

Workshop

Batteries: Risks, Toxicology and Chemical Exposure

Agenda

Chairman: Istaq Ahmed, AB Volvo

Time	Title	Speaker
14:30 – 14:40	Welcome address	
14:40 – 15:20	Chemical agents in battery production - exposure and risk. Exposure monitoring and medical surveillance program	Håkan Westberg and Louise Fornander, Department of Occupational and Environmental Medicine Örebro University Hospital
15:20 – 15:50	Handling chemical risks	Tuulia Svanehav, Northvolt
15:50 – 16:20	A poison centre perspective on hydrofluoric acid/HF -exposures: neglected differences between different types of exposures?	Erik Lindeman, Swedish Poisons Information Centre
16:20 – 16:40	A method for evaluation of toxicology in a LCA perspective	Christina Jönsson, RISE
16:40 – 17:00	Time for general questions and discussion	

Content of the talks

Chemical agents in battery production - exposure and risk. Exposure monitoring and medical surveillance program

Håkan Westberg and Louise Fornander, Department of Occupational and Environmental Medicine Örebro University Hospital

- Exposure, hazard and risk. Basic concepts and need for data in a standard risk assessment based on comparison with occupational exposure limits.
- Occupational exposure limits. Different OELs, TWA (time weighted average), short term exposure limits (STEL) and ceiling limit values are presented. Documentation of OELs.
- Sampling strategies. Sampling strategies including identification, assessment and measurements. Uniform exposure groups.
- Selected chemicals agents. Adverse health effects to consider for Co, NMP and H₂SO₄ Exposure-response on respiratory signs and symptoms, cancer mortality for cobalt exposure.
- Sampling and analysis of chemical agents. Sampling and analytical methods for aerosols, metals, organic solvents and inorganic acids. Mass-, particle- and surface area measurement techniques of particulates will be presented as well as real time aerosol measurement instruments.
- What to consider? Basic needs for exposure and medical surveillance programs in battery production and battery handling.

Handling chemical risks

Tuulia Svanehav, Northvolt

- Importance of identifying all chemicals used and understanding their legal status as well as health and environmental effects.
- How to transfer the gathered knowledge of the chemicals via risk assessment into actions.
- EU Regulatory developments related to cobalt.
- How to keep exposures low.

A poison centre perspective on hydrofluoric acid/HF -exposures: neglected differences between different types of exposures?

Erik Lindeman, Swedish Poisons Information Centre

- Hydrofluoric acid has been called “the tiger of chemistry” due to its very real ability to cause devastating, often lethal, toxic effects. Fortunately, severe toxicity is almost exclusively seen after exposures to highly concentrated forms of hydrofluoric acid, while more dilute products are much less dangerous. This also applies to exposure to HF gas from battery fires – a form of HF exposure that has, unjustly, inherited the fierce reputation of the concentrated acid.

A method for evaluation of toxicology in a LCA perspective

Christina Jönsson, RISE

- Structural batteries have been investigated for their environmental impact covering climate as well as toxicity aspects. Here, chemical risk assessment methods have been adopted and applied to reflect toxicity in a life cycle perspective. Chemicals and process materials have thus been evaluated for hazards in the different life cycle phases. Hazards have also been associated with risk for exposure so the chemical risk for the user/worker can be assessed. Hence, physical-chemical properties have been used as well as hazard statements according to the Classification, Labelling, and Packaging (CLP) directive. Sustainability 2019, 11, 5679; doi:10.3390/su11205679.