

COMPLETED PROJECT REPORT

Project Title: Zinc phosphide (technical) micronucleus cytogenetic assay in mice

Research Agency: National Wildlife Research Center

Principal Investigator: D. Putman

Budget: \$9,990

Background:

This study was conducted to satisfy a request by the U. S. Environmental Protection Agency to provide data on the mutagenic potential of zinc phosphide. These data are required to maintain registration of the zinc phosphide baits in California.

Objectives:

The purpose of this study was to assess the potential of a test article to increase the incidence of micronucleated polychromatic erythrocytes in bone marrow of male and female mice.

Summary:

Male and female ICR mice were exposed to 38, 75, 150 mg /kg body weight of Zinc phosphide (technical) which was administered in a total volume of 20 ml/kg as a single IP injection. The high dose level was calculated to be approximately 80 % of the LD 50/3. The vehicle used to prepare test article dosing stocks was corn oil. Mortality was observed in 11/20 male and 11/20 female mice receiving 150 mg/kg. Due to mortality in animals treated with 75 mg/kg, three animals per sex were available at the 72 hour sacrifice time. Also due to mortality, in animals treated with 38 mg/kg, only 4 males were available for analysis at the 48 hour sacrifice time, and in animals treated with 150 mg/kg, only three animals per sex were available for analysis at the 72 hour sacrifice time. All other treatment groups had five animals per group. Clinical signs following dose administration included: lethargy in male mice at 38, 75, and 150 mg/kg and in female mice at 75 and 150 mg/kg, irregular breathing in male mice at 150 mg/kg, and crusty eyes in female mice at 150 mg/kg. Bone marrow cells, collected 24, 48, and 72 hours after treatment, were examined microscopically for micronucleated polychromatic erythrocytes. No significant increases in micronucleated polychromatic erythrocytes were observed at 24, 48, or 72 hours after dose administration in male or female ICR mice ($p < 0.5$, Kastenbaum-Bowman). The results of the assay indicate that under the conditions described in this report, Zinc phosphide (technical) did not induce a significant increase in micronucleated polychromatic erythrocytes in either male or female ICR mice. Zinc phosphide (technical) was concluded to be negative in the mouse micronucleus assay.