

ARSENIC IN RICE DRINKS

The Food Standards Agency has completed a survey of total and inorganic arsenic in 60 samples of rice drinks*. Arsenic occurs naturally in a wide range of foods at low levels. The toxicity of arsenic is dependent on the chemical form in which it is present. The organic form is less harmful than the inorganic form which is known to cause cancer. Most arsenic in the diet is present in the less harmful organic form.

The key facts relevant to this survey:

- This survey was carried out as a part of a larger programme where we have examined arsenic levels in rice and rice products¹⁻³. This programme has shown that the levels of arsenic in rice and specific rice products which were included in previous surveys have remained fairly consistent over time. This is the first Agency survey carried out on arsenic levels in rice drinks.
- Arsenic occurs naturally in a wide range of foods at low levels. Rice and rice products are known to have higher levels of inorganic arsenic compared with other foodstuffs.
- Arsenic was detected in all samples of rice drinks at low concentrations. An average concentration of 0.023 milligram/kilogram of total arsenic and 0.012 milligram/kilogram of inorganic arsenic was found.
- The Agency advises against the substitution of breast milk, infant formula or cows' milk by rice drinks for toddlers and young children. This is both on nutritional grounds and because such substitution can increase their intake of inorganic arsenic, which should be kept as low as possible. If toddlers and young children (ages 1 – 4.5 years) consume rice drinks instead of breast milk, infant formula or cows' milk, the Agency estimates that their intake of inorganic arsenic could be increased by up to four fold if combined intakes for high-level consumption of rice drinks at the mean concentration of inorganic arsenic plus average exposure from the rest of the diet are considered.

* Rice drinks are popularly referred to as 'rice milk' and are often marketed as a dairy-free alternative to milk.

- For all other consumers of rice drink, (with a larger bodyweight than toddlers and young children) exposure to inorganic arsenic is lower and there is no need to change their diet.
- Parents of toddlers and young children who are currently consuming rice drinks because they are allergic to or intolerant of cows' milk are advised to consult their health professional or dietician about suitable alternatives to cows' milk. It has been assumed that infants under 12 months are fed breast milk or infant formula milk, in line with Department of Health advice that cows' milk, or alternatives, are not suitable as a drink until 12 months old. Rice drink is not a suitable substitute for breast or formula milk at any stage of infancy or early childhood as it is nutritionally inadequate.

Background

Arsenic in Food

Certain elements present in food maybe of concern because of their possible adverse health effects. Some, such as arsenic, have no known beneficial biological function and long-term exposure may be harmful to health. Metals and other elements enter food from a wide range of environmental sources. Arsenic is present in the environment from natural sources, such as rocks and sediments, and as a result of human activities such as coal burning, copper smelting and the processing of mineral ores. Levels of arsenic are higher in the aquatic environment than in most areas of land as it is fairly water-soluble and may be washed out of arsenic-bearing rocks.

Arsenic occurs naturally in a wide range of foods at low levels. The toxicity of arsenic is dependent on the chemical form in which it is present. The organic form is less harmful but the inorganic form can cause cancer. The Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) has therefore concluded that exposure to inorganic arsenic should be as low as reasonably practicable. Arsenic occurs in a wide range of foods but most arsenic in the diet is present in the less toxic, organic form.

Rice is a cereal that has the tendency to accumulate arsenic in comparison to other grains. While the concentration of total arsenic in rice is low, about 50% of it is present as inorganic arsenic. The Agency has carried out recent research on the levels of arsenic

present in rice and rice products as well as the effect of cooking on arsenic concentrations¹⁻³. This research concluded that for the average UK consumer (including infants and toddlers) the exposure to arsenic from rice consumption was not a concern.

There is no Europe-wide regulation of arsenic in food. In England and Wales, arsenic levels are regulated by the Arsenic in Food Regulations 1959 (as amended). Equivalent legislation applies in Scotland and Northern Ireland (the Arsenic in Food (Scotland) Regulations 1959 (as amended) and the Arsenic in Food Regulations (Northern Ireland) 1961 (as amended)). These lay down a general limit of 1 milligram/kilogram for total arsenic in food and a specific limit of 0.1 milligram/kilogram for non-alcoholic beverages, ready to drink, not otherwise specified⁴. The UK Regulations were set before the carcinogenic nature of inorganic arsenic was known.

Methodology

Brand names

In accordance with the Food Standards Agency policy for the release of brand names when reporting the results of food chemical surveillance, details about the individual samples are given in Annex 1. It should be noted that the absence of any particular brand from this survey means only that the brand was not included in the survey. No further meaning should be read into the absence of any brand from this Food Survey Information Sheet.

