

IMSL

INDUSTRIAL MICROBIOLOGICAL SERVICES LTD

STUDY REPORT: Determination of Antibacterial Activity against *Staphylococcus aureus* and *Escherichia coli* using a Zone of Inhibition Method.

Gelcoat LS 97PA - White (Control)
Crystic LS 97 PA Microban

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MBE 258:SCOTT BADER

REPORT NO: IMSL LRN 1013450

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Contents

1	Introduction	1
2	Test Materials	1
3	Method	1
4	Results / Discussion	2
5	Raw Data	4
6	Exclusion of Liability	4

1 Introduction

This report summarises a study performed to assess the antibacterial properties of samples formulated either with or without Microban against *Staphylococcus aureus* and *Escherichia coli*.

2 Test Materials

Gel coated glass fibre sheets ex Scott Bader were supplied by Microban Europe Ltd. The samples were maintained at 20°C in the dark prior to testing. Immediately prior to testing replicate sub-samples (each 20 x 200 mm) were cut from each sample.

3 Method

Antibacterial activity was determined using a zone of inhibition test.

3.1 Determination of Antibacterial Activity

An aliquot (200 µl) of a log phase cell suspension of either *Staph aureus* or *E coli* (ca 5×10^8 cells ml⁻¹) was spread over the surface of an agar plate (Trypcase Soya Agar). The samples were then placed on to the surface of the inoculated agar with the coated face in contact with the agar. The plates were incubated at 37°C for 24 hours, then inspected for growth up to and under the test samples and for the presence of any zone of inhibition surrounding the samples. The samples were then imaged photographically. After imaging, the plaques were removed from the agar surface and the zone below the sample was photographed.

4 Results / Discussion

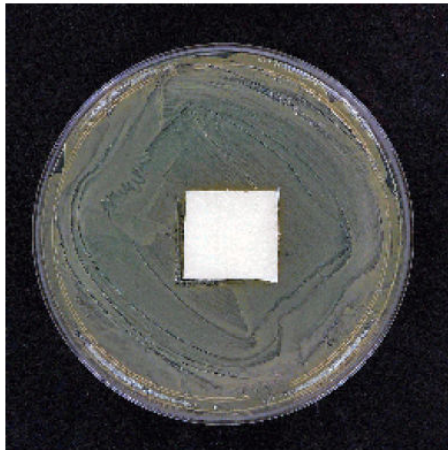
The results are shown in Table 1 and Plates 1 - 4 below.

Table 1: Results of testing

Sample	Zone (mm)	
	<i>Staph aureus</i>	<i>E coli</i>
Gelcoat LS 97PA - White (Control)	0	0
Crystic LS 97 PA Microban	4	0

Plate 1: Gelcoat LS 97PA - White (Control)

Staph aureus



E coli

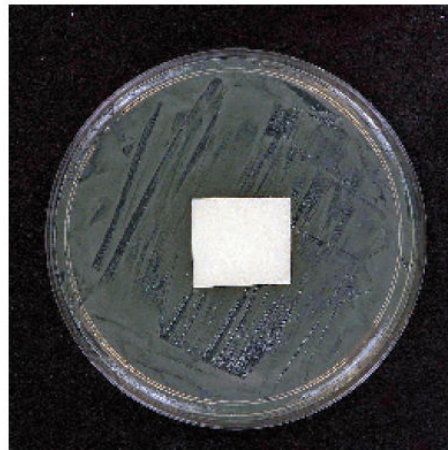
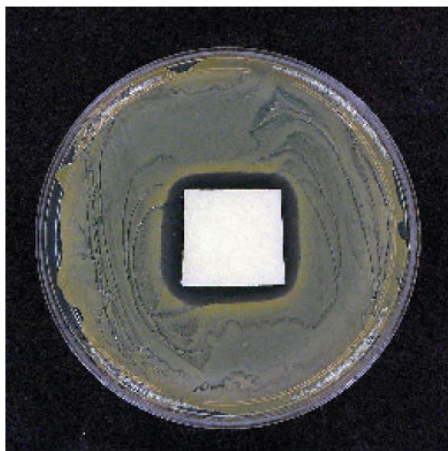


