

Development of the Chip Group Industry Standards (NZ)

Introduction

The Chip Group includes suppliers for the foodservice industry and the Heart Foundation. It aims to improve to the nutrient profile of New Zealand foodservice hot chips*. The Chip Group industry standards (NZ) have been developed as a result of consultation with the industry via workshops in 2007, 2008 and ongoing engagement with the industry.

This document contains supporting information for the industry standards that is based on current scientific knowledge, workshop discussion notes and other feedback from industry stakeholders.

Supporting information was based on:

- A. Two national surveys of New Zealand fast food outlets conducted in 1998, 2007 (Morley-John et al (2002), Morley-John et al (2005), The AgriChain Centre Report (unpublished))
- B. The AgriChain Centre literature review on deep-frying conducted in 2007 (AgriChain, (unpublished))
- C. Research by Department of Chemistry, University of Auckland (O'Conner et al, 2000)
- D. Evaluation of Heart Foundation best practice training conducted with caterers in the foodservice sector including institutions, workplace canteens, sporting venues, clubs and fast food outlets 2002-2008 (unpublished).

The purpose of these industry standards is to provide voluntary, practical guidelines that are aspirational of best practice.

*In this document fries/chips terminology is used interchangeably.

Background

Chronic Disease in New Zealand

It is estimated that in 1997, 40% (11,000) of all deaths in New Zealand were due to nutrition-related risk factors (Ministry of Health, 2003). These risk factors (such as sub-optimal blood cholesterol, high blood pressure, obesity) accounted for over 85% of heart disease, 70% of stroke, 80% of diabetes and 6% of cancer deaths.

The high intake of fat (total and saturated) and salt increase the risk of these diseases.

No one sector is responsible for the cause or prevention of these diseases. The work to lower the rates of these requires multiple actions by multiple players.

New Zealanders' dietary fat intake

The Ministry of Health recommends adults eat about 60g fat each day.

In the National Nutrition Survey 60% of adults ate more than the recommended level for total fat and only 10% had saturated fat within the accepted levels (Russell et al, 1999). Results for children in 2002 were similar (Parnell et al, 2003). "*Potato and kumara*" were reported to be a key food source of total fat and saturated fat in both NZ adults and children.

New Zealanders eat about 7 million servings of chips per week. An average portion (440g) of hot chips (independent fast food sector) contains about 80% of the amount of fat adults are recommended to eat each day.

In addition to total fat, other components of fried food that affect New Zealanders' health include:

- saturated fat, increases the risk of heart disease
- *trans* fat, such as that from hydrogenated vegetable oils, increases the risk of heart disease
- acrylamide, produced in deep-fried food and baked food, a potential carcinogen in humans

New Zealanders' salt intake

Too much sodium increases blood pressure, which is a major risk factor for heart disease. The main source of sodium in the diet is salt (a mineral that is made up of 40% sodium). New Zealanders eat about 150% more salt than is recommended (Ministry of Health, 2005). About 75% of the salt in our diet is from manufactured and processed food.

Initiatives that may influence the foodservice sector

There is increased recognition that the type of frying oil and the management of frying oils impacts on the fry life of the frying oil and the quality of the fried food.

Developments in many countries aim to set a minimum standard for the quality of frying oil used for frying chips and other foods.

Countries outside Australia and New Zealand have introduced new regulatory measures governing *trans* fat in the food supply. The Australia New Zealand Collaboration on Trans Fats (set up by Food Standards Australia New Zealand) is encouraging change in the type of frying oils used Quick Serve Restaurants.

The World Health Organisation (WHO) has made recommendations for decreasing acrylamide in the food supply (WHO, 2008).

The Australian Division of World Action on Salt and Health (AWASH), a collaboration of health professionals, food industry, government, scientists and consumer organisations has launched a 5 – year salt reduction campaign in Australia. AWASH is urging food and catering industries to reduce the average salt content of foods by 25%. The National Heart Foundation of New Zealand is encouraging the New Zealand food industry to reduce salt in manufactured food through product reformulation (Project HeartSAFE, 2010).

Chip Group Industry Standards

Thick chips are best chips

Literature

- The fat content of hot chips depends on both the thickness and the cut of the chips.
- Thick-cut chips (>12mm) absorb less fat than thin-cut chips.
- The Ministry of Health recommends adults eat about 60g fat each day.

Surveys (2007, 2008)

Results for New Zealand fastfood outlets:

Fat content of chips

Chip Type / Size	Average Total Fat Content g/100g
Straight cut 6-7mm (shoestring)	15.37
Crinkle cut 13mm	12.31
Straight cut 10mm	11.30
Straight cut 13mm	9.99
Wedges	6.56

An average portion of chips contained 48g of fat; this is about 80% of the amount of fat adults are recommended to eat each day.

