



# VALUE ADDED WHEAT CRC FINAL REPORT

Project: 2.1.6  
GRDC Project CWQ13

## Evaluation of a heat treated cake flour sample (by baking test)

J. Guy (CCFRA), for K. Quail<sup>1,2</sup>, K. Germaine<sup>1,2</sup> C. Walker<sup>1,2</sup>

<sup>1</sup> Value Added Wheat CRC

<sup>2</sup> BRI Australia

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**CCFRA Technology Ltd**  
Chipping Campden,  
Gloucestershire  
GL55 6LD, UK

Tel: +44 (0)1386 842000  
Fax: +44 (0)1386 842100  
www.campden.co.uk



Campden & Chorleywood Food  
Research Association Group

Dr. Ken Quail  
BRI Australia Ltd.  
PO Box 7  
NSW 2113  
North Ryde  
AUSTRALIA

## **EVALUATION OF A HEAT-TREATED CAKE FLOUR SAMPLE (by baking test)**

Report Code: BCP/REP/FUFI/1

Prepared by: Joan Guy

Approved by: Sam Millar

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Certified**

## **SUMMARY**

Two flours sent for evaluation by BRI Australia Ltd., one heat treated and one chlorinated, have been tested in the CCFRA standard high ratio cake formulation, together with two heat treated flours commercially available in the UK.

The chlorinated flour gave cakes that were lighter in colour and had a superior eating quality to those made from the heat treated flours.

The BRI sample of heat treated flour and one of the UK heat treated flours gave good products that, though not a complete match for the chlorinated flour cakes, were reasonably close. The second UK heat treated flour gave products that were inferior in all aspects.

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## INTRODUCTION

CCFRA have been asked to evaluate the baking performance of a sample of heat treated cake flour for BRI Australia Ltd., comparing its performance to that of a sample of chlorinated cake flour, also provided by BRI Australia Ltd., and two commercially available heat treated flours from the UK.

All the flours were used in the CCFRA standard high ratio yellow cake recipe. The products were then assessed, on the day after baking, for specific volume, crumb colour, C-cell image analysis and overall cake quality (by informal sensory assessment). The trials were all carried out in duplicate.

Digital photographs of the products have been taken.

# 1. MATERIALS AND METHODS

## 2.1 Materials

All ingredients used in the baking tests are listed below. Specifications for those marked \* are in Appendix C

- Heat treated flour supplied by BRI Australia Ltd.
- UK heat treated flour 1 – Solar flour\* (Smiths Flour Mills)
- UK heat treated flour 2 – Kingfisher flour\* (ADM Milling)
- Chlorinated flour supplied by BRI Australia Ltd.
- Caster sugar\* (British Sugar)
- Sweetex high ratio shortening\* (Anglia Oils)
- Frozen whole egg\* (Dion)
- Skimmed milk powder (Express Dairies)
- Salt (British Salt)
- Bex baking powder\* (Bakemark)
- Command baking powder\*– slower acting (Kudos Blends)
- Glycerine (Flaverco Red Rose)

## 2.2 Methods

### 2.2.1 Cake preparation (following CCFRA work instruction WI-BCP-202)

*Table 1: Formulations (Water and flour adjusted to allow for variation in moisture levels of heat treated flours.)*

| Ingredient            | Kingfisher heat treated | BRI heat treated | Solar heat treated | BRI chlorinated |
|-----------------------|-------------------------|------------------|--------------------|-----------------|
|                       | g                       | g                | g                  | g               |
| Kingfisher flour      | 500.0                   | 0.0              | 0.0                | 0.0             |
| BRI HT flour          | 0                       | 491.0            | 0.0                | 0.0             |
| Solar flour           | 0                       | 0.0              | 495.0              | 0.0             |
| Chlorinated flour     | 0                       | 0.0              | 0.0                | 500.0           |
| Caster sugar          | 575.0                   | 575.0            | 575.0              | 575.0           |
| Command baking powder | 0                       | 0.0              | 0.0                | 18.8            |
| Bex baking powder     | 18.8                    | 18.8             | 18.8               | 0.0             |
| Skimmed milk powder   | 35.0                    | 35.0             | 35.0               | 35.0            |
| Salt                  | 12.5                    | 12.5             | 12.5               | 12.5            |
| Sweetex shortening    | 300.0                   | 300.0            | 300.0              | 300.0           |
| Frozen whole egg      | 400.0                   | 400.0            | 400.0              | 400.0           |
| Water                 | 275.0                   | 284.0            | 280.0              | 350.0           |
| Glycerine             | 40.0                    | 40.0             | 40.0               | 40.0            |

Reduction in added water and the use of a slower acting baking powder are measures that CCFRA have found to be beneficial, when heat treated flour is used in place of chlorinated flour in this formulation.

## ***Method***

- The liquid ingredients were placed in a 7 litre Hobart bowl and the sieved dry ingredients added, followed by the shortening.
- With a beater attachment, the ingredients were mixed for 30 seconds on speed 1, the bowl thoroughly scraped down, and mixing continued on speed 2 for 1 minute.
- The batter was then mixed on speed 3 for 6 minutes.
- The relative batter density was recorded.
- The batter was scaled at 300g in 400g loaf tins, with paper liners, and baked for 50 minutes at 180°C in a reel oven.
- The cakes were cooled for 2 hours before wrapping and storing overnight at 21°C.

### ***2.2.2 Moisture determination on heat treated flours*** (following CCFRA test method TES-BCP-200)

Samples were oven dried for 90 minutes at 130°C and cooled for 30 minutes before being re-weighed.

### ***2.2.3 Assessment of products***

- Cake specific volume was measured by seed displacement. (CCFRA test method TES-BCP-202)
- Crumb colour was measured using a Minolta colorimeter (C300 series) with the C310 measuring head fitted. (CCFRA test method TES-BCP-301)
- Image analysis of the internal structure of the cakes was carried out using a C-cell instrument. (CCFRA work instruction WI-CM-39)
- Overall assessment of the cakes was carried out by two experienced bakery technologists, following a marking scheme specifically designed for evaluation of heat treated flour performance.

## 2. RESULTS AND DISCUSSION

Table 2: Moisture contents of the heat treated flours.

| Sample       | Kingfisher | BRI heat treated | Solar |
|--------------|------------|------------------|-------|
| Moisture (%) | 12.6       | 10.8             | 11.5  |

Recipe water and flour levels were adjusted to bring total recipe moisture to match the Kingfisher flour recipe.