Plate 2: Crystic LS 97 PA Microban

Staph aureus



E coli

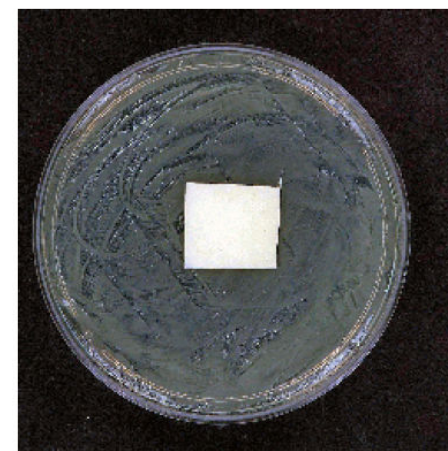


Plate 3: Gelcoat LS 97PA - White (Control) - *Escherichia coli* (Test Substrate removed)

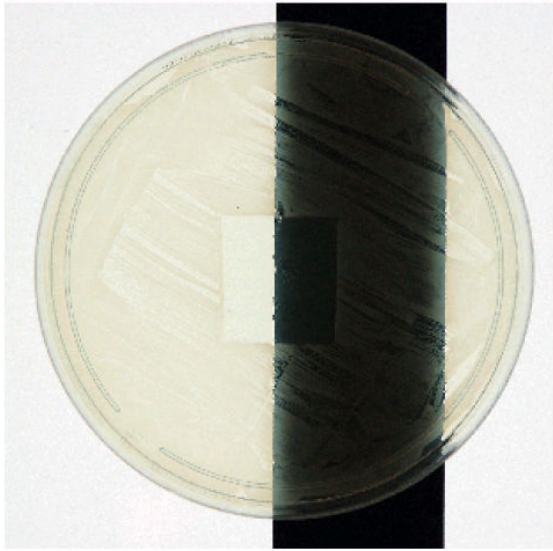
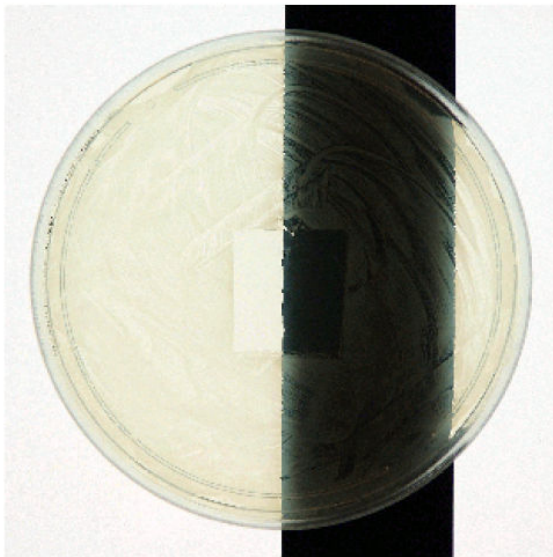


Plate 4: Crystic LS 97 PA Microban - *Escherichia coli* (Test Substrate removed)



It can be seen from the results above that no zones free of growth were produced around the untreated material (Gelcoat LS 97PA - White). In contrast, a zone free of growth was observed around the samples of Crystic LS 97 PA on the plates inoculated with *S aureus*. However, no zone was visible around this material on the plates that were inoculated with *E coli*. When the samples were removed, no growth was detected below both the treated or untreated samples (see Plates 3 and 4).

5 Raw Data

The raw data for this study will be held in file IMSL LRN 1013450 in the Archive of IMSL at Pale Lane, Hartley Wintney, Hants, RG27 8DH, UK for 6 years from the date of this report unless other specific instructions are given.

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