

Test Report of the Test Unit.....to specify the name.....
 who is a person carrying out the test on the prototype of the weighing instrument for measuring
 the percentage of starch in a tapioca root (or starch in a cassava tuber)

Type of Length Measurer

Trademark Model..... Version

Table 1 Result of visual inspection of the weighing instrument for measuring the percentage of starch in a tapioca root in a non - self - indicating type (the type of a balance beam)

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
1. Characteristics of the weighing instrument for measuring the percentage of starch in a tapioca root				
1.1	Its characteristics shall be the same as those of a steelyard balance, namely the weighing instrument whereby a fulcrum is very close to one end of a balance beam. The shorter arm of the balance beam hangs a receptacle for the object to be weighed regardless of whether it is a tray or a hook, and the longer arm has scale marks and a counterweight to indicate a weight rate. When to use for weighing, the weighing instrument shall be hung or fixed to other object above the weighing instrument which is not a part of the weighing instrument.			
1.2	A balance beam shall be made of metal or other materials which have already been examined by the Central Bureau to be similarly qualified. And the long side of the balance beam shall be straight.			
1.3	Scale marks in the type of line or notch on a balance beam which has a capacity range starting at 100 kilograms downwards shall be made on one side to be perpendicular to the balance beam.			

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
1.4	There are two balance beams fixed to the base of a weighing instrument in the manner of being difficult to be removed from the instrument.			
1.5	There are two weighing platforms in the manner that water can flow easily. The upper platform is used for weighing a tapioca root in the air. The lower platform is used for weighing the tapioca root in water. Both platforms are hung together in the manner that they cannot be separated.			
1.6	There is a zero setting device on the lower balance beam very close to the head of the beam.			
1.7	As for weighing instrument that has an equivalent device in the manner of using two balance pointers pointing in the same direction, such balance pointers shall have the same thickness. And the distance shall not be more than the thickness of the balance pointer. In the case where the balance pointer has the thickness of less than 1 millimetre, the distance shall not be more than 1 millimetre.			
1.8	As for any weighing instrument that has a device to change or reverse a direction to use, such device shall have the manner that the change or the reverse shall not adversely affect the accuracy of the weighing instrument.			
1.9	As for any weighing instrument that has a removable device, such removal shall not adversely affect the accuracy of the weighing instrument, excepting the weighing instrument that cannot be used to weigh an object at all if any removal of the device is made.			
1.10	As for any weighing instrument that has a device which can improve the accuracy of the weighing instrument, such device shall always be fixed and cannot be easily modified.			
2. A balance beam				

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
2.1	As for the balance beam that uses a sliding weight, every principal scale mark shall indicate a weight rate.			
2.2	Every balance beam shall have a bar to prevent the sliding weight from too much sliding from a scale mark at the value of zero.			
2.3	As for a device fixed at the end of the balance beam to prevent the sliding weight from sliding out of the balance beam, it shall be fixed to the balance beam firmly.			
2.4	The balance beam shall have the manner that upon descending it to the end, the balance beam shall be back to its previous position automatically.			
2.5	Under the normal circumstances, the balance beam shall be in equilibrium and if it swings, both arms of the beam shall swing proportionately.			
3. The lower balance beam				
3.1	It shall be used for finding a weight and a percentage of impurities.			
3.2	The upper side of the balance beam shall have scale marks indicating a weight rate starting at 0 kilogram to 5 kilograms. The distance between two scale marks shall be 3.5 centimetres and indicate each scale mark of 0.5 kilograms.			
3.3	The lower side of the balance beam shall have scale marks indicating a percentage of impurities starting at 0% to 60%. The distance between two scale marks shall be 3.5 millimetres and indicate the percentage of each scale mark of 1. The scale mark that indicates 0% shall match the scale mark that indicates a weight rate of 5 kilograms. And the scale mark that indicates 60% shall match the scale mark that indicates a weight rate of 2 kilograms.			
4. The upper balance beam				

