

Focus on IFA's work

Edition 5/2011

617.0-IFA:638.3

Toxicity of the constituents of paper and paper dust

Problem

The possible adverse impact on health presented at office workplaces by paper or paper dust (caused for example by the inhalation of paper dust during the shredding of files) has occasionally been a cause for concern in the recent past. Reports of possible paper dust emissions during the use of printers and photocopiers have also led to concerns. A literature study was therefore to be conducted to produce a general overview of the composition and toxicity of the constituents of paper. Findings concerning possible adverse effects upon health caused by exposure to paper and its dusts, particularly among office employees, were to be surveyed and interpreted.

Activities

Internet searches were conducted to compile information on:

- the composition and toxicity of virgin-fibre and recycled papers;
- provisions and recommendations concerning paper;
- the significance of the photocopier paper for ultrafine particle emissions from printers and photocopiers.

The current state of knowledge on hazards to health presented by office paper and paper dust was also studied and evaluated.



Settled dust from a banknote handling machine at a cash-collection point

Results and Application

A generic characterization of paper is not possible. Papers and their dusts, particularly certain paper types and recycled papers, may contain a range of hazardous substances, probably however only in trace quantities.

In isolated cases, papers have been described as the source of a contact-allergy reaction, for example owing to their rosin (colophony) content; special consideration must be given to possible physical irritative effects resulting from intense contact with paper dust.

Some epidemiological studies (cross-sectional studies, case-control studies) describe a relationship between complaints such as irritation of the respiratory tract and general symptoms (such as sick building syndrome and similar complaints) or rhinitis and asthma following exposure of office workers to paper dust. However, these studies do not establish clear, scientifically verifiable causality, for example because objective analyses were not performed of the dust exposure at the affected workplaces. Negative impacts of paper dusts, particularly upon the upper respiratory tract, have been described in cross-sectional studies at workplaces in "soft tissue" paper plants. Such workplaces may however be assumed to exhibit a much higher level of exposure to paper dust than that at office workplaces.

More recent publications indicate that emissions of ultrafine particles from printers and photocopiers are for very much the greater part not products of paper abrasion, but condensates of volatile compounds caused by vaporization processes on the fixing units of the equipment.

No specific evidence was found that contact with standard (office) papers is associated with a substantial health hazard to office employees indicating a need for action.

An IFA report presenting detailed results of the literature survey is available online to interested readers.

Area of Application

Management and employees at office workplaces

Additional Information

- Möller, A.: Literaturstudie zur Toxizität von Papierinhaltsstoffen und von Papierstaub. IFA-Report 3/2011. Published by: Deutsche Gesetzliche Unfallversicherung (DGUV), Berlin 2011
www.dguv.de/ifa, Webcode [d113540](http://www.dguv.de/ifa)

Expert Assistance

IFA, Division 1: Information Technology – Risk Assessment

Literature Requests

IFA, Zentralbereich