Risk characterisation

In this guide

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Food

102. Mean total exposure to mercury from food for women of child-bearing age ranges from 0.13-0.29 µg/kg bw/week, whilst exposure in high consumers (97.5th percentile) ranges from 0.62-0.84 µg/kg bw/week. Without considering exposure from non-dietary sources and assuming all mercury is in the form of MeHg, these estimates are below the EFSA TWI of 1.3 µg/kg bw for MeHg (EFSA, 2012).

Drinking water

103. The 97.5th percentile mercury exposures from drinking water for a woman of childbearing age in England & Wales, Scotland and NI are 0.027, 0.0091 and 0.0045 µg/kg bw/week, respectively. Assuming all the drinking water mercury is in the form of MeHg, these exposures represent 2.1 %, 0.70 % and 0.35 % of the EFSA TWI (1.3 µg/kg bw).

104. This exposure estimate is conservative, being based on 97.5% percentile water consumption in women of childbearing age; nevertheless, exposures from drinking water alone are far below the TWI.

Air

105. An average adult female is, at worst, expected to be exposed to 0.031 µg/kg bw/week of mercury if resident near an urban industrial site. This exposure is equivalent to 0.78% of the inorganic mercury TWI (4 µg/kg bw) and 2.38% of the MeHg TWI (1.3 µg/kg bw). The industrial site air mercury concentration is 5.7 times higher than the urban background concentration; for the general population; therefore, this value is conservative.

Soil

106. Soil mercury values from England were used to estimate the UK's exposure to mercury from soil because no values were available for Scotland, Wales or NI. Exposure to mercury from soil in both urban and non-urban regions is presented in Table 5 and shown as a percentage proportion of the EFSA TWI's for MeHg and inorganic mercury.

Table 5. Median and 75th percentile exposure to soil mercury in urban and non-urban regions as a proportion of the inorganic mercury and MeHg EFSA TWI's.

Mercury Exposure and Tolerable Weekly Intake (TWI) Contribution by Region

Region Type	Percentile	Exposure (µg/kg bw/week)	% Inorganic Mercury TWI (4 µg/kg bw)	% Methylmercury TWI (1.3 µg/kg bw)
Non-urban	Median	0.00060	0.015	0.046

Urban	Median	0.0017	0.042	0.13
Non-urban	75th Percentile	0.0011	0.028	0.086
Urban	75th Percentile	0.0032	0.081	0.25

107. The 75th percentile exposure to mercury through soil ingestion is far below the TWIs and therefore of low concern for the general population.

108. There is uncertainty regarding sub-populations that exhibit pica behaviour that may regularly consume soils/clays containing mercury; however, this is unlikely to make a significant contribution to overall mercury exposure in women of maternal age. Exposure via pica behaviour will be kept under review and updated should additional data become available.

Aggregate characterisation

109. A combined exposure assessment considered exposure to mercury from all sources at average and high levels. In a scenario where there are high exposures to mercury from all sources (food, drinking water, soil and air) the estimated aggregate exposure is 0.13 µg/kg bw/day (Table 3), equivalent to 0.91 µg/kg bw/week. This is below the EFSA TWIs for inorganic mercury (4 µg/kg bw) and MeHg (1.3 µg/kg bw). Aggregate exposure estimates under all scenarios are below the EFSA TWI’s for inorganic mercury and MeHg, providing reassurance that the risk of toxicity from mercury is low.