.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen kg. oil.

3. FOOD ADDITIVES

3 1 *Colors.* The following colors are permitted for the purpose of restoring natural color lost in processing or for the purpose of standardizing color, as long as the added color does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

	Maximum level of use
3.1 1 Beta-carotene	Not limited
3.1.2 Annatto[1]	Do.
3.1.3 Curcumin[1]	Do.
3 1 4 Canthaxanthine	Do.
3.1 5 Beta-apo-8'-carotenal	Do.
3.1.6 Methyl end ethyl esters of beta-apo-8'-carotenoic acid	Do.

3 2 *Flavors.* Natural flavors and their identical synthetic equivalent, except those which are known to represent a toxic hazard, and other synthetic flavors approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavor lost in processing or for the purpose of standardizing flavor, as long as the added flavor does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

[1] Temporarily endorsed.

		Maximum level of use
3.3	*Antioxidants.*	
3.3.1	Propyl, octyl, and dodecyl gallates	100 mg./kg. individually or in combination.
3 3 2	Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.3 3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg. but gallates not to exceed 100 mg./kg.
3 3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3 3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	*Antioxidant synergists.*	
3 4.1	Citric acid	Not limited.
3 4 2	Sodium citrate	Do.
3 4 3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3 4 4	Monoglyceride citrate	Do.
3 4 5	Phosphoric acid[1]	Do.
3 5	*Antifoaming agent*—Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3 6	*Crystallization inhibitor*—Oxystearin[1]	1250 mg./kg.

[1] Temporarily endorsed.

4. CONTAMINANTS

		Maximum level
4.1	Matter volatile at 105° C	0.2 percent m/m.
4.2	Insoluble impurities	.05 percent m/m.
4 3	Soap content	.005 percent m/m.
4 4	Iron (Fe):	
	(Virgin oil)	5 mg./kg.
	(Non-virgin oil)	1.5 mg./kg.
4.5	Copper (Cu):	
	(Virgin oil)	.4 mg./kg.
	(Non-virgin oil)	.1 mg./kg.
4 6	Lead (Pb)	.1 mg./kg.
4 7	Arsenic (As)	.1 mg./kg.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (ref. No. CAC/RCP 1–1969).

6. LABELING

In addition to sections 1, 2, 4, and 6 of the General Standard for the Labeling of Prepackaged Foods (ref. CAC/RS 1–1969) the following specific provisions apply:

6.1 *The Name of the food*

6 1.1 All products designated as sesameseed oil, sesame oil, gingelly oil, benne oil, ben oil, till oil, or tillie oil must conform to this standard.

6.1.2 Where sesameseed oil has been subject to any process of esterification or to processing which alters its fatty acid composition or its consistency the name sesameseed oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6 2 *List of ingredients.*

6 2 1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6 2 2 A specific name shall be used for ingredients in the list of ingredients except

that class titles may be used in accordance with subsection 3.2(c)(ii) of the General Standard for the Labeling of Prepackaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Prepackaged Foods.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9–1969, "Determination of Relative Density at t/20° C.").

Results are expressed as relative density at 20° C./water at 20° C.

7.2 *Determination of refractive index.* According to IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index".

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D40° C).

7.3 *Determination of saponification value* (I_S). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.2 "Saponification Value (I_S)".

Results are expressed as the number of mg KOH/g oil.

7.4 *Determination of iodine value* (I_I). According to the (Wijs) IUPAC method (1964) (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.7 "The Wijs Method").

Results are expressed as % m/m absorbed iodine.

7.5 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.5.1 and II.D.5.3).

Results are expressed as g unsaponifiable matter/kg oil.

7.6.1 According to the AOCS Method (Official and Tentative Methods of the American Oil Chemists' Society; AOCS Official Method Cb 2–40, "Modified Villavecchia Test" (AOAC).

The result is expressed as positive or negative.

7.6 *Identification of sesameseed oil.*

NOTE: This procedure is not suitable as an identity test for refined sesameseed oils. Furthermore, sesameseed oil might get oxidized after long storage and this test is likely to be disturbed.

or

7.6.2 According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 12–1969, "Sesameseed Oil Test" (Baudouin)).

7.7 *Determination of acid value* (I_A). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.1.2 "Acid Value (I_A)").

