



Údarás Sábháilteachta Bia NA hÉIREANN  
Food Safety AUTHORITY OF IRELAND

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# Food Reformulation Task Force: Monitoring Sugar in Processed Foods in 2022



# Food Reformulation Task Force: Monitoring Sugar in Processed Foods in 2022

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## Abbreviations

<b>CRMs</b>	certified reference materials
<b>FRT</b>	Food Reformulation Task Force
<b>FSAI</b>	Food Safety Authority of Ireland
<b>GPAL</b>	Public Analyst's Laboratory, Galway
<b>HPAEC/PAD</b>	high-performance anion-exchange chromatography/pulsed amperometric detection
<b>IQR</b>	Interquartile range
<b>LOQ</b>	limit of quantitation
<b>Min-Max</b>	minimum and maximum values
<b>NCDs</b>	non-communicable diseases
<b>QC</b>	quality control
<b>WHO</b>	World Health Organisation

## Purpose

The purpose of this report is to provide an overview of the results obtained in the Food Reformulation Task Force (FRT) sugar monitoring surveys. These surveys commenced in 2022 and will continue until 2025. This report will be updated annually to reflect the findings of these annual sugar surveys.

## Introduction

The European Food Safety Authority (EFSA) Scientific Opinion on a tolerable upper intake level for dietary sugars concluded that free and added sugar intake contribute to increased risk of obesity and some non-communicable diseases (NCDs) and is also associated with risk factors such as type 2 diabetes, hypertension and high blood cholesterol. Based on this the EFSA recommend free and added sugar intake should be kept as low as possible whilst meeting nutritional needs (EFSA, 2022). The World Health Organisation (WHO) recommend dietary intakes of free sugar should not exceed 10% with a conditional recommendation of 5% (WHO, 2015). According to the WHO, NCDs caused 90% of deaths in the WHO European Region (WHO, 2020), with Ireland ranking ninth out of 53 European countries regarding obesity in adults (WHO, 2022). Rising rates of overweight and obesity amongst the Irish population as well as free sugar intake above the WHO conditional recommendation of 5%, mean there is a need to reduce sugar consumption.

The Department of Health produced a 10-step guide to prevent overweight and obesity in Ireland under The Obesity Policy and Action Plan – A Healthy Weight for Ireland published in 2016 (Department of Health, 2016). Food reformulation is referred to in Step 3; *Secure appropriate support from the commercial sector to play its part in obesity prevention*. In order to achieve this step, a Roadmap for Food Product Reformulation in Ireland was developed by the Obesity Policy Implementation Oversight Group's Food Reformulation Subgroup (Department of Health, 2021). The Food Reformulation Subgroup was a multi-disciplinary team composed of individuals with varied expertise in policy, practice and academia.

To implement the roadmap, the Food Reformulation Task Force (FRT), a strategic partnership between the FSAI and Healthy Ireland at the Department of Health was established. The roadmap sets out that food products and non-alcoholic beverages which are significant contributors to sugar in the Irish diet will reduce their sugar content by 20%. Any reformulation that occurred between 2015 – 2025 will count towards meeting this target.

An analysis of the [Irish national food consumption surveys](#) identified 15 food categories and 5 non-alcoholic beverage categories which are significant contributors to dietary intakes of sugar in those aged 1 - 90 years. These priority food categories and the methodology used to identify them is

outlined in the [Food Reformulation Task Force: Priority Food Categories for Reformulation in Ireland](#) V3 report.

A significant role for the FRT is to monitor food reformulation progress in reducing energy (calories) and target nutrients (salt, saturated fat, and sugar) in forty priority food categories. The Reformulation Task Force 2022 Progress Report summarises the proposed monitoring approach, including food categories for laboratory analysis. The FRT has adapted the sampling and analysis methodology followed in the Salt Reduction Programme, [see report here](#), to monitor the sugar content of foods and non-alcoholic beverages for the duration of the food reformulation roadmap between the years 2022 – 2025.

## Method

### 1. Sample collection

- In July and August 2022, a convenience sample was taken of the food category called ‘Soups, sauces & miscellaneous foods’, (see Table 1)<sup>(1)</sup>.
- Samples were collected from a range of supermarkets and convenience retail stores within the locality of the sampling officers and the Dublin 1 area.
- Samples were prioritised for collection based on the following criteria: if above the ‘low sugar’ nutrition claim<sup>2</sup> and if contained ‘*free sugars*’ and/or ‘*added sugars*’ based on the World Health Organisation<sup>(3)</sup> and European Food Safety Authority’s definitions<sup>(4)</sup>.
- Following collection, samples were labelled with a unique identifier survey code and sample code which corresponded to a populated Excel spreadsheet (that includes the FSAI reference code, sample number and product label information)
- Photographs of all sides of the product label were taken, uploaded, and stored electronically.
- Samples were transported by courier to the Public Analyst’s Laboratory, Galway (GPAL) for sugar analysis.