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
4.1	It shall be used for finding a weight of a tapioca root in water and the percentage of starch in a tapioca root.			
4.2	The upper side of the balance beam shall have scale marks indicating a weight rate starting at 0 gram to 750 grams. The distance between two scale marks shall be 1 centimetre and indicate the rate of each scale mark of 10 grams.			
4.3	The lower side of the balance beam shall have scale marks indicating a percentage of starch in a tapioca root starting at 10% to 34%. The distance between two scale marks shall be 1.95 millimetres and indicate the percentage of each scale mark of 0.1. The scale mark that indicates 10% shall match the scale mark that indicates a weight rate of 280 grams. And the scale mark that indicates 30% shall match the scale mark that indicates a weight rate of 670 grams.			
5. A scale mark				
5.1	The scale mark on a balance beam shall be made in the form of either line or notch or both. The line shall have the same and parallel distance. The notch shall be cut evenly. And the notch shall have the same and parallel distance. In the case of having both line and notch, the line shall be in order with the notch to indicate a notch rate clearly and accurately.			
5.2	The scale mark and the distance between two scale marks on the balance beam and on a weight-rate indicator shall be made in a clear, legible and indelible manner.			
6. A knife edge				
6.1	The knife edge shall be fixed to a lever.			
6.2	The knife edge shall be made sharp, solid and fitted in every part that is required to hit with the knife edge.			

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
6.3	A knife-edge receptacle shall be made smooth and solid at least the same as the knife edge.			
6.4	The knife edge and the knife-edge receptacle shall be made in the manner that upon placing an object on a weighing platform equal to half of the maximum capacity range, when the knife edge or the knife-edge receptacle is slid to a proper direction, the accuracy of an instrument shall not be adversely affected.			
6.5	In the case where the weighing instrument has a bar to prevent the knife edge from sliding towards a length path, a part of the bar that is likely to touch the knife edge shall be made smooth and solid at least the same as a knife edge and touch the knife edge least.			
7. A sliding weight				
7.1	As for the sliding weight for using with a balance beam which a scale mark is a notch, there shall be a device clung to a groove in order that the sliding weight shall be at a right position and be clung tightly.			
7.2	As for the sliding weight in a hanging type, a part that touches the balance beam shall be made sharp, solid and shall have the manner that makes the sliding weight swing easily.			
7.3	The sliding weight shall be able to slide conveniently, and shall not make the scale mark and the notch on the balance beam indelible or deteriorate.			
7.4	The sliding weight shall be made in the manner that it cannot be detachable easily. And there shall be no gap on the slide weight.			
7.5	The sliding weight shall be made in the manner that it cannot be removed from the balance beam easily.			

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
7.6	The sliding weight and a hook shall be made in the manner that it remains with a weighing instrument firmly.			
7.7	A rim for indicating a weight rate or a pointer of the weight rate shall be made in a sharp manner. And the rim for indicating the weight rate shall be parallel to a scale mark on a balance beam.			
7.8	If there is a hole for placing an object to make the sliding weight to correspond to a rate, there shall be only one hole. The object as used for accuracy in the sliding weight shall always be placed and closed tightly.			
8. A counterweight				
8.1	Every counterweight that is used with any weighing instrument shall have a mark on the counterweight to show that such weight is used with such instrument. The aforesaid mark shall be indelible. And the aforesaid counterweight also shows that it shall be used for representing what weight.			
8.2	The form of the counterweight shall be made different from that of a general weight.			
8.3	If there is a hole for placing an object to make a counterweight to correspond to a rate, there shall be only one hole. The object as used for accuracy in the counterweight shall always be placed tightly.			

Inspection Result

Pass

Not Pass

Criteria for Consideration : In compliance with the “Notification of the Ministry of Commerce Regarding Prescription of Type and Characteristic of Weighing Instrument, Details of the Material Used for Producing Weighing Instrument, Maximum Permissible Error, Prohibition of Subsequent Verification and Validity of Verification”

Table 2 Result of visual inspection of the weighing instrument for measuring the percentage of starch in a tapioca root in a self - indicating type (a digital type)

