TECHNICAL ISSUES ON NUTRITION LABELLING
– ROUNDING RULES –

BACKGROUND

Rounding nutrient values is one of the steps in formulating nutrition labels. It involves the work of translating the results of nutrient analysis (i.e., direct analysis) or data from food composition database (i.e., indirect analysis) to labelling value of nutrients on food labels.   The subject was first discussed in technical meetings back in 2005.   Upon request from member of the trade, the paper is updated for members' information and general reference. Members of the trade are advised to check the latest practice of overseas jurisdictions from time to time.

2.   Currently there is no internationally recognized rounding rules for nutrition information on food labels (i.e., rounding is not specified in the Codex Guidelines on Nutrition Labelling).   However, rounding rules can be found in many nutrition labelling regulations/guidelines worldwide (Annex I).

SETTING ROUNDING RULES

3.   Different rounding rules may be applied on different nutrients and/or different concentrations of the same nutrient. There are three common approaches to round energy and nutrient content values on nutrition labels: -
　　　　i. Rounding by specifying the increment levels;
　　　　ii. Rounding by means of significant figures; and
　　　　iii. Rounding by means of decimal place.

4.   Similar to tolerance limits, rounding rules may affect the compliance limits. Examples below show that the same label value with different compliance limits due to different rounding approaches.

Example 1 (illustrated with a ± **20%** tolerance limit): -

	Label value	Min pre-round	Max pre-round	20% tol.	Compliance limit (pre-round ± 20% tol.)
0.5-g increment	1.5	1.25	1.74	0.30	**0.95; 2.04**
2 Significant figures	1.5	1.46*	1.54	0.3	**1.16; 1.84**
1 Decimal Place	1.5	1.45	1.54	0.30	**1.15; 1.84**

*According to "AS 2706-2003: Numerical values - Rounding and interpretation of limiting values", the value 1.45 would round to 1.4.

Example 2 (illustrated with a ± **20%** tolerance limit): -

	Label value	Min pre-round	Max pre-round	20% tol.	Compliance limit (pre-round ± 20% tol.)
1-g increment	10	9.5	10.4	2.0	**7.5; 12.4**
2 Significant figures	10	9.95	10.4	2.0	**7.95; 12.4**
1 Decimal Place	10.0	9.95	10.04	2.0	**7.95; 12.04**

Rounding Rules for the Nutrition Labelling Scheme in Hong Kong

5.　　　　The issue of rounding rules was first discussed with trade in 2005 in technical meetings, and some participants supported the adoption of the Mainland's rounding rules.　Details of proposed rounding rules were incorporated into the draft Technical Guidance Notes and further discussed during the fifth round of technical meetings with trade in September to November 2007. The Technical Guidance Notes, in draft status, was also discussed in subsequent technical meetings.　Taking the trade's comments into consideration, the rounding rules adopted for the Nutrition Labelling Scheme in Hong Kong mainly make reference to those set by the Mainland.

Centre for Food Safety
Food and Environmental Hygiene Department
June 2008 (revised)

Table 1   Conditions for energy and nutrient values to be declared as zero

	Canada (per serving)	Thailand * (per serving)	USA (per serving)	Japan * (per 100g)	Malaysia (per 100g)	Taiwan (per 100g/ml)	Korea *	Mainland (per 100g)
Energy	< 5 kcal	< 5 kcal	< 5kcal	<5 kcal	--	≤4kcal	<5 kcal	≤ 17 kJ
Protein	--	<0.5g / 1g *	<0.5g	<0.5g	<0.05g	≤0.5g	<0.5g	≤ 0.5 g
Carbohydrates	< 0.5g	<0.5g / 1g*	<0.5g	<0.5g	<0.05g	≤0.5g	<0.5g	≤ 0.5 g
Total fat	< 0.5g	<0.5g	< 0.5g	<0.5g	<0.05g	≤0.5g	<0.5g	≤ 0.5 g
Saturated fat	< 0.2g	<0.5g	< 0.5g	<0.1g	--	≤0.1g	<0.5g	≤ 0.5 g
Trans fat	< 0.2g	--	< 0.5g	--	--	≤0.3g	<0.2g per serving *	--
Sodium	< 5mg	<5mg	<5mg	<5mg	--	≤5mg	<5mg	≤ 5 mg
Cholesterol	< 2mg	<2mg	<2mg	<5mg	--	--	<2mg	≤ 5 mg
Sugars	< 0.5g	<0.5g	<0.5g	<0.5g	<0.05g	≤0.5g	<0.5g	≤ 0.5 g
Dietary Fibre	< 0.5g	<0.5g / 1g*	<0.5g	--	--	--	<0.5g	≤ 0.5g
Calcium	<1% NRV	<2% NRV	<2% NRV	--	--	--	<2% NRV	≤1% NRV
Vitamins	<1% NRV	<2% NRV	<2% NRV	--	--	--	<2% NRV	Vitamin A: ≤1% NRV; Others: ≤2% NRV
Minerals	<1% NRV	<2% NRV	<2% NRV	--	--	--	<2% NRV	≤2% NRV

* To be confirmed or updated

Table 2 Rounding rules for energy and nutrient contents (by means of specified increment levels)

