Government of South Australia
Department of Health

Food Colours

A survey of artificial colours in foods and beverages

June 2005

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Background to the survey

The increasingly wide distribution of food in Australia requires a coordinated approach to monitoring for compliance with compositional and safety standards. A national 'Food Surveillance Network' has been established between regulatory agencies in all states and territories in Australia, chaired by Food Standards Australia New Zealand (FSANZ) to improve the cost effectiveness of food surveillance and to promote a consistent approach to regulatory controls.

This survey of food colours is one of several surveys planned to examine foods for compliance with the Australia New Zealand Food Standards Code. A total of 245 products were purchased for analysis. The foods surveyed are manufactured in different states and distributed nationally. In addition to providing a snapshot of compliance with the standard the data obtained from the survey will add to current knowledge of dietary exposure to colours approved for use in Australia and New Zealand.

Standards

The Food Additives Standard (1.3.1) of the Food Standards Code regulates the use of food colours in the production and processing of food. Colours can only be added to specified foods or classes of foods.

Schedule 3 of the Standard lists colours derived from natural sources that may be added in accordance with "good manufacturing practice" (GMP), with no quantity limits set. Schedule 4 of the Standard lists artificial colours that can be added to a limit of 70 mg/kg in beverages and up to 290 mg/kg in other foods. A lower level is set for beverages as they can be consumed in larger quantities than other foods.

In addition Schedule 1 of the Standard lists two artificial colours, Amaranth and Erythrosine which can be added to a limited list of foods in quantities specific to each food. The allowable levels for Amaranth range from 30 to 300 mg/kg and Erythrosine is only permitted in preserved cherries to a limit of 200mg/kg.

Schedule 1 also permits the addition of the vegetable dye Annatto to a limited range of foods and following advice from FSANZ it was proposed to include Annatto in the survey. The Standard specifies that Annatto and Annatto extract is to be calculated as Bixin. Bixin and Norbixin are carotenoids naturally present in Annatto. Laboratories approached prior to the survey were unable to provide a suitable analytical method for the quantification of Bixin and so Annatto was not included in this survey.

Additionally, two Schedule 4 colours, Fast Green FCF (143) and Quinoline Yellow (104) were not included in the survey following laboratory advice that satisfactory reference materials for the identification, confirmation and quantification for these two colours were not available. Neither of these colours was declared on any foods sampled.

Food colours included in the survey

All samples were tested for levels of colours listed below:

TABLE 1

INS Number	Additive name
102	Tartrazine
110	Sunset Yellow
122	Azorubine / Carmoisine
124	Ponceau 4R
129	Allura Red AC
132	Indigotine
133	Brilliant Blue
142	Green S
151	Brilliant Black
155	Brown HT
123	Amaranth
127	Erythrosine

Food categories included in the survey

The survey comprised of a total of 245 samples from 18 food categories that were recommended for inclusion in the survey by FSANZ. Food groups included were confectionery, soft drink, cordial, flavoured milks, yoghurt, ice confection, ice cream, fruit drinks, jelly crystals, cheese, biscuits, cakes, margarines/spreads, frozen oven fries, meat/chicken/vegetable pies, extruded snacks, extruded breakfast cereals, toppings, spirits/liqueurs and jam.

Method

All samples were purchased in South Australia and forwarded to the Australian Government National Measurement Institute (NMI) for analysis. Samples were prepared for consumption in accordance with instructions on food packaging by NMI.

The colours were extracted from homogenised samples with a methanol/water solution and the extract made to known volume. The extract is filtered and the colours converted to their ion-pair form, then isolated from the resulting solution using C18 Sep-Pak cartridges. The purified colour extract is analysed by Micellar Electrokinetic Capillary Chromatography (MECC) using UV detection. Thin Layer Chromatography is applied in conjunction with MECC as a means of confirming the identity of the synthetic colours quantified. A Capillary Electrophoresis (CE) equipped with a photodiode array detector is also used for peak confirmation.

For synthetic colours analysed by MECC the limit of detection is 2 mg/kg, and the limit of reporting is 5 mg/kg.