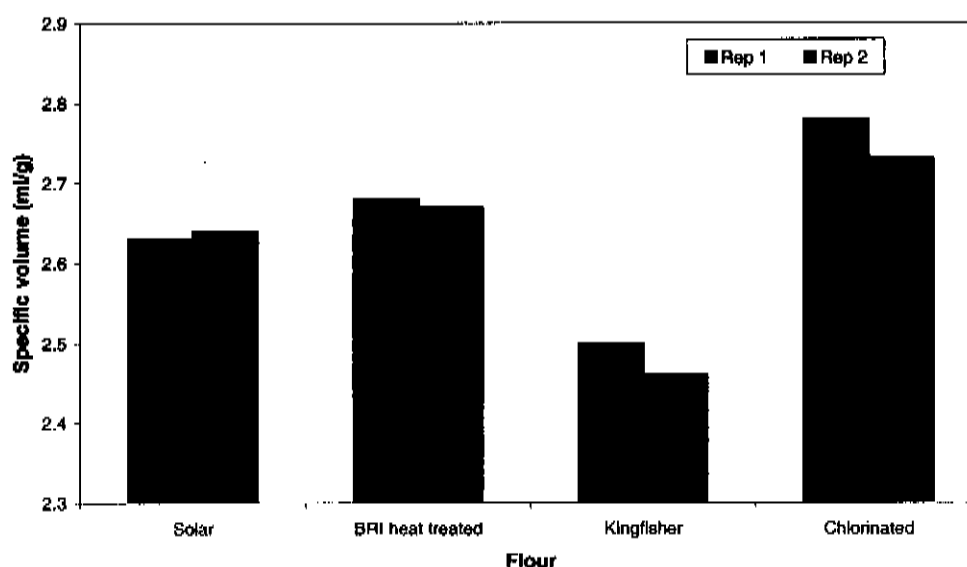
Table 3: Batter relative densities after 6 minutes beating.

| Sample          | Kingfisher | BRI heat treated | Solar | Chlorinated |
|-----------------|------------|------------------|-------|-------------|
| BRD replicate 1 | 0.863      | 0.891            | 0.879 | 0.839       |
| BRD replicate 2 | 0.863      | 0.884            | 0.885 | 0.848       |

Batter aeration with Solar and BRI heat treated flours was very similar, Kingfisher flour was slightly superior and the chlorinated flour was better than any of the heat treated flours.

The slightly better aeration of the Kingfisher batter was not reflected in the final cake volumes (Figure 1).

Figure 1: Cake specific volumes

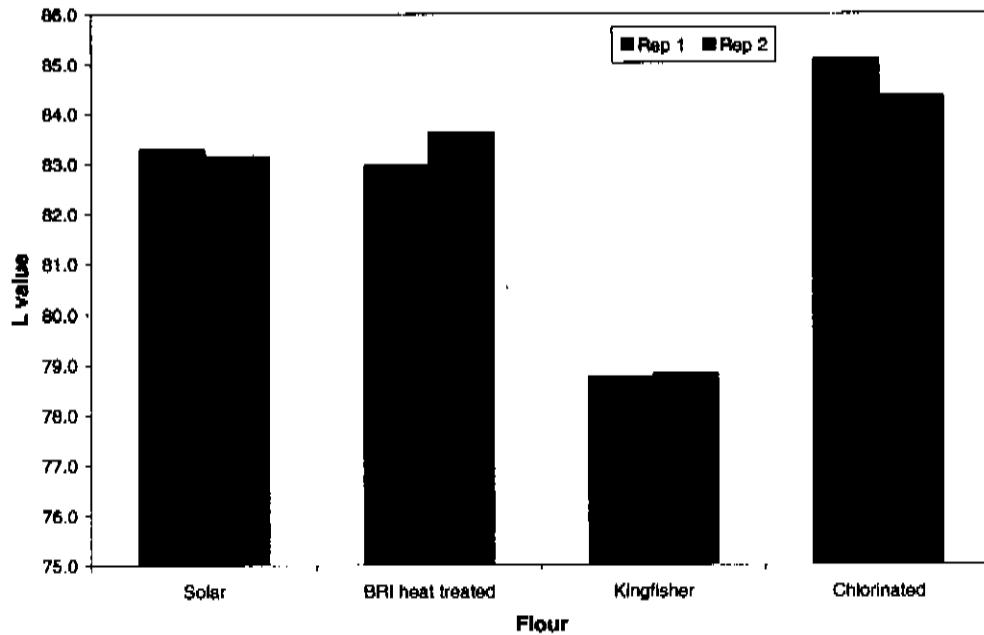


Cakes made from the BRI heat treated flour were very close in specific volume to those made from Solar heat treated flour and had a considerably higher specific volume than those made from Kingfisher heat treated flour. The chlorinated flour produced cakes that were slightly higher in specific volume than any of the heat treated flours.

(For tabulated results see Table A1, Appendix A)



Figure 2: Crumb colour (L values)



The L value is a measure of lightness or darkness. A value of 100 represents pure white and a value of 0 represents black.

Again, the results for the Solar and BRI flours were very similar. Cakes made from the Kingfisher were darker in colour and, as would be expected, those made from chlorinated flour were the lightest.

(For tabulated results see Table A2, Appendix A)

