

ORGANOPHOSPHORUS PESTICIDES

SW-846 Method 8141A

Table 1A. Summary of Holding Times and Preservation for Organophosphorus Pesticides

Analytical Parameter ^a	Technical and Contract Holding Times	Preservation
Organophosphorus Pesticides in Water	<u>Technical for Extraction:</u> 7 days from collection; <u>Contract for Extraction:</u> 5 days from receipt at laboratory <u>Technical and Contract for Analysis:</u> 40 days from extraction	Cool to 4EC ±2EC;
Organophosphorus Pesticides in Soil	<u>Technical for Extraction:</u> 14 days from collection; <u>Contract for Extraction:</u> 10 days from receipt at laboratory <u>Technical and Contract for Analysis:</u> 40 days from extraction	Cool to 4EC ±2EC;

^a Target Compound List is provided in Table 1B

Data Calculations and Reporting Units:

Calculate the sample results using calibration factors determined according to Sections 7.4.2 and 7.8.1 of SW-846 Method 8000A.

Report water sample results in concentration units of micrograms per liter (Fg/L). Report soil sample results on a dry-weight basis in micrograms per kilogram (Fg/kg).

For rounding results, adhere to the following rules:

- a) If the number following those to be retained is less than 5, round down;
- b) If the number following those to be retained is greater than 5, round up; or
- c) If the number following the last digit to be retained is equal to 5, round down if the digit is even, or round up if the digit is odd.

All records of analysis and calculations must be legible and sufficient to recalculate all sample concentrations and QC results. Include an example calculation in the data package.

TABLE 1B. Target Compound List, CAS Numbers, and Contract Required Quantitation Limits for Organophosphorus Pesticides SW-846 Method 8141

Compound	CAS Number	CRQL Water (µg/L)	CRQL Soil (µg/Kg)
Azinphos methyl	86-50-0	1.0	50.0
Bolstar (Sulprofos)	35400-43-2	0.7	35.0
Chlorpyrifos	2921-88-2	0.7	50.0
Coumaphos	56-72-4	2.0	100.0
Demeton, O,S	8065-48-3	1.2	60.0
Diazinon	333-41-5	2.0	100.0
Dichlorvos	62-73-7	8.0	400.0
Dimethoate	60-51-5	2.6	130.0
Disulfoton	298-04-4	0.7	35.0
EPN	2104-64-5	0.4	20.0
Ethoprop	13194-48-4	2.0	100.0
Fensulfothion	115-90-2	0.8	40.0
Fenthion	55-38-9	0.8	50.0
Malathion	121-75-5	1.1	55.0
Merphos	150-50-5	2.0	100.0
Mevinphos	7786-34-7	5.0	250.0
Monocrotophos	6923-22-4	ND	ND
Naled	300-76-5	5.0	250.0
Parathion-ethyl	56-38-2	0.6	30.0
Parathion-methyl	298-00-0	1.2	60.0
Phorate	298-02-2	0.4	20.0
Ronnel	299-84-3	0.7	35.0
Sulfotep	3689-24-5	0.7	35.0
TEPP	21646-99-1	8.0	400.0
Stirophos (Tetrachlorovinsphos)	22248-79-9	8.0	400.0
Tokuthion (Protothiofos)	34643-46-4	0.7	55.0
Trichloronate	327-98-0	8.0	400.0

ND - Not Determined

Table 2. Summary of Calibration Procedures for Organophosphorus Pesticides by SW-846 Method 8141

Calibration Element	Frequency	Acceptance Criteria	Corrective Action
Initial Calibration (minimum blank + 5 points for each analyte) (ICAL) ^{a, b, c}	Initially; whenever required, due to failure of CCV	RSD for CFs #20%;	1. Terminate analysis 2. Re-calibrate and verify before sample analysis
Continuing Calibration Verification (CCV) at midpoint of ICAL (Separate source from ICAL standards)	Following ICV and before sample analysis; after every 10 samples and end of run	%D between CF of CCV and avg CFs from ICAL #15%	1. Re-calibrate and verify 2. Re-analyze samples back to last good CCV
Retention time evaluation for CCV standards	Each analysis of CCV standards	±3 x the SD of the avg ICAL RT for each analyte	1. Re-calibrate and verify 2. Re-analyze samples back to last good CCV

^a The ICAL low standard must be above but near the CRQL. The low ICAL standard must have a signal to noise ratio 5:1. If this requirement cannot be met, the laboratory must submit a MDL study as part of the data package.

^b Report the retention time window for each analyte. Determine retention time windows as ±3 x the standard deviation of the average initial calibration retention time for each analyte.

^c ICAL and continuing CAL standards must contain all target analytes listed in Table 1B.

Table 3. Summary of Internal Quality Control Procedures for Organophosphorus Pesticides by SW-846 Method 8141

QC Element	Frequency	Acceptance Criteria	Corrective Action
Method Blank (MB)	One per Batch or SDG ^a (1 per 20 samples minimum)	< CRQL for each compound	1. Investigate source of contamination and document 2. All samples processed with a method blank that is out of control must be re-extracted and re-analyzed
Surrogate Spike	Every standard, sample and method blank at 10 times CRQL	<u>Water:</u> 75-125% of expected value <u>Soil:</u> 65-135% of expected value	1. Re-analyze all samples with non-compliant surrogate recoveries
Matrix Spike and Matrix Spike Duplicate (MS/MSD)	One MS/MSD set per batch or SDG (1 MS/MSD set per 20 samples minimum) containing a minimum of 5 of the analytes chosen from Table 1B	65-135% of expected value; #30 RPD between MS and MSD	1. Address in Case Narrative

^a SDG - Sample Delivery Group - each case of field samples received; or each 20 field samples within a case; or each 14 calendar day period during which field samples in a case are received.

Dilute and re-analyze samples with concentrations exceeding the range of the calibration curve. Results for such re-analyses should fall within the mid-range of the calibration curve. Report results and submit documentation for both analyses.

Second column confirmation is required for all positive results. Confirmation must be performed on a column of a phase different from that used for quantitation. Confirmation analyses must meet all calibration criteria specified in Table 2 and blank acceptance criteria specified in Table 3.