Industry Standard

Use thick straight cut chips, at least 13 mm

How much is a portion?

Literature

- No portion size guidelines for chips were found in the literature

Surveys

- **1998 Survey**
Average portion size for independent fast food outlets: 326g (range 119 - 749g).
- **2007 Survey**
Average portion size for independent fast food outlets: 437g. This is 33% more than reported in the 1998 survey.

Workshop Discussion

Independent fast food

- If you use a standard portion of 330g you would get 3 portions per 1 kg of chips.
- Providing consistent 330g portions would have financial benefits for operators.
- A standard portion size will give consistency across outlets so consumers will know what they are buying when they order a scoop.

Hospitality

- Portion size and cost equation for restaurants is very different compared with independent fast food outlets. The chip platter is often a side order that is shared among several diners at the table.
- Chefs said they do not want to get to the escalating American-sized portions and said it was appropriate to have a Statement of Intent regarding portion size.

Event catering

- Portion size is more likely to be controlled in event catering.

Industry Standard

A standard scoop of uncooked chips is approximately 330g (approx 3 serves per kg).

In some food service and hospitality situations such as where food is shared, a standard scoop may not be appropriate.

Keep your oil at the right temperature

Literature

- Raising the temperature of the frying oil higher than 185°C causes it to breakdown more rapidly.
- High levels of acrylamide (which has been associated with cancer) have been measured in fried foods. The World Health Organisation recommendation to reduce acrylamide: "Set the temperature of the oil at the start of frying to no more than 175°C and cook to a golden-yellow rather than a golden brown colour (WHO, 2008).
- If the temperature is too low, or if the cook time is too long, a greasy product is produced.

Survey (1998)

- A wide range of frying oil temperatures was recorded: 136 - 233°C
- Just before the basket of chips was put into the fryer, 57% of outlets had frying oil temperatures outside the survey reference range of 175 - 190°C (this temperature range was used to allow for 5°C variation either side of the recommended range which is 175-180°C).
- Temperature differences of greater than 20°C between the fryer temperature setting and the temperature of the frying oil were found in 26% of outlets.

Workshop Discussion

- A digital thermometer should be used to regularly check the actual temperature of the frying oil.
- The majority of independent fast food outlets have older fryers. Newer fryers have better temperature control.
- Cooking time is affected by potato variety and the sugar content (because of seasonal differences).

- The amount of food cooked at one time will influence the frying oil temperature; therefore use 1:6 food:oil ratio to avoid overloading the fryer.
- The 175-180°C range is a realistic goal, taking into account World Health Organisation recommendation and current foodservice practice.

Industry Standard

Cook your chips at a temperature of 175 - 180°C for between 3 – 4 minutes.

Use a digital thermometer to check the accuracy of the oil temperature every week.

Not too much salt

Literature

- A high intake of salt (about half of which is sodium) increases the risk of heart disease and stroke and is one of the most important causes of death in New Zealand.
- New Zealanders eat twice the recommended dietary target for sodium (1600mg sodium/day) and 150% of the recommended upper level of intake (2300mg sodium/day).
- 75% of sodium in our diet comes from salt added to manufactured and foodservice food.
- Worldwide, attention is now focused on ways to reduce salt intake, because of the big impact it has on our health.
- Potatoes are naturally low in sodium
- Salting food next to the fryer can degrade the oil in the fryer.

2007 Survey

- 83% of independent operators added salt to chips without asking the consumer.
- Chips contained an average 188 mg sodium/100g chips (the range was 4 – 790 mg sodium/100g of chips).
- For an average portion of chips (437g), this is equivalent to 820mg sodium and is about half of the amount we are recommended to eat from the total amount of food eaten each day.
- The large range of added salt indicates that chips with less salt are acceptable to customers.

Workshop Discussion

Independent fast food

- Operators could make salt sachets available to the customer, instead of automatically shaking salt on the chips. This was seen as being economically possible. It was felt that it would be simpler and more effective to offer sachets rather than offering shaking salt as an option.

Foodservice

- Some chefs did not agree with the customer salting the food at the table as they thought it is better to salt the chips when they are hot so that the salt adheres to the chips.

Industry Standard

Use salt sparingly if seasoning OR provide salt sachets.

Drain off the excess oil

Literature

- Most of the frying oil absorption into the chips occurs after they are taken out of the fryer.
- Proper draining of the chips after frying is an important technique for reducing their fat content. It can reduce the fat content by about 20%.

Surveys

- In the 1998 survey, adequate drainage of the basket was observed in 62% of independent outlets.

