

Chapter Ag 56

CEREAL FLOURS AND RELATED PRODUCTS

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Ag 56.01 Flour—white, wheat, plain; optional ingredients. (1) PREPARATION. Flour, white flour, wheat flour, plain flour, is the food prepared by grinding and bolting cleaned wheat other than durum wheat and red durum wheat; to compensate for any natural deficiency of enzymes, malted wheat, malted wheat flour, malted barley flour, or any combination of two or more of these, may be used; but the quantity of malted barley flour so used is not more than 0.25 per cent. One of the cloths through which the flour is bolted has openings not larger than those of woven wire cloth designated "149 micron (No. 100)" in table 1 of "Standard Specifications for Sieves", published March 1, 1940, in L. C. 584 of the U. S. Department of Commerce, National Bureau of Standards. The flour is free from bran coat, or bran coat and germ, to such extent that the per cent of ash therein, calculated to a moisture-free basis, is not more than the sum of one-twentieth of the per cent of protein therein, calculated to a moisture-free basis, and 0.35. Its moisture content is not more than 15 per cent. Unless such addition conceals damage or inferiority of the flour or makes it appear better or of greater value than it is, one or any combination of two or more of the following optional bleaching ingredients may be added in a quantity not more than sufficient for bleaching or, in case such ingredient has an artificial aging effect, in a quantity not more than sufficient for bleaching and such artificial aging effect:

- (a) Oxides of nitrogen.
- (b) Chlorine.
- (c) Nitrosyl chloride.
- (d) Chlorine dioxide.
- (e) One part by weight of benzoyl peroxide mixed with not more than six parts by weight of one or any mixture of two or more of the

following: Potassium alum, calcium sulfate, magnesium carbonate, sodium aluminum sulfate, dicalcium phosphate, tricalcium phosphate, starch, calcium carbonate.

(2) **BLEACHING.** When any optional bleaching ingredient is used, the food shall be labeled "Bleached". Wherever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the word "Bleached" shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter; except that where such name is a part of a trade-mark or brand, other written, printed, or graphic matter, which is also a part of such trade-mark or brand, may so intervene if the word "Bleached" is in such juxtaposition with such trade-mark or brand as to be conspicuously related to such name.

(3) **METHODS.** For the purposes of this section:

(a) Ash is determined by the method prescribed in the book "Official Methods of Analysis of the Association of Official Agricultural Chemists", 8th edition, 1955, p. 207, under "Direct Method—Official". Ash is calculated to a moisture-free basis by subtracting the per cent of moisture in the flour from 100, dividing the remainder into the per cent of ash, and multiplying the quotient by 100.

(b) Protein is 5.7 times the nitrogen as determined by the method prescribed in such book on page 215 under "Total Protein—Official". Protein is calculated to a moisture-free basis by subtracting the per cent of moisture in the flour from 100, dividing the remainder into the per cent of protein, and multiplying the quotient by 100.

(c) Moisture is determined by the method prescribed in such book on page 206, under "Vacuum Oven Method (2)—Official".

Ag 56.02 Enriched flour; optional ingredients. Enriched flour conforms to the definition and standard of identity, and is subject to the requirements for label statement of optional ingredients, prescribed for flour by section Ag 56.01, except that:

(1) It contains in each pound not less than 2.0 milligrams and not more than 2.5 milligrams of thiamine, not less than 1.2 milligrams and not more than 1.5 milligrams of riboflavin, not less than 16.0 milligrams and not more than 20.0 milligrams of niacin or niacinamide, not less than 13.0 milligrams and not more than 16.5 milligrams of iron (Fe);

(2) Vitamin D may be added in such quantity that each pound of the finished enriched flour contains not less than 250 U.S.P. units and not more than 1,000 U.S.P. units of vitamin D;

(3) Calcium may be added in such quantity that each pound of the finished enriched flour contains not less than 500 milligrams and not more than 625 milligrams of calcium (Ca), except that enriched flour may be acidified with monocalcium phosphate irrespective of the minimum limit for calcium (Ca) herein prescribed;

(4) It may contain not more than 5 per cent by weight of wheat germ, or partly defatted wheat germ; and

(5) In determining whether the ash content complies with the requirements of this section allowance is made for ash resulting from any added iron or salts of iron or calcium.

Iron and calcium may be added only in forms which are harmless and assimilable. The substances referred to in subsections (1) and (2) of this section may be added in a harmless carrier which does not

impair the enriched flour; such carrier is used only in the quantity necessary to effect an intimate and uniform admixture of such substances with the flour.

Ag 56.03 Bromated flour; optional ingredients. Bromated flour conforms to the definition and standard of identity, and is subject to the requirements for label statement of optional ingredients, prescribed for flour by section Ag 56.01, except that potassium bromate is added in a quantity not exceeding 50 parts to each million parts of the finished bromated flour, and is added only to flours whose baking qualities are improved by such addition.