Sample collection

Ventress Technical Services Ltd purchased a total of 60 samples of rice drinks (up to four different batches of 18 products) from various retail outlets across Greater London and Cambridgeshire in June 2008 (Annex 1). Purchases were made from a range of national supermarkets (21 samples), smaller retailers/discounters, health/natural/organic food stores (36 samples) and UK internet/mail order retailers (3 samples).

Analysis

Analyses were carried out by the Central Science Laboratory, York (CSL). UKAS (United Kingdom Accreditation Service) validated methods were used to analyse the 60 samples of rice drinks for their levels of total arsenic and inorganic arsenic.

Total Arsenic

Aliquots (3 g) of each test sample plus certified reference materials (0.5 g) were digested in nitric acid using quartz high pressure closed vessels and microwave heating prior to quantification by inductively coupled plasma-mass spectrometry (ICP-MS). Reagent blanks and a reagent blank spiked with a known amount of analyte were analysed with test samples for recovery estimate purposes.

Inorganic Arsenic

Aliquots (5 g) of each homogenised test sample plus a certified reference material (0.25 g) were solubilised in hydrochloric acid and then extracted with chloroform. The arsenic species were then re-extracted into dilute hydrochloric acid prior to quantification by high resolution inductively coupled plasma-mass spectrometry (HR-ICP-MS). Reagent blanks and a reagent blank spiked with a known amount of analyte were analysed with test samples for recovery estimate purposes. [This procedure is also known to extract monomethylarsenic species (MMA)].

Quality Control

The method used by CSL for the determination of total arsenic and inorganic arsenic speciation is accredited by the United Kingdom Accreditation Service (UKAS) to ISO17025. CSL is a regular, successful participant in proficiency testing schemes, including FAPAS and IMEP for both total and inorganic arsenic.

Results

The results of the survey are shown in Table 1. All data are corrected for reagent blank and spike recovery. The limit of detection (LOD) was calculated from 3 x standard deviation of reagent blank values adjusted for dilution and sample weight. The limit of quantification (LOQ) is 10 x standard deviation of reagent blank values adjusted for dilution and sample weight. The limit of detection (LOD) was 0.007 milligram/kilogram for total

arsenic and 0.002 milligram/kilogram for inorganic arsenic. Results given in brackets fall below the LOQ but appear above the LOD.

Arsenic was detected in all samples, the level of total arsenic ranging from 0.010 - 0.034 milligram/kilogram. The levels of inorganic arsenic ranged from 0.005 - 0.020 milligram/kilogram. The proportion of inorganic arsenic in the rice drinks sampled ranged from 48 - 68%. None of the samples exceeded the limit of 0.1 milligram/kilogram set by the Arsenic in Food Regulations⁴.

Risk Assessment

Risk assessments were carried out to establish if consumption levels are of concern. In the absence of consumption data on rice drinks, cows' milk consumption data from the National Diet and Nutrition Survey (NDNS)⁵ was used as a proxy. It is possible that this approach overestimates actual consumption of rice drinks, but no specific data are available to confirm this.

The Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) concluded in 2003 and 2008 that there are no relevant tolerable intakes or reference doses by which to assess the safety of either inorganic or organic arsenic in a diet^{6,7}. Their view is that, since inorganic arsenic is genotoxic and a known human carcinogen, exposure should be as low as reasonably practicable (ALARP). The European Commission has requested the European Food Safety Authority (EFSA) to evaluate the risks to human health related to the presence of arsenic in foodstuffs and provide a risk assessment. This is expected to be published in September 2009.

A provisional tolerable weekly intake (PTWI) of 15 micrograms/kilogram bodyweight (equivalent to 2.14 micrograms per kilogram bodyweight per day) for exposure to inorganic arsenic has previously been established in 1989 by the Joint FAO/WHO Expert Committee on Food Additives (JECFA)⁸ but the COT concluded (in 2003) that the approach used to establish the JECFA PTWI would now not be considered appropriate, in view of the evidence of genotoxicity and carcinogenicity⁷.

Comparison with drinking water standards

The EU has set a maximum limit of 10 micrograms per litre for arsenic in drinking water⁹. These standards for water take into account what is naturally present in water and what

can realistically be monitored and enforced. Drinking water standards are not set as safety limits and are based on a level that is as low as reasonably practicable or achievable in water and it is not relevant to compare with intakes from food. The amounts naturally present in different foods differ. What is measurable will depend on the matrix which will vary for different types of food, and will differ from water. The Drinking Water Inspectorate is responsible for the quality of drinking water in the UK.

