

HED of the study

Table 4
Human equivalent doses (HED) derived from the rat and monkey models based on the model-predicted average serum concentrations in each species.

Study; species; critical effects	Dosing duration (days)	NOAEL (mg/kg/day)	ASC ^a or ALC ^b at NOAEL (µg/mL or mg/L)		HED (mg/kg/day)	
			EPA	This study	EPA ^d	This study ^e
Seacat et al., 2002: Monkey; (Increased liver weight; histopathology change; Decreased body weight)	182	0.15	38	ASC: 0.56 (95% CI: 0.015–1.30) ^c ALC 182 (95% CI: 80–288)	0.0031	Plasma: 0.0055 (95% CI: 0.0001–0.14) Liver: 0.012 (95% CI: 0.004–0.22)
Seacat et al., 2003: Rat; (Increased liver weight; centrilobular hepatocytic vacuolation)	98	0.34	16.5	ASC: 0.46 (95% CI: 0.034–2.77) ^c ALC 56 (95% CI: 33–125)	0.0013	Plasma: 0.0057 (95% CI: 0.0002–0.17) Liver: 0.004 (0.0013–0.072)

^a ASC represents the average serum concentration at the NOAEL exposure level for each species. $ASC\ (mg/L) = \text{Serum-AUC}\ (mg/L * h) \div (24\ h/day \times \text{Exposure duration [Days]})$.
^b ALC represents the average liver concentration at the NOAEL exposure level for each species. $ALC\ (mg/L) = \text{Liver-AUC}\ (mg/L * h) \div (24\ h/day \times \text{Exposure duration [Days]})$.
^c Mean (95% confidence interval).
^d $HED = \text{average serum concentration}\ (mg/L) \times CL$, where $CL = 0.000081\ (L/kg\ bw/day)$ (EPA, 2016b).
^e $HED = NOAEL \times (ASC_{\text{aniaml}}/ASC_{\text{human}})$ or $(ALC_{\text{aniaml}}/ALC_{\text{human}})$.

Issues with the study

- This is not the hierarchical model that the authors used (at least not if notation follows conventions)
- Hyperparameters M and S^2 are **not** connecting species as $p(\mu, \Sigma^2 | M, S^2)$