Results

There were eight samples that did not comply:

TABLE 2

PRODUCT	COLOUR(S)	RESULT (mg/kg)	STANDARD (mg/kg)	NON-CONFORMANCE
Liqueur 1	Sunset Yellow	8		
	Tartrazine	154		Exceeds standard by 105%
	Combined	162	70	
Liqueur 2	Sunset Yellow	56		
	Tartrazine	23		Exceeds standard by 13%
	Combined	79	70	
Flavoured Milk	Sunset Yellow	49		
	Tartrazine	65		Exceeds standard by 63%
	Combined	114	70	
Extruded Snack	Sunset Yellow	279		
	Tartrazine	78		Exceeds standard by 23%
	Combined	357	290	
Jelly Crystals 1	Allura Red	240	290	Azorubine declared instead of Allura Red
Jelly Crystals 2	Azorubine	200	290	Brilliant Blue and Green S declared instead of Azorubine
Topping	Carmoisine	41		
	Sunset Yellow	17		Carmine declared instead of Carmoisine
	Combined	58	290	
Extruded Snack 2	Sunset Yellow	172	290	Tartrazine declared instead of Sunset Yellow

A full list of results is attached at Annex A.

Low level detections

Detections close to the level of reporting (5 mg/kg) were found in a further eight products and investigations have revealed the presence of these colours can be attributable to “carry-over” of colours from another ingredient in the food. Where a coloured ingredient is added to a food and it comprises less than 5% of the food, the colour in the ingredient does not need to be declared if it does not perform a technological function in the food.

Discussion and conclusions

Of the 245 samples 237 (97%) complied with requirements in the Food Standards Code. All non-conformances have been reported to the relevant food authority in the jurisdiction of manufacture for investigation. None of the products were manufactured in South Australia. In all cases advice was received acknowledging an error in the formulation of the product or in the name of the colour on the label and the mistakes have been corrected.

Of the non-conformances the flavoured milk (exceeds standard by 63%) is considered to be the most significant because such foods are widely consumed by children. Liqueur 1 exceeded the standard by a greater amount (105%) however liqueurs are typically consumed in small quantities.

With the jelly crystals and ‘extruded snack 2’, the declared colours were similar shades to the colours that were detected. This suggests changes of product formulation that had not been updated on the labels.

In the case of the topping the word carmoisine was confused with carmine.

Satisfactory assessment methods for the quantification of Annatto and the identification, confirmation and quantification of Fast Green FCF and Quinoline Yellow were unavailable at the time of the survey. Further work is required to resolve this anomaly where there is currently no satisfactory laboratory reference methods to assess compliance. When appropriate methods are in place, these colours should be given priority for inclusion in further survey work.

With less than 5% of samples in the survey being imported foods, the inclusion or targeting of imported foods in any future surveys of food colours will broaden available data on dietary intake and compliance with the Food Standards Code.

The results of the survey demonstrate a high degree of compliance by manufacturers with 97% of products sampled meeting requirements of the Food Standards Code.

Nonetheless, the survey detected four products where levels exceeded those set in the Food Standards Code and four samples where the incorrect colour was declared on the label. This highlights the need for manufacturers to scrutinise their product formulations carefully and ensure that labels are updated when product formulations are changed.

Results by food category - Tables 1 to 18 - Annex A

Table 1 - Fruit drinks

(max 70mg/L)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
TROPICAL FRUIT DRINK		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
PUNCH		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
PEAR, PINEAPPLE, PASSIONFRUIT		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ORANGE & MANGO FRUIT DRINK		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
APPLE BLACKCURRANT FRUIT DRINK		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ORANGE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
APPLE LIME FRUIT DRINK		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
VEGETABLE JUICE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DARK GRAPE JUICE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
BLUE DRINK	133	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**7**
FRUITS DRINK	122, 133	<5	<5	<5	<5	<5	<5	25	<5	<5	<5	<5	<5	**25**
CRANBERRY FRUIT DRINK		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FRUIT DRINK BASE	102, 110	<5	<5	<5	<5	<5	210	<5	<5	<5	530	<5	<5	Concentrate **740/12=61**
FRUIT DRINK BASE	110	<5	<5	<5	<5	<5	420	<5	<5	<5	<5	<5	<5	Concentrate **420/23=18**
APPLE & BLACKCURRANT JUICE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 2 - Ice cream

