

CENTRAL RESEARCH AND DEVELOPMENT DEPARTMENT
HASKELL LABORATORY FOR TOXICOLOGY
AND INDUSTRIAL MEDICINE

June 13, 1988

MEMORANDUM

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FROM: R. C. GRAHAM, AEL COMMITTEE SECRETARY

RC Graham

AEL COMMITTEE NOTES

Next Meeting* - Wednesday July 13, 1988 - Haskell Laboratory
Haskell Laboratory Room #619 Starting at 9:00 a.m.

1. Minutes of June 8, 1988 Meeting

(a). Decision Items

Benzaldehyde (ED) AEL = 2 ppm (8-hour TWA).
Benzene (C&P) AEL = 1 ppm (8- and 12-hour TWA).
5 ppm (15-minute TWA).
Hexamethylenediamine AEL = 1 ppm (8- and 12-hour TWA),
(PD) vapor.
5 mg/m³ (8- and 12-hour TWA),
total particulate.
INN-5297 (AG) AEL = 10 mg/m³ (8- and 12-hour
TWA), total dust.

* A special AEL meeting on lead will be held at 9:00 a.m. on
June 30, 1988 in Room 619 at Haskell Laboratory. No AEL
meeting is usually held in July. However, a special meeting
will be held on July 13, 1988 to review five chemicals
referred to the Committee by the AEL Update Subcommittee.
The next regular AEL meeting will be on August 10, 1988.

N-Methyl-2-Pyrrolidone (TF) (G. L. Kennedy)

N-Methyl-2-pyrrolidone (NMP) has slight acute oral toxicity with an LD50 in rats of 4310 mg/kg. Undiluted NMP produced irritation and edema only after prolonged contact with the skin of rabbits. Aqueous dilutions produce minimal irritation. By skin absorption, NMP has moderate toxicity with an LD50 in rabbits in the range of 4000 to 8000 mg/kg. Contact of undiluted NMP with the rabbit eye produced a generalized, moderate but penetrating corneal injury, mild iritis, and moderate conjunctivitis. By the acute inhalation route, NMP is also moderately toxic with a 4-hour ALC in the rat of 1.7 mg/L of an aerosol-vapor mixture. NMP was not carcinogenic in a 2-year chronic inhalation study wherein rats were exposed to 10 or 100 ppm. NMP is not mutagenic in several tests and was not embryotoxic or teratogenic in rats exposed by inhalation. Additionally, no effect on reproduction was seen in male and female rats exposed by inhalation to NMP. A 25 ppm AEL (8-hour TWA) was recommended for NMP in 1979 based primarily on the results of the chronic inhalation study in rats. BASF has a 90-day inhalation study planned at levels of 100-300 ppm. Until data are available from this study, the current 25 ppm AEL will be continued.

Ammonium Bisulfate (K. S. Bentley)

The current AELs for ammonium bisulfate are 5 mg/m³ for respirable dust and 10 mg/m³ for total dust. In a update of the toxicity data base available for ammonium bisulfate, lung effects were noted at levels below the AELs. In human subjects, both normal and asthmatic subjects inhaled 0.1 and 1 mg/m³ of ammonium bisulfate for 16 minutes. Small, but significant, reductions in airway conductance and flow were noted in normal subjects at 1 mg/m³ and in asthmatics at 0.1 and 1 mg/m³. However, no symptoms were experienced by these subjects and the respiratory function changes were considered similar to those often seen when this test is made on unexposed subjects. The toxicity of ammonium bisulfate was compared to that of sulfuric acid and sodium bisulfate, both having an AEL of 1 mg/m³ (8- and 12-hour TWA). Based on the similar toxicity of these compounds, the AEL was reduced to 1 mg/m³ (8- and 12-hour TWA). However, based on the effect seen in asthmatics exposed to ammonium bisulfate, exposure at the AEL may produce some respiratory function decrement in asthmatics, but would not be expected to produce any toxic symptoms.

2. Agenda for Special AEL Meeting on June 30, 1988

Lead (C&P) - Lead will be reviewed at a special AEL meeting on June 30, 1988. A 1988 toxicity review has been evaluated and several pertinent articles selected for additional study.