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<sup>1</sup> Please note that there was no specific randomised approach employed for sampling.

<sup>2</sup> **Low sugar nutrition** claim ‘A claim that a food is low in sugars, and any claim likely to have the same meaning for the consumer, may only be made where the product contains no more than 5 g of sugars per 100 g for solids or 2,5 g of sugars per 100 ml for liquids. (Regulation (EC) No 1924/2006)

<sup>3</sup> WHO definition “**free sugars** all monosaccharides and disaccharides added to foods by the manufacturer, cook or consumer, plus sugars naturally present in honey, syrups and fruit juices” WHO definition - “**Added sugars** include all added sugars such as sucrose, table sugar and/or other sugars in processed foods.” (WHO, 2015)

<sup>4</sup> EFSA definition “**Free sugars** are defined as added sugars plus sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.” EFSA definition “**Added sugars** are defined as mono- and disaccharides added to foods as ingredients during processing or preparation at home, and sugars eaten separately or added to foods at the table.” (EFSA, 2022)



## 2. Sample analysis

- All samples were analysed by GPAL [Irish National Accreditation Board Registration Number: 9T.](#)
- The GPAL used high-performance anion-exchange chromatography/pulsed amperometric detection (HPAEC/PAD) to accurately determine sucrose, galactose, glucose, fructose, lactose and maltose concentrations in food products. This analytical method is an in-house method and is accredited to [ISO17025](#) since November 2019.
- Food samples were mixed or homogenized before analysis. A test portion was extracted with carrez solution. The sample extract was vortexed for ~15s to thoroughly mix the contents and centrifuged at 3000 rpm for 20 min at ambient temperature and filtered. The filtered extract was then analysed using HPAEC/PAD to accurately determine sucrose, galactose, glucose, fructose, lactose and maltose concentrations in the food samples. The method was performed using a Thermo Scientific Dionex ICS 5000+HPIC system using a Dionex CarboPac SA10-4µm (4 × 250 mm) Column with a Dionex CarboPac SA10G-4µm (4 × 50 mm) guard column and a Dionex IonPac NG1 column (4 × 35 mm).
- The limit of quantitation (LOQ) for each sugar based on a 1/11 dilution of the sample extracts was 0.06g/100g.
- The 'Total Sugar' result for each sample was based on the summation of the individual sugars results (in cases where 1 or more of the individual sugars results used in the summation are >LOQ, results below the LOQ of the individual sugars will be set to zero).

### 3. Statistical analysis

- Results were analysed using RStudio v4.3.0.
- Statistical tests (mean, standard deviation (SD), median interquartile range (IQR) and minimum and maximum values (Min-Max)) were employed to assess the sugar content of ‘Soups, sauces & miscellaneous foods’.
- Results per average suggested serving size were calculated following the steps below:
  - retrieve each products suggested serving size.
  - calculate the sugar content (monosaccharides, disaccharides, and total sugar) as per suggested serving size per product.
  - conduct the statistical tests using the suggested serving size values for all sugars.

**Table 1:** Food subcategory and number of products collected and sampled from July 2022 to August 2022

Subcategory	Number of products (n)
Soups	28
Sauces	35
<b>Total</b>	<b>63</b>

## Background: tables 2–5

- A priority food category called soups, sauces & miscellaneous foods was sampled between July 2022 and August 2022 to determine mean and median levels of sugars (monosaccharides, disaccharides, and total sugar) which is shown in Table 2.
- No food products categorised under miscellaneous foods (stocks and gravy granules) were sampled. Sugar results for soups and sauces are displayed in this report.
- Levels of sugars (monosaccharides, disaccharides, and total sugar) in soups and sauces were based on single-product samples.
- The monosaccharides referred to in this report are glucose, fructose, and galactose.
- The disaccharides referred to in this report are lactose, sucrose, and maltose.
- All values are rounded to the nearest two-decimal places. Trace results that were expressed with '<' symbol were divided by two to obtain a decimal number that can be used in the analysis (e.g., analysed laboratory value <0.01 g, the value used in the statistical tests was 0.005 g).
- Due to these conversions, the summation of monosaccharides and disaccharides does not equal the total sugar values.
- Products were categorised based on their label description.
- Results relate to both branded and private label products.
- Results relate to products as consumed (including products which require reconstitution before consumption e.g., dried soups)

## Soups

This section displays the analysed sugar content (monosaccharides, disaccharides, and total sugar) of soups collected in July 2022. Figure 1 provides a summary of the total sugar content of soups. Tables 2 and 3 describe the monosaccharides, disaccharides, and total sugar content of soups per 100 g, and per suggested serving size\*. These tables should be referred to when interpreting Figure 1.



