







E-mail: codex@fao.org - www.codexalimentarius.org

GENERAL STANDARD FOR CANNED MIXED FRUITS CXS 361-2020

Adopted in 2020

1. SCOPE

This standard applies to canned mixed fruits in general, as defined in Section 2 and also provides specific provisions for products covered in the annexes. In all cases, this standard covers products offered for direct consumption, including for catering purposes or for repackaging if required. It does not apply to the product when indicated as being intended for further processing. The provisions in the general standard apply to all products unless specified otherwise.

This standard does not cover:

- (1) products which are clearly intended or labelled as intended for special dietary uses;
- (2) reduced sugar products or those with a very low sugar content;
- (3) products where the foodstuffs with sweetening properties have been replaced wholly or partially by food additive sweeteners.

2. DESCRIPTION

2.1 Product definition

Canned mixed fruits are the product:

- (1) prepared from a mixture of whole small fruits and/or small pieces of fruits as defined in Section 2.2 Styles, substantially sound, fresh, frozen or canned, thermally processed, or processed by other physical methods having reached appropriate maturity for processing. None of their essential characteristic elements are removed from them. They undergo operations such as washing, peeling, coring, stemming, grading, cutting, trimming, deseeding, pitting etc. as may be applicable for the respective fruit in normal culinary preparation, depending on the type of product;
- (2) (a) packed with a suitable liquid packing medium including other optional ingredients as indicated in Sections 3.1.2 and 3.1.3; or

(b) vacuum packaged with packing medium that does not exceed 20 percent of the product's net weight and when the container is sealed in such conditions as to generate an internal pressure in accordance with good manufacturing practices;ⁱ and

(3) processed in an appropriate manner, before or after being hermetically sealed in a container, so as to prevent spoilage and to ensure product stability in normal storage conditions at ambient temperature.

2.2 Styles

Style in this standard refers to the nature of the fruit combination in the product e.g. 2 fruits, 3 fruits, tropical fruits, non-tropical fruits, etc. For products covered by the annexes, only styles in the individual annex should be permitted. For products not covered by the annexes, any style is permitted that meets the provisions of this general standard as indicated in Section 2.2.1.

2.2.1 Other styles

For products not covered by the annexes, any presentation of the product is permitted provided that the product:

- (1) is sufficiently distinctive from other forms of presentation laid down in the standard;
- (2) is adequately described on the label to avoid confusing or misleading the consumer.

2.3 Varietal type

For products covered by the annexes, the varietal type defined in the individual annexes may be used. For products not covered by the annexes, any commercially variety or type suitable for canning may be used.

3. ESSENTIAL COMPOSITION AND QUALITY FACTORS

3.1 Composition

3.1.1 Basic ingredients

Fruits as defined in Section 2 and the individual annexes and liquid packing medium appropriate to the product as per Section 3.1.3 below.

ⁱ High vacuum products typically have an internal pressure of approximately 300 millibars or more below atmospheric pressure (depending on container size and other relevant factors).

3.1.2 Optional ingredients

For products covered by the annexes, in accordance with the relevant provisions in the individual annexes. For products not covered by the annexes, optional ingredients for canned mixed fruits may include, but are not limited to;

- (1) spices and culinary herbs,ⁱⁱ spice oil; and
- (2) aloe vera.

3.1.3 Packing media

In accordance with the *Guidelines for packing media for canned fruits* (CXG 51-2003).¹ In addition, clarified pineapple juice is allowed.

The cut-out strength for any syrup packing medium shall be determined on average, but no container may have a soluble solids (°Brix) value beyond the next category of the medium °Brix.

3.2 Quality Criteria

3.2.1 Colour, flavour, odour and texture

Canned mixed fruits shall have normal colour, flavour and odour of canned mixed fruits, corresponding to the type of fruits, packing medium, added optional ingredients used and shall possess texture characteristic of the product.

3.2.2 Proportions of fruits

For products covered by the annexes, in accordance with the relevant provisions in the individual annexes. For products not covered by the annexes, any proportions of fruits for canned mixed fruits other than those specified in the individual annexes should be allowed.

3.2.3 Size and shapes of fruits

For products covered by the Annexes, in accordance with the relevant provisions in the individual Annexes. For products not covered by the Annexes, size and shapes of fruits shall be as appropriate for the product.