Exposure assessments for inorganic arsenic

Since the organic forms of arsenic are considered to be less harmful, assessments have been carried out using inorganic arsenic levels. The exposure estimates are shown in Table 2.

The risk assessment considers the impact that consumption of rice drinks would have on overall dietary exposure, which could lead to a small increased cancer risk. The exposure to inorganic arsenic from the rest of the diet (which already includes contribution from rice and some rice products) has been taken from results of the 2006 Total Diet Study¹⁰. Results from the 2006 Total Diet Study showed upper-bound daily intakes of inorganic arsenic ranged from 0.09 microgram/kilogram bodyweight for an average-consuming adult to 0.36 microgram/kilogram bodyweight for a high-consuming toddler/young child (1.5 - 4.5 years). Some subgroups of consumers would have a higher dietary exposure to arsenic. Data from the NDNS⁵ shows that the daily consumption of cooked rice is 90 grams and 158 grams respectively for high level toddler/young child and adult consumers. Higher levels of rice consumption would result in an increased exposure to arsenic.

In order to carry out exposure assessments for rice drinks, it is assumed that rice drinks are consumed as a replacement for cows' milk and in similar quantities. The exposure estimates (as shown in Table 2) indicate an increased exposure to inorganic arsenic for all population sub-groups at both the mean and maximum inorganic arsenic concentration. If consumption of rice drink is actually less than that of cows' milk, the increase in total dietary exposure to inorganic arsenic would be lower and this would represent less of a risk. However, in the absence of consumption data on rice drink, cows' milk consumption data have had to be used as a proxy. It has also been assumed that infants under 12 months are not given rice drinks or cows' milk as a drink.

A toddler/young child consuming the average of 281 grams (about half a pint) of rice drink a day (using cows' milk consumption data as a proxy), containing an average level of inorganic arsenic would double their total dietary exposure to inorganic arsenic. Combined intakes for high-level consumption of rice drinks at the mean concentration of inorganic arsenic plus average exposure from the rest of the diet is four times higher than intakes from the rest of the diet. Toddlers/young children are a vulnerable sub-group because of their proportionally higher milk consumption and total dietary exposure to inorganic arsenic on a bodyweight basis. Such increases in exposure are not consistent with COT advice to keep dietary exposure to inorganic arsenic as low as reasonably practicable and could represent an increased risk of cancer. Therefore the Agency advises against the substitution of breast milk, infant formula or cows' milk by rice drinks for toddlers and young children.

For adults and young persons, the additional exposure to inorganic arsenic attributable to the average consumption of rice drink (using cows' milk consumption data as a proxy, about one glass a day, approximately 200 millilitres) over and above that from the general diet, is in the region of 60% or less. Adults and young persons do not therefore need to change their diet.

Conclusion

Daily consumption of rice drinks in quantities similar to the average consumption of cows' milk (one glass, approximately 200 millilitres by adults or half a pint, approximately 280 millilitres by a toddler/young child) would lead to an additional daily dietary exposure to inorganic arsenic. This increase is minor for adults and young persons and they do not need to change their diet. This increase in the intake of inorganic arsenic could be up to four fold for toddlers and young children (ages 1- 4.5 years) if rice drinks are consumed instead of breast milk, infant formula or cows' milk. Therefore the Agency advises against the substitution of breast milk, infant formula or cows' milk by rice drinks for toddlers and young children. All other consumers do not need to change their diet. Parents of toddlers and young children who are currently consuming rice drinks because they are allergic to or intolerant of cows' milk are advised to consult their health professional or dietician about suitable alternatives to cows' milk.

