ta3000F Method W-002

Determination of CO_2, C_1, C_2 and C_2 = from Water

Introduction

The Trace Analytical™ ta3000F high sensitivity gas chromatograph, from AMETEK Process Instruments, is ideally suited for the determination of high ppb to ppm carbon dioxide, methane, ethane and ethylene in ground water.

Organic components come from various bacterial activities and may also be part of the spill itself. The samples are removed from the water vessel before analysis by headspace extraction as explained in Method W-001.

The ta3000F is chosen for this application because it accommodates multiple columns and valves, and has built in data handling and automation.

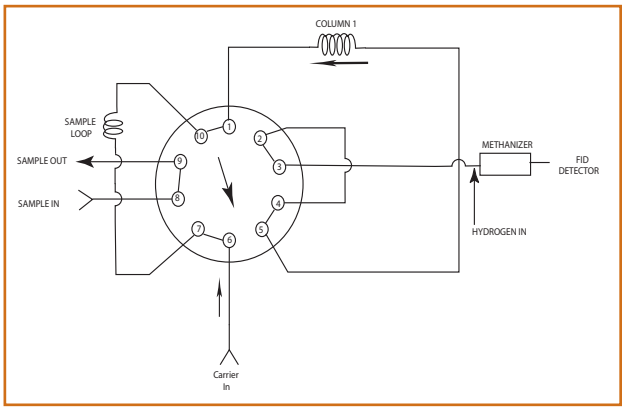
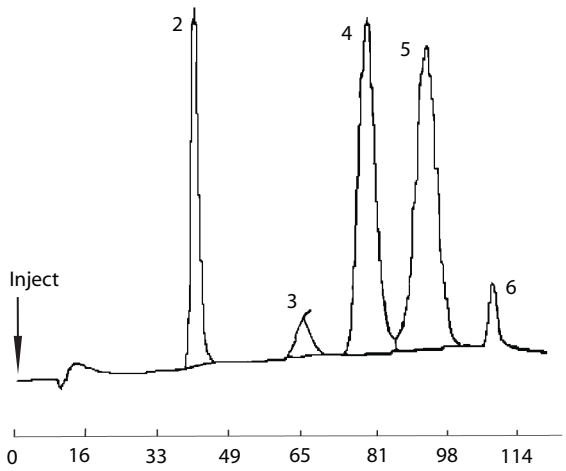


Figure 1. Flow diagram for method W-002.



FID

COMPOUND	AMOUNT
2: Methane	14.3 ppm
3: Carbon Dioxide	2.3 ppm
4: Ethylene	15.1 ppm
5: Ethane	14.6 ppm
6: Valve upset	

Figure 2. Chromatogram

ta3000F High Sensitivity Gas Chromatograph Analytical Method

The system employs Trace Analytical Flame Ionization Detector (FID) for determination of hydrocarbons and carbon dioxide. The 10-port valve injects the sample onto the analytical column and back flushes the column to the detector after the run (see Figure 1). This system is also equipped with a methanizer that converts carbon dioxide to methane, which can be determined at ppb levels by the FID. The chromatogram (Figure 2) on the following page depicts a standard separated on the system. The analysis takes less than 10 minutes.

Method W-002 is one of several application packages developed by for Trace Analytical analyzers. Our applications group is always ready to consult with you about your specific analytical requirements. Please contact AMETEK Process Instruments or your local AMETEK representative for information on our Trace Analytical analyzers.

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