Figure 3: Internal structure – cell diameter by C-cell

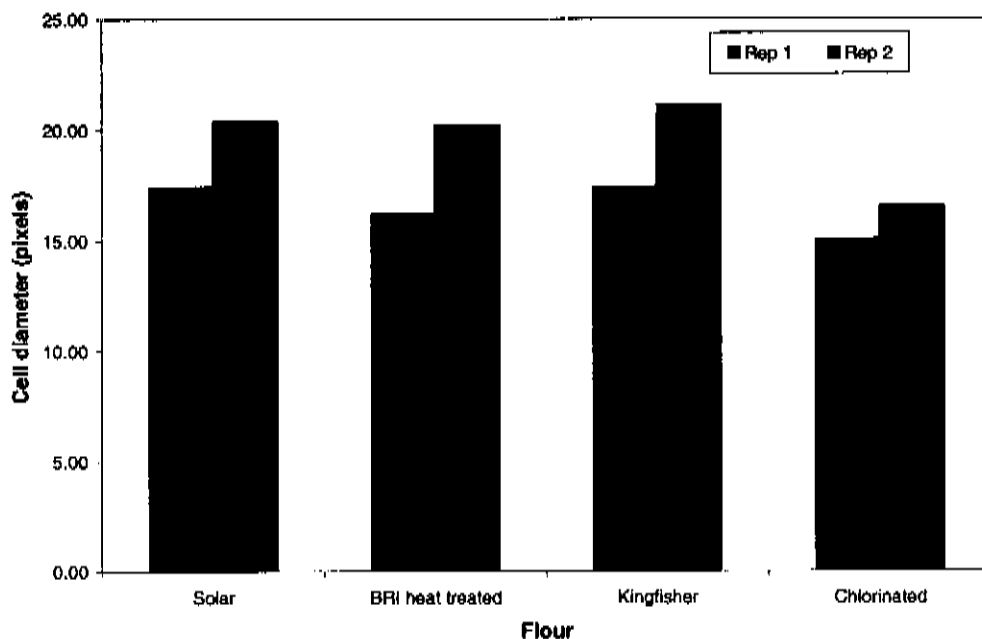


Image analysis, by C-cell, of the internal structure of the cakes did not pick up differences in most of the parameters measured, particularly when compared with the variation between replicates.

Overall, the cakes made with the BRI heat treated flour showed evidence of a slightly smaller cell diameter ( finer structure) compared with the other two heat treated flours, while still having a greater cell diameter ( coarser structure) than the chlorinated flour (Figure 3).

Nevertheless, given the differences between replicates, these results would not be expected to be statistically significant.

*(For tabulated results see Table A3, Appendix A)*

**Table 3: Cake scores for overall assessment**

| Sample           | External appearance | Internal appearance | Eating quality | Total score |
|------------------|---------------------|---------------------|----------------|-------------|
| Kingfisher       | 1.5                 | 1.5                 | 1.5            | 4.5         |
| BRI heat treated | 2.0                 | 2.5                 | 2.0            | 6.5         |
| Solar            | 2.5                 | 2.5                 | 2.0            | 7.0         |
| Chlorinated      | 2.5                 | 2.5                 | 3.0            | 8.0         |

The total score for the cakes with chlorinated flour was higher than for those with heat treated flours, principally because of their superior eating quality. The heat treated flour from BRI scored slightly lower than Solar flour on external appearance but otherwise scored equally well. Cakes made from Kingfisher flour were inferior in all respects.

Overall, the performance of the heat treated flour from BRI in this formulation matched that of Solar heat treated flour. It gave a superior product to Kingfisher, the other UK flour that was assessed.

## APPENDIX A: result tables

Table A1: Cake specific volume

| Sample      | Solar              |      | BRI heat treated   |      | Kingfisher         |      | Chlorinated        |      |
|-------------|--------------------|------|--------------------|------|--------------------|------|--------------------|------|
|             | ml.g <sup>-1</sup> | sd   | ml.g <sup>-1</sup> | sd   | ml.g <sup>-1</sup> | sd   | ml.g <sup>-1</sup> | sd   |
| Replicate 1 | 2.63               | 0.03 | 2.68               | 0.02 | 2.50               | 0.02 | 2.78               | 0.04 |
| Replicate 2 | 2.64               | 0.02 | 2.67               | 0.03 | 2.46               | 0.01 | 2.73               | 0.03 |