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
CHOCOLATE ICE CREAM	155, 133	<5	140	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**140**
ICE CREAM	102, 132, 122, 110, 124, 123, 142	50	12	<5	<5	32	23	14	55	16	100	<5	<5	**247**
ICE CREAM	102, 132, 122, 110, 124, 123	<5	<5	<5	<5	26	21	13	15	13	63	<5	<5	**151**
ICE CREAM		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ICE CREAM	102, 132, 122, 110, 124, 123	<5	<5	<5	<5	20	14	20	<5	9	42	<5	<5	**105**
ICE CONFECTION	133, 124, 122	<5	160	<5	<5	<5	<5	<5	<5	9	<5	<5	<5	**169**
ICE CREAM		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ICE CREAM	102, 132, 122, 110, 124, 123	<5	<5	<5	<5	<5	31	25	20	22	97	<5	<5	**195**
ICE CREAM	155, 123, 133, 102	<5	9	<5	<5	<5	<5	<5	8	<5	8	<5	<5	**25**
STRAWBERRY ICE CREAM		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CARAMEL ICE CREAM		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ICE CREAM	102, 133, 155	<5	22	<5	<5	<5	<5	<5	<5	13	<5	<5	<5	**35**
CHOC ICE CREAM	155, 123, 133, 102, 110	<5	9	<5	<5	<5	7	<5	14	<5	<5	<5	<5	**30**
ICE CREAM	102, 133, 110, 122	<5	28	<5	<5	<5	12	9	<5	<5	110	<5	<5	**159**
ICE CREAM	102, 110	<5	<5	<5	<5	<5	11	<5	<5	<5	<5	<5	<5	**11**
ICE CREAM	155, 123, 133, 102, 110	<5	24	<5	<5	<5	30	<5	<5	<5	71	<5	<5	**125**

Table 3 - Cordials

(max 70mg/L)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
CORDIAL- ORANGE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CORDIAL- ORANG AND MANGO	110	<5	<5	<5	<5	<5	4	<5	<5	<5	<5	<5	<5	**4**
CORDIAL- RASPBERRY FLAVOURED	122, 123	<5	<5	<5	<5	<5	<5	<5	14	<5	<5	<5	<5	**14**
CORDIAL- FRUIT CUP	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	<5	<5	**10**
CORDIAL- TROPICAL FLAVOURED	102, 110	<5	<5	<5	<5	<5	11	<5	<5	<5	<5	<5	<5	**11**
CORDIAL- BLACKCURRANT	123, 133	<5	<5	<5	<5	<5	<5	<5	20	<5	<5	<5	<5	**20**
CORDIAL- ORANGE PASSIONFRUIT	102, 110	<5	<5	<5	<5	<5	13	<5	<5	<5	10	<5	<5	**23**
CORDIAL- LIME FLAVOURED	102, 133	<5	20	<5	<5	<5	<5	<5	<5	<5	24	<5	<5	**44**
CORDIAL- RASPBERRY	123	<5	<5	<5	<5	<5	<5	<5	22	<5	<5	<5	<5	**22**
CORDIAL- BLACKCURRANT	123	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	**5**
CORDIAL- ORANGE LEMON CRUSH	102, 110	<5	<5	<5	<5	<5	18	<5	<5	<5	<5	<5	<5	**18**
CORDIAL- ORANGE CRUSH	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CORDIAL- LOW JOULE CITRUS	102, 110	<5	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	<5	**5**
CORDIAL- LOW JOULE RED BERRY	110, 123	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	**7**
CORDIAL- CITRUS	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 4 - Soft drinks

(max 70mg/L)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
SOFT DRINK	102, 122, 110	<5	<5	<5	<5	<5	<5	6	<5	<5	13	<5	<5	**19**
SOFT DRINK- ORANGE & MANGO	110, 123	<5	<5	<5	<5	<5	<5	<5	10	<5	<5	<5	<5	**10**
SOFT DRINK-ORANGE ICE	110	<5	<5	<5	<5	<5	32	<5	<5	<5	<5	<5	<5	**32**
SOFT DRINK	133	<5	10	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**10**
SOFT DRINK TROPICAL FLAVOUR	124, 122	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SOFT DRINK ORANGE FLAVOUR	110	<5	<5	<5	<5	<5	46	<5	<5	<5	<5	<5	<5	**46**
SOFT DRINK LIME FLAVOUR	102	<5	<5	<5	<5	<5	<5	<5	<5	<5	44	<5	<5	**44**
SOFT DRINK	133	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SOFT DRINK ORANGE	110	<5	<5	<5	<5	<5	47	<5	<5	<5	<5	<5	<5	**47**
SOFT DRINK- ORANGE	110	<5	<5	<5	<5	<5	20	<5	<5	<5	<5	<5	<5	**20**
SOFT DRINK BERRY	123	<5	<5	<5	<5	<5	<5	<5	30	<5	<5	<5	<5	**30**
SOFT DRINK- PASSIONFRUIT FLAVOUR	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	9	<5	<5	**9**
SOFT DRINK	110	<5	<5	<5	<5	<5	53	<5	<5	<5	<5	<5	<5	**53**
SOFT DRINK- ORANGE CRUSH	110	<5	<5	<5	<5	<5	54	<5	<5	<5	<5	<5	<5	**54**
SOFT DRINK- MINERAL WATER	102, 133	<5	11	<5	<5	<5	<5	<5	<5	<5	48	<5	<5	

