

Clean-up of Organochlorine and Organophosphorus Pesticides from Vegetable Extracts Using ISOLUTE® SAX/PSA Columns

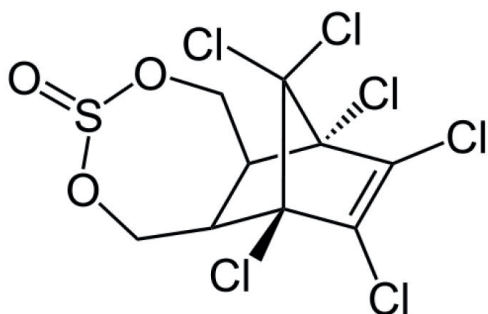


Figure 1. Structure of Endosulfan.

Introduction

This application note describes a general approach for the clean-up of a non-polar solvent extract of vegetable material. The methodology is applicable to a wide range of organochlorine and organophosphorus pesticides and a number of vegetable types.

The analytes are relatively non-polar, and will be less strongly retained by the ISOLUTE SAX/PSA polar/anion exchange sorbent blend than common polar interferences and pigments.

Extraction Procedure

Format

ISOLUTE® SAX/PSA 1 g/6 mL (Part Number 924-0100-C)

Matrix

The matrices vary in characteristics, but contain various relatively polar interference components, such as pigments and fats. These will be more strongly retained on the SPE column than the analytes.

Pre-Treatment

1. Homogenize sample (20 g) with acetonitrile (100 mL) for 5 minutes. Filter the homogenate.
2. Concentrate the acetonitrile to 25 mL. Add 50 mL of NaCl saturated water to the concentrated solution.
3. Extract the aqueous mixture with dichloromethane (2 x 50 mL). Dry the DCM layer with anhydrous sodium sulfate (available in the form of a drying column from Biotage, Part number 802-0250-M). Evaporate to dryness, and reconstitute with acetone:hexane (5:95, v/v, 2 mL).

Condition

Condition the column with acetone:hexane (5:95, v/v, 10 mL).

Sample Loading

Apply the sample (2 mL) to the column at a flow rate of 1–2 mL/min.

Analyte Elution

Elute analytes with acetone:hexane (5:95, v/v, 10 mL). Evaporate samples to dryness and reconstitute with acetone:hexane (5:95, v/v, 4 mL) prior to analysis.

Analytical Method

GC, GC-MS

Additional Information

For particularly fatty matrices, a cleaner extract may be achieved if the following step is included in the sample pretreatment, immediately after filtration of the acetonitrile extract (i.e. after step 1):

Add 75 mL hexane (saturated with acetonitrile) to the filtrate. Shake well for 1 minute. Remove and discard the hexane layer.

Ordering Information

Part Number	Description	Quantity
924-0100-C	ISOLUTE® SAX/PSA 1 g/6 mL	30
924-0200-C	ISOLUTE® SAX/PSA 2 g/6 mL	30

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