

II. Synthetic Additives, Natural Additives and Mixed Preparations

Article 3. Standards and Specification

C. Mixed preparations

1. Ingredient Containing L-Sodium Glutamate preparations

Definition L-Sodium Glutamate preparations should contain not less than 50.0% of L-sodium glutamate (as a major component) and other synthetic food additives. Or it can be mixed and diluted with one or more of spices (powder, juice, or extract), sodium chloride (salt), starch, glucose, sugar, or dextrin and used as a flavoring (soups are excluded). The specifications still apply even though the content of L-sodium glutamate is not more than 50.0% if only sodium chloride (salt) and hexane are mixed for dilution.

Compositional Specifications of Ingredient Containing L-Sodium Glutamate preparations

Content L-Sodium Glutamate preparations should contain not less than 90.0% of the labeled L-sodium glutamate content.

Description L-Sodium Glutamate preparations is powder, crystallite, or granule with its characteristic colorful gloss.

Identification An aqueous solution containing 0.1% of L-sodium glutamate preparations(if necessary, filtered) should have the same red spot as the standard, when thin layer chromatography is carried out under the following conditions.

Conditions for Thin Layer Chromatography

- Developing Solvent : n-butyl alcohol : glacial acetic acid : water (2 : 1 : 1)
- Thin Layer Plate : Silica gel
- Developing Distance : 10~15 cm
- Colorizing Agent : 0.2 g of ninhydrine is dissolved in n-butyl alcohol (saturated with water) to make 100 ml.

- Purity** (1) Arsenic : Proceed as directed under in Purity (1) for Mixed Preparations.
(2) Lead : Proceed as directed under in Purity (2) for Mixed Preparations.

Assay (L-Sodium Glutamate preparations)

(1) Apparatus

Amino acid analyzer or its equivalent

(2) Preparation of Test Solution : 0.2g of sample is taken. Add Lithium citrate buffer solution(pH 2.2) to make 100ml. 1ml of the solution is taken and diluted to 50ml. It is Test Solution. Test as following below procedure.

(3) Operation Condition

1) The measuring condition of amino acid analyzer

Column : HR Na Column (4.6mm × 200mm) or its equivalent

Column Temperature : 78°C

Detector and Wave : Absorbance (570nm)

Mobile Phase and Flow Rate:

- Buffer Solution : Lithium citrate buffer(pH 2.8) is flowed to the speed of 20ml/h
- Reaction Solution : Ninhydrin TS is flowed to the speed of 25ml/h
- Reactor Temperature : 135°C
- Injection Amount : 40 μ l

(4) Test Solution

1) Buffer Solution : Lithium citrate buffer(pH 2.8)

2) Ninhydrin TS : 1g of Ninhydrin is weighed and dissolved in 100ml of 5% Acid sodium sulfite.

3) Standard Stock Solution : 0.2g of Standard L-sodium glutamate is taken. Add Lithium citrate buffer solution(pH 2.2) to make 100ml volume.

4) Standard Solution : 1ml of Standard Stock Solution is taken. Add Lithium citrate buffer solution(pH 2.2) to make 50ml volume.

2. Alkali Additives for Noodles Preparations

Definition Alkali Additives for Noodles contains one or more of sodium salts or potassium salts such as sodium carbonate, potassium carbonate, sodium hydrogencarbonate, and phosphates.

A. Compositional Specifications of Solid Alkali Additives for Noodles preparations

Description Solid Alkali Additives for Noodles preparations is colorless~white powder, crystalline lump, or their mixture.

Identification (1) An aqueous solution (1→10) of Solid Alkali Additives for Noodles preparations shows reactions of alkali.

(2) An aqueous solution (1→10) of Solid Alkali Additives for Noodles preparations shows reactions of Potassium Salts(A) or Sodium Salts(B) in Identification.

(3) An aqueous solution (1→10) of Solid Alkali Additives for Noodles preparations containing carbonates or hydrogen carbonates shows reactions of Carbonates(A) in Identification.

(4) An aqueous solution (1→10) of Solid Alkali Additives for Noodles preparations containing phosphates is acidified with diluted nitric acid. It shows reactions of Phosphates(B) in Identification.