3.2.4 Defects and allowances

For products not covered by the annexes, canned mixed fruits should be substantially free from defects. For products covered by the annexes, defects should not be present in amounts greater than the limitations fixed in the individual annexes.

3.3 Classification of "defectives"

A container that fails to meet one or more of the applicable quality requirements, as set out in Section 3.2 (except those based on sample averages), should be considered as a "defective".

3.4 Lot acceptance

A lot should be considered as meeting the applicable quality requirements referred to in Section 3.1.3 and 3.2 when:

- for those requirements which are not based on averages, the number of "defectives", as defined in Section 3.3, does not exceed the acceptance number (c) of the appropriate sampling plan with an acceptance quality limit (AQL) of 6.5; and
- (2) the requirements of Sections 3.1.3 and 3.2, which are based on sample averages, are complied with.

4. FOOD ADDITIVES

For products covered by the annexes, only those food additive classes listed below and in the individual annexes are technologically justified and may be used in products covered by this standard.

For products not covered by the annexes, the food additive classes listed below may be used, and other food additive classes may also be justified based on the characteristics of the fruit used and the overall product.

4.1 Acidity regulators, antioxidants, and firming agents used in accordance with Table 1 and Table 2 of the *General standard for food additives* (CXS 192-1995)² in food category 04.1.2.4 (Canned or bottled (pasteurized) fruit) or listed in Table 3 of the *General standard for food additives* are acceptable for use in foods conforming to this standard.

ⁱⁱ In accordance with the relevant Codex standards for spices and culinary herbs when available.

4.2 Flavourings used in products covered by this standard (i.e., products covered by annexes and products not covered by annexes) should comply with the *Guidelines for the use of flavourings* (CXG 66-2008).³

5. CONTAMINANTS

- **5.1** The products covered by this standard shall comply with the maximum levels of the *General standard for contaminants and toxins in food and feed* (CXS 193-1995).⁴
- **5.2** The products covered by this standard shall comply with the maximum residue limits for pesticides established by the Codex Alimentarius Commission.

6. HYGIENE

- **6.1** It is recommended that the products covered by the provisions of this standard be prepared and handled in accordance with the appropriate sections of the *General principles of food hygiene* (CXC 1-1969),⁵ *Code of hygienic practice for canned fruit and vegetable products* (CXC 2-1969),⁶ and other relevant Codex texts such as codes of hygienic practice and codes of practice.
- **6.2** The products should comply with any microbiological criteria established in accordance with the *Principles and guidelines for the establishment and application of microbiological criteria related to foods* (CXG 21-1997).⁷

7. WEIGHTS AND MEASURES

7.1 Fill of container

7.1.1 Minimum fill

The container should be well filled with the product (including packing medium) which should occupy not less than 90 percent (minus any necessary head space according to good manufacturing practices) of the water capacity of the container. The water capacity of the container is the volume of distilled water at 20 °C which the sealed container will hold when completely filled. This provision does not apply to vacuum packaged fruits.

In case of flexible containers and rigid plastic containers, these should be filled as full as commercially practicable.

7.1.2 Classification of "defectives"

A container that fails to meet the requirement for minimum fill of Section 7.1.1 should be considered as a "defective".

7.1.3 Lot acceptance

A lot should be considered as meeting the requirement of Section 7.1.1 when the number of "defectives", as defined in Section 7.1.2, does not exceed the acceptance number (c) of the appropriate sampling plan with an AQL of 6.5.

7.1.4 *Minimum drained weight*

7.1.4.1 For products covered by the annexes, in accordance with the relevant provisions in the individual annexes. For products not covered by the annexes, the drained weight of the product should be not less than 50 percent, calculated on the basis of the weight of distilled water at 20 °C which the sealed container will hold when completely filled.ⁱⁱⁱ

7.1.4.2 Lot acceptance

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

8. LABELLING

8.1 The products covered by the provisions of this standard shall be labelled in accordance with the *General* standard for the labelling of pre-packaged foods (CXS 1-1985).⁸ In addition, the following specific provisions apply:

8.2 Name of the product

8.2.1 For products covered by the annexes, the names of the canned mixed fruits shall be those defined in the individual annexes. For products not covered by the annexes, specific names of canned mixed fruits should be permitted provided that they are not misleading or confusing to the consumer.