Workshop Discussion

- It was agreed that the standard was sound advice and should become part of normal operating practice.
- One operator reported that the crispness of chips is improved when the basket is hung away from the fryer to drain the frying medium.
- Event caterers reported that the draining time was probably a challenge because of demand on quick turn around, and would require staff training.

Industry Standard

After frying, bang or shake the basket vigorously two times. Hang the basket for at least 20 seconds.

Improve your skills online

- The Chip Group Online Training is based on the Chip Group Industry Standards.
- It is free, flexible and provides a good opportunity for staff training.
- It can be incorporated into organisations' in-house training programmes.

Surveys

- 1998
Most operators received only 'informal, on-the-job' training.
- 2007
There were no specific data collected on training, but the observations and the reported ranges of salt, fat etc make a strong case for training and educational activity related to improving the quality of chips.

Workshop Discussion

- Online training is a great vehicle for delivering the message for consistent frying methods. Although it may not compare to on-the-job training, it is a realistic alternative.

Industry Standard

Adopt best practice frying training for your staff. Go to the Chip Group online training www.thechipgroup.co.nz

Use the good oil

Literature

Eating high amounts of fat (especially saturated fat) is associated with heart disease and stroke.

High trans fat levels (as is found in partially hydrogenated oils) are associated with heart disease.

The level of linolenic acid impacts on the fry life of the frying oil and the quality of the fried food.

There are many things the fastfood operator or chef needs to consider when choosing frying oil for the deep fryer such as:

How well does it fry?

How long does it last before it needs to be discarded?

How much does it cost to buy?

Is it easily available?

How easy is it to handle?

What do consumers like?

Choosing frying oil that is better for customers' health is now also important.

Surveys

The high saturated fat in hot chips sold in independent fast food outlets reflects the high use of tallow-based frying mediums. Shifts in the New Zealand market for deep-frying mediums have occurred in the nine years between national surveys. There has been a move away from tallow-based products, 82% (reported in 1998 survey) to 61% (reported in 2007 survey), with an increase in both canola and palm-based products. However, neither of these vegetable products is recommended by the Chip Group.

Workshop Discussion

- The discussions primarily centered around pricing and supply of oils. It was generally accepted that oil prices influence operator purchasing.
- One possible solution would be the use of blended products. Prices for these would be between the lower prices of tallow and higher prices of new varieties of oils.
- Although not legally required, the level of product information on frying mediums from major suppliers, in many instances, is excellent. However in other instances the labelling is very inadequate with a typical example being a product labelled simply as "vegetable oil" with no nutritional detail or country of origin.
- The criteria for making health claims and nutrient claims (eg "cholesterol free") is currently under review by Food Standards Australia and New Zealand.

Industry Standard

Use a frying oil that meets the Industry Standard:

Saturated fat – maximum 28%

Trans fat – maximum 1%

Linolenic acid – maximum 3%.

Suppliers will tell you which oils meet the Industry Standard. These may include high oleic sunflower oil, high-oleic low-linolenic canola, rice bran oil, cottonseed oil and some blends of various oils.

Oils that meet the Industry Standards [\(Can this be a link to the contact page?\)](#)

Keep oil in good condition

Literature

As well as cooking temperature, there are several factors that affect the quality of the frying oil:

- filtering the frying oil
- cleaning the fryer
- covering the fryer when it is not being used
- discarding the frying oil when it shows signs of degradation

Frying Oil Turnover

- Keeping the fryer topped up with fresh frying oil helps it keep its light colour and fresh flavour. It also helps extend its fry life.

Filtering of Frying Oil

- Filtering the frying oil is very important for increasing its fry life.
- Manual filtering is common in New Zealand but it can be very dangerous to the operator and is not recommended.

Cleaning of Fryer

- Deposits of degraded frying oil (gum) around the fryer are difficult to remove if they are left for long periods.
- Water, soap or detergent remaining after cleaning the fryer will cause the frying oil to breakdown more quickly.

Slack Periods

- Light, air and dust speed up the degradation of the frying oil. If the fryer is not going to be used for extended periods it should be cooled and covered with the fryer lid.

Workshop Discussion

- Filtering the frying oil improves the quality and consistency of the finished product. Topping up regularly with fresh frying oil also helps.
- Different frying oils have different characteristics so the same criteria for discarding don't necessarily apply for all frying oils e.g. as some oils go dark early in their fry life, so the decision to discard them should not be based on colour alone.
- There are some quick tests available to test for degradation of the frying oil.
- Fresh batter mix, crumbs, seasoning, sausages and seafood speed up the damage to the frying oil. So if practical, chips should be cooked separately from other fried foods

Industry Standard

Maintain your oil in good quality

- Keep fryer topped up with fresh oil
- Filter oil each day
- Cool oil and cover fryers when not in use
- Test and discard oil when it shows signs of degradation