1-bromopropane

No. 2021/44, The Hague, December 6, 2021

Executive summary

Health Council of the Netherlands

The Health Council of the Netherlands assessed whether occupational exposure to 1-bromopropane may induce genotoxic effects and may cause cancer. The assessment is performed by the Subcommittee on Classifying carcinogenic substances of the Dutch Expert Committee on Occupational Safety of the Health Council.

On the website www.gezondheidsraad.nl, more information can be found on the tasks of this Committee. The composition of the Committee can be found on the last page of this assessment.

About 1-bromopropane

1-bromopropane is used as a chemical intermediate in the production of amongst others pesticides, flavours and fragrances. Moreover, 1-bromopropane is amongst others used for immersion cleaning, spray adhesive applications and solvent for fats, waxes and resins.

Assessment of genotoxicity and carcinogenicity

Based on the available scientific literature, the Committee assesses the potential genotoxic and carcinogenic properties of the substance in question. If there are indications for such properties, it recommends classifying the substance in two hazard categories, which represent the weight of evidence that the substance is mutagenic in germ cells (a measure for genotoxicity), and that the substance is carcinogenic. The categories are based on the globally harmonized system criteria for assessing hazard categories, which are also used by the European Commission (EU-guideline (EG) 1272/2008). The recommendation can be used by the Minister of Social Affairs en Employment to decide whether the substance should be listed as mutagenic in germ cells and/or carcinogenic.

Evaluation of the data

In a bacterial mutagenicity test, one study reported mutagenicity of 1-bromopropane in two strains. However, other studies did not confirm these findings. A mouse lymphoma assay also showed mutagenic effects of 1-bromopropane. No effects were found in other genotoxicity (both laboratory and animal) tests.

No data on the carcinogenicity of 1-bromopropane in humans were available. A US National Toxicology Program study showed an increase in benign tumours in rats, but did not yield sufficient evidence for malignant tumour development. However, mice exposed to 1-bromopropane demonstrated an increase in both benign and malignant lung tumours.

Recommendation

The Committee recommends:

- not to classify 1-bromopropane as a germ cell mutagen;
- to classify the substance as *suspected to be carcinogenic in humans*, which corresponds with a classification in category 2 and label with H351 (suspected of causing cancer).

The Health Council of the Netherlands, established in 1902, is an independent scientific advisory body. Its remit is “to advise the government and Parliament on the current level of knowledge with respect to public health issues and health (services) research...” (Section 22, Health Act).
The Health Council receives most requests for advice from the Ministers of Health, Welfare and Sport, Infrastructure and Water Management, Social Affairs and Employment, and Agriculture, Nature and Food Quality. The Council can publish advisory reports on its own initiative. It usually does this in order to ask attention for developments or trends that are thought to be relevant to government policy.
Most Health Council reports are prepared by multidisciplinary committees of Dutch or, sometimes, foreign experts, appointed in a personal capacity.
The reports are available to the public.

This publication can be downloaded from www.healthcouncil.nl.

Preferred citation:
Health Council of the Netherlands. 1-bromopropane.
The Hague: Health Council of the Netherlands, 2021; publication no. 2021/44.