

## Quantifying total protein

In most cases food allergens are proteins and a food may comprise of one or more allergenic proteins. For example, egg allergenic proteins have been found in both white and yolk, and egg white is known to contain several different allergenic proteins. People who are allergic to egg white may not be allergic to yolk and vice versa. Similarly, cow's milk contains allergenic proteins in the whey fraction and different allergenic proteins in the casein fraction. Individuals may be allergic to only one milk protein or more.

In the VITAL<sup>®</sup> Program, cross contact allergens must be quantified by their protein concentration expressed in parts per million (ppm). To convert the presence of cross contact allergen to protein concentration, determine the amount of total protein present in the cross contact allergen and then its concentration in the final product.

The protein present in the cross contact allergen can be sourced from information provided by suppliers, nutrition information panels, total protein analysis, food composition tables or other relevant food literature.

### Example. Determining the total protein present in soy and the soy cross contact concentration in chickpea flour

A grower of both chickpeas and soy beans uses shared harvesting and storage equipment for both crops. Due to the similarities in colour and size it is difficult for sorting equipment to fully separate the soybeans from the chickpeas. Quality checks and manual sorting exercises confirm that there are no more than seven soybeans (2.7g) in every 100kg of chickpeas.

The chickpeas are processed into a flour for baked goods (therefore the soy cross contact is in readily dispersible form) and Jack, the flour miller, wishes to quantify the concentration of soy cross contact in the chickpea flour.

As the chickpeas are sourced from the USA, Jack opts to use the online USA food composition tables to source the soy protein content.

Food Composition Table Data Source: USDA National Nutrient Database April 2018	Protein g/100g
Soybeans, mature seeds, raw (16108)	36.49

Jack, confirms that no changes to the ratio of soybeans and chickpeas occur during the milling process, and calculates the concentration of soy protein in the chickpea flour as follows:

There are seven soybeans (2.7g) present in 100kg of chickpeas  
 There is 36.5% protein in dry soybeans  
 There is 0.985g soy protein in 100kg chickpeas  
 Therefore 9.85 ppm of soy protein is present in 100kg of chickpea flour.

This is how Jack records the information in VITAL Online.

## Chickpea flour

Draft

**Ingredient Information**  Allergen Status  Revision History

Legislation  
Australia and New Zealand

Name  
Chickpea flour

Reference Code  
CPF

Assumptions  
Manual sorting and quality checks confirm that no more than 7 soybeans (2.7g) in 100 kg chickpeas are present. Chickpea protein 36.5g/100g USDA food composition tables (see details in ingredient library)

## Soy

Soy and soy products Regulatory exemptions apply - record these in Assumptions.

Allergen Status  
Readily dispersible

Concentration  
9.85 ppm

CANCEL

SAVE

If the chickpeas were not in a readily dispersible form (for example, canned chickpeas in brine), the soy cross contact will be in particulate form and quantification is not necessary. Cross contacts in particulate form are automatically allocated to a labelling outcome of Action Level 2 in the VITAL Program.