BIS(2,3-EPOXYCYCLOPENTYL)ETHER

Data were last evaluated in IARC (1989).

1. Exposure Data

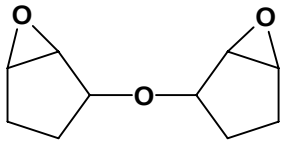
1.1 Chemical and physical data

1.1.1 *Nomenclature*

Chem. Abstr. Services Reg. No.: 2386-90-5

Systematic name: 2,2′-Oxybis(6-oxabicyclo[3.1.0]hexane)

1.1.2 *Structural and molecular formulae and relative molecular mass*



$C_{10}H_{14}O_3$ Relative molecular mass: 182.22

1.1.3 *Physical properties* (for details, see IARC, 1989)

(*a*) *Boiling-point*: 203°C at 13 kPa

(*b*) *Melting-point*: 29.7°C

(*c*) *Conversion factor*: $mg/m^3 = 7.45 \times ppm$

1.2 Production, use and human exposure

Bis(2,3-epoxycyclopentyl)ether is a synthetic organic liquid which has been used as a component and modifier of epoxy resins. Measurements of occupational exposure levels have not been reported (IARC, 1989).

2. Studies of Cancer in Humans

No data were available to the Working Group.

3. Studies of Cancer in Experimental Animals

Bis(2,3-epoxycyclopentyl)ether was tested for carcinogenicity by skin application in one experiment in two strains of mice. A small number of skin tumours was observed in both strains and an increased incidence of lung tumours in females of one strain. Another experiment with skin application in mice was inadequate for evaluation (IARC, 1989).

4. Other Data Relevant to an Evaluation of Carcinogenicity and its Mechanisms

4.1 Absorption distribution, metabolism and excretion

No data were available to the Working Group.

4.2 Toxic effects

4.2.1 *Humans*

No data were available to the Working Group.

4.2.2 *Experimental systems*

Bis(2,3-epoxycyclopentyl)ether was a mild irritant to rabbit skin and produced moderate corneal injury in rabbits. It did not induce sensitization reactions in guinea-pigs (IARC, 1989).

4.3 Reproductive and developmental effects

No data were available to the Working Group.

4.4 Genetic and related effects

4.4.1 *Humans*

No data were available to the Working Group.

4.4.2 *Experimental systems*

In a single study, bis(2,3-epoxycyclopentyl)ether was mutagenic to bacteria, and produced sister chromatid exchanges in cultured human lymphocytes and micronuclei in the bone-marrow cells of mice treated *in vivo* (IARC, 1989).

5. Evaluation

No epidemiological data relevant to the carcinogenicity of bis(2,3-epoxycyclopentyl)ether were available.

There is *limited evidence* in experimental animals for the carcinogenicity of bis(2,3-epoxycyclopentyl)ether.

Overall evaluation

Bis(2,3-epoxycyclopentyl)ether is *not classifiable as to its carcinogenicity to humans (Group 3)*.

6. Reference

IARC (1989) *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans*, Vol. 47, *Some Organic Solvents, Resin Monomers and Related Compounds, Pigments and Occupational Exposures in Paint Manufacture and Painting*, Lyon, pp. 231–236