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03/02

PRELIMINARY FULL ASSESSMENT REPORT AND REGULATION IMPACT ASSESSMENT

PROPOSAL P247

DEFINITION OF CARBOHYDRATE IN STANDARD 1.2.8

EXECUTIVE SUMMARY

The objective of this proposal is to determine the best way for manufacturers to determine carbohydrate values for inclusion in Nutrition Information Panels (NIPs). It aims to provide manufacturers with a definition of carbohydrate that will allow them to provide accurate information to consumers about the carbohydrate content of their food, while retaining flexibility to choose the method of calculating carbohydrate best suited to their food product.

Currently, carbohydrate is defined in both Volume 1 and Volume 2 of the *Food Standards Code* (Volume 1 and Volume 2) and the *New Zealand Food Regulations, 1984* (NZFR) as carbohydrate by difference. Carbohydrate by difference is calculated in Volume 2 by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2).

Applying the definition of carbohydrate by difference relies on the use of proximate composition data (water, ash, fat, protein and fibre) expressed per 100g food. Ideally, the sum of these components should add to 100g. In practice this does not always occur and therefore carbohydrate by difference may sometimes be over- or under-estimated. This in turn means that there can be some anomalies in carbohydrate values for some foods, including negative values and values less than the sugar levels from direct analysis. This issue was reviewed as part of P167, *The Review of Nutrition Labelling*. However, no submissions were received that raised the effect that calculating carbohydrate by difference can have on some foods.

These anomalies have the potential to mislead or confuse consumers because, due to analytical error or the presence of other unanalysed compounds, carbohydrate values reported in the NIP may not be a true representation of the carbohydrate value of the food, and may even be negative values per some foods.

ANZFA therefore proposes to allow manufacturers to calculate carbohydrate under Standard 1.2.8 of Volume 2 as either:

1. carbohydrate by difference, calculated by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash, alcohol, and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2); or
2. available carbohydrate, which is calculated by summing the average quantity of total available sugars and starch, and if quantified, any available oligosaccharides, glycogen and maltodextrin.

In the majority of cases both these methods will give a similar value for average carbohydrate.

As this proposal raises issues of minor significance and complexity only, and omitting to invite public submissions in relation to the proposal will not have a significant adverse effect on the interests of anyone, ANZFA will omit, pursuant to section 36 of the *Australia New Zealand Food Authority Act 1991* to invite public submissions or hold an Inquiry of the proposal.

BACKGROUND AND ISSUE

Currently, carbohydrate is defined in both Volume 1 and Volume 2 and the NZFR as carbohydrate by difference. Carbohydrate by difference is calculated in Volume 2 of Standard 1.2.8 by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2).

Carbohydrate by difference has been used to estimate carbohydrate because analysis of total sugars and starch was unreliable until the introduction of advanced chromatographic techniques. Applying the definition of carbohydrate by difference relies on the use of proximate composition data (water, ash, fat, protein and fibre) expressed per 100g food. Ideally, the sum of these and other known components should add to 100g. However data quality standards routinely accept 97-103 as an acceptable range for these values¹. Because the proximate composition data may not add to 100g, carbohydrate by difference may sometimes be over or under-estimated. This may reflect the presence of other unanalysed components, or the cumulative error of individual analyses. This in turn means that there can be some anomalies in carbohydrate values for some foods. These anomalies are:

1. some foods have a total analysed sugars value that is greater than carbohydrate determined by difference; or
2. some foods have negative carbohydrate by difference values.

These anomalies only occur in a limited number of foods, such as some fish, meat, meat dishes, cheese, milk, eggs and oils. Using data contained in AUSNUT, 1999 it was found that the variation in values between analysed carbohydrate and carbohydrate by difference is only about 1.4%.

