

TDMS

## DATA EVALUATION RECORD

PAGE 1 OF

9-17-82

CASE GS \_\_\_\_\_

Dimethoate \_\_\_\_\_

PM 8 20 82CHEM 035001

Dimethoate \_\_\_\_\_

BRANCH EEB

DISC \_\_\_\_\_

FORMULATION TechnicalFICHE/MASTER ID FEØDIMØ3

## CITATION:

Tucker, R. and Crabtree, D. 1970. Handbook of toxicity of pesticides to wildlife. U.S. Fish and Wildlife Service Resource Publication No. 84, 131 pp.

SUBST. CLASS=

OTHER SUBJECT DESCRIPTORS

PRIM:

DIRECT REVIEW TIME= 12 hrs. (MH) START DATE 7/22/82 END DATE 9/13/82

REVIEWED BY: James D. Felkel  
TITLE: Wildlife Biologist  
ORG: Ecological Effects Branch  
LOC./TEL: Crystal Mall #2, Rm. 1112, 557-3113

SIGNATURE:

*James D. Felkel*DATE: 9/17/82

APPROVED BY:

TITLE:

ORG:

LOC/TEL:

SIGNATURE:

DATE:

The avian acute oral study with dimethoate cited in this report (excerpt attached) is considered scientifically sound and with an LD<sub>50</sub> of 41.6 mg/kg demonstrates that dimethoate is highly toxic to the mallard. A 30-day empirical minimum lethal of dose of 6.0 mg/kg/day is reported for the mallard, indicating a moderate degree of cumulative action. This study, by itself, does not fully meet the intent of proposed guidelines (7/10/78), in part because of low numbers of test levels and organisms used.

NOTE: The properly evaluate the LC<sub>50</sub> value cited for the mallard, this reviewer contacted the Denver Wildlife Research Center to obtain the raw data for this study, and was referred to Mr. Rick Hudson who provided the dose-mortality data by telephone. This information was used to confirm the LD<sub>50</sub> by probit analysis, although with a broader 95% confidence interval than is cited ([41.6 (22.1-78.9) mg/kg]. See attached computer analysis.

This study, by itself, does not fully meet the intent of proposed guidelines (7/10/78), in part because of low numbers of test levels and organisms used.

## **DIMETHOATE**

**Alternative names:** Cygon, Fostion MM, Rogor, AC 12880, ENT 24650, L-395, Le-Kuo, Perfekthion, Roxion

**Chemical name:**

**O,O-dimethyl S-(N-methylcarbamoylmethyl)  
phosphorodithioate**

**Primary use:** Insecticide

**Sample purity:** 97%

### **Acute Oral Toxicity Summary**

Species	Sex	Age	LD <sub>50</sub> (95% conf. lim.) mg/kg
Mallards	♂	3-4 mo.	41.7 (30.1-57.8)
Mule deer	♂ & ♀	--	≥ 200

**Acute symptoms:** Feathers drawn tightly to body, mild tachypnea, ataxia, myasthenia, tremors.

**Notes:** The 30-day EMLD for mallards is 6.0 mg/kg/day for both sexes. This gives a cumulative toxicity index

of  $41.7/6 = 7$ , indicating a moderate degree of cumulative action.

FELKEL DIMETHOATE MALLARD. ACUTE ORAL LD50

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CONC.	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(PERCENT)
70	3	3	100	12.5
49.5	3	2	66.66667	50
35	3	1	33.33333	50
24.8	3	0	0	12.5

THE BINOMIAL TEST SHOWS THAT 0 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS, BECAUSE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS GREATER THAN 95 PERCENT.

AN APPROXIMATE LD50 FOR THIS SET OF DATA IS 41.62331

RESULTS CALCULATED USING THE MOVING AVERAGE METHOD

SPAN	G	LD50	95 PERCENT CONFIDENCE LIMITS
3	0.500047	41.63645	28.28869 61.32074

RESULTS CALCULATED USING THE PROBIT METHOD

ITERATIONS	G	H	GOODNESS OF FIT PROBABILITY
7	0.8464285	1	0.8322912

SLOPE = 9.116201  
95 PERCENT CONFIDENCE LIMITS = 0.7291548 AND 17.50325

LD50 = 41.62987  
95 PERCENT CONFIDENCE LIMITS = 22.06947 AND 78.94565

LD10 = 30.20596  
95 PERCENT CONFIDENCE LIMITS = 0.6844087 AND 39.03947

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