

Trusted Technical Expertise.



## Why Test Your Natural Gas?

Routine analysis of your natural gas stream can provide useful quality control and trend information. Confirm the presence and concentration of odorant chemicals in your natural gas by sending gas samples to Columbia Analytical for confirmation analysis. Having quantitative chemical information on the composition of your gas, in addition to odorization system records and sniff test results, can create another line of evidence which may prove useful in case of emergencies or public relations situations.

Chemical analysis may also prove useful when pickling a new pipeline (to establish a baseline), for leak detection or emergency response to a spill or other incident, or in response to odor complaints from neighbors.



## Sample Collection & Analysis

Gas samples are collected in a 1L size tedlar bag with polypropylene fittings. Samples are then shipped overnight to the laboratory for analysis via the ASTM D5504 method. This method uses gas chromatography/sulfur chemiluminescence detection technology to separate, identify and quantify 15 naturally occurring and intentionally added reduced sulfur compounds (mercaptans, sulfides, and thiophenes). Results of the speciated analysis are presented and the compounds associated with existing odorant blends are totaled and reported in lb/mmcf.

## Why Choose Columbia Analytical?

With over 2000 canisters in its inventory and nearly 20 years experience analyzing air, Columbia Analytical has the resources to support any size air sampling project. We have performed tens of thousands of analyses and successfully served clients in all 50 states and around the globe.

## Related Services Offered By Columbia Analytical:

Analysis of samples from:

- Fenceline ambient air monitoring at MGP Remediation sites (EPA TO-15 and TO-13a)
- Vapor Intrusion sites (EPA TO-15, TO-13a, TO-17)
- Process streams (Fixed gas analysis, reduced sulfur analysis, total hydrocarbon analyses)
- Material offgassing and other applications



## Contact Information

2655 Park Center Drive, Suite A  
Simi Valley, CA 93065

805.526.7161  
805.526.7270 (fax)

 **Columbia Analytical Services<sup>SM</sup>**

An Employee-Owned Company

# Columbia Analytical Services, Inc.

## Results of Analysis

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**Client:** Natural Gas Company

**Client Sample ID:** Gas sample #1

Columbia Analytical Project ID:

**Client Project ID:** Semi-annual gas odorization check

Columbia Analytical Sample ID:

Test Code: GC/SCD Reduced Sulfur Analysis

Date Collected: 1/4/2007

Instrument ID: Agilent 6890A/GC13/SCD

Date Received: 1/5/2007

Analyst: Columbia Analytical Analyst

Date Analyzed: 1/5/2007

Sampling Media: Tedlar Bag

Time Analyzed: 10:29

Test Notes:

Injection Volume: 1.0ml(s)

CAS #	COMPOUND	RESULT lb/mmcf	MRL lb/mmcf	DATA QUALIFIER
7783-06-4	Hydrogen Sulfide	0.036	0.00043	
463-58-1	Carbonyl Sulfide	0.10	0.00077	
74-93-1	Methyl Mercaptan	0.0035	0.00061	
75-08-1	Ethyl Mercaptan	0.0015	0.00079	
<b>75-18-3</b>	<b>Dimethyl Sulfide</b>	<b>0.0012</b>	<b>0.00079</b>	
75-15-0	Carbon Disulfide	ND	0.00049	
<b>75-33-2</b>	<b>Isopropyl Mercaptan</b>	<b>0.053</b>	<b>0.00097</b>	
<b>75-66-1</b>	<b>tert-Butyl Mercaptan</b>	<b>0.25</b>	<b>0.0012</b>	
<b>107-03-9</b>	<b>n-Propyl Mercaptan</b>	<b>0.0083</b>	<b>0.00097</b>	
<b>624-89-5</b>	<b>Ethyl Methyl Sulfide</b>	<b>0.011</b>	<b>0.00097</b>	
<b>513-53-1</b> <b>110-02-1</b>	<b>sec-Butyl Mercaptan + Thiophene*</b>	<b>ND</b>	<b>0.0011</b>	
<b>352-93-2</b>	<b>Diethyl Sulfide</b>	<b>ND</b>	<b>0.0012</b>	
<b>109-79-5</b>	<b>n-Butyl Mercaptan</b>	<b>ND</b>	<b>0.0012</b>	
624-92-0	Dimethyl Disulfide	ND	0.00060	
<b>110-01-0</b>	<b>Tetrahydrothiophene</b>	<b>ND</b>	<b>0.0011</b>	
	<b>TOTAL ODORANT, lb/mmcf</b>		<b>0.324</b>	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

\* = Coeluting compounds.

lb/mmcf = Pounds per million cubic feet

