



Antimony in the environment: current research and future perspectives

Susan Wilson (AU), Gudny Okkenhaug (NO), Susan Tandy (CH) and Montserrat Filella (CH)

Antimony (Sb) is a widely used metalloid. Global Sb consumption was estimated to be about 184,000 tonnes in 2015. Almost half of this was used as flame retardants for the plastic and textile industries with the element used in a wide range of other products including brake linings, ammunitions, glass and semiconductors. Emissions to the environment have significantly increased, with a 100 fold increase in Sb atmospheric deposition since the industrial revolution, with elevated concentrations detected in soils, sediments, water, plants and organisms, and greater human and ecosystem exposure. Antimony is known to be genotoxic at low concentrations and synergistic effects with other co-occurring elements such as lead and arsenic are also reported.

Over recent years much work has been ongoing at different levels to understand risks at specific contaminated sites such as firing ranges in Switzerland and Norway and mining sites in China and Australia. Despite this, many basic questions about Sb, its toxicity and interactions with co-occurring elements in the environment remain unanswered. Even analysis for the different Sb species is complicated, requiring expensive and highly sophisticated instrumentation not always widely available. This severely hinders any sound ecological risk assessment and establishment of reliable environmental guidelines and management strategies for this increasingly present element.

The 3rd International Antimony Workshop was held in Leipzig in 2015 and this brought together numerous researchers and other stakeholders working in the field. One of the workshop's conclusions was a concern that many research needs for Sb were being left unanswered. It is critical to maintain the momentum of Sb research and provide opportunities to bring the knowledge in the global research arena together for communication to end users to ensure risk management and remediation is underpinned by science. We propose this symposium in response to this. The symposium will attract the participants of the 2015 Workshop, also a range of other researchers working on Sb who may not have been aware of the previous workshop, and also those working on other contaminants including arsenic (As) and lead (Pb) with related environmental issues because it is within the larger ICOBTE framework.