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ENVIRONMENTAL AND HEALTH RELATED STUDIES SUMMARY REPORT OF COBRATEC 99 (1,2,3-BENZOTRIAZOLE), COBRATEC TT100 (TOLYL TRIAZOLE), AND PARA CRESIDINE WITH COVER LETTER DATED 09/16/94			
Chemical Category		1,2,3-BENZOTRIAZOLE (95-14-7)	



CINC SPEC

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To whom it may concern:

Cincinnati Specialties is hereby submitting a copy of a report which summarizes environmental health related testing recently completed for the following compounds listed under 40CFR, section 716.120(a):

- |                    |                 |                     |
|--------------------|-----------------|---------------------|
| (1) Cobratec 99    | CAS# 95-14-7    | 1,2,3-Benzotriazole |
| (2) Cobratec TT100 | CAS# 29385-43-1 | Tolyl triazole      |

Please note the report also includes health data for the compound para-Cresidine (CAS # 120-71-8). Although this compound is not listed in section 716.120(a), the information is being submitted as this may be required under section 8(e).

Thank you in advance for your assistance in this matter. Should you have any questions please feel free to contact me at 513-242-3300.

Sincerely yours,

Cincinnati Specialties, Inc.  
A Subsidiary of PMC Specialties Group, Inc.

*Joseph A. Titschinger*

Joseph A. Titschinger  
Technical Manager

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**ENVIRONMENTAL**  
**and**  
**HEALTH RELATED**  
**STUDIES**  
**SUMMARY REPORT**

**Cobratec 99**  
**Cobratec TT100**  
**para-Cresidine**

Joseph A. Titschinger  
September 9, 1994

## Introduction

Environmental and health related tests were recently run on Cobratec 99, Cobratec TT100, and para Cresidine. This report provides a short description of each test and the results obtained.

## Biodegradation Studies

### Microbial Inhibition Test<sup>(1)</sup>

#### Procedure

A series of test chambers containing a readily degradable primary substance (glucose), dilution water, and inoculum were dosed with increasing amounts of test substance. Dilution and primary substance controls were also conducted concurrently. The dissolved oxygen within each test chamber was measured after the addition of the test substance. The test chambers were incubated in the dark for approximately 3 days. The temperature during incubation period ranged from 18.6 to 20.6°C. The dissolved oxygen was then measured after the incubation period.

#### Results

Test Substance	Result
COBRATEC 99	No inhibition of oxygen uptake at concentrations up to and including 100 mg/L. Inhibition of oxygen uptake was evident at 150 mg/L, the maximum concentration tested.
COBRATEC TT100	No inhibition of oxygen uptake was evident over the range of concentrations tested. The maximum concentration tested was 150 mg/L.

## Semicontinuous Activated Sludge (SCAS) Removability Test<sup>(2)</sup>

### Objective and Procedure

The objective of this study was to assess the removability of the test substance in activated sludge that had been acclimated to the test substance over a seven day period. Removability was based on the residual dissolved organic carbon (DOC) concentration in the supernatant of the activated sludge.

The test contained one control and the test substances treatment group. Each group contained two replicate semicontinuous activated sludge (SCAS) test vessels. The control group was used to measure the residual DOC concentration in the supernatant of activated sludge that was not exposed to the test substance. Each test substance was assigned a treatment group. Each test vessel within an assigned treatment group was dosed with its respective test substance at 20 mg/l of carbon as test substance. Tap water was added to all vessels to achieve a uniform volume. The test vessels within each treatment group were dosed with the test substance for 7 days prior to the start of effluent analysis. Dissolved organic carbon (DOC) analyses were performed on a sample of the effluent from each SCAS vessel every day over a 7 day test period.

### Results

Test Substance	Mean Percent Removal
COBRATEC 99	0.7
COBRATEC TT100	7.3

### Anaerobic Biodegradation Test<sup>(3)</sup>

#### Objective and Procedure

The objective of the study was to assess the biodegradability of the test substances in anaerobic digester sludge. Biodegradability was based on the measurement of the end products of anaerobic biodegradation ( $\text{CH}_4$  and  $\text{CO}_2$ ) and is expressed as a percentage of the amount of carbon added as test substance.

The test contained a blank control, pressure control, reference, and six treatment groups. The blank control group was used to determine the background level of gas production and was not exposed to the test substance. The pressure control group was used to calibrate the pressure meter and was prepared analogous to the blank control. The reference group was dosed with cellulose at 50 mg C/L. All groups except the blank control contained three replicate test chambers. The blank control group contained six replicates. The test was conducted over a 56 day test period.

