

2,4,5-T
See 2,4-D (Method 5001) for Procedure

$C_8H_5Cl_3O_3$

MW: 255.49

CAS: 93-76-5

RTECS: AJ8400000

METHOD: 5001, Issue 2

EVALUATION: FULL

Issue 1: 15 February 1984

Issue 2: 15 August 1994

OSHA : 10 mg/m³ (2,4-D or 2,4,5-T)
NIOSH: 10 mg/m³; Group I Pesticide
ACGIH: 10 mg/m³

PROPERTIES: solid; MP 153 °C (2,4,5-T); VP not significant

SYNONYMS: 2,4,5-T: (2,4,5-trichlorophenoxy)acetic acid; Esterone 245; Trioxone; Weedone

SAMPLING	MEASUREMENT
<p>SAMPLER: FILTER (glass fiber, binderless)</p> <p>FLOW RATE: 1 to 3 L/min</p> <p>VOL-MIN: 15 L @ 10 mg/m³ -MAX: 200 L</p> <p>SHIPMENT: routine</p> <p>SAMPLE STABILITY: at least 1 week @ 25 °C</p> <p>BLANKS: 2 to 10 field blanks per set</p>	<p>TECHNIQUE: HPLC, UV DETECTION</p> <p>ANALYTE: 2,4,5-T anion</p> <p>DESORPTION: 15 mL CH₃OH; stand 30 min</p> <p>INJECTION VOLUME: 50 µL</p> <p>ELUENT: 0.003 M NaClO₄-0.001 M Na₂B₄O₇</p> <p>FLOW RATE: 1.7 mL/min</p> <p>DETECTOR: UV @ 289 nm</p> <p>COLUMN: stainless steel, 50 cm x 2-mm ID, packed with Zipax SAX (DuPont) ambient temperature; 6900 kPa (1000 psi)</p>
ACCURACY	<p>CALIBRATION: solutions of analyte in methanol</p> <p>RANGE: 0.15 to 2 mg per filter</p> <p>ESTIMATED LOD: 0.030 mg per filter [2]</p> <p>PRECISION (\hat{S}_r): 0.025 [2]</p>
<p>RANGE STUDIED: 5 to 20 mg/m³ [1,2] (100-L samples)</p> <p>BIAS: 4.78%</p> <p>OVERALL PRECISION ($\hat{S}_{r,T}$): 0.053 (2,4,5-T) [2]</p> <p>ACCURACY: ± 14.2%</p>	

APPLICABILITY: This method determines 2,4-D, 2,4,5-T, and their salts, but not their esters. The working range is 1.5 to 20 mg/m³ of either compound for a 100-L air sample.

INTERFERENCES: High concentrations of esters of either compound do not interfere but require the use of a pre-column to prevent degradation of the HPLC column.

OTHER METHODS: This method combines and replaces Methods S279 [3] and S303 [3] which are the same except for eluent composition and UV detector wavelength.