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
1	In the case of activating an instrument, an indicating device shall indicate all various symbols which can be indicated.			
2	The maximum capacity range is 5,750 grams, and a scale mark of a weighing instrument does not exceed 10 grams.			
3	It is required to indicate the percentage of starch in a tapioca root starting at 10% to 34%.			
4	There is a weighing platform having a characteristic which water can flow easily.			
5	An indicating device shall indicate a name or symbol of a unit of weighing.			
6	The principal scale marks shall indicate a value of 1×10^k or 2×10^k or 5×10^k whereby k is a positive integer, a negative integer, or zero.			
7	It is required to indicate at least one number at the rightmost position whereby there shall be a decimal point (.) or a comma (,) separated between an integer and the number after the decimal point.			
8	It is required to indicate the number on the left of the decimal point at least one position and indicate the number on the right of the decimal point in every position.			
9	As for the indication of the value of zero, number 0 may be possibly indicated one position on the far right without a point.			
10	If a weighing instrument is able to change a principal scale mark automatically, the point shall be in the same position.			

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
11	An indicating device shall indicate a value exceeding the maximum capacity range but not exceeding 9 times of a verified principal scale mark.			
12	If there is an approximate indicating device a principal scale mark shall be greater than 1 out of 100 of the maximum capacity range and not less than 20 times of the verified principal scale mark.			
13	If there is a printing device, it shall print a value accurately and clearly. The height of alphabets and numbers shall not be less than 2 millimetres. And the printing device shall print the value only when an indicating device is in equilibrium. (The equilibrium shall be considered from the indicating device that shall indicate the stable value or indicate 2 adjacent weight values alternately for a period of more than 5 seconds).			
14	A principal scale mark of a tare device shall be equal to the principal scale mark of a weighing instrument at any weight value.			
15	If the total weight value, a net weight or a tare weight is printed simultaneously more than 1 value, it is required to print in a clear manner that which one is the total weight value, the net weight or the tare weight.			
16. A preset tare device				
16.1	A principal scale mark of the preset tare device shall be equal to the principal scale mark of a weighing instrument. Or alternatively, it shall be automatically adjusted to be equal to the principal scale mark of the weighing instrument.			
16.2	As for the weighing instrument with several weighing ranges, a tare value as set for one weighing range may be transmitted to another weighing range that has the higher			

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
	verified principal scale mark only. And the principal scale mark of the tare device shall be adjusted to be equal to the principal scale mark of the new weighing range.			
16.3	As for the weighing instrument that can change the principal scale mark, the preset tare value shall not be greater than the maximum capacity range of the first sub weighing range (Max_1). And a calculated net weight value shall be able to be adjusted to indicate or print a detailed value to be equal to the principal scale mark of the weighing instrument for the same net weight value.			
16.4	In the case of having already set a tare by the preset tare device, such tare value shall not be able to be adjusted or terminated while the tare device is operating.			
17. Indication of a weight value as weighed in the air and the percentage of impurity				
17.1	A weighing instrument shall indicate a weight rate starting at 0 grams to 5,750 grams and a principal scale mark of the weighing instrument does not exceed 10 grams.			
17.2	The weighing instrument shall indicate the percentage of impurity starting at 0% to 60% by indicating the percentage of impurity at 1 per grade.			
17.3	A scale mark that indicates 0% shall be equal to the scale mark that indicates a weight rate of 5 kilograms.			
17.4	The scale mark that indicates 60% shall be equal to the scale mark that indicates a weight rate of 2 kilograms.			
18. Indication of a weight value of a tapioca root in water and the percentage of starch in a tapioca root				
18.1	A weighing instrument shall indicate a weight rate starting at 0 grams to 750 grams and a principal scale mark of the weighing instrument does not exceed 10 grams.			

No.	Characteristics of Prototype of Weighing Instrument for Measuring Percentage of Starch in Tapioca Root as inspected	Result of Inspection (to mark ✓ or ✗ in the case of inaccuracy, please explain details)		
		Accuracy	Inaccuracy	Details (please specify)
18.2	The weighing instrument shall indicate the percentage of starch in a tapioca root starting at 10% to 34% by indicating the percentage of starch in a tapioca root at 0.1 per grade.			
18.3	A scale mark that indicates 10% shall be equal to the scale mark that indicates a weight rate of 280 grams.			
18.4	The scale mark that indicates 30% shall be equal to the scale mark that indicates a load rate of 670 grams.			
19	It is required to indicate a position of locking and a position of weighing clearly. And it is required to weigh only at the position of weighing.			
20	A weighing instrument shall be made in the manner that a person who is relevant to a weighing can see an indication of a value clearly.			
21	A weighing instrument shall stop operating automatically. Or alternatively, the weighing instrument shall indicate abnormality to a user if the abnormality occurs which affects the correctness of the weighing instrument. And the indication shall be given until the abnormality disappears.			
22	A weighing instrument that can use power from a battery shall be able to operate continuously and accurately. Or alternatively, the instrument shall not indicate a weight value when electric potential difference received from the battery is too low than that which a manufacturer has specified.			
23	If an instrument has a computer system or a peripheral via equipment connecting to an external signal (a port), the computer system or the peripheral shall not adversely affect the result of weighing and data about weighing.			