#### Results

Test substance	% Biodegradation
Cellulose reference	77
COBRATEC 99	5.6
COBRATEC TT100	0

## Health Related Tests

### COBRATEC 99 Inhalation Test<sup>(4)</sup>

#### Objective and Procedure

This study was designed to assess the acute toxic effects of COBRATEC 99 when administered via inhalation as a dust, by whole-body exposure, to Sprague-Dawley CD rats (5/sex). The exposure was conducted for 4 hours at a target level of 2.5 mg/L, which was considered equivalent to 10.0 mg/L for 1 hour. Physical observations for abnormal signs were conducted on all animals as a group, at fifteen minute intervals during the first hour of exposure, and hourly for the remainder of the exposure. All animals received detailed physical observations just prior to exposure, upon removal from the chamber, hourly for two hours post-exposure and once daily thereafter for 14 days. Body weight measurements were obtained prior to exposure and 1, 2, 4, 7 and 14 days after exposure. After the post-exposure observation period, all surviving animals were sacrificed. Complete post mortem examinations were performed on all animals.

#### Results

The mean gravimetric exposure concentration of COBRATEC 99 for the 4-hour exposure was determined to be 1.5 mg/L of air (equivalent to 6.0 mg/L for 1 hour) This was considered to have been the maximum attainable exposure level.

All animals survived the exposure and the 14-day post-exposure observation period. Signs of treatment included slight respiratory (labored breathing) and/or secretory (nasal discharge) responses during the exposure or for the first week following the exposure. These generally abated during the second week after exposure.

Slight decreases in body weights were observed on the day after exposure with a recovery thereafter. Postmortem findings were unremarkable.

In conclusion, the one-hour LC<sub>50</sub> of COBRATEC 99 was considered greater than 6.0 mg/L, the maximum attainable concentration.

## para-Cresidine Inhalation Test<sup>(5)</sup>

### Objective and Procedure

This study was designed to assess the acute toxic effects of para-Cresidine flake when administered via inhalation as a dust, by whole-body exposure, to Sprague-Dawley CD rats (5/sex). The initial exposure was conducted for 1 hour at a target level of 0.5 mg/L. A second exposure was conducted for 4 hours at a target exposure level of 0.5 mg/L, which was considered equivalent to 2.0 mg/L for 1 hour. Physical observations for abnormal signs were conducted on all animals as a group, at fifteen minute intervals during the first hour of exposure, and hourly for the remainder of the exposure. All animals received detailed physical observations just prior to exposure, upon removal from the chamber, hourly for two hours post-exposure and once daily thereafter for 14 days. Body weight measurements were obtained prior to exposure and 1, 2, 4, 7 and 14 days after exposure. After the post-exposure observation period, all surviving animals were sacrificed. Complete post mortem examinations were performed on all animals.

### Results

The mean gravimetric exposure concentration of para-Cresidine for the 4-hour exposure was determined to be 0.78 mg/L of air (equivalent to 3.1 mg/L for 1 hour), resulting in 20% mortality within 2 days of exposure.

Signs of treatment included labored breathing and decreased activity during the exposures. During the first week of the 14 day post-exposure observation period, signs of toxicity included respiratory (labored breathing) and secretory (nasal discharge, lacrimation) responses. These generally abated among surviving animals during the second week after exposure.

Slight decreases in body weights were observed during the first week following exposure, however, recovery occurred over time and all animals were in excess of their pre-exposure body weight by the termination of the study. Postmortem findings were generally unremarkable.

In conclusion, the one-hour LC<sub>50</sub> of para-Cresidine flake was considered greater than 3.1 mg/L, the maximum attainable concentration.

## References

- (1) Wildlife International Ltd., Project no.: 373E-102, "COBRATEC 99: MICROBIAL INHIBITION TEST METHOD"
- (2) Wildlife International Ltd., Project no.: 373E-105, "COBRATEC TT100: MICROBIAL INHIBITION TEST METHOD".
- (3) Wildlife International Ltd., Project no.: 373E-106, "SEMICONTINUOUS ACTIVATED SLUDGE (SCAS) REMOVABILITY TEST METHOD on COBRATEC FORMULATIONS", April 8, 1994.
- (4) Wildlife International Ltd., Project no.: 373E-110, "ANAEROBIC BIODEGRADATION TEST on COBRATEC FORMULATIONS", April 8, 1994.
- (5) PHARMACO::LSR, Study no. 93-5163, "AN ACUTE (1-HOUR) INHALATION TOXICITY STUDY OF BENZOTRIAZOLE (BT) IN RAT VIA WHOLE-BODY EXPOSURE", July 29, 1994.
- (6) PHARMACO::LSR, Study no. 93-5164, "AN ACUTE (1-HOUR) INHALATION TOXICITY STUDY OF PARA-CRESIDINE (MASO) FLAKE IN RAT VIA WHOLE-BODY EXPOSURE", July 29, 1994.



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