	Canada	Thailand #	USA	Korea	Mainland
Energy	● < 5 kcal : to the nearest multiple of 1 kcal ● ≥ 5 to ≤ 50 kcal : to the nearest multiple of 5kcal ● > 50 kcal : to the nearest multiple of 10 kcal	● ≤ 50 kcal : to the nearest multiple of 5 kcal ● > 50 kcal : to the nearest multiple of 10 kcal	● ≥ 5 to ≤ 50 kcal : to the nearest multiple of 5 kcal ● > 50 kcal : to the nearest multiple of 10 kcal	● ≥ 5 kcal : to the nearest multiple of 5 kcal	● to the nearest multiple of 1 kJ
Protein	● < 0.5 g : to the nearest multiple of 0.1 g ● ≥ 0.5 g : to the nearest multiple of 1 g	● ≤ 1 g : "less than 1 g" ● > 1 g : to the nearest of multiple of 1 g	● < 1 g : "less than 1 g" ● ≥ 1 g : to the nearest multiple of 1 g	● < 1 g : "less than 1 g" ● ≥ 1 g : to the nearest multiple of 1 g	● to the nearest multiple of 0.1g
Carbohydrate	● ≥ 0.5 g : to the nearest multiple of 1 g / 1%	● ≤ 1 g : "less than 1 g" ● > 1 g : to the nearest of multiple of 1 g / 1%	● < 1 g : "less than 1 g" ● ≥ 1 g : to the nearest multiple of 1 g	● < 1 g : "less than 1 g" ● ≥ 1 g : to the nearest multiple of 1 g	● to the nearest multiple of 0.1g
Total fat	● < 0.5 g : to the nearest multiple of 0.1 g / 1% ● ≥ 0.5 g to ≤ 5 g : to the nearest multiple of 0.5 g / 1% ● > 5 g : to the nearest multiple of 1 g / 1%	● < 5 g : to the nearest multiple of 0.5 g / 1% ● ≥ 5 g : to the nearest multiple of 1 g / 1%	● < 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	● ≤ 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	● to the nearest multiple of 0.1g
Saturated fat	● < 0.5 g : to the nearest multiple of 0.1 g ● ≥ 0.5 g to ≤ 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	● < 5 g : to the nearest multiple of 0.5 g / 1% ● ≥ 5 g : to the nearest multiple of 1 g / 1%	● < 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	● ≤ 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	● to the nearest multiple of 0.1g
Trans fat	● < 0.5 g : to the nearest multiple of 0.1 g ● ≥ 0.5 g to ≤ 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	--	● < 5 g : to the nearest multiple of 0.5 g ● > 5 g : to the nearest multiple of 1 g	--	--

	Canada	Thailand #	USA	Korea	Mainland
Sodium	• < 5 mg : to the nearest multiple of 1 mg / 1% • ≥ 5 mg to ≤ 140 mg : to the nearest multiple of 5 mg / 1% • > 140 mg : to the nearest multiple of 10 mg / 1%	• 5-140 mg : to the nearest multiple of 5 mg / 1% • > 140 mg : to the nearest multiple of 10 mg / 1%	• ≥ 5 mg to ≤ 140 mg : to the nearest multiple of 5 mg • > 140 mg : to the nearest multiple of 10 mg	• 5-120 mg : to the nearest multiple of 5 mg • > 120 mg : to the nearest multiple of 10 mg	• to the nearest multiple of 1 mg
Cholesterol	• ≥ 2 mg : to the nearest multiple of 5 mg / 1%	• 2-5 mg : "less than 5 mg" • > 5 mg : to the nearest multiple of 5 mg / 1%	• 2-5 mg: "less than 5mg" • ≥ 5 mg : to the nearest multiple of 5 mg	• ≥ 2 mg to < 5 mg : "less than 5 mg" • ≥ 5 mg : to the nearest multiple of 5 mg	• to the nearest multiple of 1 mg
Sugars	• ≥ 0.5 g : to the nearest multiple of 1 g	• ≤ 1 g : "less than 1 g" • > 1 g : to the nearest multiple of 1 g	• < 1 g : "less than 1 g" • ≥ 1 g : to the nearest multiple of 1 g	• < 1 g : "less than 1 g" • ≥ 1 g : to the nearest multiple of 1 g	• to the nearest multiple of 0.1 g
Dietary fibre	• ≥ 0.5 g : to the nearest multiple of 1 g / 1%	• ≤ 1 g : "less than 1 g" • > 1 g : to the nearest multiple of 1 g / 1%	• < 1 g : "less than 1 g" • ≥ 1 g : to the nearest multiple of 1 g	• < 1 g : "less than 1 g" • ≥ 1 g : to the nearest multiple of 1 g	• to the nearest multiple of 0.1 g
Calcium (% NRV)	• ≥ 1% to < 2% : 2% • ≥ 2% to ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	• < 2%: "less than 2%" • ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	• ≥ 2% to ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	--	• to the nearest multiple of 1%
Vitamins (% NRV)	• ≥ 1% to < 2% : 2% • ≥ 2% to ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	• < 2%: "less than 2%" • ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	• ≥ 2% to ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	--	• to the nearest multiple of 1%

	Canada	Thailand #	USA	Korea	Mainland
Minerals (% NRV)	• ≥ 1% to < 2% : 2% • ≥ 2% to ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	• < 2%: "less than 2%" • ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	• ≥ 2% to ≤ 10% : to the nearest multiple of 2% • > 10% to ≤ 50% : to the nearest multiple of 5% • > 50% : to the nearest multiple of 10%	--	• to the nearest multiple of 1%

Unofficial information