



**JOINT FAO/WHO FOOD STANDARDS PROGRAMME  
CODEX COMMITTEE ON FISH AND FISHERY PRODUCTS**

**Thirty-First Session**

**Tromsø, Norway**

**11 – 16 April 2011**

**PROPOSED DRAFT AMENDMENT TO THE STANDARD FOR QUICK FROZEN FISH STICKS  
(NITROGEN FACTORS)**

**COMMENTS AT STEP 3**

**(Philippines and South Africa)**

**PHILIPPINES**

The Philippines recognizes the efforts undertaken by Thailand and Malaysia in conducting comprehensive studies to establish the nitrogen content for farmed tilapia in their respective countries. However, the proposed value of 2.88 nitrogen factor for tilapia species should not be used for all other tropical species used in the manufacture of fish sticks.

It is therefore recommended that additional studies be carried out to establish nitrogen factors in other tropical species (e.g., Pangasius or dory, milkfish, croakers, carp, bream, etc.) used in the manufacture of fish sticks and to consider the harvest or culture areas (marine, brackish and freshwater) of said fish species also.

**SOUTH AFRICA**

South Africa wishes to congratulate Thailand and Malaysia on this work to get agreement on a single factor for Tilapia. We have found that this work mirrors our own efforts to get a factor for South Atlantic hake, particularly in that whilst there will be a single factor that can be proposed there will be variation around this figure due to variances in fish condition, fishing grounds, culture methods etc.

South Africa has done its own research into a factor for South Atlantic Hake and found that the results mirror those found on tilapia and other species in terms of the range of results.

South Africa as part of a Codex Working Group in 2002 on this topic submitted figures on South Atlantic Hake showing a nitrogen factor range of 2.41 to 3.18. Work carried out during 2010 has shown results of:-

Headed and Guttled South Atlantic Hake-all results are for fresh fish

Average nitrogen factor is 2.63

Range is 2.38-2.86 i.e. +/- 10%

Skin-On Fillets of South Atlantic Hake-mixture of fresh and frozen

Average nitrogen factor is 2.65

Range is 2.45-2.83 i.e. +/- 7%

Skinless Fillets of South Atlantic Hake -mixture of fresh and frozen

Average nitrogen factor is 2.67

Range is 2.35-2.84 i.e. +/-12%

Codex have already proposed a factor of 2.65 for “white fish” and our results show that on average South Atlantic Hake will meet this standard.

However it is clear we cannot guarantee an exact figure of 2.65 for every analysis. The Codex document at this stage simply states a nitrogen factor for a specific species but there is no clear allowance of say a 10% or 20% variation around this figure.

If you look at the latest Thailand/Malaysia report on a Tilapia nitrogen factor you will see that although they propose a factor of 2.88 there is considerable variation around this figure depending on area, culturing systems etc to the extent that **average** figures vary from 2,52 to 2.92.

The Current Codex Fish Fingers and Portions standard states that:-

#### 7.4 ESTIMATION OF FISH CONTENT

According to AOAC Method 996.15. **In cases where there are some remaining doubts over the composition of the fish core** then the method of analysis as outlined below could be used, i.e. as a reference method.

#### Checking of fish content by chemical analysis \*

The percentage fish content, corrected for the non-fish flesh nitrogen contributed by the carbohydrate coating, can be calculated as follows:

$$\% \text{Fish} = \frac{(\% \text{Total N} - \% \text{Non-meat nitrogen}) \times 100}{\text{Appropriate N factor for species}}$$

Where:

$$\begin{aligned} \% \text{Non-meat nitrogen} &= \% \text{Carbohydrate} \times 0.02 \\ \% \text{Carbohydrate} &= 100 - (\% \text{water} + \% \text{fat} + \% \text{protein} + \% \text{ash}) \end{aligned}$$

\* See Annex A of Agenda Item 13 of CX/FFP 02/13 (Discussion paper on declaration of “fish content” in fish sticks-Definition and method of analyses, prepared by the United Kingdom in co-operation with Canada, South Africa and the USA).

<b>Table: Interim Nitrogen factors to be used for white fish as an ingredient (i.e. after GMP) Species</b>	<b>Nitrogen %</b>
<i>White fish:</i>	
Cod	2.66
Minced Cod	2.61
Coley/Saithe	2.69
European Hake	2.64
Haddock	2.72
Ling	2.78
Plaice	2.46
Alaskan Pollack	2.59
Whiting	2.68
<i>White fish mean</i>	2.65

Therefore in cases where there are doubts about the composition of the fish core of a product then a chemical analysis may be carried out and assessed against the nitrogen factor given in the table.

Clearly this analysis will only be carried out when there is a concern that the core may not be 100% fish and the assessment of the validity of this will be based on the actual nitrogen content as opposed to the expected nitrogen content based on the factor in the table.

If the results show that the sample is dramatically outside this figure then this could trigger a check into the validity of product coming from this supplier.

The question is what level outside of this factor should trigger such a response?

Based on the work done in Thailand and Malaysia as well as results from most other countries South Africa would like to propose an allowance of 10% over or under this factor be made before a response is triggered and this would best be added as a note at the bottom of the current table in the Codex document.

South Africa would like to recommend that the factor for South Atlantic Hake is given as 2.65 and at the bottom of the Nitrogen factor Table there is a note stating:-

Nitrogen factors given in the above table are average figures and due to natural factors a variation of +/- **10** % should be allowed for.