Ag 56.04 Enriched bromated flour; optional ingredients. Enriched bromated flour conforms to the definition and standard of identity, and is subject to the requirements for label statement of optional ingredients, prescribed for enriched flour by section Ag 56.02, except that potassium bromate is added in a quantity not exceeding 50 parts to each million parts of the finished enriched bromated flour, and is added only to enriched flours whose baking qualities are improved by such addition.

Ag 56.05 Durum flour. (1) Durum flour is the food prepared by grinding and bolting cleaned durum wheat. One of the cloths through which such flour is bolted has openings not larger than those of woven-wire cloth designated "149 micron (No. 100)" in table I of "Standard Specifications for Sieves", published March 1, 1940, in L. C. 584 of the U. S. Department of Commerce, National Bureau of Standards. It is freed from bran coat, or bran coat and germ, to such extent that the per cent of ash therein, calculated to a moisture-free basis, is not more than 1.5 per cent. Its moisture content is not more than 15 per cent.

(2) For the purposes of this section, ash and moisture are determined by the methods therefor referred to in section Ag 56.01 (3).

Ag 56.06 Self-rising flour, white and wheat; optional ingredients. (1) Self-rising flour, self-rising white flour, self-rising wheat flour, is an intimate mixture of flour, sodium bicarbonate, and the acid-reacting substance monocalcium phosphate or sodium acid pyrophosphate or both. It is seasoned with salt. When it is tested by the method prescribed in subsection (3) of this section not less than 0.5 per cent of carbon dioxide is evolved. The acid-reacting substance is added in sufficient quantity to neutralize sodium bicarbonate. The combined weight of such acid-reacting substance and sodium bicarbonate is not more than 4.5 parts to each 100 parts of flour used. Subject to the conditions and restrictions prescribed by section Ag 56.01 (1), the bleaching ingredients specified in such section may be added as optional ingredients. If the flour used in making the self-rising flour is bleached, the optional bleaching ingredient used therein (see section Ag 56.01 (1)) is also an optional ingredient of the self-rising flour.

(2) When any optional bleaching ingredient is used, the food shall be labeled "Bleached". Wherever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the word "Bleached" shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter; except that where such name is a part of a trade-

mark or brand, other written, printed, or graphic matter, which is also a part of such trade-mark or brand, may so intervene if the word "Bleached" is in such juxtaposition with such trade-mark or brand as to be conspicuously related to such name.

(3) The method referred to in subsection (1) of this section is the method prescribed in "Official Methods of Analysis of the Association of Official Agricultural Chemists", 8th edition, 1955, p. 127, under "Total Carbon Dioxide—Official", except that the following procedure is substituted for the procedure specified therein under "Determination (2)":

Weigh 17 grams of the official sample into flask A, add 15–20 glass beads (4–6 mm. diameter), and connect this flask with the apparatus (fig. 22). Open stopcock C and by means of the leveling bulb E bring the displacement solution to the 25 cc. graduation above the zero mark. (This 25 cc. is a partial allowance for the volume of acid to be used in the decomposition.) Allow the apparatus to stand 1–2 minutes to insure that the temperature and pressure within the apparatus are the same as those of the room. Close the stopcock, lower the leveling bulb somewhat to reduce the pressure within the apparatus, and slowly run into the decomposition flask from burette F 45 cc. of sulfuric acid (1 plus 5). To prevent the liberated carbon dioxide from escaping through the acid burette into the air, keep the displacement solution in the leveling bulb at all times during the decomposition at a lower level than that in the gas measuring tube. Rotate and then vigorously agitate the decomposition flask for three minutes to mix the contents intimately. Allow to stand for ten minutes to bring to equilibrium. Equalize the pressure in the measuring tube by means of the leveling bulb and read the volume of gas from the zero point on the tube. Deduct 20 cc. from this reading (this 20 cc. together with previous allowance of 25 cc. compensates for the 45 cc. acid used in the decomposition). Observe the temperature of the air surrounding the apparatus and also the barometric pressure and multiply the number of cc. of gas evolved by the factor given in Table 41.30, pp. 871–875, for the temperature and pressure observed. Divide the corrected reading by 100 to obtain the apparent per cent by weight of carbon dioxide in the official sample.

Correct the apparent per cent of carbon dioxide to compensate for varying atmospheric conditions by immediately assaying a synthetic sample by the same method in the same apparatus.

Prepare the synthetic sample with 16.2 grams of flour, 0.30 gram of monocalcium phosphate, 0.30 gram of salt and a sufficient quantity of sodium bicarbonate U.S.P. (dried over sulfuric acid) to yield the amount of carbon dioxide recovered in assay of official sample. Determine this quantity by multiplying weight of carbon dioxide recovered in assay of official sample by 1.91.

