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

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Subject: Permethrin - Revision, Qualitative Risk Assessment - 2 Year Chronic/Oncogenicity Mouse Study 3/89
caswell no.652BB

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The re-evaluation of the male mouse liver and lung tumor rates, by the use of the modified (the time intervals were changed by Dynamac) Peto Method resulted in small changes in in the p values associated with the trend analysis and also with the pair-wise comparison of control and each of the dose levels.

The attached tables show the corrected p values as determined by the new Peto program.

None of these corrected p values altered the original significant/non-significant results of the qualitative risk assessment of permethrin (see the previous memoranda on permethrin - B. Fisher, Permethrin - Qualitative Risk Assessment, Two Year Chronic/Oncogenicity Mouse Study, 9/88 and B. Fisher, Quantitative Risk Assessment, Two Year Chronic/Oncogenicity Mouse (Females) Study 12/88).

Table 6. Permethrin, Mouse Study - Male Lung Tumor Rates[†] and Peto Prevalence Test Results

Tumor	Dose (ppm) 0	20	500	2000
Adenoma	16/73	15/71	15/68	17/69
(%)	(22)	(21)	(22)[a]	(25)
p =	0.1186	0.4650	0.4970	0.1534
Carcinoma	7/49	5/53	13/54	4/31
(%)	(14)	(9)[b]	(24)	(13)
p =	0.4100	0.2081	0.1096	0.4615
Both	23/73	20/71	28/68	21/69
(%)	(32)	(28)	(41)	(30)
p =	0.1321	0.3639	0.1505	0.1752

[†]Number of tumor-bearing animals that died/Number of animals at risk, excluding those that died before observation of the first tumor.
[a]First adenoma at week 25.
[b]First carcinoma at week 81.

Note: Significance of trend denoted at control.
Significance of pairwise comparison with control denoted at dose level.
*p < .05.
**p < .01.

Table 7. Permethrin, Mouse Study - Male Liver Tumor Rates and Peto Prevalence Test Results

Tumor	Dose (ppm) 0	20	500	2000
Adenoma	6/66	17/63	15/63	17/57
(%)	(9)	(27)	(24)	(30)[a]
p =	0.0035**	0.0052**	0.0157*	0.0001**
Carcinoma	16/68	12/64	19/64	8/60
(%)	(24)	(19)	(30)[b]	(13)
p =	0.1491	0.2756	0.1109	0.1398
Both	22/68	29/64	34/64	25/60
(%)	(32)	(45)	(53)	(42)
p =	0.1145	0.0633	0.0099**	0.0411*

[†]Number of tumor-bearing animals/Number of animals at risk, excluding those that died before observation of the first tumor.
[a]First adenoma at week 56.
[b]First carcinoma at week 47.

Note: Significance of trend denoted at control.
Significance of pairwise comparison with control denoted at dose level.
*p < .05.
**p < .01.