

## ***N, N*-Dimethylformamide**

This is a compilation of all positive and null cancer epidemiology studies, animal cancer bioassays, and other relevant data identified during the preliminary toxicological evaluation of *N,N*-dimethylformamide. Occupational exposure to dimethylformamide may occur through inhalation and dermal contact at workplaces where dimethylformamide is produced or used, such as in pharmaceutical processing, acrylic fiber production, production of leather and artificial leather fabrics, industrial paint stripping applications, and other solvent applications. The general population may be exposed via dermal contact with consumer products containing dimethylformamide.

### **Epidemiological data**

#### **Study of testicular cancer in repairmen of F4 aircraft**

- Cluster investigation: Ducatman *et al.* (1986)

#### **Studies of testicular cancer in leather tanners**

- Case series: Levin *et al.* (1987)
  - Comments on Levin *et al.* (1987): Chen and Kennedy (1988); Ducatman (1989)
- Case-control study: Frumin *et al.* (1989)
- Cohort study: Frumin *et al.* (1989); Calvert *et al.* (1990)
  - Comments on Calvert *et al.* (1990): Gollins (1991)

#### **Studies of workers at Dupont DMF production and use facilities**

- Case-control study: Walraith *et al.* (1989)
- Cohort study: Chen *et al.* (1988)

### **Animal carcinogenicity data**

#### **Two-year inhalation animal bioassays**

- F344/DuCrj (SPF) rats: Senoh *et al.* (2004)
- Crj:BDF<sub>1</sub> (SPF) mice: Senoh *et al.* (2004)

#### **Eighteen-month inhalation animal bioassays**

- Crl:CD BR rats: Malley *et al.* (1994)
- Crl:CD-1 (ICR)BR mice: Malley *et al.* (1994)

### **Other relevant data**

- Genotoxicity: Summary of effects in human and experimental systems: IARC (1999) (pp. 555-565)

## **References**<sup>1</sup>

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- Chen JL, Fayerweather WE, Pell S (1988). Cancer incidence of workers exposed to dimethylformamide and/or acrylonitrile. *J Occup Med.* 1988 Oct;30(10):813-8.
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- Senoh H, Aiso S, Arito H, Nishizawa T, Nagano K, Yamamoto S, Matsushima T (2004). Carcinogenicity and chronic toxicity after inhalation exposure of rats and mice to N, N-dimethylformamide. *J Occup Health* 46:429-439.
- Walrath J, Fayerweather WE, Gilby PG, Pell S (1989). A case-control study of cancer among Du pont employees with potential for exposure to dimethylformamide. *J Occup Med.* 1989 May;31(5):432-8.

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<sup>1</sup> Copies of these listed references, as either the abstract or the complete publication, have been provided to members of the Carcinogen Identification Committee. The abstracts or papers have been provided in the order in which they are discussed in this document; they have not been ordered alphabetically.