Results are expressed as the number of mg KOH required to neutralize 1 g oil.

7.8 *Determination of peroxide value* (I_P). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D 13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen/kg oil.

7.9 *Determination of matter volatile at 105°C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.1.1 "Moisture and Volatile Matter").

Results are expressed as % m/m.

7.10 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.2 "Impurities").

Results are expressed as % m/m.

7.11 *Determination of soap content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13–1969, Determination of Soap Content").

Results are expressed as % m./m. sodium oleate.

7.12 *Determination of iron.*[1] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14–1969, "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.13 *Determination of copper.*[1] According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023–24.028).

Results are expressed as mg. copper/kg.

7.14 *Determination of lead.*[1] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043j, 24.046, 24.047 and 24.048)).

Results are expressed as mg. lead/kg.

7.15 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011–24.014, 24.016–24.017, 24.006–24.008).

Results are expressed as mg. arsenic/kg.

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Supplement 1966 to the above.

[1] Might be replaced by Atomic Absorption Spectrophotometry in the future.

[CAC/RS 27–1969]

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE SAFFLOWERSEED OIL

1. DESCRIPTION

Safflowerseed oil (Synonyms: Safflower oil; Carthamus oil and Kurdee oil) is derived from safflower seeds (the seeds of Carthamus tinctorius L.).

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics.*

2.1.1 Relative density (20° C./Water at 20° C.), 0.922–0.927.

2.1.2 Refractive index (n_D 40° C.), 1.467–1.470.

2.1.3 Saponification value (mg. KOH/g. oil), 186–198.

2.1.4 Iodine value (Wijs), 135–150.

2.1.5 Unsaponifiable matter, not more than 15 g./kg.

2.2 *Quality characteristics.*

2.2.1 *Colour.* Characteristic of the designated product.

2.2.2 *Odour and taste.* Characteristic of the designated product and free from foreign and rancid odour and taste.

2.2.3 Acid value, not more than 0.6 mg. KOH/g. oil.

2.2.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

3. FOOD ADDITIVES

3.1 *Colours.* The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

		Maximum level of use
3.1.1	Beta-carotene	Not limited.
3.1.2	Annatto[1]	Do.
3.1.3	Curcumin[1]	Do.
3.1.4	Canthaxanthine	Do.
3.1.5	Beta-apo-8'-carotenal	Do.
3.1.6	Methyl and ethyl esters of Beta-apo-8'-carotenoic acid.	Do.

3.2 *Flavours.* Natural flavours and their identical synthetic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavours approved by the Codex Alimentarius Commission are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour, as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

3.3 *Antioxidants.*

		Maximum level of use
3.3.1	Propyl, octyl, and dodecyl gallates.	100 mg./kg. individually or in combination.

[1] Temporarily endorsed.

		Maximum level of use
3.3.2	Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.3.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg., but gallates not to exceed 100 mg./kg.
3.3.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.3.5	Ascorbyl stearate	Do.
3.3.6	Natural and synthetic tocopherols	Not limited.
3.3.7	Dilauryl thiodipropionate	200 mg./kg.
3.4	Antioxidant synergists.	
→ 3.4.1	Citric acid	Not limited.
3.4.2	Sodium citrate	Do.
3.4.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination
3.4.4	Monoglyceride citrate	Do.
3.4.5	Phosphoric acid[1]	Do.
3.5	Antifoaming agent, Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.6	Crystallization inhibitor, Oxystearin[1]	1250 mg./kg.

4. CONTAMINANTS		Maximum level
4.1	Matter volatile at 105° C.	0.2 percent m./m.
4.2	Insoluble impurities	0.05 percent m./m.
4.3	Soap content	0.005% m./m.
4.4	Iron (Fe)	1.5 mg./kg.
4.5	Copper (Cu)	0.1 mg./kg.
4.6	Lead (Pb)	0.1 mg./kg.
4.7	Arsenic (As)	0.1 mg./kg.