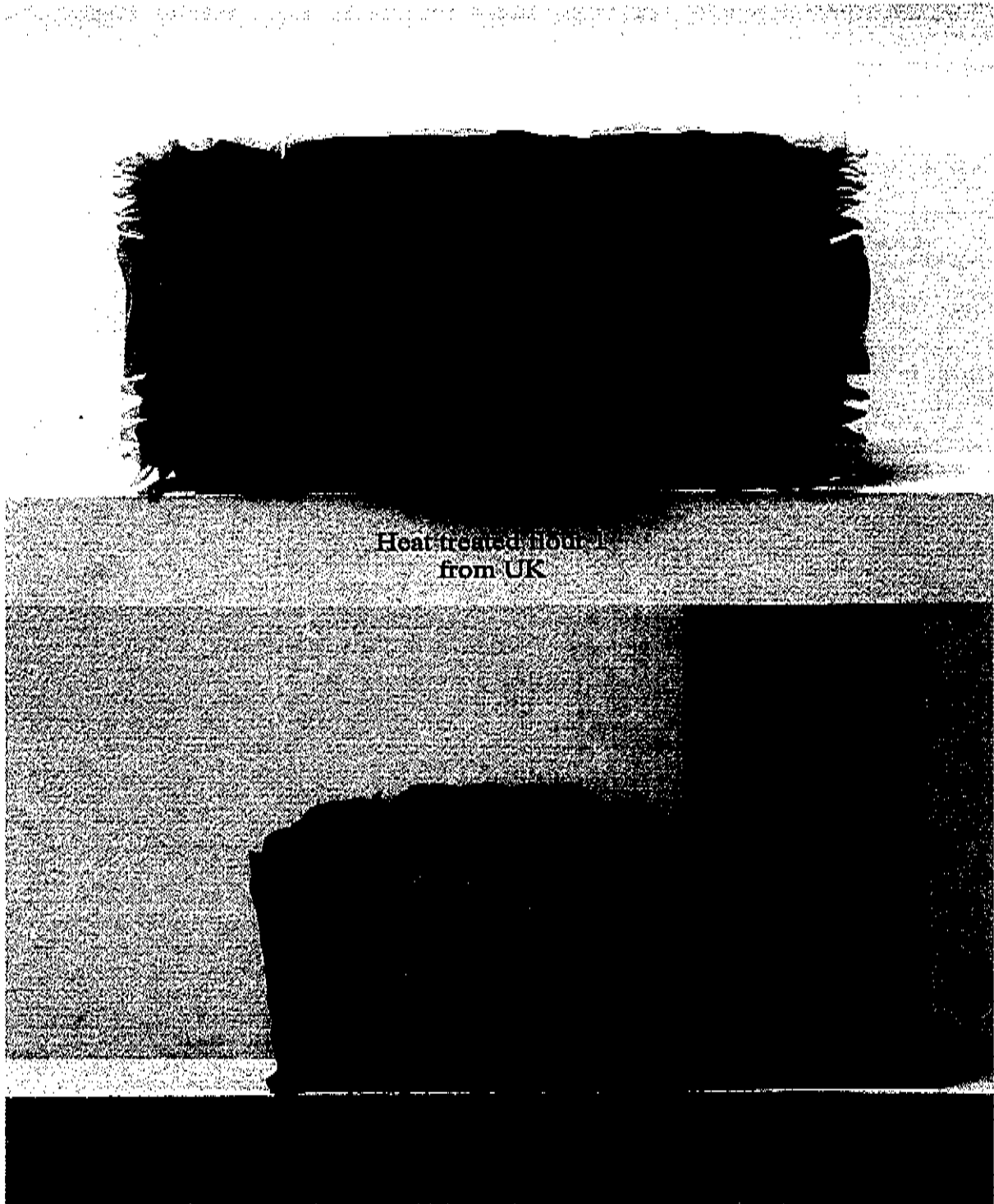
Table A2: Crumb colour – L values

| Sample      | Solar   |     | BRI heat treated |     | Kingfisher |     | Chlorinated |     |
|-------------|---------|-----|------------------|-----|------------|-----|-------------|-----|
|             | L value | sd  | L value          | sd  | L value    | sd  | L value     | sd  |
| Replicate 1 | 83.3    | 0.2 | 83.0             | 0.1 | 78.8       | 0.4 | 85.1        | 0.4 |
| Replicate 2 | 83.1    | 0.3 | 83.6             | 0.3 | 78.8       | 0.4 | 84.3        | 0.1 |

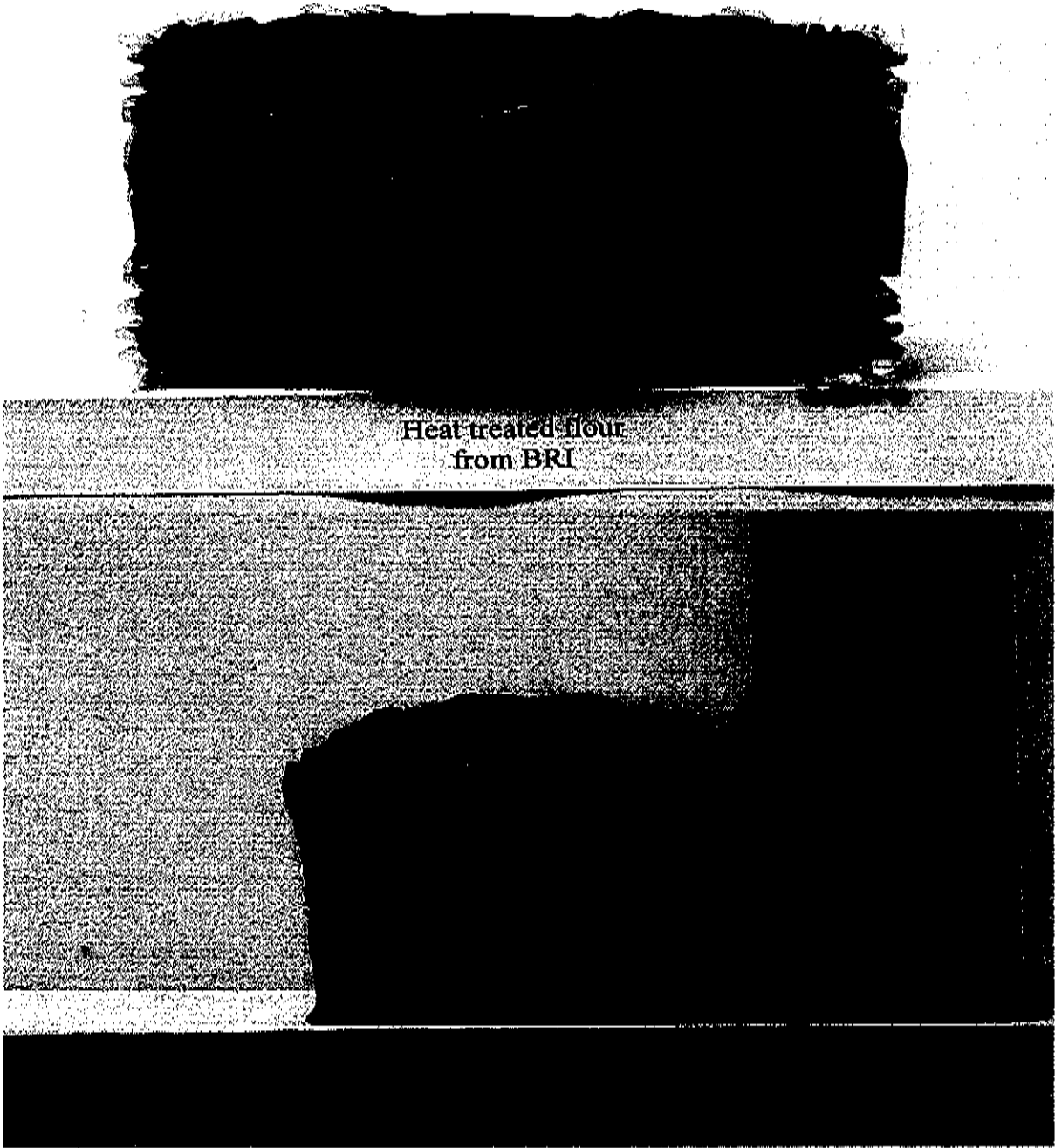
Table A3: Cell diameter by C-Cell

| Sample      | Solar  |      | BRI heat treated |      | Kingfisher |      | Chlorinated |      |
|-------------|--------|------|------------------|------|------------|------|-------------|------|
|             | Pixels | sd   | Pixels           | sd   | Pixels     | sd   | Pixels      | sd   |
| Replicate 1 | 17.42  | 0.96 | 16.24            | 0.25 | 17.42      | 2.36 | 15.03       | 1.73 |
| Replicate 2 | 20.41  | 0.50 | 20.23            | 0.31 | 21.13      | 4.24 | 16.55       | 1.37 |

