

# Iron and steel founding emissions

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## Executive summary

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Health Council of the Netherlands



# executive summary

At request of the Minister of Social Affairs and Employment, the Health Council of the Netherlands assessed whether emissions, which are formed during iron and steel founding, may induce genotoxic effects and may cause cancer. The assessment is performed by the Subcommittee on Classifying carcinogenic substances – hereafter called the committee – of the Dutch Expert Committee on Occupational Safety of the Health Council. The membership of the Subcommittee is given on the last page of this advisory report. The Health Council has a permanent task in the protection of employees to harmful health effects of substances to which they may be exposed during work. More information on this task can be found on the website [www.gezondheidsraad.nl](http://www.gezondheidsraad.nl).

## **Iron and steel founding**

In the present advisory report, the evaluation concerns the emissions that are formed during the iron and steel founding. Individual substances that can be found in the emissions are not considered. Iron and steel founding comprises creating a mould, melting and treating the basic material, pouring into moulds, cooling down the metal, and removing and cleaning the castings. Iron and steel products are widely used, such as in the car and shipping industry, construction industry and the packaging industry.

## **Assessment of genotoxicity and carcinogenicity**

Based on the available scientific literature, the committee assesses the potential genotoxic and carcinogenic properties of individual substances, mixtures or emissions. If there are indications for such properties, it recommends classifying the substance in two hazard categories, which represent the grade 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 criteria for assessing hazard categories, as set by the European Commission (EU-guideline (EG) 1272/2008).

The recommendation can be used by the Minister to decide whether the substance should be listed as mutagenic in germ cells and/or carcinogenic.



## Recommendation

Based on the available data, the Committee recommends classifying iron and steel founding emissions as a germ cell mutagen in category 2 (*“Substances which cause concern for humans owing to the possibility that they may induce heritable mutations in the germ cells of humans”*).

The committee concludes that iron and steel founding emissions are carcinogenic to humans, and recommends classifying the emissions in category 1A (*“known to have carcinogenic potential for humans”*). The carcinogenic effects are most likely caused by a stochastic genotoxic mode of action.



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.

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