Aggregate characterisation and Conclusions

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Aggregate characterisation

91. 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 which is below both the EFSA TWI's for inorganic mercury (4 µg/kg bw) and MeHg (1.3 µg/kg bw). As aggregate exposure estimates under all scenarios are below the EFSA TWI's for inorganic mercury and MeHg, the risk of toxicity from mercury is low.

Conclusions

92. Mercury is a metal that is released into the environment from both natural and anthropogenic sources. Mercury bioaccumulates in fish as MeHg, especially in long-lived predatory species such as swordfish and tuna. Populations that consume large quantities of foods derived from fish are more vulnerable to mercury exposure. Food sources other than fish and seafood products may contain mercury, but mostly in the form of inorganic mercury.

93. After oral intake in humans, MeHg is more extensively and rapidly absorbed than inorganic mercury. MeHg can enter the hair follicle, cross the placental, blood-brain and blood-cerebrospinal fluid barriers, allowing accumulation in hair, the fetus and the brain, respectively. Inorganic mercury in food is considerably less toxic than MeHg due to its low lipophilicity hence it does not readily cross the same fluid barriers.

94. The main adverse effect associated with MeHg exposure is toxicity to the central and peripheral nervous systems. Due to MeHg's ability to cross barriers, exposure during embryonic neurodevelopment and in young children is of high concern. Thus, pregnant and breastfeeding women are sensitive sub-populations.

95. The most recent HBGVs derived for mercury were calculated by EFSA in 2012 to determine whether the earlier JECFA derived values were still appropriate. EFSA derived a lower TWI for MeHg of 1.3 µg/kg bw (JECFA TWI was 1.6 µg/kg bw) and a TWI for inorganic mercury of 4 µg/kg bw (identical to the JECFA TWI).

96. Inorganic mercury could not be separated from MeHg in the exposure data. This was considered irrelevant for the risk assessment; however, as previous evaluations have highlighted the fact that most mercury exposure from the diet is MeHg and furthermore, MeHg is considered more toxic than inorganic mercury. Regardless the high individual and aggregate exposure assessments to mercury from food, water, soil and air all estimated exposures were below the EFSA TWIs for both MeHg and inorganic mercury. Therefore, for the UK population there is low risk to women of maternal age and their fetuses.

97. The current Government advice on foods to avoid in pregnancy should be maintained. Mothers should avoid eating more than more than 2 portions of oily fish a week and no more than 2 tuna steaks (about 140g cooked or 170g raw). Shark, swordfish, marlin, raw shellfish and uncooked cold-smoked

or cured fish should also be avoided by pregnant women and women trying to get pregnant. If pregnant women and women trying to get pregnant are following Government advice the exposure assessment is highly conservative as fish and seafood is the major source of MeHg exposure in the diet.

Secretariat

May 2025