ⁱⁱⁱ For non-metallic rigid containers such as glass jars, the basis for the determination should be calculated on the weight of distilled water at 20 °C which the sealed container will hold when completely filled less 20 ml.

- **8.2.2** For products covered by the annexes, when the fruits are sized, the size (or sizes when sizes are mixed), as defined in the individual annexes, may be declared as part of the name or in close proximity to the name of the product.
- **8.2.3** The name of the product shall include the indication of the packing medium as set out in Section 2.1(2)(a). For canned mixed fruits packaged in accordance with Section 2.1 (2) (b), the words "vacuum packaged" shall be affixed to the commercial designation of the product or in close proximity.
- **8.2.4** For products covered by the annexes, the name of the product shall include indication of the style as set out in Section 2.2.
- **8.2.5** For products not covered by the annexes, if the product is produced in accordance with the other styles provision (Section 2.2.1), the label should contain in close proximity to the name of the product such additional words or phrases that will avoid misleading or confusing the consumer.
- **8.2.6** If an added ingredient, as defined in Section 3.1.2, alters the flavour characteristic of the product, the name of the food shall be accompanied by the term "flavoured with X" or "X flavoured" as appropriate.
- **8.2.7** The name of the product may include the varietal type.

8.3 Labelling of non-retail containers

The labelling of non-retail containers should be in accordance with the *General standard for the labelling of* non-retail containers of foods (CXS 346-2021).⁹

9. METHODS OF ANALYSIS AND SAMPLING

For checking the compliance with this standard, the methods of analysis contained in the *Recommended methods of analysis and sampling* (CXS 234-1999)¹⁰ relevant to the provisions in this standard shall be used.

Sampling plans The appropriate inspection level is selected as follows: Inspection level I - Normal sampling Inspection level II - Disputes (Codex referee purposes sample size), enforcement or need for better lot estimate

SAMPLING PLAN 1 (Inspection level I, AQL = 6.5)

NET WEIGHT IS EQUAL TO OR LESS THAN 1 KG (2.2 LB)			
Lot size (N)	Sample size (n)	Acceptance number (c)	
4 800 or less	6	1	
4 801 – 24 000	13	2	
24 001 – 48 000	21	3	
48 001 - 84 000	29	4	
84 001 – 144 000	38	5	
144 001 – 240 000	48	6	
more than 240 000	60	7	
NET WEIGHT IS GREATE	R THAN 1 KG (2.2 LB) BUT NOT M	IORE THAN 4.5 KG (10 LB)	
Lot size (N)	Sample size (n)	Acceptance number (c)	
2 400 or less	6	1	
2 401 – 15 000	13	2	
15 001 – 24 000	21	3	
24,001-42 000	29	4	
42 001 – 72 000	38	5	
72 001 – 120 000	48	6	
more than 120 000	60	7	
NET W	EIGHT GREATER THAN 4.5 KG	(10 LB)	
Lot size (N)	Sample size (n)	Acceptance number (c)	
600 or less	6	1	
601 – 2 000	13	2	
2 001 – 7 200	21	3	
7 201 – 15 000	29	4	
15 001 – 24 000	38	5	
24 001 - 42 000	48	6	
more than 42 000	60	7	

NET WEIGHT IS EQUAL TO OR LESS THAN 1 KG (2.2 LB)			
Lot size (N)	Sample size (n)	Acceptance number (c)	
4 800 or less	13	2	
4 801 – 24 000	21	3	
24 001 – 48 000	29	4	
48 001 - 84 000	38	5	
84 001 – 144 000	48	6	
144 001 – 240 000	60	7	
more than 240 000	72	8	
NET WEIGHT IS GREATER	THAN 1 KG (2.2 LB) BUT NOT M	IORE THAN 4.5 KG (10 LB)	
2 400 or less	13	2	
2 401 – 15 000	21	3	
15 001 – 24 000	29	4	
24,001-42 000	38	5	
42 001 – 72 000	48	6	
72 001 – 120 000	60	7	
more than 120 000	72	8	
NET WEIGHT GREATER THAN 4.5 KG (10 LB)			
600 or less	13	2	
601 – 2 000	21	3	
2 001 – 7 200	29	4	
7 201 – 15 000	38	5	
15 001 – 24 000	48	6	
24 001 – 42 000	60	7	
more than 42 000	72	8	

SAMPLING PLAN 1 (Inspection level II, AQL = 6.5)

NOTES

¹ FAO and WHO. 2004. *Guidelines for packing media for canned fruits.* Codex Alimentarius Guideline, No. CXG 51-2003. Codex Alimentarius Commission. Rome.

