PIN-2584-86

CASWELL FILE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 15 1985

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: EPA Reg. No. 3125-319: Bayleton; Mutagenicity Data
Caswell No. 862AA
Accession No. 258123

TO: Henry Jacoby
Product Manager (21)
Registration Division (TS-767)

THRU: William Burnam 8/12/85
Deputy Chief
Toxciology Branch
Hazard Evaluation Division (TS-769)

FROM: George Z. Ghali, Ph.D. G Ghali 8/8/1985
Toxicology Branch
Hazard Evaluation Division (TS-769)

Curtis 8/14/85

Registrant: Mobay Chemical Corporation
Kansas City, MO 64120

Action Requested:

Evaluation of a mutagenicity study for DNA damage in E. coli.

Conclusions and Recommendations:

No conclusion can be made. The data are unacceptable in the present form. The actual raw data should be presented to the Agency for evaluation.

DATA EVALUATION RECORDS

DNA Damage in E. coli

Herbold, B. (1984). Pol test on E. coli to evaluate for potential DNA damage. A report prepared by Bayer AG Institute of Toxicology, Wuppertal-Elberfeld, 2.7.1984, Report No. 12780, submitted by Mobay Chemical Corporation.

Test Chemcial:

MEB 6447, mixed batch, Fl. 125, content 86%. MEB 6447 is a fungicidal active ingredient, with the chemical name 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazole-1-yl)-butanone (IUPAC), or 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazole-1-yl)-2-butanone, CAS no. 43121-43-3, the common name triadimefon.

Experimental Protocol:

The test was conducted according to the method of Rosenkranz and Leifer (1980). Two mutant strains of E. coli were used; $(K12)_p$ 3478 with DNA repair deficiency and W 3110 that is known with its ability to repair DNA damage. According to the author, bacterial cultures were prepared as specified by Rosenkranz and Leifer, and stored at -80°C, and thawed on the day of testing. One tenth of one ml of the bacterial preparation was transferred to a tube containing 5 ml of warm (37°c) full media. The contents of each tube were then added to the nutrient broth media in the plates. The test material was placed on small round filter papers, and placed into the agar plat. The test chemcial was tested at five concentrations ranging from 10 to 10,000 ul/plate. The test was performed in the presence and absence of metabolic activation (S-9 mix). Four replicates were used per each concentration. A negative control (chloramphenicol) and a positive control (methyl methane sulphonate MMS) were included. The plates were incubated for 24 hours at 37°C and the diameters of the inhibition zones were measured.

Results:

The data are presented in the following table:

Dose ug/pate	Strain	Inhibition zone diameter (mm)		Difference (mm)	
		(-)	(+)	(-)	(+)
Solvent	Rep. -	0	0	0	0
	Rep. +	0	0		
625	Rep. -	0	0	0	0
	Rep. +	0	0		
1250	Rep. -	0	0	0	0
	Rep. +	0	0		
2500	Rep. -	0	0	0	0
	Rep. +	0	0		
5,000	Rep. -	0	0	0	0
	Rep. +	0	0		
10,000	Rep. -	0	0	0	0
	Rep. +	0	0		
Negative Cont.	Rep. -	17.8	20.1	-9.2	-3.5
	Rep. +	27.0	23.6		
Positive Cont.	Rep. -	52.8	54.2	+15.3	-24.2
	Rep. +	37.5	30.0		

Discussion:

The actual raw data were not presented. The data for the negative and positive controls were presented as the means of the diameters of the growth inhibition zones. However no data were presented for the solvent control and the test material with or without metabolic activation.

Conclusions:

No conclusion can be made from the data as presented. The study is unacceptable in the present summary form.

References:

1. Ames, B.N., W.E. Durston, E. Yamasaki and F.D. Lee: Carcinogens are mutagens: A simple test combining liver homogenates for activation and bacteria for detection. Proc. nat. acad. Sci. (USA) 70 (1973) 2281.

(-) without S-9 mix.

2. Ames, B.N., J. McCann and E. Yamasaki:
Methods for detecting carcinogens and mutagens with the Salmonella/mammalian-microsome mutagenicity test.
Mutation Res. 31 (1975) 347.

3. D Alisa, R.M., G.A. Carden III, H.S. Carr and H.S. Rosenkranz:
"Reversion" of DNA polymerase-deficient Escherichia coli.
Mol. Gen. Genet. 110 (1971) 23.

4. De Lucia, P. and J. Cairns:
Isolation of an E. coli strain with a mutation affecting DNA polymerase.
Nature (London) 224 (1969) 1164.

5. Hyman, J., Z. Leifer and H.S. Rosenkranz:
The E. coli Pol A_1-assay. A quantitative procedure for diffusible and non-diffusible chemcials.
Mutation Res. 74 (1980) 170.

6. Rosenkranz, H.S. and Z. Leifer:
Determining the DNA-modifying activity of chemicals using DNA-polymerase-deficient Escherichia coli.
In: E.J. de Serres and A. Hollaender (eds.), chemical Mutagens, Principles and Methods for their oetection Vol. 6, 109, Plenum Press, New York and London 1980.

7. Rosenkranz, H.S. and L.A. Poirier:
Evaluation of the mutagenicity and DNA-modifying acitivity of carcinogens and noncarcinogens in microbial systems.
J. Natl. Cancer Inst. 62 (1979) 873.