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

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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 TOX Chem No.: 402
(ORTHO Diquat Concentrate) Project No.: 7-1013
Record No.: 202665
CAS No.: 85-00-7

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
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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:

<u>Study/Lab/Study No./ Date/MRID (Accession) No.</u>	<u>Test Material</u>	<u>Results</u>	<u>Classifi- cation</u>
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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)	Supple- mentary (NOEL not de- termin- ed)
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	Guide- line

7/29/87
403081-01

Purity:
20.64%

Mortality:
(Scabs//)
sores,
severe
erythema,
necrosis,
and de-
generation
of hair
follicles
and se-
baceous
glands---all
at the
application
site.

Mutagenic Studies

<p>Ames test; ICI; No. CTL/P/1463; 5/8/86 403231-03</p>	<p>Technical diquat dibromide Purity: 25.8%</p>	<p><u>Negative</u> with Salmonella typhimurium and E. coli, with and without metabolic activation (S9 mix)</p>	<p>Accept- able</p>
<p>Micronucleus (mouse bone marrow <u>in vivo</u>); ICI; No. CTL/P/1532; 7/25/86 403231-04</p>	<p>Technical diquat dibromide Purity: 25.8%</p>	<p><u>Negative</u> without S9</p>	<p>Accept- able</p>
<p>Unscheduled DNA syn- thesis (rat hepato- cytes <u>in vivo</u>); ICI; No. CTL/P/1814; 4/16/87 403239-07</p>	<p>Technical diquat dibromide Purity: 25.8%</p>	<p><u>Negative</u> without S9</p>	<p>Accept- able</p>
<p>Chromosomal aberrations <u>in vitro</u> (human lympho- cytes); ICI; No. CTL/P/1561; 10/30/86 403231-06</p>	<p>Technical diquat dibromide Purity: 25.8%</p>	<p><u>Positive</u> with and without S9</p>	<p>Accept- able</p>
<p>Chromosomal aberrations <u>in vitro</u> (human lympho- cytes); ICI;</p>	<p>Analytical grade diquat</p>	<p><u>Positive</u> with and without</p>	<p>Accept- able</p>

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%	<u>Positive</u> with and without S9	Accept- able
Mouse lymphoma (L5178Y) cell assay; ICI; No. CTL/P/1554; 11/17/86 403231-02	Analytical grade diquat dibromide Purity: 100%	<u>Positive</u> with and without S9	Accept- able

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).