² FAO and WHO. 1995. *General standard for food additives*. Codex Alimentarius Standard, No. CXS 192-1995. Codex Alimentarius Commission. Rome.

³ FAO and WHO. 2008. *Guidelines for the use of flavourings*. Codex Alimentarius Guideline, No. CXG 66-2008. Codex Alimentarius Commission. Rome.

⁴ FAO and WHO. 1995. *General standard for contaminants and toxins in food and feed.* Codex Alimentarius Standard, No. CXS 193-1995. Codex Alimentarius Commission. Rome.

⁵ FAO and WHO. 1969. *General principles of food hygiene*. Codex Alimentarius Code of Practice, No. CXC 1-1969. Codex Alimentarius Commission. Rome.

⁶ FAO and WHO. 1969. *Code of hygienic practice for canned fruit and vegetable products.* Codex Alimentarius Code of Practice, No. CXC 2-1969. Codex Alimentarius Commission. Rome.

⁷ FAO and WHO. 1997. *Principles and Guidelines for the establishment and application of microbiological criteria related to foods*. Codex Alimentarius Guideline, No. CXG 21-1997. Codex Alimentarius Commission. Rome.

⁸ FAO and WHO. 1985. *General standard for the labelling of pre-packaged foods.* Codex Alimentarius Standard, No. CXS 1-1985. Codex Alimentarius Commission. Rome.

⁹ FAO and WHO. 2021. *General standard for the labelling of non-retail containers of foods*. Codex Alimentarius Standard, No. CXS 346-2021. Codex Alimentarius Commission. Rome.

¹⁰ FAO and WHO. 1999. *Recommended methods of analysis and sampling*. Codex Alimentarius Standard, No. CXS 234-1999. Codex Alimentarius Commission. Rome.

CANNED FRUIT COCKTAIL

In addition to the general provisions applicable to canned mixed fruits, the following specific provisions apply:

1. DESCRIPTION

1.1 Product definition

Canned fruit cocktail is the product prepared from a mixture of small fruits and small pieces of fruits as listed under Section 1.3.

1.2 Styles

1.2.1 Five fruits - fruit cocktail

A mixture of the five fruits defined in Section 1.3 of which apples can be substituted for pears.

1.2.2 Four fruits - fruit cocktail

A mixture of four fruits as described in Section 1.3 except that:

- (1) cherries may be omitted; or
- (2) grapes may be omitted.

1.3 Varietal type

The fruits shall be of the following species/varieties, form and characteristics.

Fruit common name	Scientific name	Form	Other characteristics
Apples	Malus domestica	Peeled, cored, diced	Any cultivars of the species mentioned
Cherries	Prunus cerasus L.	Halves or whole, pitted or unpitted	(i) any light, sweet variety;or(ii) artificially coloured red;
			or (iii) artificially coloured red with added flavourings, whether natural or synthetic.
Grapes	Vitis vinifera L. or Vitis labrusca L.	Whole seedless varieties	
Peaches	Prunus persica L.	Peeled, pitted, diced pieces	Firm yellow varieties including clingstone and freestone types but excluding nectarines.
Pears	Pyrus communis L. or Pyrus sinensis L.	Peeled, cored, diced pieces	Any variety of the species mentioned.
Pineapples	Ananas comosus L.	Peeled, cored in sectors, or diced	Any variety of the species mentioned.

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Composition

2.1.1 Basic ingredients

Fruits as defined in Section 1.

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2.1.2 Optional ingredients

Spices and culinary herbs.ⁱ

2.2 Quality criteria

- **2.2.1 Colour**-canned fruit cocktail shall have normal colour except that a slight leaching of colour from the coloured cherries is acceptable and not considered a defect.
- 2.2.2 *Flavour* canned fruit cocktail shall have a normal flavour characteristic for each fruit therein and for the entire mixture and/or flavour characteristic imparted by optional ingredients.
- 2.2.3 *Texture* The fruit ingredients shall not be excessively firm nor excessively soft, as is appropriate for the respective fruit.