References

1. Food Standards Agency (2007). Levels of arsenic in rice – literature review (C01045)
2. Food Standards Agency (2009). Levels of arsenic in rice – The effects of cooking (C01049)
3. (a) Food Standards Agency (2007) Survey of metals in weaning foods and formulae for infants - Additional information on inorganic arsenic and methyl mercury levels. *Food Surveillance Information Sheet 03/07* (Available at <http://www.food.gov.uk/science/surveillance/fsisbranch2007/fsis0307>),
(b) Food Standards Agency (2006). Survey of metals in weaning foods and formulae for infants. *Food Surveillance Information Sheet 17/06* (Available at <http://www.food.gov.uk/science/surveillance/fsisbranch2006/fsis1706>)
(c) Food Standards Agency (2003) Multi-element survey of infant foods. *Food Surveillance Information Sheet 42/03* (Available at <http://www.food.gov.uk/science/surveillance/fsis2003/fsis422003>).
4. In England and Wales, arsenic levels are regulated by the Arsenic in Food Regulations 1959 (SI 1959/831 as amended). Equivalent legislation applies in Scotland and Northern Ireland (the Arsenic in Food (Scotland) Regulations 1959 (SI 1959/928 as amended) and the Arsenic In Food Regulations (Northern Ireland) 1961 (SR 1961/98 as amended)).
5. (a) Henderson L., Gregory J. and Swan, G. (2002). The National Diet and Nutrition Survey: adults aged 19 to 64 years. Volume 1: Types and quantities of foods consumed. The Stationery Office, London. (b) Gregory, J., Foster, K., Tyler, H. and Wiseman, M. (1990). The Dietary and Nutritional Survey of British Adults. The Stationery Office, London. (c) Gregory, J., Lowe, S., Bates, C.J., Prentice, A., Jackson, L.V., Smithers, G., Wenlock, R. and Farron, M. (2000). The National Diet and Nutrition Survey: Young People Aged 4 to 18 years. Volume 1: Report of the Diet and Nutrition Survey. HMSO, London. (d) Gregory, J., Collins, D.L., Davies, P.S.W., Hughes, J.M. and Clarke, P.C. (1995). The National Diet and Nutrition Survey: Children Aged 1½ to 4½ years. Volume 1: Report of the Diet and Nutrition Survey. HMSO, London.

6. Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (2003). Statement on arsenic in food: Results of the 1999 Total diet Study. Available at: <http://cot.food.gov.uk/pdfs/ArsenicStatement.PDF>
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8. WHO (1989) Toxicological evaluation of certain food additives and contaminants; Arsenic. WHO Food Additives Series 24.
9. C.E.U., 1998, Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption. Available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998L0083:20031120:EN:PDF>
10. Food Standards Agency (2009). Measurement of the concentrations of metals and other elements from the 2006 UK Total Diet Study. *Food Surveillance Information Sheet 01/09*. Available at <http://www.food.gov.uk/news/newsarchive/2009/jan/tds>

Further Information

For further information on this survey, please contact: arsenic_enquiries@foodstandards.gsi.gov.uk

Parents of toddlers and young children who are currently consuming rice drinks because they are allergic to or intolerant of cows' milk are advised to consult their health professional or dietician about suitable alternatives to cows' milk.

Further copies of this Information Sheet can be obtained from:

The Food Standards Agency Library

Aviation House

125 Kingsway

London WC2B 6NH

Tel: +44 (0) 20 7276 8281/8182

Fax: +44 (0) 20 7276 8193

E-mail: library&info@foodstandards.gsi.gov.uk

A copy of the final report of this survey has been placed in the FSA Library – address details above. If you wish to consult a copy, please contact the library for an appointment giving at least 24 hours notice or, alternatively, copies can be obtained from the Library: a charge will be made to cover photocopying and postage.

Table 1. Concentrations of total and inorganic arsenic in 60 samples of rice drinks samples purchased

