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CONFIDENTIAL

DEPARTMENT OF CONSUMER AND SENSORY SCIENCES

**SENSORY EVALUATION OF CHOCOLATE STORED IN DIRECT CONTACT WITH
ANTIBAK DISINFECTANT SOLUTION**

Work commissioned by: Bio Technics Limited

Report issued: 31st January 2005

Work carried out by:

Roz Clark

Report authorised by:

Susan Rogers

It should be noted that UKAS accreditation is for carrying out the test; opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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SUMMARY

Antibak RTU (a broad spectrum biocidal agent used for cleaning hard surfaces) was tested using the Triangle test Method TES-S-004, to determine whether the product had the potential to taint food.

Prior to assessment a risk assessment was conducted on the Antibak RTU MSDS supplied, to assess the potential risk to the taste panel of ingesting food previously stored in direct contact with the test material (24 hours). The risk assessment concluded that there was minimal risk to the taste panel.

The Antibak RTU solution was applied neat to two stainless steel tiles then rinsed from the tiles (as specified by the client). The tiles were allowed to dry and chocolate buttons placed across one tile in direct contact with the test surface, the second tile was placed on top of the chocolate to create a "chocolate sandwich" effect. The "chocolate sandwich" samples were stored inside a sealed glass container for 24 hours at ambient temperature. Control chocolate samples were also prepared and stored under the same conditions, in this case the test material was omitted. The treated and control chocolate samples were then assessed by a panel of 18 trained assessors to determine whether any sensory difference could be detected between the two chocolate samples and whether the taste panel detected taint.

There was no statistically significant difference, at the 5% significance level, detected between the control and treated chocolate samples.

The results of the taint test above indicate that Antibak RTU does not have the potential to taint food when used as a hard surface cleaning chemical.

SAMPLE INFORMATION

Date samples received: 25th January 2005

Condition on receipt: Good

Stored: Room 972, ambient temperature for 24 hours

Date samples tested: 27th January 2005

Sample Description

CCFRA Code	Company Code/Sample Description
SA/80594/1	Cadbury's Chocolate Buttons 2 x 145g packs Best Before Date: 06.2005 Lot 42343
SA/80594/2	Antibak RTU 19.01.05
	Sterilised distilled water Supplied by Food Hygiene Department

METHODS AND REFERENCES

Method reference: Triangle Test No. TES-S-004
(British Standard Methodology for Sensory Analysis of Foods
BS 5929: Part 3: 1984/ISO 4120 – 1983)

Deviations from method: None

AIM

To determine whether there was a potential for the test product, Antibak RTU, to taint food (in this case chocolate), then tested against a control chocolate sample using the Triangle Test Method and a panel of 18 trained assessors.

PREPARATION

The Antibak RTU solution was applied (neat) to two stainless steel tiles (each measuring 20 x 20cm²). The test chemical was rinsed from the tiles (as specified by the client), using sterile distilled water. The tiles were allowed to dry and chocolate buttons placed across one tile in direct contact with the test surface, the second tile was placed on top of the chocolate (treated side down) to create a "chocolate sandwich" effect. The treated "chocolate sandwich" samples were inserted into a large glass tank, sealed with vacuum grease and a plate glass tile and stored for 24 hours at ambient temperature. Control chocolate samples were also prepared and stored under the same conditions, in this case the test material was omitted from the process.

After storage, the treated and control chocolate samples in each case were placed into two coded glass bowls. For each assessment fifty-four containers (100ml capacity) were coded with random

three-digit code numbers. Each assessor received three chocolate buttons per sample container per test, presented according to 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.

Eighteen trained assessors are used for each test, nine receiving "test" as the different sample and nine 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.

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
80594/1 Control versus treated chocolate (treated stored with Antibak RTU treated tiles)	18	4	NSD

For a triangle test using 18 judgements, a minimum of 10 correct judgements are required to establish a significant difference between samples at the 5% level of significance (British Standard 5929: Part 3: 1984/ISO 4120 – 1983).

NSD = Not significantly different

SD = Significantly different at the 5% level of significance

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

Table 2: Descriptors

Test Reference No. 80594/1

SA/80594/1 Chocolate Buttons B.B. 06.2005	Control	Musty older chocolate flavour. (1) Slightly more bitter aftertaste (1)
SA/80594/2 Chocolate Buttons with Antibak RTU solution	Test	Other two had a slight cleaning fluid odour (1) Soapy, with an acid aftertaste (1)

() Number of assessors using the descriptor