Cooperation partners

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Employees’ health and safety when working with diisocyanate-containing materials

Seeking companies and study participants!
What is the rationale for the study?

- Diisocyanates are important substances in the manufacturing and application of polyurethane (PUR)-containing materials. Diisocyanates cannot easily be replaced.
- Diisocyanates can cause occupationally induced obstructive respiratory and pulmonary diseases.
- A REACH restriction regulation is forthcoming for diisocyanates, which will include compulsory and verifiable protective measures and training for employees.

What is the aim of the study?

- To record the number of work-related respiratory and lung diseases caused by diisocyanates.
- To determine the amounts of diisocyanates which are taken up by employees.
- To describe the relationship between exposure and respiratory and lung diseases after the initiation of the REACH restriction.

How will the results be used?

- To develop and implement appropriate and feasible protective measures to reduce exposures.
- To contribute to hazards and risk assessment of occupational exposures to diisocyanates based on scientific evidence.

For the company

What are the benefits of participating?

- To further improve current preventive measures, e.g., within an already established health management program.
- To contribute to a healthy workforce by minimizing work-related diseases and reducing sickness-related absences of employees.
- To be prepared for future industrial safety measures after the initiation of the REACH restriction.

For the employees

What are the benefits of participating?

- To volunteer as a study participant after receiving detailed information on the study.
- To annually complete a questionnaire on work-related activities and on your health status.
- To actively participate in the annual health check-ups.

Which investigations are carried out?

Workplace air
- Air samples are analyzed to determine diisocyanate exposure at the workplace.

Blood
- A complete blood count is carried out and antibodies are determined to detect an allergic reaction against common allergens.
- Selected inflammation markers are measured.
- Reaction products of diisocyanates and diisocyanate-specific antibodies are analyzed.

Urine
- Metabolites of diisocyanates are determined.

Skin
- Potential skin exposures to diisocyanates are assessed.

Lung function / Exhaled air
- Pulmonary functions are measured.
- Nitric oxide in exhaled air, an inflammatory marker of the airways, is analyzed.

What happens if we suspect that you might suffer from a respiratory disease?

- You will get specific advice and medical care by the study physician.
- Additional diagnostic measures that go beyond the regular study measurements will be carried out, e.g., testing for bronchial hypersensitivity and analyzing additional inflammatory markers in sputum (phlegm from the deeper airways).

Which prerequisites are desirable for study participation?

- Sufficient number of employees that have one or more of the aforementioned job profiles.
- Suitable study rooms for carrying out medical examinations on-site.
- Willingness to participate continuously for the duration of the main study (approx. 2020 to 2025).

For the employees

What is your contribution?

- To annually provide blood and urine samples.
- To actively participate in the annual health check-ups.

Which company or special job profiles are we looking for?

- Companies working with polyurethanes/diisocyanates (methyldiphenyl diisocyanate (MDI), hexamethylene diisocyanate (HDI), toluene diisocyanate (TDI) or isophorone diisocyanate (IPDI)).
- Activities such as producing and applying polyurethane/diisocyanate-based materials including mixing, pelleting, glueing, injecting, insulating, hot-cutting, foaming, coating or spraying.

Who can participate?

- Employees aged 18 to 58 with exposures to MDI, HDI, TDI and/or IPDI.
- Activities such as producing and applying polyurethane/diisocyanate-based materials including mixing, pelleting, glueing, injecting, insulating, hot-cutting, foaming, coating or spraying.