Appendix J. Individual Effect Chance Model Output

Acute Fish (Artichokes)

IEC V1 - Individual Effect Chance Model Version 1

Predictor of chance of individual effect using probit dose-response curve slope and median lethal estimate

Enter LC_{50} or LD_{50}	72	Note: This is not used in calculation, just serves as a reminder to user
Enter desired threshold	0.003	Note: This is either the RQ fraction of the toxicity endpoint, the EEC or dose fraction of the dose/concentration at tox endpoint, or the LOC
Enter slope of dose-response	2.55	Note: This is the slope of the dose response relationship from the study providing the above endpoint
z score result	-6.4333408	z is the standard normal deviate
Probability associated with z	6.24147E-11	Uses Excel NORMDIST function to estimate P
Chance of individual effect, ~1 in . . .	1.60E+10	Calculated as 1/P rounded to 0 decimals

This is based on the formula $\log LC_k = \log LC_{50} + (z/b)$

where: z is the standard normal deviate and b equals slope

Works for dose-response models based on a probit assumption (i.e. log normal distribution of individual sensitivity)

Note: Probability asociated with z value may be reported as "0". This is due to the inability of Excel to handle extremes in z scores beyond -8.2
In such cases the chance of individual effect is defaulted to 1 in 10^{16}, which is the limit of Excel reporting.

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