Divide the weight of carbon dioxide recovered from synthetic sample by weight of carbon dioxide contained in sodium bicarbonate used.

Divide the quotient into the apparent per cent of carbon dioxide in official sample to obtain per cent of carbon dioxide evolved from the official sample.

Ag 56.07 Enriched self-rising flour; optional ingredients. Enriched self-rising flour conforms to the definition and standard of identity, and is subject to the requirements for label statement of optional

ingredients, prescribed for self-rising flour by section Ag 56.06, except that:

(1) It contains in each pound not less than 2.00 milligrams and not more than 2.5 milligrams of thiamine, not less than 1.2 milligrams and not more than 1.5 milligrams of riboflavin, not less than 16.0 milligrams and not more than 20.0 milligrams of niacin or niacinamide, not less than 13.0 milligrams and not more than 16.5 milligrams of iron (Fe), not less than 500 milligrams and not more than 1,500 milligrams of calcium (Ca);

(2) Vitamin D may be added in such quantity that each pound of the finished enriched self-rising flour contains not less than 250 U.S.P. units and not more than 1,000 U.S.P. units of vitamin D;

(3) It may contain not more than 5 per cent by weight of wheat germ or partly defatted wheat germ;

(4) When calcium is added as dicalcium phosphate, such dicalcium phosphate is also considered to be an acid-reacting substance; and

(5) When calcium is added as carbonate, the method set forth in section Ag 56.06 (3) does not apply as a test for carbon dioxide evolved; but in such case the quantity of carbon dioxide evolved under ordinary conditions of use of the enriched self-rising flour is not less than 0.5 per cent of the weight thereof.

Iron and calcium may be added only in forms which are harmless and assimilable. The substances referred to in subsections (1) and (2) of this section may be added in a harmless carrier which does not impair the enriched self-rising flour; such carrier is used only in the quantity necessary to effect an intimate and uniform admixture of such substances with the flour.

Ag 56.08 Phosphated flour, white and wheat flour; optional ingredients. Phosphated flour, phosphated white flour, phosphated wheat flour, conforms to the definition and standard of identity, and is subject to the requirements for label declaration of optional ingredients, prescribed for flour by section Ag 56.01, except that:

(1) Monocalcium phosphate is added in a quantity not less than 0.25 per cent and not more than 0.75 per cent of the weight of the finished phosphated flour; and

(2) In determining whether the ash content complies with the requirements of this section allowance is made for the added monocalcium phosphate.

Ag 56.09 Whole wheat flour, graham and entire wheat flour; optional ingredients. (1) Whole wheat flour, graham flour, entire wheat flour, is the food prepared by so grinding cleaned wheat other than durum wheat and red durum wheat that, when tested by the method prescribed in subsection (3)(b) of this section, not less than 90 per cent passes through a No. 8 sieve and not less than 50 per cent passes through a No. 20 sieve. The proportions of the natural constituents of such wheat, other than moisture, remain unaltered. To compensate for any natural deficiency of enzymes, malted wheat, malted wheat flour, malted barley flour, or any combination of two or more of these, may be used; but the quantity of malted wheat flour so used is not more than 0.5 per cent, and the quantity of malted barley flour so used is not more than 0.25 per cent. The moisture content of whole wheat flour is not more than 15 per cent. Unless such addition conceals damage or inferiority of the whole wheat flour or

makes it appear better or of greater value than it is, the optional bleaching ingredient chlorine dioxide, chlorine, or a mixture of nitrosyl chloride and chlorine, may be added in a quantity not more than sufficient for bleaching and artificial aging effects.

(2) When any optional bleaching ingredient is used, the food shall be labeled "Bleached". Wherever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, the word "Bleached" shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter; except that where such name is a part of a trade-mark or brand, other written, printed, or graphic matter, which is also a part of such trade-mark or brand, may so intervene if the word "Bleached" is in such juxtaposition with such trade-mark or brand as to be conspicuously related to such name.

(3) For the purpose of this section:

(a) Moisture is determined by the method prescribed in "Official Methods of Analysis of the Association of Official Agricultural Chemists", 8th edition, 1955, p. 206, under "Vacuum Oven Method (2) —Official".

(b) The method referred to in subsection (1) of this section is as follows: Use No. 8 and No. 20 sieves, having standard 8-inch full height frames, complying with the specifications for wire cloth and sieve frames in "Standard Specifications for Sieves", published March 1, 1940, in L. C. 584 of the U. S. Department of Commerce, National Bureau of Standards. Fit a No. 8 sieve into a No. 20 sieve. Attach bottom pan to the No. 20 sieve. Pour 100 grams of the sample into the No. 8 sieve. Attach cover and hold the assembly in a slightly inclined position with one hand. Shake the sieves by striking the sides against the other hand with an upward stroke, at the rate of about 150 times per minute. Turn the sieves about one-sixth of a revolution, each time in the same direction, after each 25 strokes. Continue shaking for two minutes. Weigh the material which fails to pass through the No. 8 sieve and the material which passes through the No. 20 sieve.