When these anomalies are shown in the NIP, they have the potential to mislead or confuse consumers because, due to analytical error or the presence of other unanalysed compounds, carbohydrate values reported in the NIP may not be a true representation of the carbohydrate value of the food. Use of over- or under-estimated carbohydrate values also affects the

¹ D A Southgate and H Greenfield (1992). Food Composition Data, Production, Management and Use. Great Britain, Galliard Printers Ltd, Great Yarmouth

calculation of energy contents as 17kJ/g of energy is allocated to each gram of calculated carbohydrate (Table 1 to subclause 2(2) of Standard 1.2.8).

Due to these problems with carbohydrate by difference, consideration should be given to permitting carbohydrate to be expressed as available carbohydrate which is calculated by summing the average quantity of total available sugars and starch, and if quantified, any available oligosaccharides, glycogen and maltodextrin. This method is a more accurate method of determining carbohydrate and will not result in the anomalies outlined above. It is also a method that is acceptable internationally. This method is used in Australian and New Zealand official national food composition databases.

ANZFA therefore proposes to allow manufacturers to calculate carbohydrate under Standard 1.2.8 of Volume 2 by either:

1. carbohydrate by difference, calculated by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash, alcohol, and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2); or
2. available carbohydrate, which is calculated by summing the average quantity of total available sugars and starch, and if quantified, any available oligosaccharides, glycogen and maltodextrin.

In the majority of cases both these methods will give a similar value for average carbohydrate.

There are a number of products on the market whose NIPs declare carbohydrate values that have been calculated by difference and, as indicated above, in most circumstances carbohydrate by difference represents the carbohydrate value of the food. Therefore, retention of the existing definition of carbohydrate by difference will not disadvantage consumers and offers greater flexibility to industry in selecting the most appropriate method of carbohydrate calculation for their products. The effect of this proposal will be to allow manufacturers to calculate available carbohydrate for those foods where carbohydrate by difference gives anomalous values. This will ensure consumers are provided with accurate information about the carbohydrate value of food.

As a consequence of allowing an alternate definition of carbohydrate, a change to the drafting of subclause 5(6) of Standard 1.2.8 is also needed. This is to ensure consistent panels between manufacturers irrespective of the method used. This amendment ensures that where unavailable carbohydrate (other than dietary fibre) and those substances listed in column 1 of the Table 2 to subclause 2(2) have been added to the food, or in the case of naturally occurring substances listed in the column 1 of the Table 2 to subclause 2(2), where they have been quantified, these are declared in the nutrition information panel.

To comply with the declaration of average energy content in Standard 1.2.8, where there is any unavailable carbohydrate or any of the substances in Table 2 to subclause 2(2), manufacturers are required to include the energy contribution of these food components in their energy calculation. This is because 'food component' refers to any of the substances listed in either Table 1 to subclause 2(2) or Table 2 to subclause 2(2).

In addition, a small amendment has been made to the carbohydrate by difference definition, as alcohol was unintentionally omitted from the drafting in Volume 2 of Standard 1.2.8. 'Alcohol' has accordingly been re-inserted into the definition of carbohydrate by difference.

PROPOSED DRAFTING CHANGES TO STANDARD 1.2.8

(Bold text indicates changes)

The proposed carbohydrate definition now reads:

carbohydrate means –

- (a) carbohydrate by difference, calculated by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash, **alcohol**, and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2); or
- (b) **available carbohydrate, calculated by summing the average quantity of total available sugars and starch, and if quantified, any available oligosaccharides, glycogen and maltodextrins.**

The proposed subclause 5(6) now reads:

- (6) The nutrition information panel must include declarations of unavailable carbohydrate other than dietary fibre, and those substances listed in column 1 of Table 2 to subclause 2(2):
 - (a) where they have been subtracted from the carbohydrate declaration as defined in clause 1, where carbohydrate by difference is used; or
 - (b) **where they have been quantified or added to the food, where available carbohydrate is used.**

OBJECTIVE

The objective of this proposal is to determine the best way for manufacturers to determine carbohydrate values for inclusion in NIPs. It aims to provide manufacturers with a definition of carbohydrate that will allow them to provide accurate information to consumers about the carbohydrate content of their food, while retaining flexibility to choose the method best suited to their food product.