Sample code	Brand	Sample description	Total As mg/kg	Inorganic As mg/kg	% inorganic As
S08-013233	Provamel	A blend of water and organic rice	(0.012)	0.007	57
S08-013234	Provamel	A blend of water and organic rice	(0.011)	(0.006)	55
S08-013255	Provamel	A blend of water and organic rice	(0.012)	0.007	61
S08-013278	Provamel	A blend of water and organic rice	(0.011)	0.007	64
S08-013226	Provamel	A blend of water and rice, with added calcium and vitamins	0.031	0.018	60
S08-013251	Provamel	A blend of water and rice, with added calcium and vitamins	0.030	0.018	58
S08-013265	Provamel	A blend of water and rice, with added calcium and vitamins	0.028	0.016	58
S08-013266	Provamel	A blend of water and rice, with added calcium and vitamins	0.028	0.015	54
S08-013224	Balance Foods	Fairtrade - organic rice drink	0.029	0.016	56
S08-013227	Balance Foods	Fairtrade - organic rice drink	0.025	0.017	68
S08-013250	Balance Foods	Fairtrade - organic rice drink	(0.023)	0.013	58
S08-013262	Balance Foods	Fairtrade - organic rice drink	0.025	0.015	62
S08-013245	Rice Dream	Hazelnut-Almond - non-dairy alternative made from rice	0.024	0.014	59
S08-013246	Rice Dream	Hazelnut-Almond - non-dairy alternative made from rice	(0.015)	0.009	59
S08-013256	Rice Dream	Hazelnut-Almond - non-dairy alternative made from rice	0.027	0.014	53
S08-013270	Rice Dream	Hazelnut-Almond - non-dairy alternative made from rice	(0.015)	0.009	64
S08-013273	Kallo	Low fat organic rice drink	(0.017)	0.010	57
S08-013247	Lima	Organic cereals & soy drink - natural	(0.010)	(0.006)	56
S08-013248	Lima	Organic cereals & soy drink - natural	(0.010)	(0.005)	52
S08-013249	Lima	Organic cereals & soy drink - natural	(0.010)	(0.005)	53
S08-013240	Lima	Organic rice drink - choco	0.029	0.019	66
S08-013276	Lima	Organic rice drink - choco	0.029	0.020	68
S08-013228	Lima	Organic rice drink - nuts	(0.018)	0.011	60
S08-013229	Lima	Organic rice drink - nuts	(0.016)	0.010	61
S08-013230	Lima	Organic rice drink - nuts	(0.021)	0.012	61
S08-013241	Lima	Organic rice drink - nuts	(0.019)	0.009	50
S08-013231	Lima	Organic rice drink - original	(0.021)	0.013	60
S08-013232	Lima	Organic rice drink - original	(0.021)	0.012	59
S08-013242	Lima	Organic rice drink - original	(0.022)	0.011	53
S08-013244	Lima	Organic rice drink - original	0.025	0.013	52
S08-013222	Rice Dream	Original - organic non-dairy alternative made from rice	0.025	0.014	57
S08-013225	Rice Dream	Original - organic non-dairy alternative made from rice	0.024	0.013	54
S08-013252	Rice Dream	Original - organic non-dairy alternative made from rice	(0.023)	0.012	53
S08-013267	Rice Dream	Original - organic non-dairy alternative made from rice	(0.023)	0.013	54
S08-013253	Rice Dream	Original + calcium - non-dairy alternative made from rice	(0.017)	0.010	57
S08-013264	Rice Dream	Original + calcium - non-dairy alternative made from rice	(0.019)	0.011	57
S08-013271	Rice Dream	Original + calcium - non-dairy alternative made from rice	(0.018)	0.010	52

Sample code	Brand	Sample description	Total As mg/kg	Inorganic As mg/kg	% inorganic As
S08-013272	Rice Dream	Original + calcium - non-dairy alternative made from rice	(0.017)	0.009	55
S08-013263	Rice Dream	Original bio - organic non-dairy alternative made from rice	0.025	0.013	51
S08-013269	Rice Dream	Original bio - organic non-dairy alternative made from rice	(0.022)	0.012	54
S08-013274	Rice Dream	Original bio - organic non-dairy alternative made from rice	0.024	0.013	53
S08-013277	Rice Dream	Original bio - organic non-dairy alternative made from rice	0.025	0.016	62
S08-013223	Probios	Rice & rice drink - natural	(0.013)	(0.007)	53
S08-013235	Probios	Rice & rice drink - natural	(0.013)	(0.006)	45
S08-013236	Probios	Rice & rice drink - natural	(0.011)	(0.005)	43
S08-013243	Probios	Rice & rice drink - natural	(0.011)	(0.006)	58
S08-013237	Probios	Rice & rice drink + calcium from vegetable source	0.032	0.020	62
S08-013238	Probios	Rice & rice drink + calcium from vegetable source	0.032	0.020	61
S08-013239	Probios	Rice & rice drink + calcium from vegetable source	0.034	0.017	50
S08-013258	Tesco	Rice dairy-free alternative to milk	0.030	0.016	53
S08-013259	Tesco	Rice dairy-free alternative to milk	0.032	0.018	57
S08-013260	Tesco	Rice dairy-free alternative to milk	0.028	0.014	51
S08-013261	Tesco	Rice dairy-free alternative to milk	0.030	0.016	53
S08-013275	The Bridge - Bio	Rice drink with almond	(0.015)	0.007	50
S08-013221	Rice Dream	Vanilla flavour - organic non-dairy alternative made from rice	0.025	0.012	48
S08-013254	Rice Dream	Vanilla flavour - organic non-dairy alternative made from rice	0.026	0.014	56
S08-013257	Rice Dream	Vanilla flavour - organic non-dairy alternative made from rice	0.026	0.014	53
S08-013268	Rice Dream	Vanilla flavour - organic non-dairy alternative made from rice	0.028	0.013	46
S08-013279	Rice & Easy	Whole grain rice	(0.019)	0.012	61
S08-013280	Rice & Easy	Whole grain rice	(0.021)	0.012	57

Brackets indicate the measured values are below the Limit of quantification (LOQ).

