IFA
Institut für Arbeitsschutz der
Deutschen Gesetzlichen Unfallversicherung

0061

Focus on IFA's work

Edition 7/2014 617.0-IFA:638.1

Occupational health and safety and elevated ozone concentrations in the environment

Problem

During the summer months, environmental influences may cause high ozone concentrations to arise. The rules and regulations governing the handling of hazardous substances at the workplace and the safety measures normally applied are not readily transferable to the issue of environmental ozone. As an irritative gas, ozone has a harmful effect upon the respiratory tract. It is also a suspected carcinogen. Satisfactory information has not been available in the past on the specific exposure situation, for example at outdoor workplaces, and on the means of protection against high ozone concentrations.

Like many workers in the open air, rail track workers are often exposed to high ozone concentrations in the summer

Activities

Already in 1995, a discussion between experts was conducted on the subject of ozone in conjunction with the (then) Federal Ministry of Labour and Social Affairs (BMA) and the Committee for Hazardous Substances (AGS), in which the participants were able to familiarize themselves with the ozone issue and discuss it with fellow professionals.

The results of the discussion were summarized in a BIA Report. The report contains recommendations for safety measures under conditions of high ambient ozone concentration. These recommendations have also been adopted in a BMA guide on OH&S measures for outdoor work under conditions of elevated atmospheric ozone concentration.

Results and Application

Ozone generated by industrial processes is subject to the provisions of the legislation governing hazardous substances. The volumes of ozone generated by such processes can be reduced effectively by technical measures. In the light of current knowledge, organizational measures are particularly suited to the combating of increased ozone concentrations resulting from environmental influences: such measures include the rescheduling of heavy physical activity to the mornings, the provision of shading for workplaces, reduction in the pace of work, relocation of work activity and breaks into indoor areas, avoidance of physically strenuous activity, and avoidance of activity which itself generates ozone, such as MIG welding of aluminium. Persons reacting particularly sensitively to ozone should seek medical advice.

In particular areas of construction activity, such as in trenches, building shells, drivers' cabs and closed rooms, substantially lower ozone concentrations occur than in the surrounding atmosphere. Measurements conducted by the German Institution for Social Accident Insurance in the Building Trade enable the ozone values published by the authorities to be extrapolated to specific areas on construction sites. For example: roofing activity 80%, open building shells 65%, closed building shells 30%, interior of heavy goods vehicles 10%, trenches (3m deep) 80%.

Area of Application

Construction sector, roofers, road construction workers, rail track layers, drivers, agriculture and forestry

Additional Information

- Ozon. BIA-Report 10/96. Published by: Hauptverband der gewerblichen Berufsgenossenschaften (HVBG), Sankt Augustin 1996 www.dguv.de/webcode/d6728
- Code of practice: “Ozon auf Baustellen” (Ozone on constuction sites) (available from the German Institution for Social Accident Insurance in the Building Trade)
- Arbeitsschutzmaßnahmen für Arbeiten im Freien bei witterungsbedingter erhöhter Ozonkonzentration in der Außenluft – Orientierungshilfe. Announcement by the BMA on 2 May 1996

Expert Assistance

IFA, Division 1: Information technology – Risk management

Berufsgenossenschaft Holz und Metall, Mainz

Berufsgenossenschaft Energie Textil Elektro Medienerzeugnisse (BG ETEM), Köln

Berufsgenossenschaft der Bauwirtschaft (BG BAU), Berlin

Literature Requests

IFA, Central Division

Published and printed by:
Deutsche Gesetzliche Unfallversicherung e. V. (DGUV), Mittelstrasse 51, 10117 Berlin

ISSN (online): 2190-006X
ISSN (print): 2190-0051

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