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Focus on IFA's work

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Cadmium and cancer: Summary of epidemiological studies

Problem

Exposure to cadmium and cadmium compounds occurs particularly in the manufacture of batteries, during welding and in cadmium extraction and recycling. Employees exposed to cadmium appeared to suffer higher rates of lung and prostate cancer.

Numerous epidemiological studies in the past have examined the possible relationship between cadmium exposure and cancer. These studies did not yield uniform results. In order to substantiate the limit values and statutory classification of cadmium, it was necessary for these studies to be summarized in order to permit evaluation of a possible quantitative relationship between exposure and risk.

Activities

Approximately 250 epidemiological publications on the subject of cancer and cadmium were identified. 25 studies met the specified quality criteria and contained information on dose-response relationships, but were based upon information from a limited number of studied occupational groups. In the interests of comparability, only the latest publications on a studied occupational group were employed in the summary.

The duration and intensity of all cadmium exposure was considered in the analysis, as was the lung and prostate cancer localization and confounders also capable of causing cancer.

Metal pellets containing cadmium in ingot casting

Results and Application

The summary of all studies of cadmium and lung cancer reveals a weak statistical relationship between lung cancer and cadmium exposure.

A significant relationship between prostate cancer and cadmium exposure is described in one of a number of studies.

If the exposure pattern is broken down further, a relationship between cancer and exposure exists only among persons also exposed to arsenic. No relationship exists among persons exposed to cadmium only.

Area of Application

Thermal zinc, lead and copper exploitation industries, smelting of cadmium compounds, welding of cadmium alloys, and manufacture of NiCad batteries; Committees for Occupational Exposure Limits

Additional Information

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  www.dguv.de/webcode/d6529

Expert Assistance

IFA, Division 1: Information technology – Risk management

German Social Accident Insurance Institution for the woodworking and the metalworking industry, Mainz

Literature Requests

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