Table 5 - Flavoured milk

(max 70mg/L)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
FLAVOURED MILK- STRAWBERRY	122, 124, 102	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED MILK- STRAWBERRY	110, 122, 124	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	**5**
FLAVOURED MILK- ICED COFFEE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED MILK- SOY MILK CHOCOLATE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED MILK- STRAWBERRY		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED MILK CHOCOLATE	155, 133	<5	21	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**21**
FLAVOURED MILK		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED MILK CHOCOLATE	155	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED MILK CHOCOLATE	133, 155	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHOCOLTE FLAVOURED MILK	133, 155	<5	8	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**8**
CHOCOLATE FLAVOURED MILK	155, 133	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
FLAVOURED SOY MILK- UHT	155, 133 (102 not declared)	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	<5	<5	**10**
FLAVOURED MILK	102, 110 Excess colour	<5	<5	<5	<5	<5	49	<5	<5	<5	65	<5	<5	**114 63%**
CHOCOLATE FLAVOURED SOY MILK	155, 133	<5	7	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 6 - Cheese

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
CHEESE	nil declared	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
VINTAGE CHEESE	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE MOZZARELLA	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE TASTY	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE REDUCED FAT TASTY CHEESE	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEDDAR CHEESE	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE VINTAGE CHEDDAR	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE- EDAM	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE	(124 not declared)	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	<5	**5**
CHEESE CHEDDER	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE VEGETARIAN	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
VINTAGE CHEDDAR CHEESE	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE CHEDDAR- TASTY MATURED	"	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 7 - Confectionery

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
CONFECTIONERY	110, 123	<5	<5	<5	<5	<5	21	<5	<5	<5	<5	<5	<5	**21**
CONFECTIONERY	102, 123, 133	<5	13	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**13**
CONFECTIONERY	102, 110, 122, 133	<5	6	<5	<5	<5	<5	5	<5	<5	<5	<5	<5	**11**
CONFECTIONERY	102, 155	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CONFECTIONERY	122, 133	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CONFECTIONERY	122, 133	<5	42	<5	<5	<5	<5	160	<5	<5	<5	<5	<5	**202**
CONFECTIONERY	102, 110, 133, 129	<5	<5	<5	11	<5	45	<5	<5	<5	<5	<5	<5	**56**
CONFECTIONERY		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CONFECTIONERY	129	<5	<5	<5	9	<5	<5	<5	<5	<5	<5	<5	<5	**9**
CONFECTIONERY	102, 110	<5	<5	<5	<5	<5	8	<5	<5	<5	<5	<5	<5	**8**
CONFECTIONERY		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEWING GUM	132, 151	<5	<5	<5	<5	41	<5	<5	<5	<5	<5	<5	<5	**41**
CONFECTIONERY	110, 133, 129	<5	<5	<5	23	<5	6	<5	<5	<5	<5	<5	13	**42**
TURKISH DELIGHT	110, 124, 102	<5	<5	<5	<5	<5	27	<5	<5	35	<5	<5	<5	**62**
CONFECTIONERY	129, 102, 110, 133, 132	<5	27	<5	160	<5	8	<5	<5	<5	<5	<5	<5	**195**
CONFECTIONERY	133, 132, 129, 102, 110, 120	<5	6	<5	110	<5	<5	<5	<5	<5	<5	<5	<5	**116**