Purity (1) Clarity of Solution : 200 ml aqueous solution containing 10 g of Solid Alkali Additives for Noodles preparations is colorless and slightly turbid or better.

(2) Alkali Metal Hydroxide : 10 g of Solid Alkali Additives for Noodles preparations is dissolved in water so that the total volume is 200 ml (Solution A). 50 ml of barium chloride solution and water are added to 40 ml of Solution A to bring the total volume to 100 ml. It is then shaken vigorously and filtered. When 3 drops of 0.1 N hydrochloric acid and 2 drops of phenolphthalein TS are added to 50 ml of the filtrate, it should not become red.

(3) Silicate Salts : 1 drop of phenolphthalein TS is added to 10 ml of Solution A in (2), where diluted hydrochloric acid is added until red color disappears. It is then heated for 15 minutes in a water bath and cooled. If the solution becomes red, diluted hydrochloric acid is added until the red color disappears. 1 drop of methylene blue TS and 10 ml of saturated ammonium chloride solution are added to the resulting solution, which is allowed to stand for 2 hours. This solution should not yield colored precipitates or turbidity with color.

(4) Chlorides : 1 ml of Solution A in (2) proceed as directed under chlorides. The content should not be more than the amount that corresponds to 0.5 ml of 0.01 N hydrochloric acid.

(5) Arsenic : 5 ml of Solution A in (2) is neutralized with diluted hydrochloric acid. When this test solution proceed as directed under arsenic, it should be appropriate and not be more than 4ppm.

(6) Lead : Proceed as directed unde in Purity (2) for Mixed Preparations. Test solution is prepared by purity (2) for 「Sodium Metaphosphate」.

B. Compositional Specifications of Liquid Alkali Additives for Noodles preparations

Content Liquid Alkali Additives for Noodles preparations is an aqueous solution of one or more of sodium salts or potassium salts such as sodium carbonate, potassium carbonate, sodium hydrogencarbonate, and phosphates.

Description Liquid Alkali Additives for Noodles preparations is colorless transparent liquid.

Identification Proceed as directed under Identification in Compositional Specifications of Solid Alkali Additives for Noodles preparations. However, an aqueous solution(1→20) of Liquid Alkali Additives for Noodles preparations is used.

Purity (1) Specific Gravity : Specific Gravity should be 1.20~1.33.

(2) Alkali Metal Hydroxides, Silicates, Chlorides, Arsenic, and Heavy Metals : According to the specific gravity in (1), 100 ml solution, containing an amount of sample indicated in Table 1, is prepared (Solution A). Solution A proceed as directed under Purity (2), (3), (4), (5), and (6) in Compositional Specifications of Solid Alkali Additives for Noodles preparations.

Table 1.

s.g.	weight of sample taken(mL)	s.g.	weight of sample taken(mL)	s.g.	weight of sample taken(mL)
1.20	19.9	1.25	15.5	1.30	12.7
1.21	18.8	1.26	14.9	1.31	12.2
1.22	17.8	1.27	14.3	1.32	11.8
1.23	17.0	1.28	13.7	1.33	11.4
1.24	16.2	1.29	13.2		

s.g. : specific gravity

C. Compositional Specifications of Diluted/Powdered Alkali Additives for Noodles preparations

Description Diluted/Powdered Alkali Additives for Noodles preparations is homogeneous white~pale yellow powder.

Identification (1) When 1 drop of iodine solution is added to 1 g of Diluted/Powdered

Alkali Additives for Noodles preparations, it becomes violet in color.

- (2) Proceed as directed under Identification in Compositional Specifications of Solid Alkali Additives for Noodles preparations. However, Test Solution is prepared by the following procedure. 10 g of Diluted/Powdered Alkali Additives for Noodles preparations, is well mixed with 50 ml of water by shaking, which is then filtered. The filtrate is used instead of the aqueous solution (1→10) for solid alkali additives for noodles preparations.