Figure 1: Mean total sugar content of soups per 100 g and per suggested serving size\* with the teaspoon equivalent of total sugar per suggested serving size

\* Each product's total sugar content was individually calculated based on its suggested serving size, and then the average calculated. Products without a suggested serving size were excluded

- The mean total sugar content per 100 g in soups was 3.95 g / 100 g.
- The mean total sugar content for products with information on suggested serving size on soup labels was 9.56 g / per serving size (equivalent to 2.4 teaspoons of sugar).
- Twenty-five per cent of products (n = 7) did not provide information on suggested serving size on the label.
- The average suggested serving size was 230 g.

Table 2. Mean (SD), Median (IQR), Min-Max sugar content (monosaccharides, disaccharides, and total sugar) of soups per 100 g (g / 100 g)

Sugar in soups per 100 g <sup>(a)</sup>	2022						
	Monosaccharides			Disaccharides			Total Sugar
	Glucose	Fructose	Galactose	Lactose	Sucrose	Maltose	
<b>Mean (SD)</b>	1.09 (0.50)	1.12 (0.56)	0.02 (0.01)	0.18 (0.16)	1.50 (0.61)	0.09 (0.21)	3.95 (1.35)
<b>Median (IQR)</b>	1.10 (0.66)	1.16 (0.77)	0.03 (0.01)	0.15 (0.22)	1.46 (0.93)	0.03 (0.00)	3.70 (1.62)
<b>Min-Max<sup>(b)</sup></b>	0.43-2.28	0.26-2.27	0.01-0.03	0.01-0.50	0.73-2.90	0.01-1.09	1.90-7.60
<b>Total samples (n)</b>	28						

(a) Unless otherwise indicated, all samples were analysed as sold. Varieties of soup included: fresh soup packed in plastic pots, ambient soups packed in pouches, canned/tinned soup, and dried instant soup. One of the dried soups was analysed as reconstituted product as per manufacturer’s instructions. Two dried soup samples were analysed as dry product and then based on the manufacturer’s dilution instruction i.e., ~1/11 sugar content in g / 100 ml as prepared was calculated. As density was 1.0 these are reported as g / 100 g. (b) Minimum and maximum values represented as ‘Min-Max’.  
Data provided as mean and standard deviation (SD), median and interquartile range (IQR), and minimum and maximum values (Min-Max)

**Table 3. Mean (SD), Median (IQR), Min-Max sugar content (monosaccharides, disaccharides, and total sugar) of soups per suggested serving size**

Sugar in soups per suggested serving size <sup>(a)</sup>	2022						
	Monosaccharides			Disaccharides			Total Sugar
	Glucose	Fructose	Galactose	Lactose	Sucrose	Maltose	
<b>Mean (SD)</b>	2.70 (1.40)	2.84 (1.57)	0.06 (0.03)	0.43 (0.37)	3.54 (1.62)	0.10 (0.10)	9.56 (3.74)
<b>Median (IQR)</b>	2.45 (1.14)	2.56 (1.52)	0.06 (0.04)	0.41 (0.53)	3.10 (2.28)	0.06 (0.03)	8.60 (3.62)
<b>Min-Max<sup>(b)</sup></b>	0.96-6.12	0.59-6.79	0.01-0.12	0.01-1.18	1.56-7.74	0.04-0.44	3.80-20.29
<b>Total samples (n)</b>	21 <sup>(c)</sup>						

(a) Each product's total sugar content was individually calculated based on its suggested serving size, and then the average calculated. Products without a suggested serving size were excluded. Mean suggested serving size for soups was 230g with a minimum of 190 g and a maximum of 390 g. Unless otherwise indicated, all samples were analysed as sold. Varieties of soup included: Fresh soup packed in plastic pots, ambient soup packed in pouches, canned/tinned soup, and dried instant soup. Values for one of the dried soups was analysed as a reconstituted product as per manufacturer's instructions. Two dried soup samples were analysed as dry product and then based on the manufacturer's dilution instruction i.e., ~1/11 sugar content in g / 100ml as prepared, was calculated. As density was 1.0 these are reported as g / 100 g. (b) Minimum and maximum values represented as 'Min-Max'. (c) Soups (n=21) with a suggested serving size were included. Seven soups were excluded due to no suggested serving size present on the food label. Data provided as mean and standard deviation (SD), median and interquartile range (IQR), and minimum and maximum values (Min-Max).

