



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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PESTICIDES AND TOXIC SUBSTANCES

Subject: [REDACTED] (188C), Atrazine (63) and Simazine (740)
Quantitative Risk Assessment Comparisons on Malignant
Mammary Gland Tumors only in Rats. Revised Comparisons
as of July, 1991.

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HED's previous estimate of cyanazine's Q_1^* of 8.8×10^{-1} was based upon malignant mammary gland tumors including fibrosarcomas. For comparative purposes with atrazine and simazine, malignant tumors including adenocarcinomas, carcinomas and carcinosarcomas only are used in the estimation of the unit risk, Q_1 .

Animals with fibrosarcomas in the cyanazine study are excluded from the group for the estimate of Q_1 . The reason for this exclusion is due to advice given by Dr. Brennecke (HED's consultant in pathology) that fibrosarcomas do not originate from epithelial cell tissues as do the carcinomas. The carcinosarcomas, which originate from both the epithelial and mesenchymal cell tissues, found in both the atrazine and cyanazine mammary gland malignant tumor data can be retained for the estimate of Q_1 .

cc Kathy Pearce SRRO

Table on Estimated⁺ Q_1^* (mg/kg/day)⁻¹ for Cyanazine, Atrazine and Simazine in Sprague-Dawley Female Rats

	Tumors in the <u>Mammary Gland</u>	Q_1^* (mg/kg/day) ⁻¹	
		<u>Rat</u>	<u>In Human Equiv.⁺⁺</u>
Cyanazine	Carcinosarcomas & Adenocarcinoma	1.59×10^{-1} (a)	8.4×10^{-1} (c)
Atrazine	Adenocarcinoma & Carcinosarcoma	1.72×10^{-2} (b)	9.2×10^{-2} (c)
Simazine	Carcinoma	2.25×10^{-2} (b)	1.2×10^{-1} (c)

⁺ Based on results from Stattox computer program

⁺⁺ Derived by the use of surface area correction -
(Human Wt./Rat Wt.)^{1/3}

(a) Multi-Stage Model (Global86)

(b) Time-to-Tumor Multi-Stage Model (Weibull83)

(c) Cyanazine - This Q_1^* is the estimate to be used for Risk Characterization.

Atrazine - This Q_1^* is the estimate for comparative purposes only of the three chemical compounds and is not the one that is used for Risk Characterization (actual estimate used is 2.2×10^{-1} based upon both benign and malignant mammary gland tumors).

Simazine - This Q_1^* is the estimate that has been and is still being used for Risk Characterization.