Table 8 - Breakfast cereals

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
BREAKFAST CEREAL	102, 110, 122, 133	<5	34	<5	<5	<5	24	8	<5	<5	31	<5	<5	
BREAKFAST CEREAL	110, 129, 133, 100	<5	7	<5	6	<5	27	<5	<5	<5	<5	<5	<5	
BREAKFAST CEREAL		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
BREAKFAST CEREAL		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
BREAKFAST CEREAL	102, 110, 122, 133	<5	9	<5	<5	<5	12	24	<5	<5	<5	<5	<5	

Table 9 - Biscuits

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
BISCUITS	102, 110 (129 not declared)	<5	<5	<5	25	<5	<5	<5	<5	<5	7	<5	<5	**32**
BISCUITS	110, 155, 102, 123	<5	<5	<5	<5	<5	17	<5	5	<5	17	<5	<5	**39**
BISCUITS	110, 129	<5	<5	<5	52	<5	14	<5	<5	<5	<5	<5	<5	**66**
BISCUITS	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
BISCUITS	110, 129	<5	<5	<5	8	<5	6	<5	<5	<5	<5	<5	<5	**14**
BISCUITS	102, 110, 129	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
BISCUITS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
BISCUITS	102, 110, 129, 133	<5	37	<5	27	<5	32	<5	<5	<5	<5	<5	<5	**96**
BISCUITS	102, 110	<5	<5	<5	<5	<5	8	<5	<5	<5	46	<5	<5	**54**
BISCUITS	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	**5**
BISCUITS	102, 110	<5	<5	<5	<5	<5	33	<5	<5	<5	9	<5	<5	**42**
BISCUITS	102, 110	<5	<5	<5	<5	<5	30	<5	<5	<5	7	<5	<5	**37**
BISCUITS	102, 110, 124, 133	<5	24	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	**31**
BISCUITS	102	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	<5	<5	**6**
BISCUITS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 10 - Jams

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
DARK PLUM JAM	122	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
STRAWBERRY JAM	129, 132	<5	<5	<5	12	14	<5	<5	<5	<5	<5	<5	<5	
DIET APRICOT JAM		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 11 - Meat pies

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
MEAT PIES	110 (102 not declared)	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	<5	<5	**10**
BEEF PIE	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIE	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHICKEN & VEGETABLE PIES	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIE WITH PEAS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SHEPHERDS PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHICKEN & VEGETABLE PIE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIES	110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MEAT PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHICKEN & VEGETABLE PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
STEAK & BACON PIES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 12 - Cakes

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
LEMON MERINGUE PIE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CUP CAKES	102, 110, 122, 123, 124, 133, 151, 155	<5	<5	<5	<5	<5	<5	<5	<5	<5	16	<5	<5	**16**
CINNAMON CAKE	110, 102	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	<5	<5	**5**
TEA CAKE	110, 102	<5	<5	<5	<5	<5	<5	<5	<5	<5	13	<5	<5	**13**
FRUIT CAKE	122, 124, 102	<5	<5	<5	<5	<5	<5	<5	<5	<5	35	<5	<5	**35**
FRUIT CAKE	102	<5	<5	<5	<5	<5	<5	<5	<5	<5	41	<5	<5	**41**
CAKE	129, 133, 110, 102	<5	29	<5	7	<5	21	<5	<5	<5	<5	<5	<5	**57**
CHOCOLATE LAMINGTONS	102, 110 (122 not declared)	<5	<5	<5	<5	<5	89	25	<5	<5	19	<5	<5	**133**
TEA CAKE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ICED LEMON CAKE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
PASSIONFRUIT SQUARES	110, 102	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	<5	<5	**6**
BUTTER FLAVOURED CAKE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
MUD CAKE	102, 110, 133, 122, 129, 155	<5	21	<5	<5	<5	<5	<5	<5	<5	<5	18	<5	**39**
FRUIT CAKE	102	<5	<5	<5	<5	<5	<5	<5	<5	<5	18	<5	<5	**18**
BUTTER SULTANA CAKE	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	10	<5	<5	