Inspection Result Pass Not Pass

Criteria for Consideration : In compliance with the “Notification of the Ministry of Commerce Regarding Prescription of Type and Characteristic of Weighing Instrument, Details of the Material Used for Producing Weighing Instrument, Maximum Permissible Error, Prohibition of Subsequent Verification and Validity of Verification”

Table 3 Result of Accuracy Test

Place a Load as Tested (L)	Indication (I)	Error Value (L-I)	Maximum Permissible Error (MPE)
200 grams			5 grams
500 grams			5 grams
1,000 grams			5 grams
2,000 grams			10 grams
3,000 grams			10 grams
4,000 grams			10 grams
5,000 grams			10 grams
5,750 grams			10 grams

Test Result Pass Not Pass

Criteria for Consideration :

- In the case of using a weight rate not exceeding one fifth of the maximum capacity range (Max), the maximum permissible error (MPE) shall be 1/200 of the load as tested.

For Table 3, in conducting the test of the load of 1,000 grams, there will be the maximum permissible error being equal to 5 grams.

- In the case of using a weight rate exceeding one fifth of the maximum capacity range (Max), the maximum permissible error (MPE) shall be 1/500 of the load as tested.

For Table 3, in conducting the test of the load of 5,000 grams, there will be the maximum permissible error being equal to 10 grams.

Remarks :

- L (Load) means a weight rate that is used for testing.

- MPE means the maximum permissible error.

Table 4 Result of Repeatability Test

It is required to weigh in the air by placing a load as tested in the number of 5 times as follows :

Place a Load as Tested (L)	Indication (I)	Error Value (L - I)	Repeatability	Maximum Permissible Error (MPE)
Place a Load as Tested 1,000 grams				
No. 1				5 grams
No. 2				
No. 3				
No. 4				
No. 5				
Place a Load as Tested 5,000 grams				
No. 1				10 grams
No. 2				
No. 3				
No. 4				
No. 5				

Test Result Pass Not Pass

Criteria for Consideration :

- Maximum Error minus Minimum Error \leq Maximum Permissible Error (MPE)

Remark : In the case where a weight rate used for testing is calculated as a decimal number, it shall be rounded to an integer.

Table 5 Result of Creep Test

In the case of the weighing instrument for measuring the percentage of starch in a tapioca root in a self - indicating type (a digital type)

Period of Time for Reading Value		Load as Tested (L)	Indication (I)	Add a Load (ΔL)	(P)	(ΔP)
	0 minute	Max				
	5 minutes					
	15 minutes					
	30 minutes					

	over 4 hours	Max				
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Test Result Pass Not Pass

Criteria for Consideration :

1. during 0 - 30 minutes $\Delta P \leq 0.2 e$ and after 30 minutes $\Delta P \leq 0.5 e$
2. after 4 hours $\Delta P \leq |MPE|$

In the case where the test result is in compliance with the condition specified in clause 1, it shall be deemed to pass the test. If it does not pass, the test shall also be carried out to comply with the condition specified in clause 2.

Remarks :

- ΔL (Additional load to next changeover point) means a weight rate that is increased or decreased (1/10d per time).
- P (Indication prior to rounding) = $I + \frac{1}{2} e - \Delta L$
- ΔP = the difference of P value at various times by comparison with P value at 0 minute.
- MPE means the maximum permissible error.

