

DIETHYLENETRIAMINE
See ETHYLENEDIAMINE, Method 2540, for Procedure

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

MW: 103.2

CAS: 111-40-0

RTECS: IE1225000

METHOD: 2540, Issue 2

EVALUATION: UNRATED

Issue 1: 15 May 1989

Issue 2: 15 August 1994

OSHA : no PEL
NIOSH: 1 ppm (skin)
ACGIH: 1 ppm (skin)
 (1 ppm = 4.21 mg/m³)

PROPERTIES: liquid; d 0.96 g/mL @ 20 °C;
 BP 206.7 °C; VP 0.5 kPa (0.37 mm Hg);
 flash point 98 °C

SYNONYMS: diethylenetriamine; DETA; aminoethylethandiamine; 3-azapentane-1,5-diamine; bis(2-aminoethyl)amine

SAMPLING		MEASUREMENT	
SAMPLER:	SOLID SORBENT TUBE (1-naphthylisothiocyanate-coated XAD-2, 80 mg/40 mg)	TECHNIQUE:	HPLC, UV DETECTION
FLOW RATE:	0.01 to 0.1 L/min [1]	ANALYTE:	naphthylisothiourea derivative of analytes
VOL-MIN:	1 L @ 10 ppm	DESOPTION:	2 mL dimethylformamide (DMF), ultrasonic 30 min
-MAX:	20 L	INJECTION VOLUME:	10 µL
SHIPMENT:	routine	COLUMN:	10-µm radial cyano, 10 cm x 8-mm ID in Waters RCM-100 radial compression mode
SAMPLE STABILITY:	>30 days @ 20 °C [2]	MOBILE PHASE:	50/50 isotane/ isopropanol at 3 mL/min
BLANKS:	2 to 10 field blanks per set	CALIBRATION:	standard solutions of derivatives in DMF
ACCURACY		RANGE:	1 to 80 µg per sample
RANGE STUDIED:	0.016 to 8 mg/m ³ ; (10-L sample)	ESTIMATED LOD:	0.16 µg per sample
OVERALL PRECISION (\hat{S}_{rt}):	0.06 [1]	PRECISION (\hat{S}_r):	0.007
BIAS:	- 1.9 %		
ACCURACY:	± 13.5%		

APPLICABILITY: The working range for DETA is 0.05 to 150 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 1.5 mg of DETA.

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.