RELEVANT PROVISIONS

Volume 1

Standard A1(13) (a)

‘Carbohydrate’ means carbohydrate by difference, calculated by subtracting the percentages of water, protein, fat and ash, from 100.

New Zealand Food Regulations 1984

2. Interpretation

"Carbohydrate" -

- (a) Means any carbohydrate substance that is capable of being metabolised, and includes glycerol and any other sugar alcohol; and
- (b) May be calculated by subtracting the percentages of water, protein, fat, and ash from 100:

Volume 2

Standard 1.2.8, Clause 1

carbohydrate means carbohydrate by difference, calculated by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash, and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2);

Codex

Codex Guidelines on Nutrition Labelling, Section 3.2.1.2

available carbohydrate (i.e. carbohydrate excluding dietary fibre)

PUBLIC CONSULTATION

As this process is being carried out under section 36 of the *Australia New Zealand Food Authority Act*, 1991, there has been no previous consultation on this issue. However, consultation on the definition of carbohydrate was carried out as part of P167, The Review of Nutrition Labelling. None of the submissions to P167 expressed opposition to defining carbohydrate as carbohydrate by difference or raised the issue that it can produce anomalous data.

OPTIONS

Option 1

Retain the status quo i.e. retain the definition of carbohydrate as defined in Volume 2, Standard 1.2.8 as carbohydrate by difference calculated by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2).

Option 2

Change the definition of carbohydrate in Volume 2, Standard 1.2.8 so that it is defined as either carbohydrate calculated by difference or available carbohydrate.

Option 3

Change the definition of carbohydrate in Volume 2, Standard 1.2.8 so that it is defined as only available carbohydrate.

ASSESSMENT

1. Issues Raised By Public Submissions

As this process is being carried out as a section 36, there has been no previous consultation on this issue. Because the proposal raises issues of minor significance and complexity only, and to omit to invite public submissions in relation to the proposal will not have a significant adverse effect on the interests of anyone, ANZFA will omit, pursuant to section 36, to invite public submissions or hold an Inquiry in relation to the proposal.

2. Regulation Impact Analysis

The Authority develops food regulatory measures for Australia and New Zealand. It is required to consider the impact, including compliance costs to business, of various regulatory (and non-regulatory) options on all sectors of the community, which includes the consumers, food industry and governments in both countries. The regulation impact assessment will identify and evaluate, though not be limited to, the costs and benefits of the regulation, and its health, economic and social impacts. In the course of assessing the regulatory impact, the Authority is guided by the Australian *Guide to Regulation* (Commonwealth of Australia 1997) and *New Zealand Code of Good Regulatory Practice*.

To assist in this process, comment on potential impacts or issues pertaining to these regulatory options, is sought from all interested parties in order to complete the development of the regulation impact statement. Public submissions should clearly identify relevant impact(s) or issues and provide support documentation where possible.

Option 1-Status quo

- **Advantages/benefits**

- *Industry*

- None identified

- *Consumers*

- The carbohydrate value in the NIP is determined by the same method on all products.

- *Government*

- None identified.

- **Disadvantages/costs**

- *Industry*

- There can be situations where the Standard requires the inclusion of anomalous values in the NIP. Efforts by industry to adjust these figures to provide more meaningful information to consumers would then put them in breach of Volume 2.

- *Consumers*

- Consumers may not be given the most accurate and useful information about the carbohydrate value of the food.

- *Government*

- Enforcement of the Standard would be difficult, given that manufacturers may in fact alter anomalous values to make them more meaningful, but they would be breaching Volume 2.

Option 2-add another definition of carbohydrate to the definition of carbohydrate already in Standard 1.2.8 of Volume 2

- **Advantages/benefits**

- *Industry*

- Industry would have the opportunity to provide meaningful carbohydrate information to consumers.

- *Consumers*

- Consumers would be given the most accurate and useful information about carbohydrate values on foods;

- *Government*

- Regulatory and enforcement bodies would be giving industry the opportunity to provide the best available information to consumers.

