

1,2-Dibromoethane

Health-based recommendation on occupational exposure limits

To: the State Secretary of Social Affairs and Employment

No. 2017/22, The Hague, December 1, 2017

Executive summary

Health Council of the Netherlands



At the request of the Minister of Social Affairs and Employment, the Health Council has updated its recommendation on occupational exposure to 1,2-dibromoethane and the risk of cancer. The Health Council estimates the concentrations 1,2-dibromoethane in the air that correspond to the target risk level and the prohibitive risk level to be 0.002 en 0.2 milligram (mg) per cubic meter (m³), respectively, considering 40 years of occupational exposure. These concentrations are similar to those derived by the Health Council previously. In addition, the Health Council recommends to apply a skin notation for 1,2-dibromoethane. This notation means that measures needs to be taken to prevent skin contact with the substance since this could attribute to the adverse health effects that can develop after exposure by inhalation.

This advisory report has been drafted by the [Dutch Expert Committee on Occupational Safety \(DECOS\)](#). This permanent Committee of the Health Council evaluates the adverse health effects of substances to which people can be

occupationally exposed. Additional information on the task of the Committee and the members can be found on www.gezondheidsraad.nl.

Use of 1,2-dibromoethane

1,2-Dibromoethane is being used as intermediate in the synthesis of chemical compounds, mainly for the production of vinyl bromide, and as a non-flammable solvent for resins, gums and waxes.

Risk levels for carcinogenic substances

The Minister of Social Affairs and Employment has set risk levels for carcinogenic substances that have been classified in category 1A or 1B and directly interact with the DNA (stochastic genotoxic mechanism). These risk levels relate to the extra risk of cancer due to life time occupational exposure. DECOS estimates the concentrations in the air that correspond to these risk levels. These estimates are referred to as cancer risk values. For this estimation, the Committee follows the Guideline for the calculation of occupational cancer risk values.

Target risk level and prohibitive risk level applied in the Netherlands

The target risk level is 4 per 100,000. This means that for concentrations leading up to 4 extra cancer cases per 100,000 occupationally exposed people, no additional measures need to be taken.

The prohibitive risk level is 4 per 1,000. This means that the concentration leading to 4 extra cancer cases per 1,000 occupationally exposed people, cannot be exceeded.

The Health Council estimates which exposure levels correspond to these risk levels, considering someone is exposed for 40 years, 5 days a week and 8 hours a day.

Consulted research

In 1999, the Committee WGD (the predecessor of DECOS) has derived cancer risk values for 1,2-dibromoethane. Like in 1999, no data are available on exposure to 1,2-dibromoethane and cancer in humans. Again, the Committee has based its estimation on a study in rats that was conducted within the US National Toxicology



Program. The new estimation corresponds to the previous estimation of 1999, although the Committee used different tumor types as starting point.

Recommendation to the State Secretary

The Committee estimates the concentration of 1,2-dibromoethane in the air that corresponds to an extra cancer risk of 4 per 100,000 (the target risk level) equal to 0.002 mg/m³. An extra risk of cancer of 4 per 1,000 (the prohibitive risk level) corresponds to a concentration of 0.2 mg/m³.

Both estimates are based on 40 years of occupational exposure. In addition, the Committee recommends to apply a skin notation for 1,2-dibromoethane.



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 Economic Affairs and Climate Policy. 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.

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