**Section 302.615 Determining the Acute Aquatic Toxicity Criterion – Toxicity Independent of Water Chemistry**

If the acute toxicity of the chemical has not been shown to be related to a water quality characteristic, including hardness, pH, or temperature, the AATC is calculated by using the procedures below.

a) For each species for which more than one acute value is available, the Species Mean Acute Value (SMAV) is calculated as the geometric mean of the acute values from all tests.

b) For each genus for which one or more SMAVs are available, the Genus Mean Acute Value (GMAV) is calculated as the geometric mean of the SMAVs available for the genus.

c) The GMAVs are ordered from high to low.

d) Ranks (R) are assigned to the GMAVs from "1" for the lowest to "N" for the highest. If two or more GMAVs are identical, successive ranks are arbitrarily assigned.

e) The cumulative probability, P, is calculated for each GMAV as R/(N + 1).

f) The GMAVs to be used in the calculations of subsection (g) must be those with cumulative probabilities closest to 0.05. If there are less than 59 GMAVs in the total data set, the values utilized must be the lowest obtained through the ranking procedures of subsections (c) and (d). "T" is the number of GMAVs that are to be used in the calculations of subsection (g). T is equal to 4 when the data set includes at least one representative from each of the five taxa in Section 302.612 and a representative from each of the three taxa listed below. T is equal to 3 when the data includes at least one representative from each of the five taxa in Section 302.612 and one or two of the taxa listed below. T is equal to 2 when the data set meets the minimum requirements of Section 302.612 but does not include representatives from any of the three taxa listed below. When toxicity data on any of the three taxa listed below are available, they must be used along with the minimum data required pursuant to Section 302.612.

1) A benthic crustacean, unless one was used under Section 302.612(a)(3), in which case an insect must be used.

2) A member of a phylum not used in subsection (a), (b), or (f)(1).

3) An insect from an order not already represented.

g) Using the GMAVs and T-value identified under subsection (f) and the Ps calculated under subsection (e), the Final Acute Value (FAV) and the AATC are calculated as:

|  |  |  |
| --- | --- | --- |
| FAV | = | exp(A) and |
| AATC | = | FAV/2 |

Where:

|  |  |  |
| --- | --- | --- |
| A | = | L + 0.2236 S; |
| L | = | [SUM(1n GMAV) - S(SUM(P\*\*0.5))]/T; and |
| S | = | [[SUM((1n GMAV)\*\*2) - ((SUM(1n  GMAV))\*\*2)/T]/[SUM(P) - ((SUM(P\*\*0.5))\*\*2)/T]]\*\*0.5 |

h) If a resident or indigenous species whose presence is necessary to sustain commercial or recreational activities or prevent disruptions of the waterbody's ecosystem, including loss of species diversity or a shift to a biotic community dominated by pollution-tolerant species, will not be protected by the calculated FAV, then the EC-50 or LC-50 for that species is used as the FAV.

(Source: Amended at 47 Ill. Reg. 4437, effective March 23, 2023)