- Purity** (1) Specific Gravity : 60 g of Diluted/Powdered Alkali Additives for Noodles preparations is well mixed in 200 ml of water by shaking, which is filtered. Specific gravity of the filtrate should be 1.12~1.17.
- (2) Alkali Metal Hydroxides, Silicates, and Chlorides : According to the specific gravity of the filtrate in (1), take an amount of sample indicated in Table 2, and make to 100 ml solution, is prepared (Solution A). Solution A proceed as directed under Purity (2), (3), and (4) in Compositional Specifications of Solid Alkali Additives for Noodles preparations.

Table 2.

s.g.	weight of sample taken(mL)	s.g.	weight of sample taken(mL)	s.g.	weight of sample taken(mL)
1.12	34.3	1.14	29.2	1.16	25.4
1.13	31.7	1.15	27.2	1.17	23.7

s.g. : specific gravity

- (3) Insoluble substances : 100 ml of sodium hydroxide solution (1→100) is added to 0.5 g of Diluted/Powdered Alkali Additives for Noodles preparations, which is heated for 15 minutes, allowed to stand for 30 minutes, and filtered. The residue is washed with water until the filtrate is no longer alkaline. The residue is ignited with the filter paper until the weight becomes constant. The content of insoluble substances should not be more than 10 mg.
- (4) Arsenic : 15 ml of sulfuric acid and 40 ml of nitric acid are added to 5 g of Diluted/Powdered Alkali Additives for Noodles preparations, in a flask for decomposition, which is then heated until white smoke appears. When the liquid becomes brown, it is cooled and then heated again with additional 5 ml of nitric acid. This series of operation is repeated until the liquid becomes colorless~pale yellow. This liquid is then cooled and 15 ml of saturated ammonium oxalate solution is added. It is heated until white smoke appears. It is cooled and water is added so

that the total volume is make to 50 ml (Solution B). 4 ml of this solution is taken out and used as Test Solution. Test Solution proceed as directed under arsenic and its content should not be more than 2.5ppm. Color standard is prepared by following the same procedure as Test Solution with 12.5 ml of arsenic standard solution.

- (5) Lead : Proceed as directed unde in Purity (2) for Mixed Preparations. Test solution is prepared by purity (2) for 「Sodium Metaphosphate」 .

3. Preservatives preparations

Definition Preservative preparations is a mixture of two or more preservatives or a mixture of one or more preservatives with other food additives or diluents for convenience. For the cases where two or more preservatives are mixed, it is mixed and diluted to be appropriate for standards of usage on individual preservative.

Compositional Specifications of Preservatives preparations

Content Preservative preparations should be 90.0~110.0% of the labeled contents.

Identification When Preservative preparations proceed as directed under Identification, labeled preservative should be identified. Salts are identified as acid.

1) Benzoic acid, dehydroacetic acid, sorbic acid, and p-hydroxybenzoic acid esters

(1) Identification by Thin Layer Chromatography

Preparation of Test Solution : Ether is evaporated from the solution obtained by A) Pre-treatment of sample in Assay 1). The residue is dissolved in a small amount of ethyl alcohol (1~2 ml) (Test Solution) instead of 0.1% acetanilide acetone solution.

Preparation of Thin Layer Plate : Polyamide is mixed with Isopropyl alcohol (20 : 75), which is well shaken to form a paste. It is then formed into a 0.25 mm thick thin film, which is blow dried and then further dried for 30 minutes at 60~70°C.

Test Procedure : 0.2~1 µg of Test and Preservative Standard Solutions are spotted (at 2 cm distance from each other) at 1 cm position from the bottom and blow dried. It is then developed using solvents 1~3, which is blow dried. Spots can be observed under a UV light (beam of 253.7 nm) or by spraying colorizing solution 1~3. When colorizing solution 3 is used, color is fixed by spraying 10% sodium hydroxide solution (refer to thin layer chromatography in General Test Methods).

Reagents

- Preservative Standard Solutions : 10 mg of standard (benzoic acid and dehydroacetic acid) is dissolved in 1 ml acetone. 10mg of standard (sorbic acid and p-hydroxybenzoic acid esters) is dissolved in 5 ml of acetone.
- Developing Solvent : 1. hexane, acetic acid (20 : 0.7)
2. benzene, acetic acid (20 : 0.5)
3. benzene, methyl alcohol, acetic acid (20 : 0.2 : 0.5) or (20 : 0.5 : 0.3)
- Colorizing Solution : 1. 2% ferric sulfate solution
2. 0.1% bromocresol green ethyl alcohol solution
3. Diazo(sulfanilic acid) solution : 1 g of sulfanilic acid is dissolved in 3 ml of hydrochloric acid by heating, make 100 ml with water, and added same amount of

0.7% sodium nitrite solution.