- **Disadvantages/costs**

- *Industry*

- None identified

- *Consumers*

- There may be instances where carbohydrate values have been calculated differently on similar products, which may make it more difficult to compare products. These anomalies only occur in a limited number of foods, such as fish, meat, meat dishes, cheese, milk, eggs and oils. Using data contained in AUSNUT, 1999, the variation in values between analysed carbohydrate and carbohydrate by difference is only about 1.4%.

- *Government*

- None identified

Option 3-replace the definition of carbohydrate in Standard 1.2.8, Volume 2 with a definition of available carbohydrate.

- **Advantages/benefits**

- *Industry*

- There would only be one available method for carbohydrate calculation, which would remove the need for manufacturers to decide on the most appropriate method for their product.

- *Consumers*

- Carbohydrate values on food will all be calculated by one method and hence comparable between products.

- *Government*

- Carbohydrate values on food will all be calculated by one method and hence comparable between products.

- **Disadvantages/costs**

- *Industry*

- If manufacturers have already changed labels to comply with the Volume 2, they would need to change their labels again because carbohydrate could no longer be calculated by difference.

- *Consumers*

- The cost of products affected by the need to change labels again due to the removal of the ability to calculate carbohydrate by difference could increase.

- *Government*

- None identified

Consideration of the Regulatory Impact for this proposal concludes that Option 2, to include an alternative definition of carbohydrate in addition to the current carbohydrate by difference definition, is the preferred option. Option 1 has the potential to mislead consumers and result in inaccurate carbohydrate values being reported on NIPs. Option 3 is a costly option, as it would require manufacturers who have already prepared their labels to comply with Volume 2 to alter their labels again. Given that in most cases carbohydrate by difference is an accurate representation of the carbohydrate value of the food this is considered unnecessary. Providing an alternative definition of carbohydrate, as suggested in Option 2, is the preferred option.

3. ANZFA Section 10 Objectives

1. The protection of public health and safety

There are no public health and safety issues identified

2. The provision of adequate information relating to food to enable consumers to make informed choices.

Consumers should be given adequate information about the carbohydrate value of the food in order to make an informed choice. Carbohydrate as currently defined has the potential to result in consumers not being provided with adequate information about the carbohydrate value of a limited number of foods, as the carbohydrate value in the NIP may not be a true representation of the carbohydrate value of the food.

3. The prevention of misleading or deceptive conduct

Carbohydrate as currently defined has the potential to mislead consumers because, due to analytical error or the presence of other unanalysed compounds, the carbohydrate value in the NIP may not be a true representation of the carbohydrate value of the food.

The current situation may also encourage manufacturers of those foods with anomalous carbohydrate values to adjust these values to make them more meaningful to consumers, which places them in breach of Volume 2.

CONCLUSIONS

The definition of carbohydrate as it is currently in Standard 1.2.8 of Volume 2 can in some circumstances not be a true representation of the carbohydrate value of the food. In some cases, carbohydrate calculated by difference can give negative carbohydrate values or values of carbohydrate which are lower than sugars (a subset of carbohydrate). To avoid these situations ANZFA proposes that an alternative definition of carbohydrate is included in Standard 1.2.8, which defines carbohydrate as available carbohydrate. This would give manufacturers an alternative method to calculate carbohydrate values by which does not produce anomalous values.

ANZFA does not believe that there is a need to remove the definition of carbohydrate by difference from the standard altogether. In most circumstances, carbohydrate by difference is an accurate representation of the carbohydrate value of the food. Therefore, retention of the existing definition of carbohydrate by difference will not disadvantage consumers and offers greater flexibility to industry in selecting the most appropriate method of carbohydrate

calculation for their products. The cost of requiring manufacturers who have already prepared their labels to comply with Volume 2 to change them again is not justified, given that in most circumstances carbohydrate by difference is an accurate representation of the carbohydrate value of the food

If agreed to, the proposed change to the carbohydrate definition will commence on the date of gazettal.