[1] Temporarily endorsed.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC RCP 1-1969)

6. LABELLING

In addition to sections 1, 2, 4 and 6 of the General Standard for the Labelling of Prepackaged Foods (Ref. CAC/RS 1-1969) the following specific provisions apply:

6.1 *The name of the food.*

6.1.1 All products designated as safflowerseed oil, safflower oil, carthamus oil or kurdee oil must conform to this standard.

6.1.2 Where safflowerseed oil has been subject to any process of esterification or to processing which alter its fatty acid composition or its consistency the name safflowerseed oil or any synonym shall not be used unless qualified to indicate the nature of the process.

6.2 *List of ingredients.*

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with sub-section 3.2(c)(ii) of the General Standard for the Labelling of Pre-packaged Foods.

6.3 *Net contents.* The net contents shall be declared in accordance with subsection 3.3(a) of the General Standard for the Labeling of Prepackaged Foods.

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

6.5 *Country of origin.*

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9-1969, Determination of Relative Density at t 20° C.").

Results are expressed as relative density at 20° C water at 20° C.

7.2 *Determination of refractive index.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index").

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D^{40} C.)

7.3 *Determination of saponification value* (I_s). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.2 "Saponification Value (I_s)").

Results are expressed as the number of mg KOH g. oil.

7.4 *Determination of iodine value* (I.V.). According to the (Wijs) IUPAC method (1964) (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as percent m.m. absorbed iodine.

7.5 *Determination of unsaponifiable matter* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.5.1 and II.D.5.3).

Results are expressed as g unsaponifiable matter/kg oil.

7.6 *Determination of acid value* (IA). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils Fats and Soaps, 5th Edition, 1966, II.D.1.2 "Acid Value (IA)").

Results are expressed as the number of mg KOH required to neutralize 1 g. oil.

7.7 *Determination of peroxide value* (IP). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.13 "Peroxide Value").

Results are expressed as milliequivalents active oxygen kg. oil.

7.8 *Determination of matter volatile at 105° C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition, 1966, II.C.1.1 "Moisture and Volatile Matter")

Results are expressed as percent m./m.

7.9 *Determination of insoluble impurities* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats, and Soaps, 5th Edition 1966, II.C.2 "Impurities").

Results are expressed as percent m./m.

7.10 *Determination of soap content* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13-1969, "Determination of Soap Content")

Results are expressed as percent m./m. sodium oleate

7.11 *Determination of iron.*[2] According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14-1969, "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.12 *Determination of copper.* According to the AOAC (1965) method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method," 24.023-24.028).

Results are expressed as mg. copper/kg.

7.13 *Determination of lead.*[2] According to the AOAC (1965) method, after complete digestion, by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 (and 24.008, 24.009, 24.043j, 24.046, 24.047 and 24.048)).

Results are expressed as mg. lead/kg.

7.14 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011 24.014, 24.016 24.017, 24.006-24.008).

Results are expressed as mg. arsenic/kg

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Supplement 1966 to the above.

[CAC/RS 34-1970]

RECOMMENDED INTERNATIONAL STANDARD FOR EDIBLE MUSTARDSEED OIL

1. DESCRIPTION

Mustardseed oil is derived from the seeds of the white mustard (Sinapis alba L., synonym: Brassica hirta Moench), the brown mustard (Brassica juncea (L.) Czern. and Coss) and of the black mustard (Brassica nigra (L.) Koch)

[2] Might be replaced by Atomic Absorption Spectrophotometry in the future.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 *Identity characteristics*—

2.1.1 Relative density (20° C./water at 20° C.), 0.910–0.921.

2.1.2 Refractive index (n_D, 40° C.), 1.461–1.469.

2.1.3 Saponification value (mg KOH/g oil), 170–184.

2.1.4 Iodine value (Wijs), 92–125.

2.1.5 Unsaponifiable matter, not more than 15 g/kg.

2.2 *Allyl isothiocyanate content*—As determined by the method specified in subsection 7.5 of this standard, not more than 4 g/kg.

2.3 *Quality characteristics*—

2.3.1 *Colour.* Characteristic of the designated product.

2.3.2 *Odour and taste.* Characteristic of the designated product and free from foreign and rancid odour and taste.