Table 13 - Toppings & Sauces

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
TOPPING- CHOCOLATE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
TOPPING- STRAWBERY FLAVOURED	123	<5	<5	<5	<5	<5	<5	<5	170	<5	<5	<5	<5	**170**
TOPPING-CHOCOLATE FLAVOUR	155	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	<5	**11**
TOPPING-STRAWBERRY	110 (122 not declared)	<5	<5	<5	<5	<5	17	41	<5	<5	<5	<5	<5	**58**
TOPPING-DIET CARAMEL	102, 133, 155	<5	<5	<5	<5	<5	<5	<5	<5	<5	49	<5	<5	**49**
TOPPING- CARAMEL	102, 133, 155	<5	<5	<5	<5	<5	<5	<5	<5	<5	28	<5	<5	**28**
TOPPING	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	8	<5	<5	**8**
TOPPING- PASSIONFRUIT	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	24	<5	<5	**24**
TOPPING-CARAMEL FLAVOUR	110, 102	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	<5	<5	**7**
TOPPING- APRICOT & MANGO	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	**7**
TOPPING- COLA LIME FLAVOURED	102, 133	<5	<5	<5	<5	<5	<5	<5	<5	<5	51	<5	<5	
TOPPING-CHOCOLATE	155	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	6	<5	
TOPPING- STRAWBERRY	110	<5	<5	<5	<5	<5	16	<5	<5	<5	<5	<5	<5	
TOPPING- CARAMEL	102, 124	<5	<5	<5	<5	<5	<5	<5	<5	<5	11	<5	<5	
TOPPING- STRAWBERRY	123	<5	<5	<5	<5	<5	<5	<5	18	<5	<5	<5	<5	

Table 14 - Snackfoods

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
CORN CHIPS	110, 129	<5	<5	<5	<5	<5	11	<5	<5	<5	<5	<5	<5	**11**
CHEESE SNACKS	102 110	<5	<5	<5	<5	<5	172	<5	<5	<5	64	<5	<5	**236**
CHEESE SNACKS	110, 102 Excess colour	<5	<5	<5	<5	<5	279	<5	<5	<5	78	<5	<5	**357 23%**
CORN CHIPS	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
POTATO CHIPS	129, 110, 133, 132	<5	<5	<5	6	<5	<5	<5	<5	<5	<5	<5	<5	**6**
POTATO CHIPS	129, 102, 132, 110 133	<5	6	<5	21	<5	<5	<5	<5	<5	<5	<5	<5	**27**
CHICKEN CHIPS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
RICE CRISPS	102, 110	<5	<5	<5	<5	<5	20	<5	<5	<5	<5	<5	<5	**20**
CHEESE TWISTS	102, 110	<5	<5	<5	<5	<5	85	<5	<5	<5	118	<5	<5	**203**
CHEESE SNACKS	102, 110	<5	<5	<5	<5	<5	17	<5	<5	<5	<5	<5	<5	**17**
RICE CRACKERS	102, 133, 110, 122	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHEESE RINGS	102, 110	<5	<5	<5	<5	<5	25	<5	<5	<5	<5	<5	<5	**25**
CHEESE AND BACON SNACK	102, 110	<5	<5	<5	<5	<5	22	<5	<5	<5	8	<5	<5	**30**
CHEESE SNACKS	102, 110, 155	<5	<5	<5	<5	<5	22	<5	<5	<5	9	<5	<5	**31**
CORN CHIPS	102, 110, 133, 129	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
POTATO CHIPS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CUT POTATO CHIPS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CHIPS		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
WEDGES		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 15 - Alcoholic beverages (colours not required to be declared)

(max 70mg/L)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
VODKA LIME AND SODA	102, 133, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
VODKA ORANGE DRINK	110	<5	<5	<5	<5	<5	36	<5	<5	<5	<5	<5	<5	**36**
LIQUEUR	nil stated 102 not stated	<5	<5	<5	<5	<5	<5	<5	<5	<5	68	<5	<5	**68**
ORANGE LIQUEURS	102, 110, 123 Excess colour	<5	<5	<5	<5	<5	56	<5	6	<5	23	<5	<5	**79 12%**
BLUE LIQUEURS	133	<5	28	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**28**
CASSIS LIQUEURS	102, 123, 132	<5	<5	<5	<5	<5	<5	<5	7	<5	<5	<5	<5	**7**
LIQUEURS	110, 102	<5	<5	<5	<5	<5	10	<5	<5	<5	28	<5	<5	**38**
CHOCOLATE LIQUEUR	155, 133 not stated	<5	5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**5**
LIME LIQUEUR	133, 102	<5	6	<5	<5	<5	<5	<5	<5	<5	48	<5	<5	**54**
BANANA LIQUEUR	102, 110 Excess colour	<5	<5	<5	<5	<5	8	<5	<5	<5	154	<5	<5	**162 131%**
CARAMEL LIQUEUR	155	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
STRAWBERRY LIQUEUR	122, 123, 124	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
COFFEE LIQUEUR	nil stated	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
RASPBERRY VODKA	nil stated 122 not stated	<5	<5	<5	<5	<5	<5	23	<5	<5	<5	<5	<5	**23**
PEAR LIQUEUR	nil stated 110 & 102 not stated	<5	<5	<5	<5	<5	6	<5	<5	<5	17	<5	<5	**23**