(2) Identification by Gas Chromatography

It is tested according to benzoic acid, dehydroacetic acid, sorbic acid, and p-hydroxybenzoic acid esters of Assay 1).

2) Sodium Propionates and Calcium Propionates

(1) 0.5~1 g of Preservative preparations is dissolved in 10 ml of water. When 10 ml of diluted sulfuric acid is added to this solution and heated, a characteristic odor is generated.

(2) Proceed and identified as directed under in Assay 2) for Propionic Acid.

(3) Preservative (0.5 g as propionic acid) is dissolved in 10 ml of water (and filtered if it is diluted with starch). The solution (or filtrate) shows the reaction of (1)sodium salts or (4) potassium salts of Identification in General Test Methods.

Purity (1) Arsenic : Proceed as directed unde in Purity (1) for Mixed Preparations.

(2) Preparations. Lead : Proceed as directed unde in Purity (2) for Mixed Preparations.

Assay

1) Benzoic acid, dehydroacetic acid, sorbic acid, and p-hydroxybenzoic acid esters

(1) Gas Chromatography

A) Pretreatment of sample

Sample (corresponding to 50~100 mg as preservatives) is precisely weighed in a beaker and dissolved or dispersed in 100 ml of water. (If it contains oil/fat, sample is neutralized by 10% sodium hydroxide solution or 10% hydrochloric acid and transferred into a 500 ml~1 l round bottom flask, where 5 ml of 15% tartaric acid solution, approximately 80 g of sodium chloride, and 1 drop of silicone resin are added. The total volume is brought up to 150~200 ml with water. It is then distilled in a steam distillation apparatus. Distillate is collected at a rate of 10 ml per minute up to 500 ml. 100 ml of the distillate is transferred into a beaker.) The content in the beaker is acidified with 10% hydrochloric acid (about pH 2), where 10 g of sodium chloride is dissolved. The resulting solution is extracted 3 times with 40 ml each of ether. The combined ether extracts are washed 3 times with 10 ml each of water and dehydrated with anhydrous sodium sulfate. The solvent is removed by evaporation under vacuum at 20~30°C. The resulting residue is dissolved in 0.1% acetanilide

acetone solution so that it contains 0.5~1.0 mg as preservative (Test Solution). Test Solution is analyzed by the procedures in Gas Chromatography of General Test Methods under the following conditions.

B) Reagents and Conditions

◦ Standard Solutions : 50 mg each of sorbic acid, benzoic acid, dehydroacetic acid, and p-hydroxybenzoic acid esters is precisely weighed and dissolved in 0.1% acetanilide acetone solution (total volume = 100 ml, 500 µg/ml).

-Column : coated with 1~5% diethylene glycol succinate polyester (DEGS), or 1~10% neopentyl glycol succinate polyester (NPGS), or silicone 30 on Chromosorb W(60~80 Mesh) .

-Injection Port Temperature : 210~230℃

-Column Temperature : 140~200℃

-Detector Temperature : 230~250℃

-Carrier Gas and Flow Rate : N₂, 30~60 ml/min

(2) Acid · Alkali Neutralization by Titration

Diluent of Single Component : sample (an amount corresponding to 0.2~0.5 g as preservative) is treated by the procedure in A) Pretreatment of sample in 1) of Assay. The residue obtained after evaporating ether is tested for the Content Test Method for each Compositional Specifications. The content of salts is corrected by converting the content of combined salts.