Table 2. Exposure to inorganic arsenic from consumption of rice drinks

	Population group consuming rice drinks	Daily consumption of rice drinks in grams¹	Daily consumption of rice drinks in grams per kg body weight^{1,2}	Inorganic arsenic intake from consuming rice drinks (µg/kg bw/day)	Percentage contribution to the PTWI equivalent from daily intake of rice drinks³
Median/mean concentration of inorganic arsenic found from the survey (0.012 mg/kg)	Mean level- adult	218	2.78	0.033	2
	Mean level- young people	191	5.77	0.069	3
	Mean level- toddler	281	20.02	0.240	11
	High level- adult	588	8.25	0.099	5
	High level- young people	536	20.49	0.246	11
	High level- toddler	783	60.27	0.723	34
Highest concentration of inorganic arsenic found from the survey (0.020 mg/kg)	Mean level- adult	218	2.78	0.056	3
	Mean level- young people	191	5.77	0.115	5
	Mean level- toddler	281	20.02	0.400	19
	High level- adult	588	8.25	0.165	8
	High level- young people	536	20.49	0.410	19
	High level- toddler	783	60.27	1.205	56
Exposure from rest of the diet (including rice and some rice products) ^{4,5}	Population group			Inorganic arsenic intake (µg/kg bw/day)	Percentage contribution to the PTWI equivalent from rest of the diet³
	Mean level- adult	-	-	0.09	4
	Mean level- young people	-	-	0.15	7
	Mean level- toddler	-	-	0.21	11
	High level- adult	-	-	0.16	8
	High level- young people	-	-	0.27	14
	High level- toddler	-	-	0.36	19

¹Consumption data for cows' milk from the NDNS has been used as a proxy for rice drinks.

² Average body weights for adults (over 18 years) - 76 kg, young persons (4 - 18 years) - 41.5 kg and toddlers (1.5 - 4.5 years) - 14.5 kg.

³ Please refer to the section on risk assessment (page 5). The PTWI equivalent of 2.14 µg/kg bw/day set by JECFA has been superseded by the COT's opinion.

⁴ Data for exposure to inorganic arsenic from the rest of the diet is from the 2006 Total Diet Study (Reference 10).

⁵ Exposure assessments have been carried out for the mean level consumer as well as the high level (97.5th percentile) consumer.

Annex 1. Rice drink samples purchased

SAMPLE CODE	PRODUCT DESCRIPTION	BRAND	BEST BEFORE DATE/USE BY DATE	BATCH CODE	RETAILER NAME	RETAILER ADDRESS 1st line	RETAILER ADDRESS 2nd line	RETAILER ADDRESS 3rd line	RETAILER ADDRESS postcode	DATE PURCHASED
S08-013233	A blend of water and organic rice	Provamel	07.04.2009	M1513	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013234	A blend of water and organic rice	Provamel	11.02.2009	P07016	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013255	A blend of water and organic rice	Provamel	05.05.2009	P1910	Sainsbury's	31 Essex Place	Chiswick	London	W4 5UT	22/06/08
S08-013278	A blend of water and organic rice	Provamel	12.05.2009	P20180	Sainsbury's	17 - 21 Camden Road		London	NW1 9LJ	27/06/08
S08-013226	A blend of water and rice, with added calcium and vitamins	Provamel	28.01.2009	M0501	Partridges of Sloane Square	2-5 Duke of York Square	Kings Road	London	SW3 4LY	23/06/08
S08-013251	A blend of water and rice, with added calcium and vitamins	Provamel	05.05.2009	P1910	Asda	2-20 Western Road	Park Royal	London	NW10 7LW	22/06/08
S08-013265	A blend of water and rice, with added calcium and vitamins	Provamel	07.04.2009	P1513	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08

SAMPLE CODE	PRODUCT DESCRIPTION	BRAND	BEST BEFORE DATE/USE BY DATE	BATCH CODE	RETAILER NAME	RETAILER ADDRESS 1st line	RETAILER ADDRESS 2nd line	RETAILER ADDRESS 3rd line	RETAILER ADDRESS postcode	DATE PURCHASED
S08-013266	A blend of water and rice, with added calcium and vitamins	Provamel	14.04.2009	P1620	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08
S08-013224	Fairtrade - organic rice drink	Balance Foods	25-02-09	None declared	Waitrose	243 Kensington High Street		London	W8 6SA	23/06/08
S08-013227	Fairtrade - organic rice drink	Balance Foods	29-01-09	None declared	Health Craze	24 Old Brompton Road	South Kensington	London	SW7 3DL	23/06/08
S08-013250	Fairtrade - organic rice drink	Balance Foods	10-04-09	None declared	Asda	2-20 Western Road	Park Royal	London	NW10 7LW	22/06/08
S08-013262	Fairtrade - organic rice drink	Balance Foods	24-04-09	None declared	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08
S08-013245	Hazelnut-Almond - non-dairy alternative made from rice	Rice Dream	23-01-09	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013246	Hazelnut-Almond - non-dairy alternative made from rice	Rice Dream	20-11-08	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013256	Hazelnut-Almond - non-dairy alternative made from rice	Rice Dream	18-02-09	None declared	Tesco	Great Central Way	Neasden	London	NW10 0TL	22/06/08

