

## Group 1

### Arsenic and compounds

As

[CAS No. 7440-38-2]

### Reproductive toxicant: Group 1

Many epidemiological studies have shown a clear association between occupational or environmental exposure to arsenic compounds and adverse pregnancy outcomes including spontaneous abortion, premature birth, stillbirth, congenital anomaly, and decreased birth weight<sup>1-7</sup>). Many animal studies have also shown reproductive and developmental effects of arsenic and arsenic compounds, including ovarian and testicular toxicity, reduced fetal body weights, and retarded ossification in rodents<sup>8-11</sup>). Based on this evidence, arsenic and arsenic compounds are classified as Group 1 reproductive toxicants.

#### References

- 1) Nordstrom S, Beckman L, Nordenson I. Occupational and environmental risks in and around a smelter in northern Sweden. VI. Congenital malformations. *Hereditas* 1979; 90: 297-302.
- 2) Nordstrom S, Beckman L, Nordenson I. Occupational and environmental risks in and around a smelter in northern Sweden. V. Spontaneous abortion among female employees and decreased birth weight in their offspring. *Hereditas* 1979; 90: 291-6.
- 3) Ihrig MM, Shalat SL, Baynes C. A hospital-based case-control study of stillbirths and environmental exposure to arsenic using an atmospheric dispersion model linked to a geographical information system. *Epidemiology* 1998; 9: 290-4.
- 4) Ahmad SA, Sayed MH, Barua S, et al. Arsenic in drinking water and pregnancy outcomes. *Environ Health Perspect* 2001; 109: 629-31.
- 5) Rahman A, Vahter M, Ekström EC, et al. Association of arsenic exposure during pregnancy with fetal loss and infant death: a cohort study in Bangladesh. *Am J Epidemiol* 2007; 165: 1389-96.
- 6) Rahman A, Vahter M, Smith AH, et al. Arsenic exposure during pregnancy and size at birth: a prospective cohort study in Bangladesh. *Am J Epidemiol* 2009; 169: 304-12.
- 7) von Ehrenstein OS, Guha Mazumder DN, Hira-Smith M, et al. Pregnancy outcomes, infant mortality, and arsenic in drinking water in West Bengal, India. *Am J Epidemiol* 2006; 163: 662-9.
- 8) Wang A, Holladay SD, Wolf DC, et al. Reproductive and developmental toxicity of arsenic in rodents: a review. *Int J Toxicol* 2006; 25: 319-31.
- 9) Pant N, Kumar R, Murthy RC, et al. Male reproductive effect of arsenic in mice. *Biometals* 2001; 14: 113-7.
- 10) Pant N, Murthy RC, Srivastava SP. Male reproductive toxicity of sodium arsenite in mice. *Hum Exp Toxicol* 2004; 23: 399-403.
- 11) Nagymajtényi L, Selyes A, Berencsi G. Chromosomal aberrations and fetotoxic effects of atmospheric arsenic exposure in mice. *J Appl Toxicol* 1985; 5: 61-3.