Ag 56.10 Bromated whole wheat flour; optional ingredients. Bromated whole wheat flour conforms to the definition and standard of identity, and is subject to the requirements for label statement of optional ingredients, prescribed for whole wheat flour by section Ag 56.09, except that potassium bromate is added in a quantity not exceeding 75 parts to each million parts of finished bromated whole wheat flour.

Ag 56.11 Whole durum wheat flour; optional ingredients. Whole durum wheat flour conforms to the definition and standard of identity, and is subject to the requirements for label statement of optional ingredients, prescribed for whole wheat flour by section Ag 56.09, except that cleaned durum wheat, instead of cleaned wheat other than durum wheat and red durum wheat, is used in its preparation.

Ag 56.12 Crushed wheat, coarse ground wheat. Crushed wheat, coarse ground wheat, is the food prepared by so crushing cleaned wheat other than durum wheat and red durum wheat that, when tested by the method prescribed in section Ag 56.09 (3) (b), 40 per cent or more passes through a No. 8 sieve and less than 50 per cent

passes through a No. 20 sieve. The proportions of the natural constituents of such wheat, other than moisture, remain unaltered. Crushed wheat contains not more than 15 per cent of moisture as determined by the method prescribed in "Official Methods of Analysis of the Association of Official Agricultural Chemists," 8th edition, 1955, p. 367, under "Preparation of Sample—Official" and "Moisture I. Drying in Vacuo at 95–100° (2)—Official".

Ag 56.13 Cracked wheat. Cracked wheat is the food prepared by so cracking or cutting into angular fragments cleaned wheat other than durum wheat and red durum wheat that, when tested by the method prescribed in section Ag 56.09 (3) (b), not less than 90 per cent passes through a No. 8 sieve and not more than 20 per cent passes through a No. 20 sieve. The proportions of the natural constituents of such wheat, other than moisture, remain unaltered. Cracked wheat contains not more than 15 per cent of moisture as determined by the method prescribed in "Official Methods of Analysis of the Association of Official Agricultural Chemists", 8th edition, 1955, p. 367, under "Preparation of Sample—Official" and "Moisture I. Drying in Vacuo at 95–100° (2)—Official".

Ag 56.14 Farina. (1) Farina is the food prepared by grinding and bolting cleaned wheat, other than durum wheat and red durum wheat, to such fineness that, when tested by the method prescribed in subsection (2) (b) of this section, it passes through a No. 20 sieve, but not more than 3 per cent passes through a No. 100 sieve. It is freed from bran coat, or bran coat and germ, to such extent that the per cent of ash therein, calculated to a moisture-free basis, is not more than 0.6 per cent. Its moisture content is not more than 15 per cent.

(2) For the purposes of this section:

(a) Ash and moisture are determined by the methods therefor referred to in section Ag 56.01 (3).

(b) The method referred to in subsection (1) of this section is as follows: Use No. 20 and No. 100 sieves, having standard 8-inch full-height frames, complying with the specifications for wire cloth and sieve frames in "Standard Specifications for Sieves", published March 1, 1940, in L. C. 584 of the U. S. Department of Commerce, National Bureau of Standards. Fit a No. 20 sieve into a No. 100 sieve. Attach bottom pan to the No. 100 sieve. Pour 100 grams of the sample into the No. 20 sieve. Attach cover and hold the assembly in a slightly inclined position with one hand. Shake the sieves by striking the sides against the other hand with an upward stroke, at the rate of about 150 times per minute. Turn the sieves about one-sixth of a revolution, each time in the same direction, after each 25 strokes. Continue shaking for two minutes. Weigh the material which fails to pass through the No. 20 sieve and the material which passes through the No. 100 sieve.

Ag 56.15 Enriched farina; optional ingredients. (1) Enriched farina conforms to the definition and standard of identity prescribed for farina by section Ag 56.14, except that:

(a) It contains in each pound not less than 1.66 milligrams of vitamin B₁, not less than 1.2 milligrams of riboflavin, not less than 6 milligrams of niacin or niacinamide, and not less than 6 milligrams of iron (Fe);

(b) Vitamin D may be added in such quantity that each pound of the finished enriched farina contains not less than 250 U.S.P. units of the optional ingredient vitamin D;

(c) Calcium may be added in such quantity that each pound of the finished enriched farina contains not less than 500 milligrams of the optional ingredient calcium (Ca).

(d) It may contain not more than 8 per cent by weight of the optional ingredient wheat germ or partly defatted wheat germ.

(e) It may contain not less than 0.5 per cent and not more than 1 per cent by weight of the optional ingredient disodium phosphate.