SAMPLE CODE	PRODUCT DESCRIPTION	BRAND	BEST BEFORE DATE/USE BY DATE	BATCH CODE	RETAILER NAME	RETAILER ADDRESS 1st line	RETAILER ADDRESS 2nd line	RETAILER ADDRESS 3rd line	RETAILER ADDRESS postcode	DATE PURCHASED
S08-013270	Hazelnut-Almond - non-dairy alternative made from rice	Rice Dream	26-11-08	None declared	Holland & Barrett	Unit W16 Shopping Centre	Brent Cross	London	NW4 3FP	22/06/08
S08-013222	Original - organic non-dairy alternative made from rice	Rice Dream	10-12-08	L 253 A	Sloane Health Shop	27 Kings Road	Chelsea	London	SW3 4RP	23/06/08
S08-013225	Original - organic non-dairy alternative made from rice	Rice Dream	29-01-09	L 382 A	Partridges of Sloane Square	2-5 Duke of York Square	Kings Road	London	SW3 4LY	23/06/08
S08-013252	Original - organic non-dairy alternative made from rice	Rice Dream	05-08-09	L 125 A	Waitrose	Brent Cross Shopping Centre	Hendon Way	London	NW4 3FQ	22/06/08
S08-013267	Original - organic non-dairy alternative made from rice	Rice Dream	05-05-09	M 036 A	Holland & Barrett	Unit W16 Shopping Centre	Brent Cross	London	NW4 3FP	22/06/08
S08-013253	Original + calcium - non-dairy alternative made from rice	Rice Dream	17-06-09	M 077 C	Waitrose	Brent Cross Shopping Centre	Hendon Way	London	NW4 3FQ	22/06/08

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S08-013264	Original + calcium - non-dairy alternative made from rice	Rice Dream	20-08-09	M 142 C	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08
S08-013271	Original + calcium - non-dairy alternative made from rice	Rice Dream	03-06-09	L 063 C	Holland & Barrett	Unit W16 Shopping Centre	Brent Cross	London	NW4 3FP	22/06/08
S08-013272	Original + calcium - non-dairy alternative made from rice	Rice Dream	21-04-09	L 021B	Holland & Barrett	Unit W16 Shopping Centre	Brent Cross	London	NW4 3FP	22/06/08
S08-013263	Original bio - organic non-dairy alternative made from rice	Rice Dream	19/08/09	E 140 B	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08
S08-013269	Original bio - organic non-dairy alternative made from rice	Rice Dream	03-03-09	E 337 B	Holland & Barrett	Unit W16 Shopping Centre	Brent Cross	London	NW4 3FP	22/06/08
S08-013274	Original bio - organic non-dairy alternative made from rice	Rice Dream	22-01-09	K 295 B	The Organic Delivery Company via website www.organicdelivery.co.uk	70 Rivington Street		London	EC2A 3AY	26/06/08

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S08-013277	Original bio - organic non-dairy alternative made from rice	Rice Dream	14-04-09	014 K B	Earth Natural Foods	200 Kentish Town Road		London	NW5 2AE	27/06/08
S08-013221	Vanilla flavour - organic non-dairy alternative made from rice	Rice Dream	16-10-08	M 196 C	Sloane Health Shop	27 Kings Road	Chelsea	London	SW3 4RP	23/06/08
S08-013254	Vanilla flavour - organic non-dairy alternative made from rice	Rice Dream	30-06-09	L 091 B	Waitrose	Brent Cross Shopping Centre	Hendon Way	London	NW4 3FQ	22/06/08
S08-013257	Vanilla flavour - organic non-dairy alternative made from rice	Rice Dream	06-08-09	M 127 B	Tesco	Great Central Way	Neasden	London	NW10 0TL	22/06/08
S08-013268	Vanilla flavour - organic non-dairy alternative made from rice	Rice Dream	23-01-09	L 296 A	Holland & Barrett	Unit W16 Shopping Centre	Brent Cross	London	NW4 3FP	22/06/08
S08-013273	Low fat organic rice drink	Kallo	28-02-09	None declared	Goodness Direct via www.goodnessdire		South March	Daventry	NN11 4PH	22/06/08

