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

006719

AUG - 5 1988

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: Diquat: Evaluation of Studies Submitted by Chevron Chemical Company Under the Registration Standard Requirements

EPA ID No.: 239-2505
(ORTHO Diquat Concentrate)
Record No.: 202665
CAS No.: 85-00-7

TOX Chem No.: 402
Project No.: 7-1013

FROM: Krystyna K. Locke, Toxicologist
Section II, Toxicology Branch
Hazard Evaluation Division (TS-769C)

Krystyna K. Locke 7/26/88

TO: Richard F. Mountfort, PM 23
Fungicide-Herbicide Branch
Registration Division (TS-767C)

THRU: Edwin R. Budd, Section Head
Section II, Toxicology Branch
Hazard Evaluation Division (TS-769C)

Budd 7/29/88

8/15/88

Toxicology Branch has completed an evaluation of the following studies:

Study/Lab/Study No./ Date/MRID (Accession) No.	Test Material	Results	Classification
Subchronic Studies			
Subchronic inhalation (21 days)-rat; Chevron Environmental Health Center; No. CEHC 2663; 7/30/87 403017-01	Diquat Concentrate Purity: 23.5% Respirable aerosols	NOEL = < 0.49 ug/L; (LDT), M&F (Lung lesions and increased lung weight)	Supplementary (NOEL not determined)
Subchronic dermal (21 days)-rat; Bio/dynamics, Inc.; No. 87-3137;	Technical diquat dibromide (SX-1749)	NOEL = 5 mg/kg, M&F; LEL = 20 mg/kg	Guideline

7/29/87 403081-01	Purity: 20.64%	Mortality; (Scabs); sores, severe erythema, necrosis, and degeneration of hair follicles and sebaceous glands---all at the application site.	
	Mutagenic Studies		
Ames test; ICI; No. CTL/P/1463; 5/8/86 403231-03	Technical diquat dibromide Purity: 25.8%	Negative with Salmonella typhimurium and E. coli, with and without metabolic activation (S9 mix)	Acceptable
Micronucleus (mouse bone marrow in vivo); ICI; No. CTL/P/1532; 7/25/86 403231-04	Technical diquat dibromide Purity: 25.8%	Negative without S9	Acceptable
Unscheduled DNA synthesis (rat hepatocytes in vivo); ICI; No. CTL/P/1814; 4/16/87 403239-07	Technical diquat dibromide Purity: 25.8%	Negative without S9	Acceptable
Chromosomal aberrations in vitro (human lymphocytes); ICI; No. CTL/P/1561; 10/30/86 403231-06	Technical diquat dibromide Purity: 25.8%	Positive with and without S9	Acceptable
Chromosomal aberrations in vitro (human lymphocytes); ICI;	Analytical grade diquat	Positive with and without	Acceptable

No. CTL/P/1469; 5/1/86 40323105	dibromide Purity: 100%	S9	
Mouse lymphoma (L5178Y) cell assay; ICI; No. CTL/P/1602; 11/11/86 403231-01	Technical diquat dibromide Purity: 25.8%	Positive with and without S9	Acceptable
Mouse lymphoma (L5178Y) cell assay; ICI; No. CTL/P/1554; 11/17/86 403231-02	Analytical grade diquat dibromide Purity: 100%	Positive with and without S9	Acceptable

In compliance with the Registration Standard requirements (see attached TABLE A), "all known mutagenicity studies with diquat" were submitted. These data (42 studies, including those tabulated above) were submitted as follows:

1. Document entitled Diquat: Summary of Results of Mutagenicity Testing, authored by J. H. Carver and B. M. Elliott, and dated July 30, 1987. (MRID 403231-08)

2. Studies, two volumes, each entitled Copies of References from: Diquat: Summary of Results of Mutagenicity Testing, authored by J. H. Carver and B. M. Elliott, and dated July 30, 1987. (MRID for each volume: 403231-09)

The above data included not only studies submitted to EPA in support of regulatory actions but also studies from the open literature, including screening tests and procedures for mutagenicity testing.

The above data were screened for adequacy first by Krystyna K. Locke and then by Kerry L. Dearfield, Geneticist, Toxicology Branch. Subsequently, Dr. Dearfield summarized all of the acceptable data in a memorandum dated July 14, 1988, and entitled Overview of Submitted Mutagenicity Studies on Diquat Dibromide (85-00-7). (See attachment)

MOS calculations, initially requested by the Product Manager, were postponed until further notice (personal communication with Chris Rice; 7/22/88).