**SAFE CONTAINER UNLOADING PROCEDURES: AN OBLIGATION OR NOT IMPORTANT?**

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10.1136/oemed-2018-ICOHabstracts.675

**Introduction** Several studies have shown that there may be concerns about exposure to dangerous substances for workers unloading sea freight containers, although safe procedures for unloading containers are usually in place to protect workers from being exposed to chemical agents. Since preliminary research has shown that less than 1% of unloaded containers are deliberately fumigated with known chemicals, it was necessary to find the root cause.

**Methods** Many production sites for sea freight containers are located in Asia. The first task in this study was the identification of production factories and their locations. The second task was to identify the full production cycle of the goods that are manufactured and shipped via freight containers. The third task was to gather exposure data during the production cycle and identify off-gassing post production, when loading containers for travel to Europe.

**Results** All tasks took about six years to complete, and identified a way to predict container air concentration on the unloading site (downstream) based on information at the production site (upstream). This algorithm is based on site concentration measurements, lab experiments of the raw materials and unloading concentration measurements. These parameters can be applied for the full production cycle and are independent of variations in terms of production site outputs.

**Discussion** Safe container unloading procedures are now based on an upstream limit value, meaning that if the concentration at a production site is higher than the established limit value, the goods cannot be shipped by container, or the container is required to be ventilated at the unloading site. This case study series is a good example of how occupational hygiene principles can be used in root cause analysis and problem solving, in terms of exposures to chemical agents.

**EMERGING TRENDS IN OCCUPATIONAL HYGIENE**

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10.1136/oemed-2018-ICOHabstracts.678

Although the challenges of the occupational hygienist are still the same as at the beginning of our profession, the role of Industrial Hygienists is changing. To understand the changes that are happening all around us we have to see the bigger picture. Key trends and changes in the world of work can be found in relation to economic, demographic, technological and environmental changes.

The effect of economic growth still influences decent employment and social protection (moving heavy industry to developing countries with less (strict) OSH regulations). The demographic changes influence the different areas of the world differently. Looking at our profession we see these changes influence our own future.

Towards technological and environmental changes, we see it will bring new jobs but it will also destruct jobs as a result of the automatization, robotization. The trend in our work as occupational hygienist has, shifted over years from reducing the number of exposed workers in heavy industries (welding, foundries) to the more psychosocial risks and optimisation of comfort/wellbeing (operator in control room, higher workloads, outsourcing and temporary contracts).

The developments in measurement-techniques (exposure to dust/vapours) have not changed enormously since the personal sampling pump has been developed. But the influence of computer technology and direct readable/continuous sensing equipment (sensor, monitors, use of apps on mobile phones)