

Focus on IFA's work

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Dioxins at the workplace

Problem

Hardly any other class of substances has led to such prolonged public discussion and uncertainty as that of polychlorinated dibenzodioxins and polychlorinated dibenzofurans. Public discussion was triggered by the Seveso chemical disaster in 1976. Scientific study of this disaster initially prompted great activity in all areas of the environment, and at the same time to study of the potential danger to human life.

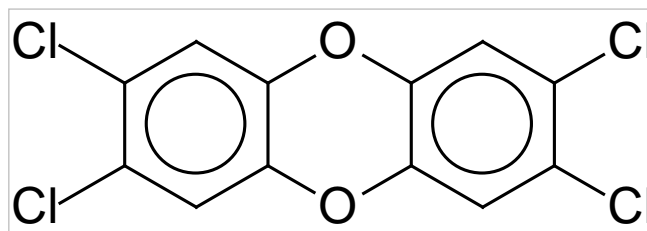
Less attention was paid to the exposure situation at workplaces. For this reason, from 1992 to 1996 a measurement programme was launched in conjunction with the German Social Accident Insurance Institutions for study of working areas at which dioxins and furans present a potential hazard.

Activities

Almost 100 measurements were performed, in a number of industrial sectors. Workplaces were selected which were representative of the sectors concerned and which enable the results to be transferred to comparable workplaces.

Results and Application

Violation of the limit values need not generally be anticipated at workplaces in the industrial sectors studied. The concentrations measured were frequently less than one-tenth of the former TRK



Structural formula of the "Seveso dioxin"

value (technical guidance value) (PVC processing; iron and steel industry; brass, copper and precious metals recycling). Higher concentrations, rising to one-half of the limit value, were measured in the smelting area (rotary furnaces) of aluminium recycling plants. Concentrations which may reach the former TRK value were measured on the furnace ceilings of coking plants.

Violations of limit values were observed during cleaning and maintenance work on or around the boiler, the sewer gas lines or the electrostatic precipitators of refuse incineration plants. The wearing of personal protective equipment (protective clothing and breathing apparatus) is mandatory in these areas.

Area of Application

Refuse incineration plants; iron and steel industry; brass, copper, aluminium and precious metals recycling; PVC processing; coking plants

Additional Information

- Dioxine am Arbeitsplatz. Report der gewerblichen Berufsgenossenschaften, der Unfallversicherungsträger der öffentlichen Hand und des BIA. Hrsg.: Hauptverband der gewerblichen Berufsgenossenschaften (HVBG), Sankt Augustin 1997 www.dguv.de/webcode/d7582
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- Stockmann, R.; Hahn, J.-U.; Lichtenstein, N. et al.: Polychlorierte Dibenzodioxine und -furane an Arbeitsplätzen. Staub – Reinhalt. Luft 53 (1993) No. 10, pp. 389-393
- Lichtenstein, N.; Stockmann, R.; Bogdoll, B. et al.: Ringversuch zur Messung polychlorierter Dibenzodioxine und -furane an Arbeitsplätzen. Gefahrstoffe – Reinhalt. Luft 56 (1996) No. 6, pp. 239-245
- Messverfahren für Dibenzofurane und Dibenzop-dioxine, polychloriert (Kennzahl 6880). In: IFA-Arbeitsmappe Messung von Gefahrstoffen. 8. Lfg. IV/92, 10. Lfg. IV/93. Hrsg.: Deutsche Gesetzliche Unfallversicherung (DGUV), Berlin. Erich Schmidt, Berlin 2011 – Losebl.-Ausg. www.ifa-arbeitsmappedigital.de/6880

Expert Assistance

IFA, Division 2: Chemical and biological hazards

Berufsgenossenschaft Rohstoffe und chemische Industrie (BG RCI), Heidelberg

Berufsgenossenschaft Holz und Metall, Mainz

Berufsgenossenschaft Energie Textil Elektro Medienerzeugnisse (BG ETEM), Köln

Unfallkasse Nordrhein-Westfalen, Düsseldorf

Literature Requests

IFA, Central Division