2) Propionic Acid

(1) Gas Chromatography

Preparation of Test Solution : Sample (50~100 mg as propionic acid) is placed in a 500 ml distillation flask, where 100 ml of water, 40 g of sodium chloride, 10 ml of 10% phosphoric acid, and 1 drop of silicone resin are added. It is then distilled to collect 250 ml of distillate. The end of the condenser is immersed in 10 ml of 1% sodium hydroxide solution. Precisely 25 ml of distillate is taken, and concentrated and dried by evaporation under vacuum. The residue is dissolved in 1 ml of water. This solution is added to the top of the ion exchange resin column. The eluted solution is collected into a 10 ml volumetric flask with 1 ml of internal standard solution. The remaining residue is dissolved in 1 ml each of water at a time. The same procedure is repeated until the total volume of the

effluent becomes 10 ml (Test Solution). Test Solution is analyzed by the procedures in Gas Chromatography of General Test Methods under the following conditions.

Operation conditions

Column for Gas Chromatography : Glass or stainless steel tube (3~4 mm × 1~3 m) or its equivalent

Detector : Hydrogen Flame Ionization Detector (FID)

Injection Port Temperature : 200~240°C

Column Temperature : 160~200°C (Chromosorb 101)
110~120°C (AT 1200)

Detector Temperature : 200~250°C

Carrier Gas and Flow Rate : N₂, 30~60 ml/min

Reagents

Propionic Acid Standard Solution : 0.1 g of propionic acid is dissolved in 10 ml of internal standard solution, which is diluted to 100 ml with water (freshly prepared before use).

4. Sodium Saccharin Preparations

Definition Sodium Saccharin preparations is a mixed and diluted ingredients consisting of 1 or more of glucose, starch, sodium bicarbonate, sodium chloride, or DL-alanine, glycine, D-sorbitol, D-sorbitol solution, or L-sodium glutamate so that it should contain no less than 5% of its major component, sodium saccharin.

Compositional Specifications of Sodium Saccharin preparations

Content Sodium Saccharin preparations should contain 90.0~110.0% of the labeled amount of sodium saccharin ($C_7H_4O_3NSNa \cdot 2H_2O$).

Description Sodium Saccharin preparations is white~pale yellow powder, granule, tablet, or liquid with sweet taste.

Identification (1) sample, corresponding to 2 g of sodium saccharin ($C_7H_4O_3NSNa \cdot 2H_2O$), is precisely weighed and dissolved in 50 ml of water, where 5 ml of diluted hydrochloric acid is added. This solution is extracted three times with 50 ml of ether. The ether layer is washed three times with 10 ml of water. Ether is removed from the extracts and the residue is dried for 2 hours at 105°C. Its melting point should be 224~230°C.

(2) 20 mg of residue in (1) is mixed with 40 mg of resorcin, where 10 drops of sulfuric acid are added. It is then gently heated until the mixture turns dark green. It is then cooled and dissolved by adding 10 ml of water and 10 ml of sodium hydroxide solution. This solution exhibits green fluorescence.

(3) 0.1 g of the extract in (1) is dissolved in 5 ml of sodium hydroxide solution, which is evaporated to dryness. It is melted by carefully heating to avoid carbonization until ammonia odor disappears. After cooling, the residue is dissolved in about 20 ml of water, which is neutralized with diluted hydrochloric acid and filtered. When 1 drop of ferric chloride solution is added to the filtrate, it becomes violet~red.

(4) Sodium Saccharin preparations is reduced to ash. These ash show the reactions of sodium salts in Identification.

(5) 1 g of Sodium Saccharin preparations is dissolved in 20 ml of water, where 5 ml of Fehling solution is added. When this solution is heated, red precipitates of copper dioxide are formed.

(6) 0.4 g of Sodium Saccharin preparations is dissolved in 10 ml of diluted sulfuric acid, where 0.2 g of potassium permanganate is added. When this solution is boiled, a odor of acetaldehyde is generated.

(7) 5 g of Sodium Saccharin preparations is dissolved in 50 ml of water, which is

allowed to settle for precipitating starch. Supernatant is decanted. The residue is mixed with water. Starch is settled and supernatant is decanted. This is repeated several times. When iodine solution is added to the residue, it becomes dark indigo in color.

Purity (1) Arsenic : Proceed as directed under in Purity (1) for Mixed Preparations.

(2) Lead : Proceed as directed unde in Purity (2) for Mixed Preparations.

