AEL MEETING: 5 DECEMBER 1988

Ground Water Guidelines for carbon disulfide, chloroform, dioxane, FC-11, and HMPA will be continued at a future AEL meeting in 1989.

b. Finalization Items

Chloroprene (PPD) CEG = 0.5 ppm (24-hour TWA).

Ethanolamine (PPD) CEG = 0.3 ppm (24-hour TWA).

c. Discussion Items

Lead Naphthenate (FPD) (G. L. Kennedy)

Lead naphthenate, used as a paint drier, has very low acute oral toxicity with an LD50 in rats of 5100 mg/kg. While no deaths occurred in rabbits administered up to 8 mL/kg of a 24% lead naphthenate solution, contact with the skin of man and animals shows lead naphthenate can be quickly absorbed through the skin. Workers exposed to an average lead naphthenate airborne concentration of 96 ug/m^3 had a mean blood lead level of 63 ug/dL. Lead naphthenate was not mutagenic in the Ames test. Renal tumors were observed in mice dermally administered a 20% solution of lead naphthenate in benzene. When IARC reviewed this study, they noted the lack of a control group and did not classify lead naphthenate as a carcinogen. While the Committee also acknowledged the lack of a control group, the ability of other forms of lead, e.g., lead acetate, to produce kidney tumors was discussed. Our current AEL of 50 ug/m^3 (8-hour TWA) was continued with the addition of a skin notation. The Committee recommendation was to consider lead naphthenate a weak carcinogen in the mouse. This will be handled in a hazard determination letter on lead.

Styrene (FPD) (N. D. Krivanek)

Styrene has slight acute oral toxicity with an LD50 in rats of 5000 mg/kg. Styrene can cause dermal irritation if the exposure is prolonged. In the rabbit eye, styrene caused moderate conjunctival irritation. By the acute inhalation route, styrene has slight toxicity with a four-hour LC50 in rats of 2773 ppm. Repeated oral doses of styrene caused suppressed weight gain and altered organ-body weight ratios in rats and effects on the blood in dogs. Styrene has been extensively studied for its carcinogenic potential by several routes of administration. In most cases, these studies were negative. In an inhalation study conducted at Maltoni's laboratory, an increase in total mammary tumors was noted in rats. Styrene is metabolized to styrene oxide which is mutagenic. Styrene was not mutagenic in the Ames test

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Trichlorofluoromethane (FC-11) (H. J. Trochimowicz)

In 90-day and 18-month oral studies in rats and dogs, the lowest NOEL was 350 mg/kg. The adverse effects observed at higher doses were very slight and the weight of toxicological evidence indicates that FC-11 has very low toxicity by all routes of administration. Based on the 350 mg/kg NOEL and applying a 100-fold safety factor, a guideline of 100 ppm was recommended

2. Agenda for December 5, 1988 AEL Meeting (Note that this meeting will be at 1:00 p.m.)

a. Decision Items

Asbestos-substitute Fibers (Fibers Subcommittee)

0.2 fibers/cc	0.5 fibers/cc	1 fiber/cc	2 fibers/cc
Asbestos Silicon Carbide		Mineral Wool Refractory Aluminum Silicate Ceramic Fibers	Fiber Glass Wollastonite

Ground-water Guidelines (Fibers)

Carbon Disulfide	5 ppm
Chloroform	5 ppm
Dioxane	36 ppm
FC-11	100 ppm
HMPA	0.7-7 ppb

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c. Discussion Items

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mutagenic in the Ames test. Renal tumors were observed in mice dermally administered a 20% solution of lead naphthenate in benzene. When IARC reviewed this study, they noted the lack of a control group and did not classify lead naphthenate as a carcinogen. FPD requests a hazard determination according to EQC guidelines.

Styrene (FPD) (N. D. Krivanek)

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Dimethylformamide (C&P) (G. L. Kennedy)

Dimethylformamide (DMF) was reviewed in 1986 and an updated Hazard Determination Letter written. The conclusion of this letter was that DMF dose not represent a unusual hazard for carcinogenicity or developmental or reproductive toxicity. IARC has recently reviwed these same data and has listed DMF as a Class 2B carcinogen. This indicates a possible carcinogenic potential for humans according to their definitions. C&P has requested a review of the current AEL and handling procedures for DMF.

Monomethylformamide (C&P) (G. L. Kennedy)

Monomethylformamide (MMF) was reviewed in 1983 for its developmental hazard. Based on the results of oral, dermal, and injection studies pregnant animals, MMF was considered to be a developmental hazard. An AEL of 2 ppm (8- and 12-hour TWA), skin was recommended. An

AEL Committee Meeting: 16 October 1988 C-1531

c. Discussion Items

Styrene (FPD) (N. D. Krivanek)

Styrene has slight acute oral toxicity with an LD50 in rats of 5000 mg/kg. Styrene can cause dermal irritation if the exposure is extended. In the rabbit eye, styrene caused moderate conjunctival irritation. By the acute inhalation route, styrene has slight toxicity with a four-hour LC50 in rats of 2773 ppm. Repeated oral doses of styrene caused suppressed weight gain and altered organ-body weight ratios in rats and effects on the blood in dogs. Styrene has been extensively studied for its carcinogenic potential by several routes of administration. In most cases, these studies were negative. In an inhalation study conducted at Maltoni's laboratory, an increase in total mammary tumors was noted in rats. Styrene is metabolized to styrene oxide which is mutagenic. Styrene was not mutagenic in the Ames test in the absence of metabolic activation. According to Russian investigators, styrene can cross the placenta of pregnant rats and decrease the litter size and lower the viability of the pups. However, oral and inhalation teratology studies in rats and rabbits conducted by Dow did not result in teratogenic or fetotoxic effects. Styrene also had no effect on reproduction of rats in a three-generation reproduction study. FPD has requested a hazard determination according to EQC guidelines.

Butadiene (PD/PPD) (S. Pell)

Butadiene has a 10 ppm AEL based on the results from a chronic inhalation study in mice and an epidemiology study of eight butadiene/styrene polymer plants. A nested case control study of the lymphopoietic cancers found in this study has been recently completed. PD and PPD request the current AEL be reviewed in light of this study.

Lead Naphthenate (FPD)

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