(f) In determining whether the ash content complies with the requirements of this section allowance is made for ash resulting from any added iron or salts of iron or calcium, or from any added disodium phosphate, or from any added wheat germ or partly defatted wheat germ.

Iron and calcium may be added only in forms which are harmless and assimilable. Dried irradiated yeast may be used as a source of vitamin D. The substances referred to in paragraphs (a) and (b) of this subsection may be added in a harmless carrier which does not impair the enriched farina; such carrier is used only in the quantity necessary to effect an intimate and uniform admixture of such substances with the farina.

(2) When the optional ingredient disodium phosphate is used, the label shall bear the statement "Disodium phosphate added for quick cooking." Wherever the name of the food appears on the label so conspicuously as to be easily seen under customary conditions of purchase, such statement shall immediately and conspicuously precede or follow such name, without intervening written, printed, or graphic matter; except that where such name is a part of a trade-mark or brand, other written, printed, or graphic matter, which is also a part of such trade-mark or brand, may so intervene if such statement is in such juxtaposition with such trade-mark or brand as to be conspicuously related to such name.

Ag 56.16 Semolina. (1) Semolina is the food prepared by grinding and bolting cleaned durum wheat to such fineness that, when tested by the method prescribed in section Ag 56.14 (2) (b), it passes through a No. 20 sieve, but not more than 3 per cent passes through a No. 100 sieve. It is freed from bran coat, or bran coat and germ, to such extent that the per cent of ash therein, calculated to a moisture-free basis, is not more than 0.92 per cent. Its moisture content is not more than 15 per cent.

(2) For the purpose of this section:

Ash and moisture are determined by the methods therefor referred to in section Ag 56.01 (3).

Ag 56.51 White corn meal. (1) White corn meal is the food prepared by so grinding cleaned white corn that when tested by the method prescribed in subsection (2) (b) of this section not less than 95% passes through a No. 12 sieve, not less than 45% through a No. 25 sieve, but not more than 35% through a No. 72 grits gauze. Its moisture content is not more than 15%. In its preparation coarse particles of the ground corn may be separated and discarded, or re-ground and recombined with all or part of the material from which they were separated, but in any such case the crude fiber content of

the finished corn meal is not less than 1.2 per cent and not more than that of the cleaned corn from which it was ground, and its fat content does not differ more than 0.3 per cent from that of such corn. The contents of crude fiber and fat in all the foregoing provisions relating thereto are on a moisture-free basis.

(2) (a) For the purposes of this section moisture is determined by the method prescribed in "Official Methods of Analysis of the Association of Official Agricultural Chemists", 8th edition, 1955, p. 220, sections 13.54 and 13.55; fat is determined by the method prescribed on page 220, sections 13.54 and 13.59; and crude fiber is determined by the method prescribed on page 220, sections 13.54 and 13.57.

(b) The method referred to in subsection (1) of this section is as follows:

Use No. 12 and No. 25 sieves, having standard 8-in. diameter, full-height frames, complying with the specifications for wire cloth and sieve frames in "Standard Specifications for Sieves", published March 1, 1940, in L. C. 584 of the Bureau of Standards, U. S. Department of Commerce.

A sieve with frame of the same dimensions as the Nos. 12 and 25 and fitted with 72 XXX grits gauze is used as the third sieve. It is referred to hereafter as the No. 72 sieve. The 72 XXX grits gauze has openings equivalent in size with those of No. 70 woven-wire cloth, complying with specifications for such cloth contained in such "Standard Specifications for Sieves". Attach bottom pan to No. 72 sieve. Fit the No. 25 sieve into the No. 72 sieve and the No. 12 sieve into the No. 25 sieve. Pour 100 grams of sample into the No. 12 sieve, attach cover and hold the assembly in a slightly inclined position and shake the assembly of sieves by striking the sides against one hand with an upward stroke, at the rate of about 150 times per minute. Turn the assembly of sieves about one-sixth of a revolution, each time in the same direction, after each 25 strokes. Continue shaking for 2 minutes. Weigh separately the material remaining on each sieve and in the pan, and calculate each weight as per cent of sample. Sometimes when meals are tested, fine particles clog the sieve openings. If any sieve is clogged by fine material smaller than its openings, empty the contents onto a piece of paper. Remove the entrapped material on the bottom of the sieve by a hair brush and add to the sieve below. In like manner, clean the adhering material from inside the sieve and add to the material on the paper. Return mixture on the paper to the sieve, reassemble the sieves, and shake in the same manner as before for 1 minute. Repeat cleaning procedure if necessary until a 5-gram or less loss in weight occurs in any sieve during a 1-minute shaking. The per cent of sample passing through No. 12 sieve shall be determined by subtracting from 100 per cent, the per cent of material remaining on the No. 12 sieve. The per cent passing through a No. 25 sieve shall be determined by adding the per cents remaining on the No. 72 sieve and the per cent in pan. The per cent in the pan shall be considered as the per cent passing through a No. 72 XXX grits gauze.