Assay Sample, corresponding to 0.3 g of sodium saccharin preparations, is precisely weighed and dissolved in 20 ml of water, which is transferred into a separatory funnel. It is acidified with dilute hydrochloric acid. Precipitates are extracted with 40 ml of mixture of alcohol and chloroform (1:9). It is again extracted 4 times with 20 ml mixture. The extracts are filtered through a filter paper wetted with a mixture of alcohol and chloroform. The filtrate is evaporated to complete dryness. The residue is dissolved in about 75 ml of hot water. After cooling, it is titrated with 0.1 N sodium hydroxide solution (indicator : 3 drops of phenolphthalein solution).

0.1 N sodium hydroxide solution 1 ml = 24.12 mg $\text{C}_7\text{H}_4\text{O}_3\text{NSNa} \cdot 2\text{H}_2\text{O}$

5. Prepared Tar Dyes preparations

Definition Prepared tar dye preparations is a mixture of 2 or more tar dyes or a mixture of one or more of tar dyes with other food additives or diluents.

Compositional Specifications of Tar Dyes Preparations

Identification (1) Dyes : An aqueous solution is prepared so that the concentration of a dye with the highest content is 0.05%. 0.002 ml of this solution is tested by the procedure in Method 1 of Filter Paper Chromatography (developing solvent : n-butyl alcohol, anhydrous alcohol, 1% ammonia solution = 6 : 2 : 3). Chromatography grade filter paper is used. Developing is stopped when the solvent reaches up to 15 cm and the paper is dried. The spots (positions and colors) of Test Solution and Reference Solution are compared under natural light using white background. If the content of a dye is too minute for detection, then not detected colour exist, this test is repeated with an aqueous solution containing 0.05% of the dye. It is acceptable if the minor pigments are detected from the dyes with higher contents.

(2) Diluents (only when Diluents are used.)

(A) Starch (when dye solution is turbid or precipitates are present) : A certain amount of sample is dissolved in 10 times of water, which is allowed to settle down starch. Supernatant is decanted. The residue is re-mixed with water, which is allowed to settle down starch. Supernatant is decanted. This is repeated several times to decolorize the residue. The residue is tested by the following procedures.

① When iodine solution is added to the residue, it becomes dark indigo in color.

② The residue is suspended in an appropriate amount of water, which is acidified with dilute hydrochloric acid and inverted by heating. This solution is neutralized with sodium hydroxide solution. When Fehling reaction is carried out, red precipitates of copper dioxide are generated.

(B) Glucose and Sugar (when dye solution is clear or precipitates are not present) : an appropriate amount of sample is dissolved in 10 times of water, where an appropriate amount of activated carbon is added. It is decolorized by heating and then filtered. The filtrate is tested by the following procedures.

① Glucose : A portion of this filtrate is neutralized and tested by Fehling reaction. If there is glucose present, red precipitates of copper dioxide are generated.

② Sugar : The remaining filtrate is acidified with diluted hydrochloric acid and inverted by heating. This solution is neutralized with sodium hydroxide solution. When Fehling reaction is carried out, red precipitates of copper dioxide are generated under the presence of sugar.

Purity (1) Arsenic : Proceed as directed under in Purity (1) for Mixed Preparations.

(2) Lead : Proceed as directed under in Purity(2) for Mixed Preparations.

6. Baking Powder Preparations

Compositional Specifications of Baking Powder Preparations

Baking Powder, Type 1 Baking powder preparations is baking powder of type 1 containing carbonates or bicarbonates. Ammonium baking powder is excluded.

Description Baking powder preparations is white~grayish white powder or fragile lump.

Purity (1) Nitric Acid Insoluble substances : 5 g of Baking powder preparations is mixed for 3 minutes in 30 ml of water, which is filtered. The insoluble substances are washed thoroughly washed with water. The bottom of filter paper is punctured and the insoluble substances are rinsed with 40 ml of diluted nitric acid into a beaker. It is boiled for 1 minute, cooled, and filtered through a Gooch crucible. The insoluble substances are washed with water until the filtrate is no longer acidic. The insoluble substances (along with the crucible) are dried by heating until the weight becomes constant. The amount of the residues should not be more than 0.1g. (Should not be more than 2%).

(2) pH : When 1 g of Baking powder preparations is mixed in 50 ml of water, which is heated until bubbling stops and cooled, pH of the liquid should be 5.0~8.5.

