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## DEPARTMENT OF CONSUMER & SENSORY SCIENCE

### CONFIDENTIAL REPORT

### SENSORY EVALUATION OF CHOCOLATE POTENTIAL TAIN TEST ON EBIOX TRIONIC SANITIZER

Report No. S/REP/86998/1

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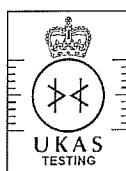
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## SUMMARY

Ebiox Tronic Sanitizer, was submitted for potential taint testing, using the sensory test method, TES-S-004, Potential Taint From Direct Contact With Test Materials. To determine whether the sanitiser had the potential to taint food when utilised as a cleaning agent in food production/storage areas. The triangle test method for similarity was used to assess treated chocolate samples (stored in direct contact with tiles treated with the test sanitizer solution) against untreated control chocolate samples (stored without the test sanitizer). A panel of trained (Triangle Test Method) assessors were used to conduct the test.

To prepare the samples for sensory assessment: the test chemical was diluted with sterile distilled water using the 1:50 ratio specified by the client (2% solution), sprayed onto four stainless steel tiles, then rinsed with sterile water (as specified by the client) and allowed to dry. Chocolate Buttons were placed across the treated tile in a single layer; and the second tile placed on top to create a "chocolate sandwich" effect. Control samples were also prepared using the same method, but omitting the test product and spraying the tiles with sterile distilled water only. Both sets of prepared samples were inserted into two separate coded glass tanks, then stored for 24 hours at ambient temperature. After storage, the treated and control chocolate samples were assessed by a panel of 30 trained (Triangle Test Method) assessors using the Triangle Test for similarity sensory test method.

For a triangle test for similarity, using 30 judgements, a maximum number of 11 correct responses are required to establish similarity between the samples at the chosen levels of 20% alpha ( $\alpha$ ), 10% beta ( $\beta$ ) and 30% Pd. The results indicate that only 6 assessors correctly identified the odd sample. We can therefore conclude that the samples are 'similar' (that is we can be 90% confident that no more than 30% of discriminators can detect a difference between the samples).

## SAMPLE INFORMATION

Date samples received: 5th August 2005  
Condition on receipt: Good  
Stored: Room 988  
Date samples tested: 17th August 2005

## Sample Description

CCFRA Code	Company Code/Sample Description
SA/86998/1	Cadbury's Chocolate Buttons Best Before Date: 12-2005 Lot code: 50780
SA/86998/2	Ebiox Tronic Disinfectant Batch No 0705A
	Sterile distilled water (Prepared and supplied by Food Hygiene Department @ CCFRA)

## METHODS AND REFERENCES

Method reference: Triangle Test No. TES-S- 004  
(British Standard, Sensory Analysis -Methodology - Triangle Test  
BS ISO 4120: 2004)

Deviations from method: None

## **AIM**

To determine whether the Ebiox Trionic Sanitizer could potentially taint food.

## **PREPARATION**

To prepare the samples for sensory assessment: the test chemical was diluted with sterile distilled water using the 1:50 ratio specified by the client (2% solution), then sprayed until run off onto four stainless steel tiles. The treated tiles were then rinsed with sterile water (as instructed by the client) and allowed to dry. Chocolate Buttons were placed across the treated tile in a single layer; and the second tile placed on top to create a "chocolate sandwich" effect. Control samples were also prepared using the same method, but spraying the tiles with sterile distilled water only. Both sets of prepared samples were inserted into two separate coded glass tanks, then stored for 24 hours at ambient temperature. After storage, the treated and control chocolate samples were placed in two separate coded glass bowls and placed in coded containers following the experimental design of the test.

## **SENSORY TESTING**

The samples were evaluated using the Triangle Test Procedure (TES-S-004). In the triangle test assessors are presented with a set of three coded samples, two of which are the same and one of which is different. The sets of samples are presented equally often in each of the six possible orders; this experimental design minimises any possible order and carryover effects.

Thirty trained assessors are used for each test, fifteen receiving "test" as the different sample and fifteen receiving "control" as the different sample. After tasting the three samples in the designated order, each assessor is asked to select the different sample and to describe the difference(s) perceived.

## **TEST CONDITIONS**

The test was carried out in a purpose-built testing room. Each assessor was required to undertake the tests in an individual booth. The room was positively pressurised to minimise the entrance of external odours. Blue coloured lighting was used to mask any colour difference between the samples. The panel used filtered water and plain crackers as palate cleansers between the samples and followed a standardised chocolate tasting protocol.

## RESULTS

Results of the test are given in Table 1.

**Table 1: Results of Triangle Test**

Test Reference No.	No. of Assessors	No. Correctly Identifying the Different Sample	Significance
86998/1 Chocolate, control versus treated ( 2% solution of Ebiox Tronic Sanitizer plus rinse option)	30	6	Similar at the beta ( $\beta$ ) =10% significance level And 30% Pd

For a triangle test for similarity, using 30 judgements, a maximum number of 11 correct responses are required to establish similarity between the samples at the chosen levels of 20% alpha ( $\alpha$ ), 10% beta ( $\beta$ ) and 30% Pd. The results show that only 6 of the 30 assessors correctly identified the odd sample. We can therefore conclude that the samples are 'similar', that is we can be 90% confident that no more than 30% of discriminators can detect a difference between the samples.

Alpha ( $\alpha$ ) - probability of concluding that a perceptible difference exists when one does not

Beta ( $\beta$ ) – probability of concluding that no perceptible difference exists when one does

Pd – the proportion of assessments in which a perceptible difference is detected between the two products.

Reference: Sensory Analysis Methodology – Triangle Test BS ISO 4120: 2004

Descriptors given when the different sample was correctly identified can be seen in Table 2.

**Table 2: Descriptors**

**Test Reference No. 86998/1**

SA/86998/1 Chocolate Buttons Best Before 12-2005	Control	Perfumed (1) Chocolate melts easier in the mouth (1) Milkiest taste (1) No difference (1)
SA/86998/2 Chocolate Buttons stored in direct contact with 2% solution of Ebiox Tronic Sanitizer	Test	Tastes like chocolate, other two samples taste tainted (1) Slightly less waxy (1)

( ) Number of assessors using the descriptor