



Method Summary

Determination of Glyphosate and AMPA in Liquid by LCMSMS

Scope and Range

This method is used to determine Glyphosate and AMPA in water samples.

Glyphosate Detection limit: 0.10µg/L
AMPA Detection limit: 0.10µg/L

This method is currently unaccredited.

Principle

Preparation and Extraction

Samples are pH adjusted using hydrochloric acid to disrupt any Glyphosate - multivalent cation complexes which may be present. The sample is then buffered to pH9 and derivatised with 9-fluorenylmethylchloroformate (Fmoc-Cl). This step reduces the polarity of the determinand sufficiently that a liquid-liquid extraction with methyl *tert*-butyl ether (MTBE) can be performed. The Glyphosate-FMOC derivative then undergoes a second derivatization step using 2,2,2-trifluoroethanol which targets the phosphonic acid moiety. If this step is not performed the determinand is prone to interact strongly with any metal instrument parts leading to peak tailing, signal loss and high background noise.

Isotope labelled analogues are added prior to sample extraction and carried through the entire extraction procedure and used as internal standards (IS).

Analysis

Extracts are analysed via LCMSMS operating in the MRM mode:

Type	Compound	Precursor (m/z)	Product (m/z)	Collision Energy (V)	RF Lens (V)
IS	Glyphosate-1,2-13C12-15N	474.7	153	24	80
IS	Glyphosate-1,2-13C12-15N	474.7	253	15	80
IS	13C-15N-AMPA	416.0	193.5	10	80
IS	13C-15N-AMPA	416.0	219.5	20	80
Analyte	Glyphosate	472.2	150	23	80
Analyte	Glyphosate	472.2	250	14	80
Analyte	AMPA	414.2	192	12	80
Analyte	AMPA	414.2	218	19	80