

TECHNICAL BULLETIN

A Comparison of Laboratory Detection Limits Versus European Union Action Levels for PCDD/PCDF In Animal Feed Material & Feedstuffs

Method Overview

USEPA Method 1613B is applicable to the determination and quantitative measurement of Polychlorinated Dibenzo-p-dioxin (PCDD) and Polychlorinated Dibenzofuran (PCDF) at ultra low detection limits in a variety of matrices. The method provides for the analysis of appropriately prepared, purified sample extracts by high-resolution gas chromatography mass spectrometry (HRGCMS), typically yielding results in the very low parts per trillion in feed type samples. Method 1613B is the method of choice to demonstrate compliance with the Directives set forth by the European Union, regulating PCDD/PCDF in animal feed.

Method Detection Limits

Pace Analytical's detection limits are determined by multiple tests performed on a range of matrices within each product group. A typical matrix is customarily selected for more in-depth statistical analysis to insure the veracity of the limit of detection. Actual detection limits achieved will vary according to the characteristics of the individual sample matrix, and could be slightly higher or lower than those indicated below. To be valid, however, the procedure and results must meet the stringent quality assurance requirements of the method. To achieve best possible detection limits, supply the laboratory with a full 8 oz sample of the product to be analyzed.

<u>Feed Material</u>	<u>EU Action Levels</u>	<u>Pace Detection Limit*</u>
Food materials of plant origin	0.5 ng/kg	0.19 ng/kg
Minerals	0.5 ng/kg	0.11 ng/kg
Animal fat including milk & egg fat	1.2 ng/kg	0.26 ng/kg
Other land animal products	0.5 ng/kg	0.06 ng/kg
Fish Oil	4.5 ng/kg	0.82 ng/kg
All other fish/marine products	1.0 ng/kg	0.21 ng/kg
Compound feeding stuffs	0.4 ng/kg	0.07 ng/kg
Feeding stuffs for pets & fish	1.5 ng/kg	0.51 ng/kg

These action levels and detection limits are expressed in terms of the WHO-Toxic Equivalency Factors and are reported at three separate levels, as stipulated by the European Union directive dated 3/4/2002, and described below:

- Upper Bound – Non-detects calculated at 100% of the level of detection.
- Medium Bound – Non-detects calculated at 50% of the level of detection.
- Lower Bound – Non-detects calculated as having a value of zero.

*Pace Analytical's detection limits are based on the upper bound reporting criteria with non-detects calculated at 100% of the level of detection.

The Pace Analytical Dioxin Laboratory is certified to ISO17025 standards as stipulated, to perform work that meets the requirements of the European Union.

TECHNICAL NOTES