

Hydrogenated Terphenyl

Health-based recommendation on occupational exposure limits

No. 2020/09, The Hague, June 15, 2020

Executive summary

Health Council of the Netherlands



At request of the Minister of Social Affairs and Employment, the Health Council recommends health based occupational exposure limits (HBR-OEL). This report contains an evaluation of the health hazard and recommendation for hydrogenated terphenyl. The evaluation is performed by the Dutch Expert Committee on Occupational Safety (DECOS), a permanent Committee of the Health Council. Additional information on the task of the Committee can be found at www.healthcouncil.nl. The members of the Committee are listed on the last page of the present advisory report.

Identified uses

Hydrogenated terphenyl mixtures are used as a heat transfer fluid (e.g., as a nuclear reactor-coolant), as textile dye carriers, and as plasticizers. The production rate in the European Union is in excess of 1,000 tonnes per annum.

Hydrogenated terphenyls are substances which are very persistent in the environment.

Health effects

The main effects reported in humans are skin irritation, headaches and sore throats after accidental exposure. Limited human data are available on the association between exposure to hydrogenated terphenyl at different exposure levels and adverse health effects. Repeated exposure studies in animals revealed increase in organ weights (e.g., the liver), and body weight loss after exposure to hydrogenated terphenyl.

Health-based recommended occupational exposure limit

For hazardous substances to which people can be occupationally exposed, the Committee determines whether a concentration can be derived at which no adverse health effects are

expected. This HBR-OEL is the base at which the State Secretary can set a legally-binding occupational exposure limit. When deriving an HBR-OEL limit, the principle is applied that an adverse health effect increases with an increasing dose.

Consulted research

The Committee has evaluated the studies on exposure to hydrogenated terphenyl, and observed adverse health effects that are suitable for deriving an HBR-OEL. The most clear and evident exposure-related adverse health effects of hydrogenated terphenyl were found in an oral and an inhalation animal experiment. The repeated exposure studies in rats revealed an increase in organ weights, and body weight loss after inhalation and oral exposure to hydrogenated terphenyl. Histopathology showed no abnormalities. Relative liver weight changes were used to derive an HBR-OEL.



Recommendation to the State Secretary

For occupational exposure to hydrogenated terphenyl, the Committee recommends a health-based occupational exposure limit for hydrogenated terphenyl of 7.4 mg per m³ air, which represents a mean concentration during an 8-hour working day.



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. Hydrogenated Terphenyl.

The Hague: Health Council of the Netherlands, 2020; publication no. 2020/09.

All rights reserved

