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I. S-416: ACUTE INHALATION TOXICITY OF ORTHENE 75S

II. ORIGIN AND PURPOSE

The Chevron Chemical Company, Ortho Division, requested that the acute inhalation toxicity of ORTHENE 75S be determined.

III. SUMMARY

Adult rats were exposed to aerosols of a 25% w/v solution of ORTHENE 75S in distilled water at a level of 12 mg/liter (expressed as ORTHENE 75S). There were no signs of toxicity or mortality during the exposure or the subsequent 14-day observation period. At autopsy, no gross pathological changes were seen that could be attributed to the inhalation exposure.

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IV. MATERIALS AND METHODS

A. Materials

1. Product: The product, ORTHENE 75S, a white powder with a distinctive odor, was supplied by the Chevron Chemical Company, Ortho Division, Richmond, California. It was coded SX 363.

2. Animals: Adult male and female Sprague-Dawley rats weighing between 210 and 250 grams were used in this study. The animals were housed individually in a temperature controlled room maintained at 70°F (±2°). The animals had free access to food and water except during the exposure period.

B. Methods

An aerosol of a 25% w/v solution of ORTHENE 75S in distilled water was generated using an Ohio Ball Jet Nebulizer. The air flow through the nebulizer was 5 l/min. Sizing of aerosols from the Ohio Ball Jet Nebulizer used in this laboratory indicate that over 90% of all aerosol particles were below 10 microns in size. Sizing was done using the method of Vooren and Meyer (1). The total amount of material generated was calculated by determining the weight loss of the nebulizer during the exposure. The nominal concentration was expressed as milligrams of aerosol preparation per liter of air.

Ten rats, five males and five females, were exposed to the aerosols for one hour. The rats were exposed in groups of five; either three males and two females, or two males and three females. During the exposure the rats were individually restrained in clear glass tapered tubes in a 19-liter chamber. The glass tubes allowed continuous observation and held the rats in a prone position with their noses near the hole in the tapered end. This position insured respiration of the chamber atmosphere without total body contamination. After exposure, the rats were returned to their cages and held for a 14-day observation period. Following the observation period, the animals were sacrificed and examined for any gross pathological changes. The following organs and tissues were examined: eyes, thymus, heart, lungs, liver, kidneys, spleen, gonads, adrenals, pancreas, gastro-intestinal tract, lymph nodes, skin, skeletal muscle and body fat.

V. RESULTS

During the two exposures, 13 and 16 grams of material were generated, which were equivalent to 10.8 and 13.3 mg of ORTHENE 75S per liter of air, respectively. The average nominal concentration for the two exposures was 12.1 mg of ORTHENE 75S per liter of air. No mortality or signs of toxicity were noted during the exposure or the subsequent observation period. At autopsy, no gross pathological changes were noted that could be attributed to the inhalation exposure.

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VI. CONCLUSIONS

The data obtained indicate that the one-hour acute inhalation LC_{50} of ORTHENE 75S was greater than 12.1 mg/liter of air for adult rats.

VII. REFERENCES

(1) Vooren, P. H. and P. B. Meyer. Measurement of particle size in aqueous aerosols. Amer. Ind. Hyg. Assn. Journal, 32, February 1971.