Table 6 Result of Test on Immunity to Conducted Radio - Frequency Fields

In the case of the weighing instrument for measuring the percentage of starch in a tapioca root in a self - indicating type (a digital type)

Verification scale interval, e :

Rate of sweep : Load :(Min)

Material of load :

Cable/Interface	Frequency range (MHz)	Indication (I)	Result	
			Significant fault (>e) Or detection and reaction	
			No	Yes (remarks)
	Without disturbance			
	Without disturbance			
	Without disturbance			
	Without disturbance			
	Without disturbance			
	Without disturbance			

Test Result Pass Not Pass

Test equipment : IEC 61000 – 4 - 6 [16]

Test set-up : IEC 61000 – 4 - 6 [16]

Test Procedure : IEC 61000 – 4 - 6 [16]

Test severity : Frequency range : 0.15 - 80 MHz

RF amplitude (50 ohms) : 10 V (emf)

Modulation : 80 % AM, 1 kHz, sine wave

Table 7 Result of Accuracy Test on Percentage of Starch

It is required to place a piece of metal used to measure the heaviness of other objects (a weight) of 5 kilograms in place of a tapioca root in the air. Thereafter a test shall be carried out by placing the weight in place of the tapioca root in water as follows :

7.1 Carry out the test by placing a weight in place of a load of a tapioca root in water in the amount of 280 grams

No.	Place a Weight of 5 kilograms in the Air	Place a Weight of 280 grams in Water	Percentage of Starch in Tapioca Root as Indicated
1			
2			
3			
4			
5			

7.2 Carry out the test by placing a weight in place of a load of a tapioca root in water in the amount of 670 grams

No.	Place a Weight of 5 kilograms in the Air	Place a Weight of 670 grams in Water	Percentage of Starch in Tapioca Root as Indicated
1			
2			
3			
4			
5			

Test Result Pass Not Pass

Criteria for Consideration :

1. Upon placing a weight in place of a load of a tapioca root in water in the amount of 280 grams, the weighing instrument shall indicate the percentage of starch in a tapioca root to be equal to 10 percent.
2. Upon placing the weight in place of the load of the tapioca root in water in the amount of 670 grams, the weighing instrument shall indicate the percentage of starch in the tapioca root to be equal to 30 percent.

Table 8 Result of Accuracy Test on Percentage of Impurity

It is required to place a piece of metal used to measure the heaviness of other objects (a weight) of 5 kilograms in place of a tapioca root in the air. Thereafter a test shall be carried out by placing the weight in place of impurities in water as follows :

8.1 Carry out the test by placing a weight in place of impurities in water in the amount of 5 kilograms

No.	Place a Weight of 5 kilograms in the Air	Place a Weight of 5 kilograms in Water	Percentage of Impurities as Indicated
1			
2			
3			
4			
5			

8.2 Carry out the test by placing a weight in place of impurities in water in the amount of 2 kilograms

No.	Place a Weight of 5 kilograms in the Air	Place a Weight of 2 kilograms in Water	Percentage of Impurities as Indicated
1			
2			
3			
4			
5			

Test Result

 Pass Not Pass**Criteria for Consideration :**

1. Upon placing a weight in place of impurities in water in the amount of 5 kilograms, the weighing instrument shall indicate the percentage of the impurities to be equal to 0 percent.

2. Upon placing the weight in place of the impurities in water in the amount of 2 kilograms, the weighing instrument shall indicate the percentage of the impurities to be equal to 60 percent.

Table 9 Summary of Test Result

No.	Checklist of Testing	Test Result	
		Pass	Not Pass
1	Result of visual inspection of the weighing instrument for measuring the percentage of starch in a tapioca root in a non - self - indicating type (the type of a balance beam)		
2	Result of visual inspection of the weighing instrument for measuring the percentage of starch in a tapioca root in a self - indicating type (a digital type)		
3	Result of Accuracy Test		
4	Result of Repeatability Test		
5	Result of Creep Test		
6	Result of Test on Immunity to Conducted Radio - Frequency Fields		
7	Result of Accuracy Test on Percentage of Starch		
8	Result of Accuracy Test on Percentage of Impurity		

I hereby certify that the aforementioned test results are correct and true in all respects.

(Signed).....Tester

(.....)

Position

Date Month B.E.

(Signed).....Authorized person to bind a juristic person

(a juristic person's seal to be stamped (if any)) (.....)

Position.....

Date Month B.E.....