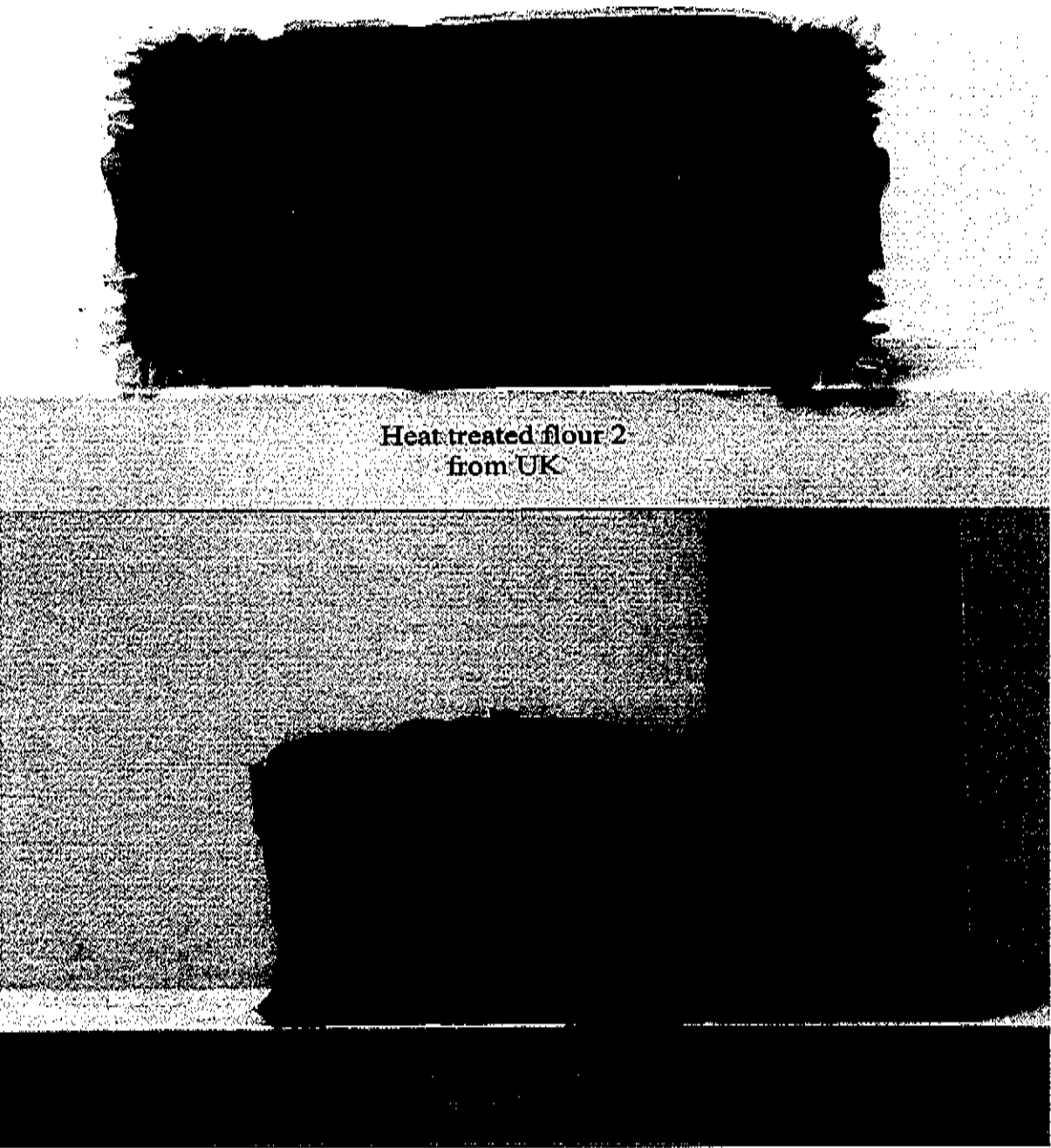
## APPENDIX B: photographs of products



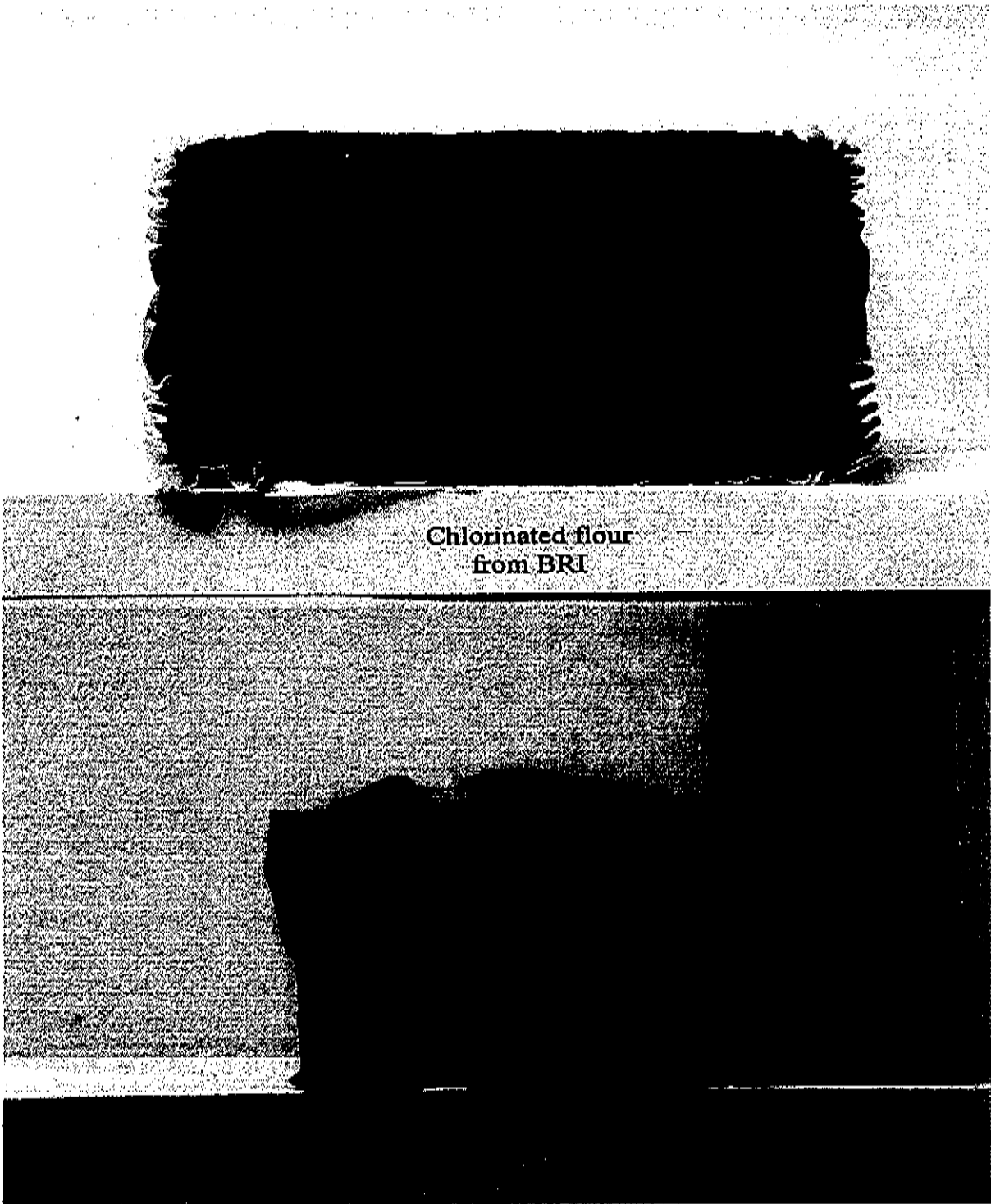
**Solar flour (UK)**



**Heat treated flour from BRI**



**Kingfisher flour (UK)**



**Chlorinated flour from BRI**

## APPENDIX C: Cake scoring scheme for overall assessment of products

### EXTERNAL APPEARANCE

| Description   | Score |
|---|-------|
| A bold, peaked cake, with a decided central crack and no signs of collapse.     | 3.0   |
| A less peaked cake, with central crack and no signs of collapse.                | 2.5   |
| A slightly peaked cake, with a slight central crack and some signs of collapse. | 2.0   |
| A flat cake.  | 1.5   |
| A slightly sunken cake with obvious external signs of collapse.                 | 1.0   |
| A decidedly sunken cake or one which failed to rise during baking.              | 0.0   |

### INTERNAL APPEARANCE

| Description   | Score |
|---|-------|
| A fine, even grain (i.e cell structure) with no marked irregularity of the crumb.         | 3.0   |
| A less fine grain with some irregularities throughout the crumb.                          | 2.5   |
| An uneven grain with larger bubbles and/or decided irregularities throughout the crumb.   | 2.0   |
| An open or very close grain with major differences in crumb structure and slight streaks. | 1.5   |
| An open or very close grain with decided streaks present.                                 | 1.0   |
| A decidedly open or decidedly close grain with decided streaks present.                   | 0.5   |
| A collapsed crumb structure.  | 0.0   |

### EATING QUALITY AND TASTE

| Description   | Score |
|---|-------|
| Fairly dry, tender cakes, with a melt in the mouth texture. | 3.0   |
| Slightly drier or pastier cakes.                            | 2.0   |
| Considerably drier or pastier cakes.                        | 1.5   |
| Very dry or pasty cakes.                                    | 1.0   |
| Cakes with a cooked flavour or other off-flavours.          | 0.5   |
| Cakes with a very marked off-flavour.                       | 0     |



## APPENDIX D: manufacturers specifications

**SPECIFICATION**  
**SOLAR CAKE FLOUR**

PRODUCT CODE:            25 Kg.            -            25230  
   Bulk                -            25259

DESCRIPTION:                A white wheat flour which has undergone a post milling heat treatment process.

PRODUCT DECLARATION:        Wheat Flour

STATUTORY INGREDIENTS:       Calcium Carbonate, Iron Thiamin (Vitamin) Nicotinic Acid.

SPECIFICATION:

|                              | <u>Lower Limit</u> | <u>Lower Target</u> | <u>Mid Point</u> | <u>Upper Target</u> | <u>Upper Limit</u> |
|------------------------------|--------------------|---------------------|------------------|---------------------|--------------------|