Ag 56.52 Yellow corn meal. Yellow corn meal conforms to the definition and standard of identity prescribed by section Ag 56.51 for white corn meal except that cleaned yellow corn is used instead of cleaned white corn.

Ag 56.53 Bolted white corn meal. (1) Bolted white corn meal is the food prepared by so grinding and sifting cleaned white corn that:

(a) Its crude fiber content is less than 1.2 per cent but its fat content is not less than 2.25 per cent; and

(b) When tested by the method prescribed in section Ag 56.51 (2) (b), except that a No. 20 standard sieve is used instead of the No. 12 sieve, not less than 95 per cent passes through a No. 20 sieve, but not more than 25 per cent through No. 72 XXX grits gauze. Its moisture content is not more than 15 per cent. In its preparation particles of ground corn which contain germ may be separated, reground, and recombined with all or part of the material from which it was separated, but in any such case the fat content of the finished bolted white corn meal does not exceed by more than 0.3 per cent the fat content of the cleaned corn from which it was ground. The contents of crude fiber and fat in all the foregoing provisions relating thereto are on a moisture-free basis.

(2) For the purposes of this section, moisture, fat and crude fiber are determined by the methods therefor referred to in section Ag 56.51 (2) (a).

Ag 56.54 Bolted yellow corn meal. Bolted yellow corn conforms to the definition and standard of identity prescribed by section Ag 56.53 for bolted white corn meal except that cleaned yellow corn is used instead of cleaned white corn.

Ag 56.55 Degerminated and degermed white corn meal. (1) Degerminated white corn meal, degermed white corn meal, is the food prepared by grinding cleaned white corn and removing bran and germ so that:

(a) On a moisture-free basis, its crude fiber content is less than 1.2 per cent and its fat content is less than 2.25 per cent; and

(b) When tested by the method prescribed in section Ag 56.51 (2) (b), except that a No. 20 standard sieve is used instead of a No. 12 sieve, not less than 95% passes through a No. 20 sieve, not less than 45% through a No. 25 sieve, but not more than 25% through No. 72 XXX grits gauze. Its moisture content is not more than 15 per cent.

(2) For the purpose of this section, moisture, fat and crude fiber are determined by methods therefor referred to in section Ag 56.51 (2) (a).

Ag 56.56 Degerminated and degermed yellow corn meal. Degerminated yellow corn meal, degermed yellow corn meal, conforms to the definition and standard of identity prescribed by section Ag 56.55 for degerminated white corn meal except that cleaned yellow corn is used instead of cleaned white corn.

Ag 56.57 Self-rising white corn meal. (1) Self-rising white corn meal is an intimate mixture of white corn meal, sodium bicarbonate, and the acid-reacting substance monocalcium phosphate. It is seasoned with salt. When it is tested by the method prescribed in subsection (2) of this section, not less than 0.5 per cent of carbon dioxide is evolved. The acid-reacting substance is added in sufficient quantity to neutralize the sodium bicarbonate. The combined weight of such acid-reacting substance and sodium bicarbonate is not more than 4.5 parts to each 100 parts of white corn meal used.

(2) The method referred to in subsection (1) of this section is the method prescribed in "Official Methods of Analysis of the Association of Official Agricultural Chemists", 8th edition, 1955, beginning on page 127 under "Total Carbon Dioxide—Official", except that the following procedure is substituted for the procedure specified therein under "Determination (2)":

Weigh 17 grams of the official sample into flask A, add 15–20 glass beads (4–6 mm. diameter), and connect this flask with the apparatus (fig. 25). Open stopcock C and by means of the leveling bulb E bring the displacement solution to the 25 cc. graduation above the zero mark. (This 25 cc. is a partial allowance for the volume of acid to be used in the decomposition.) Allow the apparatus to stand 1–2 minutes to insure that the temperature and pressure within the apparatus are the same as those of the room. Close the stopcock, lower the leveling bulb somewhat to reduce the pressure within the apparatus, and slowly run into the decomposition flask from burette F 45 cc. of sulfuric acid (1 plus 5). To prevent the liberated carbon dioxide from escaping through the acid burette into the air, keep the displacement solution in the leveling bulb at all times during the decomposition at a lower level than that in the gas-measuring tube. Rotate and then vigorously agitate the decomposition flask for three minutes to mix the contents intimately. Allow to stand for 10 minutes to bring to equilibrium. Equalize the pressure in the measuring tube by means of the leveling bulb and read the volume of gas from the zero point of the tube. Deduct 20 cc. from this reading (this 20 cc. together with previous allowance of 25 cc. compensates for the 45 cc. acid used in the decomposition). Observe the temperature of the air surrounding the apparatus and also the barometric pressure and multiply the number of cc. of gas evolved by the factor given in Table 42.29—Correction Factors for Gasometric Determination of Carbon Dioxide. Divide the corrected reading by 100 to obtain the apparent per cent by weight of carbon dioxide in the official sample.