2.3.3 Acid value. Virgin oil, not more than 4 mg KOH/g. oil; nonvirgin, not more than 0.6 mg. KOH/g. oil.

2.3.4 Peroxide value, not more than 10 milliequivalents peroxide oxygen/kg. oil.

3. FOOD ADDITIVES

3.1 These provisions do not apply to virgin oils, which shall not contain any additives.

3.2 *Colours.* The following colours are permitted for the purpose of restoring natural colour lost in processing or for the purpose of standardizing colour, as long as the added colour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value:

		Maximum level of use
3.2.1	Beta-carotene	Not limited.
3.2.2	Annatto[1]	Do.
3.2.3	Curcumin[1]	Do.
3.2.4	Canthaxanthine	Do.
3.2.5	Beta-apo-8'-carotenal	Do.
3.2.6	Methyl and ethyl esters of Beta-apo-8'-carotenoic acid.	Do.

[1] Temporarily endorsed.

3.3 *Flavours.* Natural flavours and their identical synthetic equivalents, except those which are known to represent a toxic hazard, and other synthetic flavours approved by the Codex Alimentarius Commission, are permitted for the purpose of restoring natural flavour lost in processing or for the purpose of standardizing flavour, as long as the added flavour does not deceive or mislead the consumer by concealing damage or inferiority or by making the product appear to be of greater than actual value.[1]

		Maximum level of use
3.4	*Antioxidants*—	
3.4.1	Propyl, octyl, and dodecyl gallates	100 mg./kg. individually or in combination.
3.4.2	Butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA).	200 mg./kg. individually or in combination.
3.4.3	Any combination of gallates with BHA or BHT, or both.	200 mg./kg. but gallates not to exceed 100 mg./kg.
3.4.4	Ascorbyl palmitate	200 mg./kg. individually or in combination.
3.4.5	Ascorbyl stearate	Do.
3.4.6	Natural and synthetic tocopherols	Not limited.
3.4.7	Dilauryl thiodipropionate	200 mg./kg.
3.5	*Antioxidant synergists.*	
3.5.1	Citric acid	Not limited.
3.5.2	Sodium citrate	Do.
3.5.3	Isopropyl citrate mixture	100 mg./kg. individually or in combination.
3.5.4	Monoglyceride citrate	Do.
3.5.5	Phosphoric acid[1]	Do.
3.6	*Antifoaming agent*—Dimethyl polysiloxane (syn. Dimethyl silicone) singly or in combination with silicon dioxide.[1]	10 mg./kg.
3.7	*Crystallization inhibitor*—Oxystearin[1]	1250 mg./kg.

4. CONTAMINANTS

		Maximum level
4.1	Matter volatile at 105° C.	0.2 percent m./m.
4.2	Insoluble impurities	0.05 percent m./m.
4.3	Soap content	0.005 percent m./m.
4.4	Iron (Fe):	
	Virgin oil	5 mg./kg.
	Refined oil	1.5 mg./kg.
4.5	Copper (Cu):	
	Virgin oil	0.4 mg./kg.
	Refined oil	0.1 mg./kg.
4.6	Lead (Pb)	0.1 mg./kg.
4.7	Arsenic (As)	0.1 mg./kg.

[1] Temporarily endorsed.

5. HYGIENE

It is recommended that the product covered by the provisions of this standard be prepared in accordance with the appropriate Sections of the General Principles of Food Hygiene recommended by the Codex Alimentarius Commission (Ref. No. CAC RCP 1-1969).

6. LABELING

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

6.1 *The name of the food*—

6.1.1 All products designated as mustardseed oil must conform to this standard.

6.1.2 Where mustardseed oil has been subjected to any process of esterification or to processing which alters its fatty acid composition or its consistency, the name mustardseed oil shall not be used unless qualified to indicate the nature of the process.

6.2 *Listed of ingredients*—

6.2.1 A complete list of ingredients shall be declared on the label in descending order of proportion.

6.2.2 A specific name shall be used for ingredients in the list of ingredients except that class titles may be used in accordance with subsection 3.2(c)(ii) of the General Standard for the Labeling of Prepackaged Foods.

