

EPA Toxicity Spreadsheet Statistical Tool

Description

The U.S. EPA's Water Permits Division/Office of Wastewater Management developed this EPA toxicity spreadsheet statistical tool for EPA regions, states, authorized Tribes and interested parties to use to statistically analyze valid toxicity test data. This toxicity spreadsheet statistical tool is based on Microsoft Excel®. The spreadsheet calculates acute and chronic toxicity biological effects on EPA toxicity test organisms (e.g., survival, reproduction, biomass, fertilization) contained in EPA's toxicity test methods and used under the National Pollutant Discharge Elimination System (NPDES) Whole Effluent Toxicity (WET) permit program. Valid toxicity data generated from the following EPA toxicity test methods can be analyzed using this spreadsheet tool: EPA toxicity test methods at 40 CFR Part 136 (USEPA 2002a, 2002b, 2002c) and EPA's west coast chronic marine toxicity test methods (USEPA 1995). The spreadsheet calculates various toxicity test endpoints in EPA's Technical Support Document for Water Quality-based Toxics Control (TSD; EPA/505/2-90-001, March 1991; e.g., LC₅₀, NOAEC, NOEC, LOEC, IC₂₅) based on the statistical flowcharts provided in EPA's toxicity test methods, and when using EPA's NPDES WET Test of Significant Toxicity (TST) statistical approach (EPA 833-R-10-003, June 2010).

Why is U.S. EPA making this spreadsheet available to regions, states and authorized Tribes?

EPA developed this toxicity spreadsheet statistical tool in response to numerous requests from EPA regions, NPDES permitting authorities and interested parties for a free statistical tool to independently analyze and evaluate valid toxicity test data (i.e., monitoring data used for NPDES WET permit and compliance purposes). EPA regions and permitting authorities have been successfully using the spreadsheet tool since 2012.

Features of the EPA Toxicity Spreadsheet Statistical Tool

- Uses Microsoft Excel®, which is readily available on most computers
- Easy data entry & toxicity test reference tabs
- Drop down menus for entering different types of valid toxicity test data & test endpoint analyses (TSD and TST)
- One-click output of data
- Graphical & tabular display of results
- Ability to easily print or save analysis results
- Runs Reasonable Potential analyses using either TSD or TST

What can the EPA toxicity spreadsheet statistical tool be used for?

- **NPDES permit reasonable potential evaluations.** Point estimates using EPA's TSD statistical approaches, as well as EPA's TST statistical approach can be used for evaluating reasonable potential.
- **NPDES permit compliance determinations.** Point estimate (LC₅₀, IC₂₅) and hypothesis (NOEC/LOEC, TST) statistical results can be used to determine NPDES WET permit compliance.

For more information, contact:

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