WORLD TRADE ORGANIZATION (WTO) NOTIFICATION

Australia and New Zealand are members of the WTO and are bound as parties to WTO agreements. In Australia, an agreement developed by the Council of Australian Governments (COAG) requires States and Territories to be bound as parties to those WTO agreements to which the Commonwealth is a signatory. Under the agreement between the Governments of Australia and New Zealand on Uniform Food Standards, ANZFA is required to ensure that food standards are consistent with the obligations of both countries as members of the WTO.

In certain circumstances Australia and New Zealand have an obligation to notify the WTO of changes to food standards to enable other member countries of the WTO to make comment. Notification is required in the case of any new or changed standards which may have a significant trade effect and which depart from the relevant international standard (or where no international standard exists).

Matters relating to public health and safety are notified as a Sanitary or Phytosanitary (SPS) notification, and other matters as a Technical Barrier to Trade (TBT) notification.

This matter does not need to be notified to the WTO as a Sanitary or Phytosanitary notification or a Technical Barriers to Trade (TBT) notification because it does not have a significant trade effect. It is proposed to add an additional definition of carbohydrate, but since manufacturers can still continue to use the previous definition the proposal does not constitute a barrier to trade.

FOOD STANDARDS SETTING IN AUSTRALIA AND NEW ZEALAND

The Governments of Australia and New Zealand entered an Agreement in December 1995 establishing a system for the development of joint food standards. On 24 November 2000, Health Ministers in the Australia New Zealand Food Standards Council (ANZFS) agreed to adopt the new *Australian New Zealand Food Standards Code*. The new Code was gazetted on 20 December 2000 in both Australia and New Zealand as an alternate to existing food regulations until December 2002 when it will become the sole food code for both countries. It aims to reduce the prescription of existing food regulations in both countries and lead to greater industry innovation, competition and trade.

Until the joint *Australia New Zealand Food Standards Code* is finalised the following arrangements for the two countries apply:

- **Food imported into New Zealand other than from Australia** must comply with either Volume 1 (known as *Australian Food Standards Code*) or Volume 2 (known as the joint *Australia New Zealand Food Standards Code*) of the *Australian Food Standards Code*, as gazetted in New Zealand, or the *New Zealand Food Regulations 1984*, but not a combination thereof. However, in all cases maximum residue limits for agricultural and

veterinary chemicals must comply solely with those limits specified in the New Zealand (*Maximum Residue Limits of Agricultural Compounds*) *Mandatory Food Standard 1999*.

- **Food imported into Australia other than from New Zealand** must comply solely with Volume 1 (known as *Australian Food Standards Code*) or Volume 2 (known as the joint *Australia New Zealand Food Standards Code*) of the *Australian Food Standards Code*, but not a combination of the two.
- **Food imported into New Zealand from Australia** must comply with either Volume 1 (known as *Australian Food Standards Code*) or Volume 2 (known as *Australia New Zealand Food Standards Code*) of the *Australian Food Standards Code* as gazetted in New Zealand, but not a combination thereof. Certain foods listed in Standard T1 in Volume 1 may be manufactured in Australia to equivalent provisions in the *New Zealand Food Regulations 1984*.
- **Food imported into Australia from New Zealand** must comply with Volume 1 (known as *Australian Food Standards Code*) or Volume 2 (known as *Australia New Zealand Food Standards Code*) of the *Australian Food Standards Code*, but not a combination of the two. However, under the provisions of the Trans-Tasman Mutual Recognition Arrangement, food may **also** be imported into Australia from New Zealand provided it complies with the *New Zealand Food Regulations 1984*.
- **Food manufactured in Australia and sold in Australia** must comply with Volume 1 (known as *Australian Food Standards Code*) or Volume 2 (known as *Australia New Zealand Food Standards Code*) of the *Australian Food Standards Code* but not a combination of the two. Certain foods listed in Standard T1 in Volume 1 may be manufactured in Australia to equivalent provisions in the *New Zealand Food Regulations 1984*.

In addition to the above, all food sold in New Zealand must comply with the *New Zealand Fair Trading Act 1986* and all food sold in Australia must comply with the *Australian Trade Practices Act 1974*, and the respective Australian State and Territory *Fair Trading Acts*.