## Sauces

This section looks at the sugar content (monosaccharides, disaccharides, and total sugar) of sauces<sup>(1)</sup> collected in August 2022. Figure 2 provides a summary of total sugar in sauces. Tables 4 and 5 describe the monosaccharides, disaccharides and total sugar content of sauces per 100 g and per suggested serving size\*. These tables should be referred to when interpreting Figure 2.



Figure 2: Mean total sugar content of sauces per 100 g and per suggested serving size\* with the teaspoon equivalent of total sugar per suggested serving size

<sup>(1)</sup> Sauces included in this sample were cooking sauces and condiments. Varieties of cooking sauces included: sweet & sour, bolognese, curry, and other Asian style sauces. Varieties of condiments included: tomato ketchup, salad cream, mayonnaise, and brown sauce.

\* Each product's total sugar content was individually calculated based on its suggested serving size, and then the average calculated. Products without a suggested serving size were excluded



- The mean total sugar content per 100 g in sauces was 16.83 g / 100 g.
- The mean total sugar content for products per suggested serving size was 10.33 g (equivalent to 2.6 teaspoons of sugar).
- Fourteen per cent (n = 5) of sampled sauces did not provide information on suggested serving size on the label.
- The average serving size of sauces was 71.30 g.

Table 4. Mean (SD), Median (IQR), Min-Max sugar content (monosaccharides, disaccharides, and total sugar) of sauces per 100 g (g /100 g)

Sugars in sauces per 100 g <sup>(a)</sup>	2022						
	Monosaccharides			Disaccharides			Total Sugar
	Glucose	Fructose	Galactose	Lactose	Sucrose	Maltose	
<b>Mean (SD)</b>	4.86 (4.14)	4.77 (3.92)	0.04 (0.01)	0.10 (0.22)	7.06 (4.73)	0.09 (0.25)	16.83 (9.07)
<b>Median (IQR)</b>	3.40 (3.62)	3.40 (3.24)	0.05 (0.02)	0.05 (0.02)	6.80 (7.60)	0.05 (0.02)	15 (13.40)
<b>Min-Max<sup>(b)</sup></b>	0.10-16.70	0.07-16.80	0.01-0.05	0.03-1.20	0.44-15.60	0.01-1.50	1.60-38
<b>Total samples (n)</b>	35						

(a) Sauces included in this sample were cooking sauces and condiments. Varieties of cooking sauces included: sweet & sour, bolognese, curry, and other Asian style sauces. Varieties of condiments included: tomato ketchup, salad cream, mayonnaise, and brown sauce. Unless otherwise indicated, all samples were analysed as sold. One dried sauce was included in this sample. (b) Minimum and maximum values represented as 'Min-Max'.

Data provided as mean and standard deviation (SD), median and interquartile range (IQR), and minimum and maximum values (Min-Max).

**Table 5. Mean (SD), Median (IQR), Min-Max sugar content (monosaccharides, disaccharides and total sugar) of sauces per suggested serving size**

Sugars in sauces per suggested serving size <sup>(a)</sup>	2022						
	Monosaccharides			Disaccharides			Total Sugar
	Glucose	Fructose	Galactose	Lactose	Sucrose	Maltose	
<b>Mean (SD)</b>	2.96 (2.58)	2.93 (2.45)	0.03 (0.02)	0.10 (0.29)	4.25 (3.96)	0.09 (0.31)	10.33 (6.70)
<b>Median (IQR)</b>	2.13 (1.86)	2.24 (1.73)	0.03 (0.03)	0.03 (0.02)	2.90 (4.65)	0.03 (0.03)	8.49 (10.41)
<b>Min-Max<sup>(b)</sup></b>	0.01-10.02	0.01-10.08	0.00-0.06	0.00-1.39	0.20-15.96	0.00-1.69	0.22-24
<b>Total samples (n)</b>	30 <sup>(c)</sup>						

**(a)** Each product's total sugar content was individually calculated based on its suggested serving size, and then the average calculated. Products without a suggested serving size were excluded. Mean suggested serving size for sauces was 71.30 g with a minimum of 14 g and a maximum of 125 g. Sauces included in this sample were cooking sauces and condiments. Varieties of cooking sauces included: sweet & sour, bolognese, curry and other Asian style sauces. Varieties of condiments included: tomato ketchup, salad cream, mayonnaise, and brown sauce. Unless otherwise indicated, all samples were analysed as sold. Values for one of the dried sauces was analysed as per reconstituted product as per manufacturer's instructions. **(b)** Minimum and maximum values represented as 'Min-Max'. **(c)** Sauces (n=30) with serving size recommendations were included. Five sauces were excluded due to no suggested serving size present on the food label. Data provided as mean and standard deviation (SD), median and interquartile range (IQR), and minimum and maximum values (Min-Max).

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## Version history

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