| Protein (%)                  | 7.0                | 7.0                 | 8.0              | 8.5                 | 9.2                |
| Moisture (%)                 | 10.5               | 10.0                | 11.5             | 12.0                | 12.5               |
| Colour (KJ Units)<br>On 250μ | -5.0               | -3.0                | -2.0             | -0.5                | 1.0<br>0.5         |

PACKAGING:                    25 Kg. Multiwall paper sacks  
   Bulk tanker

STORAGE CONDITIONS:        Ambient Temperature, dry, pest free.

SHelf life:                        6 months.

TECHNICAL MANAGER

DATE OF ISSUE: 01.11.05

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AMENDMENT 0



## ADM MILLING

### NEW CORE RANGE PRODUCT SPECIFICATION

**PRODUCT:** KINGFISHER CAKE FLOUR

**ADM CODE:** 1025

| <b>ANALYTICAL STANDARDS</b>   | <b><u>Target</u></b> | <b><u>Minimum</u></b> | <b><u>Maximum</u></b> |
|---|----------------------|-----------------------|-----------------------|
| Protein (N x 5.7, %)<br><i>(Method: ADM 2.32.1 / CCFRA FTWG 19)</i> | 9.0                  | 8.2                   | 9.8                   |
| Moisture (%)<br><i>(Method: ADM 2.25.1 / CCFRA FTWG 08)</i>         | 9.0                  | 8.0                   | 10.0                  |
| Colour (KJ units)<br><i>(Method: ADM 2.21.3 / CCFRA FTWG 07)</i>    | -0.5                 | -5.0                  | 0.0                   |

**INGREDIENT INDICATION  
FOR LABELLING PURPOSES** Wheat flour

**SHELF LIFE** 6 months if stored in cool, dry, hygienic conditions

# UNCONTROLLED DOCUMENT



## PRODUCT SPECIFICATION

### CASTER SUGAR

|        |       |                     |
|--------|-------|---------------------|
| Codes: | 55343 | 25kg Easy Open Sack |
|        | 55314 | 50kg Stitched Sack  |
|        | 55315 | 1 tonne Bag         |
|        | 57312 | Bulk Tanker         |

#### Description

White free flowing crystalline product, free from abnormal odours and flavours and free from visible extraneous material.

Complies with all relevant statutory requirements.

#### Chemical/Physical

|                  |                     |
|------------------|---------------------|
| Solution Colour  | 32 ICUMSA units max |
| Conductivity Ash | 0.02% max           |
| Loss on Drying   | 0.04% max           |
| Reducing Sugars  | 0.04% max           |
| SO <sub>2</sub>  | 12mg/kg max         |
| Lead             | 0.5mg/kg max        |
| Arsenic          | 1.0mg/kg max        |
| Copper           | 2.0mg/kg max        |

Insoluble Matter                      Typically 5-10mg/kg

Particle Size                              <10% above 425um  
   <22% below 212um

