

TRIETHYLENETETRAMINE
See ETHYLENEDIAMINE, Method 2540, for Procedure

$(\text{NH}_2\text{CH}_2\text{CH}_2\text{NHCH}_2)_2$

MW: 146.2

CAS: 112-24-3

RTECS: YE6650000

METHOD: 2540, Issue 2

EVALUATION: UNRATED

Issue 1: 15 May 1989

Issue 2: 15 August 1994

OSHA : no PEL
NIOSH: no REL
ACGIH: no TLV
 (1 ppm = 5.98 mg/m³)

PROPERTIES: liquid; d 0.98 g/mL @ 20 °C;
 BP 277.4 °C; VP unknown; flash
 point 118 °C

SYNONYMS: triethylenetetramine: TETA; trientine; N,N-bis(2-aminoethyl)-1,2-diaminoethane; 3,6-diazaoctane-1,8-diamine

SAMPLING	MEASUREMENT
<p>SAMPLER: SOLID SORBENT TUBE (1-naphthylisothiocyanate-coated XAD-2, 80 mg/40 mg)</p> <p>FLOW RATE: 0.01 to 0.1 L/min [1]</p> <p>VOL-MIN: 1 L @ 10 ppm -MAX: 20 L</p> <p>SHIPMENT: routine</p> <p>SAMPLE STABILITY: >30 days @ 20 °C [2]</p> <p>BLANKS: 2 to 10 field blanks per set</p>	<p>TECHNIQUE: HPLC, UV DETECTION</p> <p>ANALYTE: naphthylisothiourea derivative of analytes</p> <p>DESORPTION: 2 mL dimethylformamide (DMF), ultrasonic 30 min</p> <p>INJECTION VOLUME: 10 µL</p> <p>COLUMN: 10-µm radial cyano, 10 cm x 8-mm ID in Waters RCM-100 radial compression mode</p> <p>MOBILE PHASE: 50/50 isooctane/isopropanol at 3 mL/min</p> <p>CALIBRATION: standard solutions of derivatives in DMF</p> <p>RANGE: 1 to 119 µg per sample</p> <p>ESTIMATED LOD: 0.3 µg per sample</p> <p>PRECISION (\hat{S}_r): 0.018</p>
ACCURACY	
<p>RANGE STUDIED: 0.016 to 8 mg/m³; (10-L samples)</p> <p>OVERALL PRECISION (\hat{S}_{rT}): 0.06 [1]</p> <p>BIAS: -1.9%</p> <p>ACCURACY: ±13.7%</p>	

APPLICABILITY: The working range for TETA is 0.08 to 160 mg/m³ for a 10-L air sample. This method is the result of evaluation [2] of OSHA Method #60 for DETA, EDA, TETA [1]. The theoretical capacity of each front section is 1.6 mg of TETA.

INTERFERENCES: Other primary or secondary amines may react with the sampler coating reagent, and thereby reduce the sampler capacity.

OTHER METHODS: This replaces NIOSH Method P&CAM 276 [3]. The method of Anderson, et al., for EDA [4] is an alternate method using thiourea derivatization and HPLC analysis.