(3) Arsenic : 2.5 g of Baking powder preparations is mixed with 10 ml of water in a 100 ml flask, which is heated until bubbling stops. It is then neutralized with diluted hydrochloric acid or sodium hydroxide solution. 5 ml of hydrochloric acid is added to the resulting solution, which is heated for 30 minutes in a water bath. After cooling, it is diluted to 25 ml with water. To 5 ml of this solution, 10 ml of sulfurous acid is added and the mixture is concentrated to about 2 ml by evaporation. It is then diluted to 10 ml with water (Test Solution). 5 ml of Test Solution is tested for arsenic and the arsenic content should not be more than 4ppm. However, when the neutralization is done with ammonia water or ammonia solution, pH is adjusted to 2.5~3.5.

(4) Lead : Proceed as directed unde in Purity (2) for Mixed Preparations. Test solution is prepared by purity (2) for 「Sodium Metaphosphate」 .

(5) Amount of Evolving Gas : When the amount of evolving gas is measured, it should not be less than 70 ml.

Baking Powder, Type 2 Baking powder preparations is a baking powder of type 2 containing carbonates or bicarbonates. It should follow the specifications and procedures for Baking Powder, Type 1. However, pH in Purity (2) should be 4.0~8.5.

Ammonium baking powder Baking powder preparations is a baking powder with

ammonia salts as its major components. It is tested by the specifications and procedures for Baking Powder, Type 1. However, pH in Purity (2) should be 6~9. Amount of evolving gas in Purity (5) is measured with water in a leveling bottle instead of diluted sulfuric acid.

7. Mixed preparations

Definition Mixed preparations is a mixture of two or more food additives or a mixture of one or more additives with diluents. However, if an individual component has its own specifications, it is not regulated by the specifications provided in this section.

Compositional Specifications of Mixed preparations

Description There should not be any color, taste, or odor other than mixed additives . It should be convenient for use as powder, crystallite, or liquid.

Purity (1) Arsenic : 25 ml of Test Solution is tested for Arsenic. The content of arsenic should not be more than the sum of individual contents (converted by the mixing ratio of the ingredients).

Color standard is prepared by following the same procedure as Test Solution using the amount of standard solution that corresponds to the specifications. For the additives without arsenic specifications(additives), 4ppm as arsenic, for adjuvants, 1.5ppm (arsenious acid, As_2O_3), and for water, 0.05ppm(arsenious acid, As_2O_3) are used as specifications. The sum of arsenic contents is rounded up at the two decimal points.

Preparation of Test Solution : Should follow the procedure in Method 1. when the sample is carbonized or Method 2. when the sample is not carbonized.

1. 20 ml of water and 30 ml of nitric acid are added to 2 g of Mixed preparation in a 500 ml flask for decomposition, which is then slowly heated and cooled, where 10 ml of sulfuric acid is added. It is again heated (if necessary, adding 2~3 ml of nitric acid at a time) until the solution becomes colorless~pale yellow. After cooling, about 75 ml of water and 25 ml of saturated ammonium oxalate solution are added. This solution is heated until white smoke of sulfuric acid is generated. After cooling, about 50 ml of water is added to the solution, which is then neutralized with ammonia water or ammonia solution. Total volume is adjusted to 100 ml or less by concentrating by evaporation first and then add water to make 100 ml, if necessary.

2. 10 ml of nitric acid is added to 2 g of this additive, which is heated for 15 minutes in a water bath, cooled, add 20 ml of water, and filtered. The residue on filter paper is washed with 20 ml of water, which is added to the filtrate. The filtrate is neutralized with ammonia water or ammonia solution. It is then concentrated below 100 ml. Total volume is brought up to exactly 100 ml with water

(2) Lead : When 5.0 g of Mixed preparations is tested by Atomic Absorption Spectrophotometry or Inductively Coupled Plasma Emission Spectroscopy, the content

of lead should not be more than the sum of individual contents (converted by the mixing ratio of the ingredients). For the additives without lead specifications (additives), 10ppm as lead, for adjuvants, 1.5ppm as lead, and for water, 0.05ppm as lead are used as specifications. The sum of arsenic contents is rounded up at the two decimal points.