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Institut für Arbeitsschutz der
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Focus on IFA's work

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Biological agents in vehicle washing facilities

Problem

In many passenger car washes, but also in those for washing commercial vehicles (large lorries, buses) and trains, the water used is kept in circulation and recycled in order to save water. Systems such as sand or gravel filters, activated sludge, sieve drums, trickling filtration, hydrocyclone washing, ozonization, or UV treatment are variously used to sterilise this process water. Under favourable living conditions in such water – including a high nutrient and temperature level – biological agents such as bacteria, yeasts, and moulds can thrive. Whenever they work with such microbe laden water, the staff at vehicle washing facilities are carrying out what is legally known as "non-directed activities with biological agents at work". This places these washing stations under the purview of the ordinance on biological agents (Biostoffverordnung – BioStoffV), which went into effect in 1999. The risk to workers resulting from biological agents in various work areas within such washing facilities (control stand operation, manual cleaning, maintenance) was to be thoroughly assessed and the water reprocessing system was to be evaluated in terms of its effectiveness in reducing biological contamination.

Activities

Within the framework of a project in the workgroup "Microbial contamination in water-mixed cooling lubricants and other aqueous circulation systems" in the BG expert Committee on Iron and Metal II,

Automated car wash

the IFA along with the related institutions for social accident insurance and prevention and the bureau of occupational health and safety for the German state of North-Rhine Westphalia conducted microbiological studies of 21 portal-type and tunnel-type washing facilities for passenger cars, commercial vehicles, and trains in the summer of 2000 and 2001. For orientation, the microbe count for bacteria and moulds was determined in water samples, and the presence of micro-organisms of the risk group 2 was tested. These are the biological agents that present a risk to employees, yet their spread is improbable, and effective prevention and treatment is possible. Airborne microbes were also measured, whereby three different sampling systems were used in parallel: AGI 30 (impinger), Merck MAS 100 (impactor), and GSP-System (filtration).

Results and Application

The results made it clear that the water reprocessing facilities often only produced a negligible reduction in the microbial content, no matter what their condition of maintenance, and independent of the odour or the visible appearance of the water samples.

The results of these studies were included in a report. In addition, the measurement technique and measuring strategy procedures for bioaerosols at workplaces with a high humidity were improved significantly by the studies conducted.

Area of Application

Vehicle washing facilities (operators, manufacturers).

Additional Information

- Biologische Arbeitsstoffe in Verkehrsunternehmen. Warnkreuz spezial (2001) No. 9, p. 32
- Fahrzeugwaschanlagen. Handlungshilfe zur Umsetzung der Biostoffverordnung, 3rd Edition. Publisher: Berufsgenossenschaft für Fahrzeughaltungen (BGF), Hamburg 2001
- Ergebnisbericht der mikrobiologischen Untersuchungsreihen von Betriebswasser in Fahrzeugwaschanlagen (http://www.bghm.de/fileadmin/downloads/Gesundheitsschutz/ErgebnisberichtFahrzeugwaschwasser_vom_23.07.03.pdf)

Expert Assistance

IFA, Division 2: Chemical and biological hazards

Institution for Social Accident Insurance and Prevention in the Woodworking and Metalworking Industry, Mainz, Subject Biological Agents in the BG Expert Committee Machine Construction, Production Systems, Steel Construction

Literature Requests

IFA, Zentralbereich

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