#### Microbiological

|                     |                             |
|---------------------|-----------------------------|
| Salmonellae         | not detected in 25g         |
| E coli              | not detected in 0.1g        |
| Staph aureus        | not detected in 0.1g        |
| Mesophilic bacteria | typically <500g; 3000/g max |
| Yeasts              | typically <10/g; 100/g max  |
| Moulds              | typically <10/g; 100/g max  |

|     |    |  |
|-----|----|--|
| YES | NO | Dual Suppliers (Tick)<br>Number of Suppliers |
|     | √  |  |

|   |                              |
|---|------------------------------|
| <b>Product:</b>                               | <b>SWEETEX AV SHORTENING</b> |
| <b>Appearance:</b>                            | White plastic solid          |
| <b>Country of Origin:</b>                     | UK                           |
| <b>Recipe/Commodity Code (if applicable):</b> | Aarhus United Code CAT-S0009 |

|                             |   |
|-----------------------------|---|
| <b>Product Description:</b> | Emulsified Shortening                               |
| <b>Weight:</b>              | 12.5kg  |
| <b>Packaging:</b>           | Blue polythene liner in corrugated fibreboard outer |

|  |  |
|--|--|
| <b>Storage &amp; Handling:</b>   | Store cool & dry (14-18°C) away from strong light and odours |
| <b>(All products must be traceable back to Manufacturer by Batch, Sort Codes, etc)</b> |  |

| <u>Composition/Ingredients</u> | <u>Percentages</u> |
|--------------------------------|--------------------|
| Vegetable Oil                  | 73                 |
| Hydrogenated Vegetable Oil     | 13                 |
| Emulsifier E471                | 10                 |

|                                |     |   |    |  |
|--------------------------------|-----|---|----|--|
| <b>GMO Free? (please tick)</b> | Yes | √ | No |  |
|--------------------------------|-----|---|----|--|

|   |     |  |    |   |
|---|-----|--|----|---|
| <b>Does Product Contain Nuts? (please tick)</b> | Yes |  | No | √ |
|---|-----|--|----|---|

| <u>Nutritional Information</u> | <u>(Typical Values per 100g)</u> |
|--------------------------------|----------------------------------|
| Energy Value                   | 899kcal/3696kj                   |
| Total Fat                      | 99.9g                            |
| Protein                        | 0g                               |
| Carbohydrate                   | 0g                               |
| Fibre                          | 0g                               |
| Sodium                         | 0g                               |

|                   |   |
|-------------------|---|
| <b>Labelling:</b> | Each carton is coded with a julian date code, a unique batch number & BBE details |
|-------------------|---|

|   |     |   |    |  |
|---|-----|---|----|--|
| <b>Does Best Before Date Appear On Packaging? (please tick)</b> | Yes | √ | No |  |
|---|-----|---|----|--|

| <b>Waste Packaging Regulations (Specify Weight of Packaging):</b> |        |         |           |       |      |       |
|---|--------|---------|-----------|-------|------|-------|
|   | Paper  | Plastic | Aluminium | Steel | Wood | Glass |
| <b>Weight</b>   | 20.3kg | 1.78kg  | 0kg       | 0kg   | 30kg | 0kg   |

**Total Shelf Life of Product:** 26 weeks from date of manufacture  
**Minimum Shelf Life on Delivery Into Bako North Western:** 4.5 months  
**Lead Times from Order:** 5 working days

**Chemical Standards:**  
 Free fatty acid per batch 0.1% max  
 Peroxide value per batch 1.0meq/kg on production

**Microbiological Standards:**  
 Sweetex manufactured by Aarhus United UK is automatically sterilised in the final processing stage prior to packaging. Moreover, the composition of Sweetex (very low water activity, minimal oxygen, absence of protein and carbohydrate) precludes the growth of all pathogens and spoilage organisms, and virtually all other microorganisms. Because of this, Aarhus United UK Ltd do not undertake routine microbiological QC of products. However, processes and products are monitored for hygiene.

|  |     |                                     |    |                          |
|--|-----|-------------------------------------|----|--------------------------|
| <b>Suitable for Vegetarians? (please tick)</b> | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |
| <b>Suitable for Vegans? (please tick)</b>      | Yes | <input checked="" type="checkbox"/> | No | <input type="checkbox"/> |

**C.O.S.H.H. (Control of Substances Hazardous to Health)**

To be completed by Supplier

**Hazards:** Combustible but presents no special hazards

**Precautions:** No special handling necessary

**First Aid:** Eyes: essentially non-irritating, flush with water or eye wash solution. Seek Medical advice should irritation occur & persist. Skin flush with water.

**Spillage:** Scrape up. If liquid absorb sample onto suitable inert material & scrape up. Remove residue by washing with hot water & detergent. Dispose of by recognised method of chemical waste disposal.

**Date:** 27.8.03 **Issued By:** Dave Mather **Position:** Senior Chemist

To be completed by} Purchasing Manager

Bako Office only}

Sales & Technical Services Manager:

**Vendor Code:** 312

## UK Office



Unit 2, Weston Ind. Estate, Honeybourne,  
Evesham, WR11 7QB  
Tel: 01386 849111  
Fax: 01386 849222



### TECHNICAL DATA FROZEN WHOLE EGG PASTEURISED

#### 1. Composition

Whole egg from fresh eggs mixed with egg yolk to standardize. 100% egg content

#### 3. Chemical and physical characteristics

- Dry mass: 21% +/- 0,5 % (103°C, min. 4 h in sand)
- Fat content: 10,5 +/- 0,5 %
- Protein: 12 %
- Density (20°C): +/- 1030
- pH: 7,5 +/- 0,3
- Color: 9 to 12 (Roche)
- Succinic acid: max. 25 mg/kg D.M.  
(Boehringer : enzymaticly)
- Beta-hydroxybutyric acid: max. 10 mg/kg D.M.  
(Boehringer : enzymaticly)
- L-lactic acid: max. 1000 mg/kg D.M.  
(Boehringer : enzymaticly)

#### 4. Bacteriological norms

- Total microbial count: max. 10,000/g (PCA ; 37°C ; 72 h)
- Enterobacteria: 0/g (VRBG ; 30°C ; 24 h)
- Salmonella (Elisa): absent/25g

#### 5. Other characteristics

- Aspect: homogenous, clear
- Consistance: fluid
- Smell, color: without strange influences

#### 6. Packaging

Gable Top Package with a net weight of 1 kg (6x1 kg per carton)

Gable Top package with a net weight of 5kg

Plastic bucket with a net weight of 10 kg

On each package : production-day: expiry-date (shelf life : 2 years from production).

#### 7. Storage

Store at -18 centigrade or below. Temper product in fridge +/- 8 centigrade approx 3 days



|              |                                  |
|--------------|----------------------------------|
| Product Name | Bex Baking Powder                |
| Product Code | FIG                              |
| Description  | A raising agent in powder form   |
| Appearance   | An off white free flowing powder |
| Ingredients  |                                  |

(Those ingredients which are declarable in the finished product under the current UK legislation.)