2.2.4 Proportions of fruits

The products shall contain fruits in the following proportions, based on the individual drained fruit weights in relation to the total drained weight of all the fruits:

	5 fruits - fruit cocktail	4 fruits - fruit cocktail
Peaches	30% to 50%	30% to 50%
Pears or apples	25% to 45%	25% to 45%
Pineapple	6% to 16%	6% to 25%
		and either
Grapes	6% to 20%	6% to 20%
		or
Cherries	2% to 6%	2% to 15%

2.2.5 Size and shape of fruits

2.2.5.1 Diced peaches, pears/apples, or pineapple

Seventy-five percent or more of all such drained fruits are of approximate cube-shapes which:

- (1) are not over 20 mm in greatest edge dimension; and
- (2) will not pass through square meshes of 8 mm.

2.2.5.2 Sectors of pineapple

Eighty percent or more of all the drained pineapple portion approximate wedge-shapes-of the following dimensions:

(1)	outside arc	- 10 mm to 25 mm; and
(2)	thickness	- 10 mm to 15 mm; and
(3)	radius (from inside to outside arc)	- 20 mm to 40 mm.

2.2.5.3 Whole grapes or cherries

Ninety percent or more by count (based on sample average) of whole grapes, or of whole cherries, approximate normal shape except for proper preparation (such as removing pits or stems) and:

- (1) are not broken into two or more parts; and
- (2) are not seriously crushed, mutilated, or torn.

ⁱ In accordance with the relevant Codex standards for spices and culinary herbs when available.

2.2.5.4 Halved cherries

Eighty percent or more by count (based on sample average) of the cherry units are approximate halves which are not broken into two or more parts.

2.2.6 Definition of defects

- (1) Blemished fruit pieces consisting of pieces of fruit with dark surface areas, spots penetrating the fruit, and other abnormalities.
- (2) Peel considered a defect only when occurring on, or from, those fruits which are peeled.
- (3) Pit material consisting of pieces of pit or of fruit stones and hard and sharp pit points; very small pit fragments of less than 5 mm in greatest dimension which do not have sharp points or edges are disregarded.

2.2.7 Allowances for defects

Canned fruit cocktail shall be substantially free from defects within the limits set forth as follows:

Defects	Maximum limits (based on the weight of drained fruit)
(1) Blemished fruit pieces	20% m/m Total of all fruit units affected
(2) Peel (based on averages)	25 cm ² aggregate area per kg
(3) Pit material (based on averages)	1 piece of any size per 2 kg
(4) Small stems (based on averages) (such as capstems from grapes)	5 per kg
(5) Large stems (based on averages) (such as from peaches, pears, or cherries)	1 large stem, or piece thereof, per kg

3. WEIGHTS AND MEASURES

3.1 Minimum drained weight

The drained weight of the product should be not less than 60 percent of the weight of distilled water at 20 $^{\circ}$ C which the sealed container will hold when completely filled.

4 LABELLING

4.1 Name of the product

The name of the product shall be "fruit cocktail".

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CANNED TROPICAL FRUIT SALAD

In addition to the general provisions applicable to canned mixed fruits, the following specific provisions apply:

1. DESCRIPTION

1.1 Product definition

Canned tropical fruit salad is the product prepared from a mixture of basic fruits as listed under Section 1.3.1 "Basic fruits" to which may be added one or more optional fruits as listed under Section 1.3.2 "Optional fruits".

1.2. Styles

The fruit ingredient shall consist of each of the two fruit groups listed under Section 1.3.1 "Basic fruits" to which may be added any one or more of the tropical fruits listed under Section 1.3.2 "Optional fruits".

1.3 Varietal type

1.3.1 Basic fruits

- (1) Pineapple chunks, tidbits, pieces, dices of the specie of the species Ananas comosus (L.) Merrill.
- (2) Papaya pieces, dices or slices of the species Carica papaya L.