Correct the apparent per cent of carbon dioxide to compensate for varying atmospheric conditions by immediately assaying a synthetic sample by the same method in the same apparatus.

Prepare the synthetic sample with 16.2 grams of corn meal, 0.30 gram of monocalcium phosphate, 0.30 gram of salt, and a sufficient quantity of sodium bicarbonate U.S.P. (dried over sulfuric acid) to yield the amount of carbon dioxide recovered in assay of official sample. Determine this quantity by multiplying weight of carbon dioxide recovered in assay of official sample by 1.91.

Divide the weight of carbon dioxide recovered from synthetic sample by weight of carbon dioxide contained in sodium bicarbonate used.

Divide the quotient into the apparent per cent of carbon dioxide in official sample to obtain per cent of carbon dioxide evolved from the official sample.

Ag 56.58 Self-rising yellow corn meal. Self-rising yellow corn meal conforms to the definition and standard of identity prescribed by section Ag 56.57 for self-rising white corn meal except that yellow corn meal is used instead of white corn meal.

Ag 56.59 White corn flour. (1) White corn flour is the food prepared by so grinding and bolting cleaned white corn that when tested by the method prescribed in subsection (2)(b) of this section, not less

than 98 per cent passes through a No. 50 sieve and not less than 50% passes through No. 70 woven-wire cloth. Its moisture content is not more than 15%. In its preparation part of the ground corn may be removed, but in any such case, the content (on a moisture-free basis) of neither the crude fiber nor fat in the finished white corn flour exceeds the content (on a moisture-free basis) of such substance in the cleaned corn from which it was ground.

(2) (a) For the purpose of this section, moisture, fat, and crude fiber are determined by methods therefor referred to in section Ag 56.51 (2) (a).

(b) The method referred to in subsection (1) of this section is as follows:

Weigh 5 grams of sample into a tared truncated metal cone (top diameter 5 centimeters, bottom diameter 2 centimeters, height 4 centimeters), fitted at bottom with 70-mesh wire cloth complying with the specifications for No. 70 wire cloth in "Standard Specifications for Sieves", published March 1, 1940 in L. C. 584 of the Bureau of Standards, U. S. Department of Commerce. Attach cone to a suction flask. Wash with 150 ml. of petroleum ether applied in a small stream without suction, while gently stirring the sample with a small glass rod. Apply suction for 2 minutes after washing is completed, then shake the cone for 2 minutes with a vigorous horizontal motion, striking the side against the hand, and then weigh. The decrease in weight of sample, calculated as per cent by weight of sample shall be considered the per cent passing through No. 70 wire cloth. Transfer the residue from cone to a No. 50 sieve having a standard 8-inch diameter full height frame, complying with the specifications for wire cloth and sieve frame in said "Standard Specifications for Sieves". Shake for 2 minutes with a vigorous horizontal motion, striking the side against the hand; remove and weigh the residue; calculate the weight of residue as per cent by weight of sample, and subtract from 100 per cent to obtain the per cent of sample passing through the No. 50 sieve.

Ag 56.60 Yellow corn flour. Yellow corn flour conforms to the definition and standard of identity prescribed by section Ag 56.59 for white corn flour except that cleaned yellow corn is used instead of cleaned white corn.

Ag 56.61 Grits, corn and hominy. (1) Grits, corn grits, hominy grits, is the food prepared by so grinding and sifting cleaned white corn, with removal of corn bran and germ, that:

(a) On a moisture-free basis its crude fiber content is not more than 1.2 per cent and its fat content is not more than 2.25 per cent; and

(b) When tested by the method prescribed in subsection (2) of this section not less than 95 per cent passes through a No. 10 sieve but not more than 20 per cent passes through a No. 25 sieve.

(2) (a) For the purposes of this section moisture, fat, and crude fiber are determined by methods therefor referred to in section Ag 56.51 (2) (a).

(b) The method referred to in subsection (1) of this section is as follows:

Use No. 10 and No. 25 sieves, having standard 8-inch diameter full-height frames, complying with the specifications for wire cloth and sieve frames in "Standard Specifications for Sieves", published March

1, 1940, in L. C. 584 of the Bureau of Standards, U. S. Department of Commerce. Attach bottom pan to No. 25 sieve. Fit the No. 10 sieve into the No. 25 sieve. Pour 100 grams of sample into the No. 10 sieve, attach cover and hold assembly in a slightly inclined position, shake the sieves by striking the sides against one hand with an upward stroke, at the rate of about 150 times per minute. Turn the sieves about one-sixth of a revolution each time in the same direction after each 25 strokes. Continue shaking for 2 minutes. Weigh separately the material remaining on the No. 10 sieve and in the pan, and calculate each weight as per cent of sample. The per cent of sample passing through a No. 10 sieve shall be determined by subtracting from 100 per cent, the per cent remaining on the No. 10 sieve. The per cent of material in the pan shall be considered as the per cent passing through a No. 25 sieve.

