MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

TO: File

FROM: Kathi Wurzel

DATE: February 10, 1983

SUBJECT: O-Anisidine Hydrochloride
134-29-2

Ortho-Anisidine Hydrochloride has been found to be carcinogenic in rats and mice through oral exposure. In the National Cancer Institute bioassay, o-anisidine was administered to both rats and mice in the feed. It is concluded that under the conditions of the bioassay, o-anisidine hydrochloride was carcinogenic for rats and mice, inducing transitional-cell carcinomas or papillomas of the bladder in both rats and mice and in both sexes of each species, transitional cell carcinomas of the pelvis of the kidney in male rats, and follicular-cell tumors of the thyroid in male rats.

The GLOBAL 79 computer program was used to fit the dose response data from this study to the multistage model. The incidence of transitional-cell carcinomas and papillomas in male rats determined the appropriate adjusted slope q_1^*, as the upper bound of the potency of o-anisidine hydrochloride to induce cancer at low doses. The adjusted potency value, q_1^*, is 1×10^{-1} $(mg/kg/day)^{-1}$.

An ambient concentration of 0.03 ug/m^3 is associated with an increased cancer incidence of 1 in one million exposed individuals.

KAW:nm

cc: Greg Edwards
John Shaffer
Jerry Avery

Kathi Wurzel
February 10, 1983

Modified by
Mike Depa 5-6-14

o- Anisidine - male rats - Trans. cell carc. & pap - bladder

$$\frac{.140336 \times 10^{-5}}{.764087587 \times 10^{-4}} = 1.8 \times 10^{-2} \text{ (mg/kg/day)}^{-1}$$

$q_1 = 1.8 \times 10^{-2}$ $\quad W = \left(\frac{70}{0.4}\right)^{1/3} = 5.593$

$q_1^* = q_1 \times W$

$q_1^* = 1.8 \times 10^{-2} \times 5.593 = 0.1007 \quad 1 \times 10^{-1} \text{ (mg/kg/day)}^{-1}$

$1 \times 10^{-1} \text{ (20 m}^3\text{/day)} \left(\frac{1}{70}\right)\left(\frac{1}{1000 \text{ mg/ug}}\right) = 2.9 \times 10^{-5} \text{ (ug/m}^3\text{)}^{-1}$

$0.03 \text{ ug/m}^3 \sim 1 \times 10^{-6}$

o - Anisidine - female rats - Trans cell carc. & pap - bladder

$$\frac{.131597 \times 10^{-5}}{.101409064 \times 10^{-3}} = 1.3 \times 10^{-2}$$

$q_1 = 1.3 \times 10^{-2}$ $\quad W = \left(\frac{70}{0.25}\right)^{1/3} = 6.542$

$q_1^* = q_1 \times W$

$8.5 \times 10^{-2} \text{ (mg/kg/day)}^{-1}$ rounds to $1 \times 10^{-1} \text{ (mg/kg/day)}^{-1}$

q_1^* inhalation $= 1 \times 10^{-1} \text{ (mg/kg/day)}^{-1} \times \frac{20 \text{ m}^3/70 \text{ kg}}{}$

q_1^* inhalation $= 3.0 \times 10^{-2} \text{ (mg/m}^3\text{)}^{-1} \times \frac{\text{mg}}{1000 \text{ ug}} = 3.0 \times 10^{-5} \text{ (ug/m}^3\text{)}^{-1}$

q_1^* inh $= 3 \times 10^{-5} \text{ (ug/m}^3\text{)}^{-1}$

$q_1^* = 1.3 \times 10^{-2} \times 6.542 = 0.085 = 8.5 \times 10^{-2}$

inhalation $2.42 \times 10^{-5} \text{ (ug/m}^3\text{)}^{-1} = 0.04 \text{ ug/m}^3 \sim 1 \times 10^{-6}$ risk

q_1^* inhalation $= 3 \times 10^{-5} \text{ (ug/m}^3\text{)}^{-1}$; Risk $= \frac{1E-6}{3E-5} = 0.033 \approx 0.03$ ug/m^3