14

DATA EVALUATION REPORT

ZIRAM

STUDY TYPE: ACUTE ORAL TOXICITY - RAT (81-1)

8/2/2000

Prepared for

Health Effects Division
Office of Pesticide Programs
U.S. Environmental Protection Agency
1921 Jefferson Davis Highway
Arlington, VA 22202

Prepared by

Chemical Hazard Evaluation Group
Toxicology and Risk Analysis Section
Life Sciences Division
Oak Ridge National Laboratory
Oak Ridge, TN 37831
Task Order No. 97-22I

Primary Reviewer:
Susan Chang, M.S. Signature: _____
Date: _____

Secondary Reviewers:
H.Tim Borges, M.T.(A.S.C.P.), Ph.D., D.A.B.T. Signature: _____
Date: _____

Robert H. Ross, M.S., Group Leader Signature: _____
Date: _____

Quality Assurance:
Sylvia Milanez, Ph.D., D.A.B.T. Signature: _____
Date: _____

Disclaimer

This review may have been altered subsequent to the contractor's signatures above.

Oak Ridge National Laboratory, managed by Lockheed Martin Energy Research Corp. for the U.S. Department of Energy under contract number DE-AC05-96OR22464.

EPA Reviewer: Virginia A. Dobozy,V.M.D, M.P.H.,_____Date _____
Reregistration Branch 1 (7509C)
Whang Phang, Ph.D., Branch Senior Scientist,_____Date _____

Reregistration Branch 1 (7509C)

DATA EVALUATION RECORD

STUDY TYPE: Acute Oral Toxicity - Rat
OPPTS 870.1100 [§81-1]

DP BARCODE: D235025 SUBMISSION CODE: S521512
P.C. CODE: 034805 TOX. CHEM. NO.: 931

TEST MATERIAL (PURITY): Ziram (Technical, 98.5%)

SYNONYMS: Zinc dimethyldithiocarbamate

CITATION: Liggett, M. and S. Allan (1989) Acute oral toxicity to rats of Ziram. Huntingdon Research Centre Ltd., P.O. Box 2, Huntingdon, Cambridgeshire, PE18 6ES, England. HRC Study Report No. 89690D/UCB 315/AC, November 30, 1989. MRID 41340401. Unpublished.

SPONSOR: UCB Chemicals Corporation, 5365 Robin Hood Road, Norfolk, VA 23513

EXECUTIVE SUMMARY: In an acute oral toxicity study (MRID 41340401) groups of five male and five female young adult CD rats were given a single dose of 250, 400, or 640 mg/kg of Ziram (Technical, 98.5% a.i., Batch no. 8331AA) in 1%(w/v) methylcellulose by gavage and observed for 14 days.

Oral LD_{50} Males = 381 mg/kg (95% C.I. 227 to 594 mg/kg)
Females = 267 mg/kg (95% C.I. 113 to 394 mg/kg)
Males and Females Combined = 320 mg/kg (95% C.I. 176 to 422 mg/kg)

Ziram is in TOXICITY CATEGORY II.

Deaths occurred among males and females at all dose levels from day 2 to day 3. Piloerection was observed in all rats within 5 minutes of dosing, followed by abnormal body carriage (hunched posture), abnormal gait (waddling), lethargy, decreased respiratory rate, ptosis, pallor of the extremities and diarrhea in all rats on day 1. Recovery was complete by day 5. Body weight losses were recorded for all rats that died. There were no significant treatment-related findings at necropsy.

This acute oral study is classified acceptable (guideline). This study does satisfy the guideline requirement for an acute oral study (81-1) in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance, and Data Confidentiality statements were provided.

I. MATERIALS AND METHODS

A. MATERIALS

1. Test material: Ziram (Technical)

Description: creamy white powder
Lot/Batch #: 8331AA
Purity: 98.5% a.i.
CAS #: 137-30-4

2. Vehicle

1%(w/v) methylcellulose

3. Test animals

Species: rat
Strain: CD [Crl:CD®(SD)BR VAF plus]
Age and/or weight at dosing: ~4-6 weeks; males: 142-158 g, females: 142-152 g
Source: Charles River France
Acclimation period: 15 days
Diet: Biosure LAD 1, *ad libitum* (except overnight prior to dosing and 4 hours after dosing)
Water: domestic quality potable water, *ad libitum*
Housing: up to 5 same sex/metal cage with wire mesh floor
Environmental conditions:
Temperature: 22-24°C
Humidity: 62%
Air changes: 15/hour
Photoperiod: 12 hour light/dark

B. STUDY DESIGN and METHODS

1. In life dates

Start: February 10, 1989; end: March 10, 1989

2. Animal assignment and treatment

Animals were assigned to the test groups noted in Table 1. Dose selection was based on a preliminary study. (In this study, the LD_{50} for males and females was 800 mg/kg and 200-800 mg/kg, respectively.) Following an overnight fast, groups of 5 animals/sex were given a single dose of 250, 400, or 640 mg/kg of the test material in 1%(w/v) methylcellulose by gavage at a volume of 20 mL/kg. The animals were observed for clinical signs of toxicity after ½, 1, 2, 3, 4, 5, and 6 hours and twice daily thereafter for the next 14 days. They were weighed on study days 1, 8, 15, or at death. Survivors were sacrificed by cervical dislocation and necropsied.

TABLE 1. Doses, mortality/animals treated

Dose (mg/kg)	Males	Females	Combined
250	1/5	2/5	3/10
400	3/5	4/5	7/10
640	4/5	5/5	9/10

Data taken from pp. 10 and 15, MRID 41340401.

3. Statistics

The oral LD_{50} was calculated using the method of Finney (1971) [Probit Analysis (3rd Edition) Cambridge University Press].

II. RESULTS AND DISCUSSION

A. MORTALITY

Mortality is given in Table 1. Deaths occurred among males and females at all dose levels from day 2 to day 3.

Oral LD_{50} Males = 381 mg/kg (95% C.I. 227 to 594 mg/kg)
Females = 267 mg/kg (95% C.I. 113 to 394 mg/kg)
Males and Females Combined = 320 mg/kg (95% C.I. 176 to 422 mg/kg)

Ziram is in TOXICITY CATEGORY II.

B. CLINICAL OBSERVATIONS

Piloerection was observed in all rats within 5 minutes of dosing and was accompanied by abnormal body carriage (hunched posture), abnormal gait (waddling), lethargy, decreased respiratory rate, ptosis, pallor of the extremities and diarrhoea on day 1. Recovery was complete by day 5.

C. BODY WEIGHT

Body weight losses were recorded for all rats that died.

D. NECROPSY

Terminal autopsies were normal for all rats.

E. DEFICIENCIES

No study deficiencies were identified.

SignOff Date:	8/2/00
DP Barcode:	D172447
HED DOC Number:	014277
Toxicology Branch:	RAB2