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					ct.co.uk					
S08-013279	Whole grain rice	Rice & Easy	31/JUL/08	F8161B	Waitrose	50 Hauxton Road	Trumpington	Cambridge	CB2 9FT	28/06/08
S08-013280	Whole grain rice	Rice & Easy	17/JUL/08	F8147B	Waitrose	Fred Archer Way		Newmarket	CB8 8NY	29/06/08
S08-013223	Rice & rice drink - natural	Probios	27-02-09	27 02 08	Luscious Organic	240-242 High Street Kensington		London	W8 6NE	23/06/08
S08-013235	Rice & rice drink - natural	Probios	07-02-09	07 02 08	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013236	Rice & rice drink - natural	Probios	15 11 08	15 11 07	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013243	Rice & rice drink - natural	Probios	13 02 09	A1302	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013237	Rice & rice drink + calcium from vegetable source	Probios	22-02-09	22 02 08	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013238	Rice & rice drink + calcium from vegetable source	Probios	26 10 08	26 10 07	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013239	Rice & rice drink + calcium from vegetable source	Probios	29-11-08	29 11 07	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08

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S08-013275	Rice drink with almond	The Bridge - Bio	29/10/08	LQ7248 0 77 Q	The Organic Delivery Company via website www.organicdelivery.co.uk	70 Rivington Street		London	EC2A 3AY	26/06/08
S08-013258	Rice dairy-free alternative to milk	Tesco - Healthy Living	19.05.2009	M2125	Tesco	Great Central Way	Neasden	London	NW10 0TL	22/06/08
S08-013259	Rice dairy-free alternative to milk	Tesco - Healthy Living	03.03.2009	M1008	Tesco	Great Central Way	Neasden	London	NW10 0TL	22/06/08
S08-013260	Rice dairy-free alternative to milk	Tesco - Healthy Living	14.04.2009	M1620	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08
S08-013261	Rice dairy-free alternative to milk	Tesco - Healthy Living	05.05.2009	P1910	Tesco	Tilling Road	Cricklewood	London	NW2 1LZ	22/06/08
S08-013247	Organic cereals & soy drink - natural	Lima	06.03.09	067 FG M8	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013248	Organic cereals & soy drink - natural	Lima	11.10.08	284 M9 EF	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013249	Organic cereals & soy drink - natural	Lima	09.01.09	009 FG M9	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013240	Organic rice drink - choco	Lima	17-04-09	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013276	Organic	Lima	13-09-08	None	Earth Natural	200 Kentish		London	NW5 2AE	27/06/08

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	rice drink - choco			declared	Foods	Town Road				
S08-013228	Organic rice drink - nuts	Lima	14-01-09	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013229	Organic rice drink - nuts	Lima	11-03-09	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013230	Organic rice drink - nuts	Lima	28-03-09	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013241	Organic rice drink - nuts	Lima	28-01-09	None declared	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013231	Organic rice drink - original	Lima	25-02-09	L 107 C	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013232	Organic rice drink - original	Lima	12-02-09	M 043 F	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013242	Organic rice drink - original	Lima	20.02.09	051 10	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08
S08-013244	Organic rice drink - original	Lima	14-04-09	M 106 A	Whole Foods Market	63-97 High Street Kensington		London	W8 5SE	23/06/08

UK Rice Milk Manufacturers Response - FSA Rice and Arsenic Statement

Further to the publication of the Food Standards Information Sheet on arsenic levels in rice products, including rice grains, rice food stuffs and drinks, we confirm that all of our rice drinks have been tested by both the Food Standards Agency (FSA) and an independent laboratory and both testing results are below the legal limits for levels of arsenic in foodstuffs.

The current UK legal limit for arsenic in non-alcoholic beverages is 100 parts per billion (0.1mg/kg). The results of the FSA and independent tests confirmed that none of our products exceeded 20 ppb for inorganic arsenic which is considerably lower than in other foodstuffs.

The European Food Standards Agency (EFSA) is reviewing its advice on arsenic levels, which may result in revised legal limits being set for all food stuff later this year. In the interest of consumer clarity, we had requested that the FSA await the final ruling from EFSA before publishing their statement. We will continue to cooperate with the FSA to ensure the highest level of food safety for our products.

We will continue to ensure that our consumers are provided with up to date information