

### DETERMINATION OF CARBON DIOXIDE, METHANE, ETHANE AND ETHYLENE FROM WATER

## ta3000F Method W-002

The AMETEK ta3000F high sensitivity gas chromatograph is ideally suited for the determination of high parts-per-billion (ppb) to parts-per-million (ppm) carbon dioxide, methane, ethane and ethylene in groundwater.

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-002.

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



### METHOD W-002

The system employs a flame ionization detector (FID) for determination of hydrocarbons and carbon dioxide. The 10-port valve injects the sample onto the analytical column and backflushes the column to the detector after the run (see Figure 1).

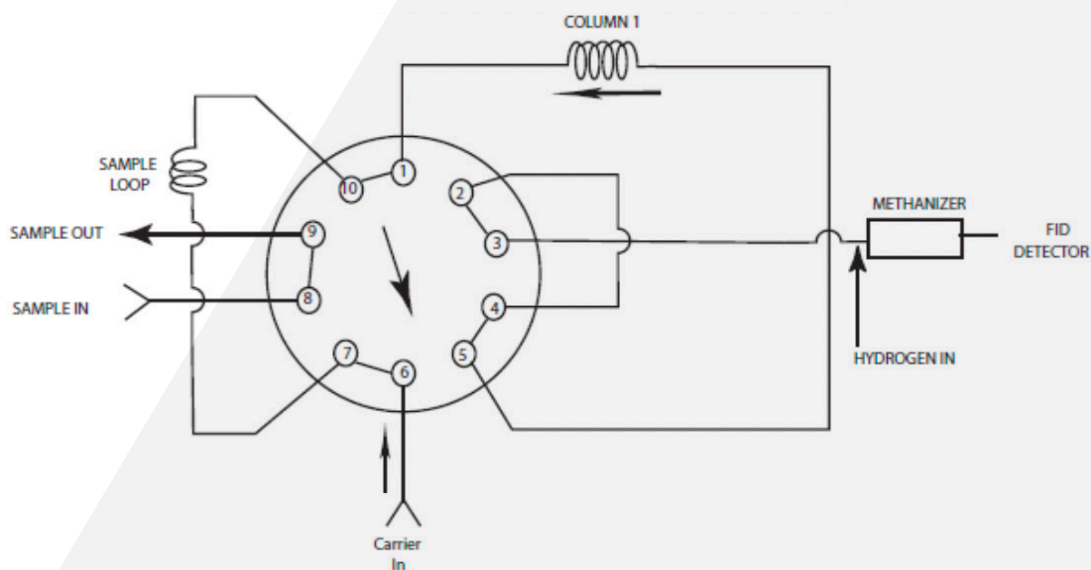
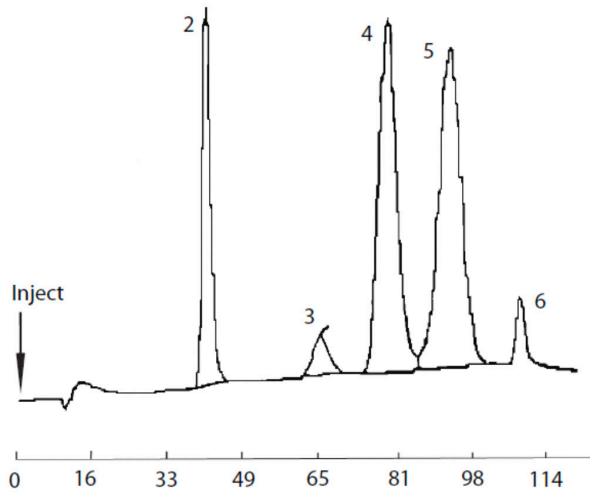


Figure 1. Flow diagram for Method W-002

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) depicts a standard separation on the system. The analysis takes less than 10 minutes.



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

Method W-002 is one of several application packages developed by our applications group. Contact AMETEK Process Instruments or your local AMETEK representative for more information on our analyzers.

#### SALES, SERVICE & MANUFACTURING

##### USA - Pennsylvania

150 Freeport Road  
Pittsburgh PA 15238  
Tel: +1 412 828 9040  
Fax: +1 412 826 0399

##### USA - Delaware

455 Corporate Blvd.  
Newark DE 19702  
Tel: +1 302 456 4400  
Fax: +1 302 456 4444

##### Canada - Alberta

2876 Sunridge Way NE  
Calgary AB T1Y 7H9  
Tel: +1 403 235 8400  
Fax: +1 403 248 3550

#### WORLDWIDE SALES AND SERVICE LOCATIONS

##### USA

Tel: +1 713 466 4900  
Fax: +1 713 849 1924

##### Brazil

Tel: +55 19 2107 4100

##### France

Tel: +33 1 30 68 89 20  
Fax: +33 1 30 68 89 99

##### Germany

Tel: +49 2159 9136 0  
Fax: +49 2159 9136 39

##### India

Tel: +91 80 6782 3200  
Fax: +91 80 6780 3232

##### Singapore

Tel: +65 6484 2388  
Fax: +65 6481 6588

##### China

Beijing  
Tel: +86 10 8526 2111  
Fax: +86 10 8526 2141  
Chengdu  
Tel: +86 28 8675 8111  
Fax: +86 28 8675 8141  
Shanghai  
Tel: +86 21 5868 5111  
Fax: +86 21 5866 0969



© 2019, by AMETEK, Inc. All rights reserved. Printed in the U.S.A. A-0338 Rev 4 (0119)  
One of a family of innovative process analyzer solutions from AMETEK Process Instruments. Specifications subject to change without notice.



To find out more or request a quote visit our website

[ametekpi.com](http://ametekpi.com)