

SCOPE

The test method prescribes the requirements for the determination of monocrotophos residue in oil matrix.

DEFINITION

Monocrotophos is the common name for dimethyl(E)-1-methyl-2-(methylcarbomoyl) vinyl phosphate. It is a colourless, hygroscopic crystal with a melting point of 54°C-55°C, a boiling point of 125°C/0.0005 mmHg, vapour pressure of 0.29 mPa (20°C), density of 1.33 g ml⁻¹ (20°C) and solubility in water at 20°C is 1 kg kg⁻¹. The structure is as shown in Figure 1.

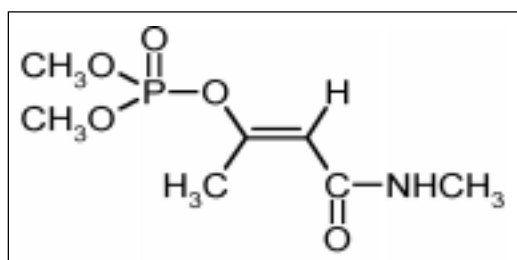


Figure 1. Chemical structure of monocrotophos.

PRINCIPLE

The pesticide residues are extracted from oil matrix and the extracted sample is separated from the co-extractives using gel permeation chromatography (GPC) (Figure 2). Fraction containing the analyte was collected, the solvent evaporated and injected into a gas chromatograph fitted with flame photometric detector (Figure 3).



Figure 2. GPC set-up.

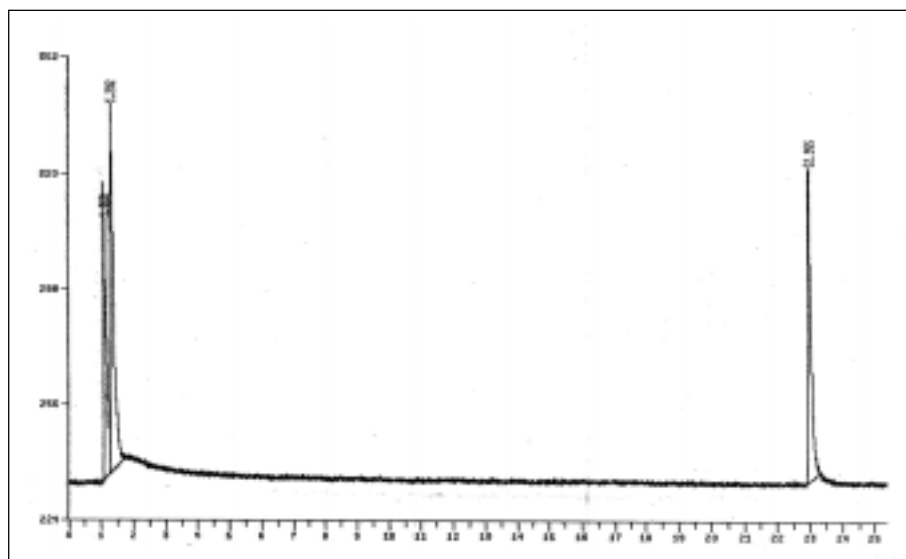


Figure 3. Chromatogram of standard monocrotophos.

RECOVERY

Recoveries of monocrotophos from spiked oil matrix at the range of 0.06-1.20 $\mu\text{g g}^{-1}$ were 74.3%-101.6%.

Coefficient of variations for low concentrations were >10% and <10% at high concentrations.

Limit of detection was 4.0 $\mu\text{g kg}^{-1}$.

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