1.3.2 Optional fruits

Any suitable kind of tropical fruits may be used. A non-exhaustive list of optional tropical fruits, their species and forms are defined in the following table

Common name	Scientific name	Form
Banana	cultivated edible species of Musa	Slices or dices
Carambola	Averrhoa carambola L.	Pieces, dices or slices
Cashew	Anacardium occidentale L.	As flesh
Dragon fruit	Hylocereus undatus, Britt. Et. Rose	Chunks, dices
Grapefruit	Citrus reticula MACFAD	Whole or half segments
Grape	Cultivated edible species of Vitis	Whole grapes of any seedless variety
Guava (Guayaba)	Psidum guajava L.	Quarters, chunks or dices or pieces
Jack fruit	Artocarpu integrifolia L.	Slices or chunks
Litchi	Litchi chinensis SONN	Whole or broken segments (and pitted)
Longan	Euphoria longan (LOUR. STEUD.)	Whole or broken segments (and pitted)
Mango	Mangifera indica L.	Slices, dices or sections.
Melon	Cucumis melo L.	Slices, dices or balls
Orange	<i>Citrus sinensis</i> (L.) OSBECK and <i>Citrus reticulate</i> BLANCO (including <i>Mandarin</i>)	Whole segments
Passionfruit	Cultivated edible species of Passiflora	Pulp (flesh) with or without seeds
Pomegranate	Punica granatum	Arils

Common name	Scientific name	Form
Rambutan	Nephelium lappaceum L.	Whole or broken segments (and pitted)
Watermelon	Citrullus lanatus	Slices, dices or balls

2. ESSENTIAL COMPOSITION AND QUALITY FACTORS

2.1 Composition

2.1.1 Basic ingredients

Tropical fruits as defined in Sections 1.3.1 and 1.3.2

2.1.2 Optional ingredients

- (1) Aloe vera
- (2) Nata de coco (coconut jelly/gel)
- (3) Puree of tropical fruits
- (4) Tropical fruit juices
- (5) Spices and culinary herbs,^{*i*}, spice oils.
- (6) Cherries: any variety of the species *Prunus cerasus* L., and which may be:
 - (i) any light, sweet variety;
 - (ii) artificially coloured red; or
 - (iii) artificially coloured red with added flavourings, whether natural or synthetic.

2.2 Quality criteria

2.2.1 Colour, flavour, odour and texture

2.2.1.1 Colour

Canned tropical fruit salad shall have a colour characteristic of the mixed processed fruits, except that a slight bleaching of colour from the coloured cherries or other fruits and fruit juices used as packing medium such as pomegranate or passion fruit is acceptable.

2.2.1.2 Flavour and odour

Canned tropical fruit salad shall have a normal flavour and odour characteristic for the particular blend of fruits.

2.2.1.3 Texture

The texture of the fruit ingredient shall be appropriate for the respective fruit.

2.2.2 Proportion of fruits

Fruits shall be in the following proportions, based on the individual drained fruit weights in relation to the drained weights of all the fruit.

	Minimum	Maximum
Basic fruits		
Pineapple	20%	70%
Papaya	20%	70%
Optional fruits	5%	20%

ⁱ In accordance with the relevant Codex standards for spices and culinary herbs when available.

2.2.3 Definition of defects

- (1) Blemished fruit pieces consisting of pieces of fruit with dark surface areas, spots penetrating the fruit, and other abnormalities.
- (2) Peel considered a defect only when occurring on, or from those fruits which are peeled.

2.2.4 Allowances for defects

Canned tropical fruit salad shall be substantially free from defects within the following prescribed limits:

Defect	Maximum limits
(1) Blemished fruit pieces	2 pieces/100 g of drained fruit
(2) Peel (based on averages)	6.5 cm ² /500 g of total contents
(3) Seeds (other than passionfruit seeds, pomegranate seeds and dragon fruit seeds)	2 g/500 g of total contents
Seed material and extraneous vegetable matter	

3. WEIGHTS AND MEASURES

3.1 Minimum drained weight

The drained weight of the product should not be less than 50 percent of the weight of distilled water at 20 °C which the sealed container will hold when completely filled.

4. LABELLING

4.1 Name of the product

The name of the product shall be "tropical fruit salad" or another name that accurately describes the product and is not misleading or confusing to the consumer.