Ag 56.62 Yellow grits, corn and hominy. Yellow grits, yellow corn grits, yellow hominy grits, conforms to the definition and standard of identity prescribed by section Ag 56.61 for grits except that cleaned yellow corn is used instead of cleaned white corn.

Ag 56.63 Quick grits, quick cooking grits. (1) Quick grits, quick cooking grits are the foods, each of which conforms to the definition and standard of identity prescribed for a kind of grits by sections Ag 56.61 and Ag 56.62 except that in process of preparation the grits are lightly steamed and slightly compressed so as to fracture the particles.

(2) The name of each kind of grits is "Quick" or "Quick cooking" followed by the name of the kind of grits used which is prescribed in the definition and standard of identity therefor.

Ag 56.64 Enriched corn meals. (1) Enriched corn meals are the foods, each of which conforms to the definition and standard of identity prescribed for a kind of corn meal by sections Ag 56.51 to Ag 56.58 inclusive, except that:

(a) It contains in each pound not less than 2.0 mg. and not more than 3.0 mg. of thiamine, not less than 1.2 mg. and not more than 1.8 mg. of riboflavin, not less than 16 mg. and not more than 24 mg. of niacin or niacinamide, and not less than 13 mg. and not more than 26 mg. of iron (Fe);

(b) It may contain in each pound not less than 250 U.S.P. units and not more than 1,000 U.S.P. units of vitamin D; and

(c) It may contain in each pound not less than 500 mg. and not more than 750 mg. of calcium (Ca). Iron and calcium may be added only in forms which are harmless and assimilable. The substances referred to in paragraphs (a), (b) and (c) of this subsection may be added in a harmless carrier which does not impair the enriched corn meal; such carrier is used only in the quantity necessary to effect an intimate and uniform admixture of such substances with the kind of corn meal used. Dried yeast in quantities not exceeding 1.5 per cent by weight of the finished food may be used.

(2) The name of each kind of enriched corn meal is the word "Enriched" followed by the name of the kind of corn meal used which is prescribed in the definition and standard of identity therefor.

Ag 56.65 Enriched corn grits. (1) Enriched corn grits are the foods, each of which conforms to the definition and standard of iden-

tity prescribed for grits, yellow grits, or quick cooking grits by sections Ag 56.61 to Ag 56.63, inclusive, except that:

(a) It contains in each pound not less than 2.0 mg. and not more than 3.0 mg. of thiamine, not less than 1.2 mg. and not more than 1.8 mg. of riboflavin, not less than 16 mg. and not more than 24 mg. of niacin or niacinamide, not less than 13 mg. and not more than 26 mg. of iron (Fe);

(b) It may contain in each pound not less than 250 U.S.P. units and not more than 1,000 U.S.P. units of vitamin D; and

(c) It may contain in each pound not less than 500 mg. and not more than 750 mg. of calcium (Ca). Iron and calcium may be added only in forms which are harmless and assimilable. The vitamins referred to in paragraph (a) of this subsection may be combined with harmless substance to render them insoluble in water if the water insoluble products are assimilable. The substances referred to in paragraphs (a), (b) and (c) of this subsection may be added in a harmless carrier; such carrier is used only in the quantity necessary to effect an intimate and uniform admixture of such substances with the kind of corn grits used. Dried yeast in quantities not exceeding 1.5 per cent by weight of the finished food may be used. When the finished food is tested by the method prescribed in subsection (3) of this section it complies with the requirements set forth therein.

(2) The name of each kind of enriched corn grits is the word "Enriched" followed by the name of the kind of corn grits used which is prescribed in the definition and standard of identity therefor.

(3) The method referred to in subsection (1) of this section is as follows:

(Transfer 100 grams of enriched grits to a 2-liter Erlenmeyer flask containing 1 liter of water at 25° C. Stopper the flask and rotate it for exactly ½ minute so that the grits are kept in motion. Allow the grits to settle for ½ minute, then pour off 850 cc. of the water along with any floating or suspended matter. Determine thiamine, riboflavin, niacin, and iron in the wet grits and water remaining in the flask. Calculate as mg. per pound of the grits before rinsing. The amounts found by this procedure are not less than 85% of the minimum amounts of thiamine, riboflavin, niacin and iron prescribed by the standard for enriched grits.

Ag 56.66 Standards of technical organizations. Copies of the book "Official Methods of Analysis of the Association of Official Agricultural Chemists", which is cited by reference in this chapter, are on file in the offices of the state department of agriculture, secretary of state and revisor of statutes. The book may be obtained from the Association of Official Agricultural Chemists, Inc., Box 540, Benjamin Franklin Station, Washington, D. C.