Any person or organisation may apply to ANZFA to have the *Food Standards Code* amended. In addition, ANZFA may develop proposals to amend the *Australian Food Standards Code* or to develop joint Australia New Zealand food standards. ANZFA can provide advice on the requirements for applications to amend the *Food Standards Code*.

INVITATION FOR PUBLIC SUBMISSIONS

The Authority has decided, pursuant to section 36 of the *Australia New Zealand Food Authority Act 1991*, to omit to invite public submissions in relation to the proposal prior to making a full assessment. The Authority is satisfied that the proposal raises issues of minor significance and complexity only, and that to omit to invite public submissions prior to making a full assessment will not significantly adversely affect the interests of any person or body.

The Authority has completed a full assessment of the proposal, prepared draft variations to the *Australia New Zealand Food Standards Code* and will now conduct an inquiry to consider the draft variations and its regulatory impact.

Written submissions containing technical or other relevant information which will assist the Authority in undertaking a full assessment on matters relevant to the application, including consideration of its regulatory impact, are invited from interested individuals and organisations. Technical information presented should be in sufficient detail to allow independent scientific assessment.

Submissions providing more general comment and opinion are also invited. The Authority's policy on the management of submissions is available from the Standards Liaison Officer upon request.

The processes of the Authority are open to public scrutiny, and any submissions received will ordinarily be placed on the public register of the Authority and made available for inspection. If you wish any confidential information contained in a submission to remain confidential to the Authority, you should clearly identify the sensitive information and provide justification for treating it in confidence. The *Australia New Zealand Food Authority Act 1991* requires the Authority to treat in confidence trade secrets relating to food and any other information relating to food, the commercial value of which would be or could reasonably be expected to be, destroyed or diminished by disclosure.

All correspondence and submissions on this matter should be addressed to the **Project Manager - Proposal P247** at one of the following addresses:

Australia New Zealand Food Authority
PO Box 7186
Canberra Mail Centre ACT 2610
AUSTRALIA
Tel (02) 6271 2222 Fax (02) 6271 2278

Australia New Zealand Food Authority
PO Box 10559
The Terrace WELLINGTON 6036
NEW ZEALAND
Tel (04) 473 9942 Fax (04) 473 9855

Submissions should be received by the Authority by: **Wednesday 5th September 2001.**

General queries on this matter and other Authority business can be directed to the Standards Liaison Officer at the above address or by Email on <slo@anzfa.gov.au>. Submissions should not be sent by Email as the Authority cannot guarantee receipt. Requests for more general information on the Authority can be directed to the Information Officer at the above address or by Email <info@anzfa.gov.au>.

Attachments to the Report:

1. Draft Variations to the *Food Standards Code*

DRAFT VARIATIONS TO THE *FOOD STANDARDS CODE*

PROPOSAL P247

DEFINITION OF CARBOHYDRATE IN STANDARD 1.2.8

To commence: on gazettal

[1] *Standard 1.2.8 of Volume 2 of the Food Standards Code is varied by -*

[1.1] *omitting the definition of carbohydrate in clause 1, and substituting -*

carbohydrate means –

- (a) carbohydrate by difference, calculated by subtracting from 100, the average quantity expressed as a percentage of water, protein, fat, dietary fibre, ash, alcohol, and if quantified, any other unavailable carbohydrate and the substances listed in column 1 of Table 2 to subclause 2(2); or
- (b) available carbohydrate, calculated by summing the average quantity of total available sugars and starch, and if quantified, any available oligosaccharides, glycogen and maltodextrins.

[1.2] *omitting subclause 5(6) and substituting –*

(6) The nutrition information panel must include declarations of unavailable carbohydrate other than dietary fibre, and those substances listed in column 1 of Table 2 to subclause 2(2):

- (a) where they have been subtracted from the carbohydrate declaration as defined in clause 1, where carbohydrate by difference is used; or
- (b) where they have been quantified or added to the food, where available carbohydrate is used.