

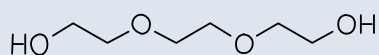


# TEG in Air and Vapour

## Introduction

ALS is now NATA accredited for the analysis of Triethylene Glycol (TEG) in gas mixtures and aerosols. Gas mixtures may include, but are not limited to; natural gas, coal seam gas, ambient air and air from occupational environments.

TEG is a straight-chain dihydric alcohol terminated on both ends by a hydroxyl group. It is a clear, practically colourless and odourless liquid at room temperature.



Triethylene Glycol (TEG)

Glycols are used in Natural Gas production as liquid desiccants to remove water from the gas stream. Dehydration of natural gas is required to prevent humidity from causing pipelines to freeze. Triethylene Glycol specifically is used in air sanitiser products, where the aerosolised TEG acts as a disinfectant. Glycol-based fluids are also used in the production of theatrical smokes.

## Method Information

### ALS METHOD CODE

EP253

### LIMITS OF REPORTING (LOR)

0.4µg/sampler, 0.1mg/m<sup>3</sup>, 0.02ppmV

### HOLDING TIME

14 days

## Method Details

The ALS method (EP253) is based on NIOSH Method 5523, where glycols are collected on OSHA Versatile Sampler (OVS) tubes. Samples are collected by attaching an open tube to a collection train connected to a sample pump and pulling a known volume of air through the tube. The sampling tubes contain an absorbent resin (XAD-7) which retains glycols. Once at the laboratory, the resin sections are removed and extracted into methanol. Analysis is by High Performance Liquid Chromatography, Tandem Mass Spectroscopy (HPLC-MSMS).

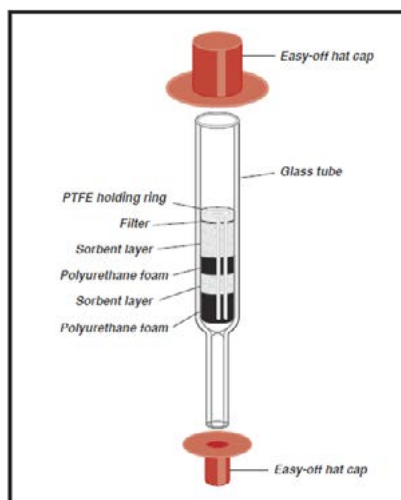


Figure 1. Occupational Safety and Health Administration (OSHA) Versatile Sampler (OVS) Tube.

Limits of reporting (LOR) are provided below. The LOR is based on a minimum sampling volume of 5 litres (up to 60 litres), with sampling rates from 0.5 litres/minute to 2 litres/minute.

Analyte	Cas Number	Limit of Reporting (LOR)		
Triethylene Glycol (TEG)	1127-27-6	0.4µg/sampler	0.1 mg/m <sup>3</sup>	0.02 ppmV

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Where field sampling data is not provided, results are reported in  $\mu\text{g}$  TEG per sampler units. Results can also be reported in  $\text{mg}/\text{m}^3$  and  $\text{ppmV}$  (parts per million volume) units, based on the volume of air sampled. The field data required to calculate the sampling volume are provided below. Some high volume samplers automatically calculate the totalised corrected volume of air sampled, in which case only the volume data needs to be supplied to the laboratory. NATA accreditation only covers  $\text{mg}/\text{m}^3$  and  $\text{ppmV}$  units where the sampling process is included under the sampler's Scope of NATA accreditation. Accreditation details for the NATA endorsed field data must be provided to the laboratory in order for  $\text{ppmV}$  results to be provided on a NATA endorsed report.

**Field sampling data required for converting  $\mu\text{g}/\text{sampler}$  units to  $\text{mg}/\text{m}^3$  and  $\text{ppmV}$ :**

- » Initial flow rate (L/min)
- » Final flow rate (L/min)
- » Sampling time (min)
- » Mean ambient temperature (Kelvin)
- » Mean ambient barometric pressure (kPa)

## QA/QC

It is recommended to provide an unused tube to serve as a field blank for QA/QC purposes. This is imperative where sample tubes or media other than the specified OVS (XAD-7) samplers are used. Samples should be analysed within 14 days of collection.

## REFERENCES

Figure 1 picture courtesy of SKC Inc.

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