

SUPPLEMENTARY INFORMATION

Revisiting the “forever chemicals”, PFOA and PFOS exposure in drinking water

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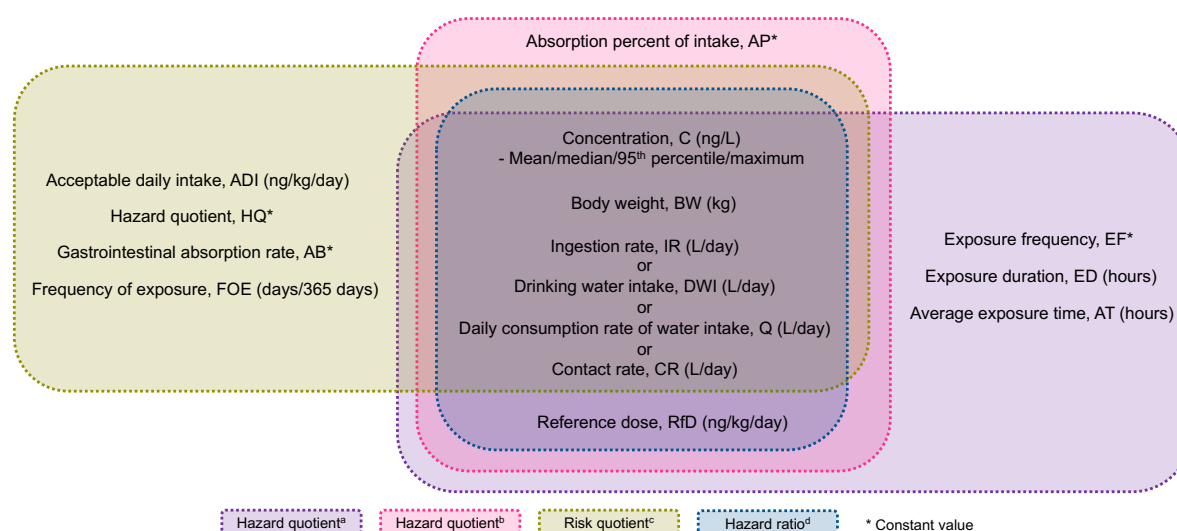
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Method	Equation	Indication			
Hazard quotient ^a	$ADI = (C \times IR \times EF \times ED) / (BW \times AT)$ $HQ = ADI / RfD$	$HQ < 0.1 =$ no hazard	$HQ = 0.1-1.0 =$ low hazard	$HQ = 1.1-10 =$ moderate hazard	$HQ > 10 =$ high hazard
Hazard quotient ^b	$ADD = (C \times IR \times AP) / BW$ $HQ = ADD / RfD$	$HQ < 1 =$ no risk		$HQ > 1 =$ potential risk	
Risk quotient ^c	$DWEL = (ADI \times BW \times HQ) / (DWI \times AB \times FOE)$ $RQ = C / DWEL$	$RQ < 1 =$ no risk		$RQ > 1 =$ potential risk	
Hazard ratio ^d	$EDI = (C \times Q) / BW$ $HR = EDI / RfD$	$HR < 1 =$ no risk		$HR > 1 =$ potential risk	

Supplementary Fig. 1 Potential methods for human health risk assessment of emerging contaminants in drinking water. Deterministic risk estimation of emerging contaminants in drinking water necessitates the availability of a comprehensive database encompassing the contamination level (established through a valid and robust analytical method), toxicology value (including dose-response, long-term effects, vulnerability windows, mixture effects, and interactions beyond traditional toxicology), and local population characteristics (such as human morphology and water consumption patterns). ^a ADI: Average daily intake (ng/kg/day), C: Median concentration (ng/L), IR: Ingestion rate (L/day), EF: Exposure frequency (EF = 1), ED: Exposure duration (hours), BW: Body weight (kg), AT: Average exposure time (hours); ^b ADD: Average daily doses (ng/kg/day), C: Mean concentration or 95th percentile of concentration, IR: Ingestion rate (L/day), AP: Absorption percent of intake (AP = 100%), BW: Body weight (kg); ^c DWEL: Drinking water equivalent level, ADI: Acceptable daily intake (ng/kg/day), BW: Body weight (kg), HQ: Hazard quotient (HQ = 1), DWI: Drinking water intake (L/day), AB: Gastrointestinal absorption rate (AB = 1), FOE: Frequency of exposure (days/365 days), C: Maximum detected concentration (ng/L); ^d EDI: Estimated daily intake (ng/kg/day), C: Mean detected concentration (ng/L), Q: Daily consumption rate of water intake (L/day), BW: Mean body weight (kg). Data source: ^a Ao et al. ¹; ^b Ding et al. ²; ^c Gaffney et al. ³ and Wee et al. ⁴; ^d Wei et al. ⁵.

Supplementary references

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