

# Seafood nitrogen factors

Analytical Methods Committee AMCTB No 62

The determination of nitrogen as a quantitative marker for seafood fat-free protein, allowing the calculation of seafood content of seafood products, is well established, and is the official chemical enforcement method. It is also widely used by food producers to check the specification and added water of their seafood raw materials. A "nitrogen factor" is the average nitrogen content of seafood tissues, on a fat free basis unless the fat content is low as in white fish. Most seafood is prepared by using wet processes as part of good hygienic practice (GHP). Therefore, in establishing nitrogen factors for seafood, keeping water uptake to a minimum and using good manufacturing practice (GMP) has to be taken into account.

## Introduction

The nitrogen factor is defined as the ratio of the nitrogen content of the dry matter to the protein content of the dry matter, expressed as a percentage. It is calculated as follows:

$$\text{Nitrogen factor} = \frac{\text{Nitrogen content of dry matter} (\%) \times 100}{\text{Protein content of dry matter} (\%)}$$

The nitrogen factor is a constant for a given species of fish or shellfish, and is used to determine the protein content of a sample of dry matter. The nitrogen factor for a given species of fish or shellfish is determined by the following equation:

$$\text{Protein content of dry matter} (\%) = \frac{\text{Nitrogen content of dry matter} (\%) \times 100}{\text{Nitrogen factor}}$$

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## Nitrogen factors for seafood ingredients

The nitrogen factors for various seafood ingredients are given in the following table:

Seafood ingredient	Nitrogen factor
White fish	16.0
Dark fish	15.0
Shellfish	14.0

Scampi (Nephrops norvegicus)

### Scampi (Nephrops norvegicus)

Atlantic cod (Gadus morhua)

## References

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## Pangasius (Pangasius hypophthalmus)

( ... ) ... 13 ... 2012. ... 2.0 /100, ( ... 2. ), ... % ... (2. /100, ( ... 2.0)).

## Determining seafood content by chemical analysis

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$$\% \text{ Fish} = \frac{(\% \text{ total nitrogen} - \% \text{ non-fish nitrogen})}{\text{appropriate } N \text{ factor}} \times 100$$

$$\% \text{ non-fish nitrogen} = \% \text{ carbohydrate} \times 0.02$$

$$\% \text{ carbohydrate} = 100 - (\% \text{ water} + \% \text{ fat} + \% \text{ protein} + \% \text{ ash})$$