#### Raising Agents (E450, E500)

|                             |          |
|-----------------------------|----------|
| Percentage breakdown        | % band * |
| Raising Agents (E450, E500) | 80 - 85  |
| Wheat flour                 | 15 - 20  |

\* Actual percentages are within stated bands

#### Nutrition Information

Nutritional values (expressed in grams unless otherwise stated)

|                 | Per 100g          |
|-----------------|-------------------|
| Energy          | 70 kcal<br>300 kJ |
| Protein         | 2                 |
| Carbohydrate    | 16                |
| of which sugars | 0.2               |
| Fibre           | 0.2               |
| Sodium          | 0.7               |
|                 | 19.2              |

\* Computer database containing data from McCance and Widdowson's "The Composition of Foods"  
 \*\* The raw material supplies have been used in the calculation of the nutritional profile

|                       |               |
|-----------------------|---------------|
| Microbiological       | Maximum value |
| Coliforms             | < 10 cfu/g    |
| Yeasts                | < 10 cfu/g    |
| Moulds                | < 10 cfu/g    |
| Salmonella            | < 10 cfu/g    |
| Staphylococcus aureus | < 10 cfu/g    |
| Shigella              | Absent in 25g |



**Dietary Information**

Is this product suitable for.....?

Ovo- Lacto Vegetarians

Yes

Cofeiacs

No

Vegans

Yes

Lactose Intolerants

Yes

**Allergen data**

Free from

Peanuts

Yes

Tree nuts \*

Yes

Egg

Yes

Fish

Yes

Milk (cows)

Yes

Crustacea, Molluscs, Shellfish

Yes

Sesame seeds

Yes

Soya

Yes

Sulphite

Yes

Cereals containing gluten

No

\*Tree nuts include Almond, Brazil, Cashew, Chestnut, Hazelnut, Macademia nut, Pecan, Pine nuts, Pistachio, Walnut

**GM Status**

Based on the information available and to the best of our knowledge, this product does not contain any genetically modified soya or maize, or their derivatives that have to be declared as such in the finished product, under EC Council Regulation No. 1139/98 and amendments.

**Shelf Life**

366 days

**Storage Conditions**

Cool, dry, infestation free

**Packaging Information**

Pack weight

25 Kg

Packaging- Outer

Multiply paper sack

Pallet Configuration

4 sack x 10 layers on a 1000 x 1200mm pallet.

**Product Coding**

Batch Number

eg 21 00 00 A 1 1

21 00 00= 21st November 2000

A= Line

1= Batch

1= Pallet

Best Before Date

eg. End Dec 2000

**Other Information**

Issue Number

00/01

Issue Date

04-Dec-00

Signed

*ZMorton*

Issued By

Zoe Morton

Position

QA Technologist

Approved by

*P.R. Cornick*

Paul Cornick

Position

Company Specifications Manager

CONFIDENTIAL  
NOT FOR PUBLICATION

The information herein is believed to be correct but no warranty is given. Customers should conduct tests to determine the suitability for their specific requirements

**PELL™ COMMAND Baking Powder**

*PELL™ Command – perfect for general flour confectionery with heat treated flour, as well as frozen and refrigerated doughs. For maximum cake volume as well as control during the dough or batter preparation*

**Applications**

- High ratio cakes with heat treated flour
- Frozen doughs
- Refrigerated batters
- Dual yeast/chemically leavened products
- General flour confectionery
- Hot climate/bakery conditions

**Technical Specification (typical values)**

- 16 % CO<sub>2</sub> (total)
- 0.5% max. residual CO<sub>2</sub>

**Nutritional Information**

| Parameter         | g/100g | Parameter       | g/100g |
|-------------------|--------|-----------------|--------|
| Protein           | 2.2    | Moisture        | 0.8    |
| Fat               | 0.3    | Carbohydrate    | 17.9   |
| • Mono            | Trace  | • Starch        | 17.5   |
| • Saturated       | Trace  | • Sugars        | 0.3    |
| • Polyunsaturated | 0.1    | • Fibre         | 0.7    |
| Sodium as Na      | 17.1   | Phosphorus as P | 11.7   |
| Calcium as Ca     | 2.1    |                 |        |

**Shelf-Life**

The shelf-life for this product is 12 months from date of manufacture.

Always ensure that PELL Command is stored in cool, dry conditions to avoid product deterioration. Seal the packaging once it has been opened and whenever possible, transfer the contents into sea containers.

**Addition Level**

The recommended addition level is 3.5 – 5.5% based on the flour weight. Variations to this guide may be needed depending on the other ingredients in your recipe. We will be pleased to advise further.

CREATIVITY IN THE MAKING

TEL : 07041 539 095

FAX : 01562 770 049

EMAIL : INFO@KUDC.COM.BS

WEBSITE : WWW.KUDC.COM.BS

## Ingredient Declaration

On the finished bakery product, use the following declaration for the raising agents of PE Command:

|  |                           |
|--|---------------------------|
| Raising agent: Disodium diphosphate, sodium bicarbonate or | Raising agent: E450, E500 |
|--|---------------------------|

## Technical Information

PELL Command:

- Controlled gas release for expansion in the oven, giving the desired lift and volume
- For long production processes, where bench tolerance is essential
- The perfect product for frozen and refrigerated doughs and batters
- Highly recommended for use in hot weather or in hot bakery conditions
- High tolerance to process variations

Other products from the PELL range include:

- PELL Premium - a "back taste" free baking powder for general industrial use
- PELL Control - for a whiter, tighter crumb with controlled gas release
- PELL Gemini - double action - ideal for flat breads such as naans and pittas
- PELL Natural - a Soil Association approved, organic baking powder

Our bakery brochure provides information on the full range of PELL products. We are also happy to tailor-make products to suit an individual application if required.

## Kudos Blends

### ▪ *Technical support*

For all your technical support on baking powders or raising agents, please feel free to contact us. We will be glad to offer advice and support.

### ▪ *Packaging*

We offer a variety of packaging types and sizes, just ask and we will be happy to oblige.

### ▪ *Food integrity manufacturing premises*

All our products are made on dedicated food ingredients plant, conforming to the high specifications of food hygiene and cleanliness.

*Kudos Blends –*

*The Choice is Yours*

Ref010201 Issue: 02

CREATIVITY IN THE MAKING

The information and recommendations contained in this Technical Information Sheet are offered in good faith but without guarantee. Kudos Blends Limited cannot accept any liability for any loss or damage, however caused, arising from the use of any of our products.