6.3 *Net contents*—The net contents shall be declared by volume in either the metric ("Systeme International" units) or avoirdupois or both systems as required by the country in which the product is sold.

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

6.5 *Country of origin*—

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

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

7. METHODS OF ANALYSIS AND SAMPLING

The methods of analysis and sampling referred to hereunder are international referee methods.

7.1 *Determination of relative density.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 9-1969, "Determination of Relative Density at t/20° C.").

Results are expressed as relative density at 20° C./water at 20° C.

7.2 *Determination of refractive index.* According to IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils Fats and Soaps, 5th Edition, 1966, II.B.2 "Refractive Index").

Results are given as the refractive index relative to the sodium D-line at 40° C. (n_D 40° C.).

7.3 *Determination of saponification value* (I_S). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.2 "Saponification Value (I_S)".

Results are expressed as the number of mg KOH/g. oil.

7.4 *Determination of iodine value* (I_I). According to the (Wijs) IUPAC Method (1964) (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.7.1, II.D.7.2 and II.D.7.3 "The Wijs Method").

Results are expressed as percent m/m absorbed iodine.

7.5 *Determination of allyl isothiocyanate content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 10-1969, Determination of Allyl Isothiocyanate Content").

Results are expressed as g. allyl isothiocyanate/kg.

7.6 *Determination of unsaponifiable matter.* According to the IUPAC (1964) diethyl ether method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps 5th Edition, 1966, II.D.5.1 and II.D.5.3).

Results are expressed as g. unsaponifiable matter/kg. oil.

7.7 *Determination of acid value* (I_A). According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.D.1.2 "Acid Value (I_A)").

Results are expressed as the number of mg. KOH required to neutralize 1 g. oil.

7.8 *Determination of peroxide value* (I_P). According to the IUPAC (1964) method

(IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II D 13 "Peroxide Value (I_p)").

Results are expressed as milliequivalents active oxygen/kg. oil.

7.9 *Determination of matter volatile at 105° C.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II.C.1.1 "Moisture of Volatile Matter").

Results are expressed as percent m./m.

7.10 *Determination of insoluble impurities.* According to the IUPAC (1964) method (IUPAC Standard Methods for the Analysis of Oils, Fats and Soaps, 5th Edition, 1966, II C 2 "Impurities").

Results are expressed as percent m./m.

7.11 *Determination of soap content.* According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 13–1969 "Determination of Soap Content").

Results are expressed as percent m in. sodium oleate.

7.12 *Determination of iron* (*). According to the FAO/WHO Codex Alimentarius Method (FAO/WHO Methods of Analysis for Edible Fats and Oils, CAC/RM 14–1969. "Determination of Iron Content").

Results are expressed as mg. iron/kg.

7.13 *Determination of copper* (*). According to the AOAC (1965) Method (Official Methods of Analysis of the AOAC, "International Union of Pure and Applied Chemistry Carbamate Method" 24.023–24.028).

Results are expressed as mg. copper/kg.

7.14 *Determination of lead.** According to the AOAC (1965) Method, after complete digestion by the colorimetric dithizone determination procedure (Official Methods of Analysis of the AOAC, 1965, 24.053 and 24.008, 24.009, 24.043j, 24.046, 24.047, and 24.048).

Results are expressed as mg. lead/kg.

7.15 *Determination of arsenic.* According to the colorimetric silver diethyldithiocarbamate method of the AOAC (Official Methods of Analysis of the AOAC, 1965, 24.011–24.014, 24.016–24.017, 24.006–24.008).

Results are expressed as mg. arsenic/kg.

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Supplement 1966 to the above.

*Might be replaced by Atomic Absorption Spectrophotometry in the future.

Interested persons may, within 120 days after publication hereof in the FEDERAL REGISTER, file with the Hearing Clerk, Department of Health, Education, and Welfare, Room 6–88, 5600 Fishers Lane, Rockville, Md. 20852, written comments (preferably in quintuplicate) regarding this matter. Comments may be accompanied by a memorandum or brief in support thereof. Received comments may be seen in the above office during working hours, Monday through Friday.

Dated: September 25, 1972.

SAM D. FINE,
Associate Commissioner for Compliance.

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