Deriving a health-based guidance value for antimony to support development of UK Drinking Water Standards

Introduction and Background

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This is a paper for discussion. This does not represent the views of the Committee and should not be cited.

Introduction

1. The UK Health Security Agency (UKHSA) advises the Drinking Water Inspectorate (DWI) on potential health risks from chemicals in drinking water. Post EU exit, the DWI is reviewing the regulatory standards for some chemicals in drinking water, including antimony. UKHSA is seeking advice of the Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) with respect to an appropriate health-based guidance value (HBGV) for antimony.

2. This discussion paper examines the interpretation of a 90-day rat drinking water toxicity study on antimony potassium tartrate by Poon et al. (1998). The World Health Organization (WHO), the US Agency for Toxic Substances and Disease Registry (ATSDR) and Health Canada (2024) have used this study to derive different HBGVs. The differences are primarily due to variations in the interpretation of the study findings, particularly in the choice of the No Observed Adverse Effect Level (NOAEL).

3. The COT is asked to consider these interpretations and determine an appropriate HBGV to support an update to the antimony drinking water standard in the UK.

Background

4. COT has previously reviewed the dietary exposure to antimony in infants and young children aged 4 to 18 months as part of the 2014 survey of metals and other elements in infant foods. COT has also reviewed dietary exposure to antimony in various population subgroups as part of the 2006 UK Total Diet study of metals and other elements. For these reviews, COT used the WHO tolerable daily intake (TDI) of 6 µg/kg bw/day for the evaluation. More recently Health Canada and ATSDR have considered antimony and derived lower HBGVs.