Table 16 - Jelly

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
ORANGE FLAVOURED JELLY	110	<5	<5	<5	<5	<5	140	<5	<5	<5	<5	<5	<5	**140**
JELLY RASPBERRY- DIET	123	<5	<5	<5	<5	<5	<5	<5	1000	<5	<5	<5	<5	Concentrate **1000/50=20**
TROPICAL JELLY	102, 110	<5	<5	<5	<5	<5	10	<5	<5	<5	17	<5	<5	**27**
MANGO JELLY	102, 110	<5	<5	<5	<5	<5	5	<5	<5	<5	9	<5	<5	**14**
ROCKMELLON JELLY	110	<5	<5	<5	<5	<5	1000	<5	<5	<5	<5	<5	<5	Concentrate **1000/50=20**
BLACKBERRY JELLY	122, 151	<5	<5	<5	<5	<5	<5	14	<5	<5	<5	<5	<5	**14**
BERRY JELLY	124, 151	<5	<5	<5	<5	<5	<5	<5	<5	30	<5	<5	<5	**30**
PORT WINE JELLY	124, 151	<5	<5	<5	<5	<5	<5	<5	<5	43	<5	<5	<5	**43**
JELLY- DARK CHERRY	124, 151 (133 not declared)	<5	11	<5	<5	<5	<5	<5	<5	160	<5	<5	<5	**171**
BLACKCURRANT JELLY	124, 151	<5	<5	<5	<5	<5	<5	<5	<5	170	<5	<5	<5	**170**
JELLY CHERRY	124, 151	<5	<5	<5	<5	<5	<5	<5	<5	60	<5	<5	<5	**60**
PORT WINE FLAVOUR JELLY	123, 133	<5	21	<5	<5	<5	<5	<5	250	<5	<5	<5	<5	**271**
JELLY	122, 133	<5	67	<5	<5	<5	<5	100	<5	<5	<5	<5	<5	**167**
STRAWBERRY JELLY	122, 110 (129 not declared)	<5	<5	<5	240	<5	<5	<5	<5	<5	<5	<5	<5	**240**
PORT WINE JELLY	142, 151 (122 not declared)	<5	<5	<5	<5	<5	<5	200	<5	<5	<5	<5	<5	**200**

Table 17 - Yogurt and Dairy Snacks

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
YOGHURT CARAMEL		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
YOGHURT LATTE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
YOGHURT NO FAT		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
STRAWBERRY YOGURT		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DAIRY SNACK- VANILLA		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DAIRY SNACK	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	19	<5	<5	**19**
DAIRY DESSERT- CHOCOLATE	nil declared	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DAIRY SNACK	110	<5	<5	<5	<5	<5	11	<5	<5	<5	<5	<5	<5	**11**
YOGHURT- SOY BOYSENBERRY		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
YOGHURT- STRAWBERRY		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DAIRY SNACK	102, 110	<5	<5	<5	<5	<5	6	<5	<5	<5	34	<5	<5	**40**
DAIRY SNACK- STRAWBERRY	124, 122	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DAIRY SNACK-BANANA	102, 110	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
YOGHURT- SOY APRICOT & MANGO		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
DAIRY SNACK- BERRY APPLE		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
YOGHURT- VANILLA & STRAWBERRY	155, 124 (133 not declared)	<5	17	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	**17**
YOGHURT	133	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	

Table 18 - Table Spreads & Margarine

(max 290 mg/kg)	TARGETED COLOURS DECLARED	Green S 142	Brilliant Blue 133	Erythrosine 127	Allura Red A 129	Indigotine 132	Sunset Yello 110	Azorubine 122	Amaranth 123	Ponceau 4R 124	Tartrazine 102	Brown HT 155	Brilliant Black 151	Cumulative mg/L(kg)
CANOLA SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
SOY SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
OLIVE SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
TABLE SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
CANOLA TABLE SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
ORIGINAL TABLE SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
OMEGA- 3 SPREAD		<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
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