Recommendations of the National Institute of Environmental Health Sciences (NIEHS/NTP) RoC Review Committee (RG1)

Nomination: Cobalt sulfate

Review committee: RG1

Date: 9/28/01

Major Issues Discussed

- **Application of criteria**

  Exposure: adequate evidence of situations leading to exposures in various occupational settings, in addition to potential for exposures through use as a pasture mineral supplement and in veterinary medicine and prior use as a food additive

  Sufficient evidence in experimental animals: Multiple species — mice (male and female) and rats (male and female)

- Inhalation studies

  Mice (male and female): significant increase in incidence of benign, malignant, and combined lung tumors (alveolar/bronchiolar) — clear evidence of carcinogenicity

  Female rats: significant increase in incidence of benign, malignant, and combined lung tumors (alveolar/bronchiolar) and in adrenal pheochromocytomas — clear evidence of carcinogenicity

  Male rats: significant increase in incidence of combined benign and malignant alveolar/bronchiolar tumors of the lung; marginal increases in adrenal pheochromocytomas may also have been related to cobalt sulfate exposure — some evidence of carcinogenicity

- **Other scientific concerns**

  - Genotoxicity and mechanistic concerns
    - evidence of genotoxicity of soluble cobalt compounds
    - no evidence to suggest mechanisms are unique to rodents
  - Human studies
    - no human studies specific for the effects of cobalt sulfate and cancer; although there are studies on cobalt as a class, these are inadequate for the specific evaluation of cobalt sulfate

Recommendation:

Motion: Recommend cobalt sulfate to be listed as reasonably anticipated to be a human carcinogen based on sufficient evidence in animals.

Votes: 9/yes 0/no