

# Gasmeter™ FTIR application note

## Phosgene point monitoring

### KEY WORDS

- Phosgene
- Fourier Transform Infrared (FTIR)

### PRODUCTS

- [DX4015](#) Portable FTIR Gas Analyzer
- [DX4040](#) Portable FTIR Gas Analyzer

### OVERVIEW

#### PROPERTIES OF PHOSGENE:

##### Chemical & physical properties:

- Chemical formula:  $\text{COCl}_2$
- CAS registry number: 75-44-5
- Boiling point: 8 °C

##### Health effects:

Respiratory tract problems, pulmonary edema, death ( $\text{LCT}_{50} = 500 \text{ ppm-min}$ )

##### Industrial uses:

- Chemical intermediate for isocyanate based polymers, carbonic acid esters and acid chlorides
- Dye and pigment manufacturing
- Insecticide manufacturing
- Pharmaceutical industry
- Metallurgy

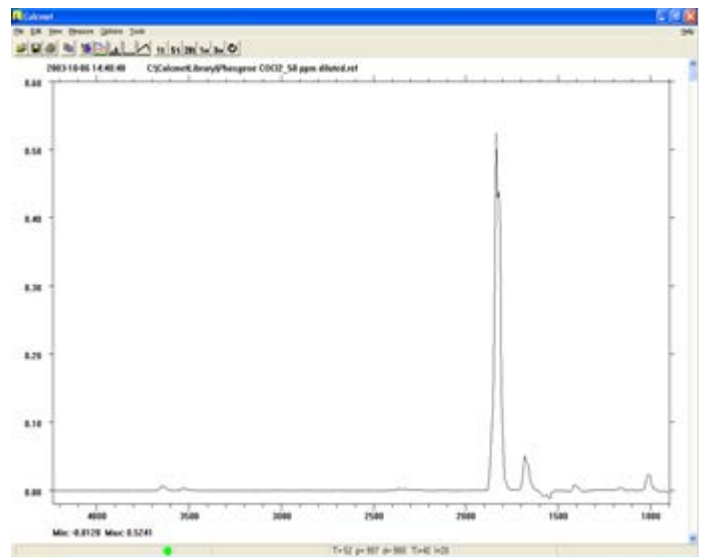
#### The Gasmeter™ solution:

##### *Point monitoring:*

The plants using phosgene are typically equipped with adequate sensor systems to detect leaks  $\text{COCl}_2$  in factory air. The critical situations, however, arise at equipment service and maintenance. Due to extremely poisonous nature of phosgene, even small gas pockets in serviced equipment may be dangerous to maintenance personnel. **Gasmeter™** is ideal tool to monitor point sources of phosgene, due to high specificity, continuous operation and fast response time.

#### $\text{COCl}_2$ FTIR spectrum

Detection limit in ambient air: 0.2 ppm



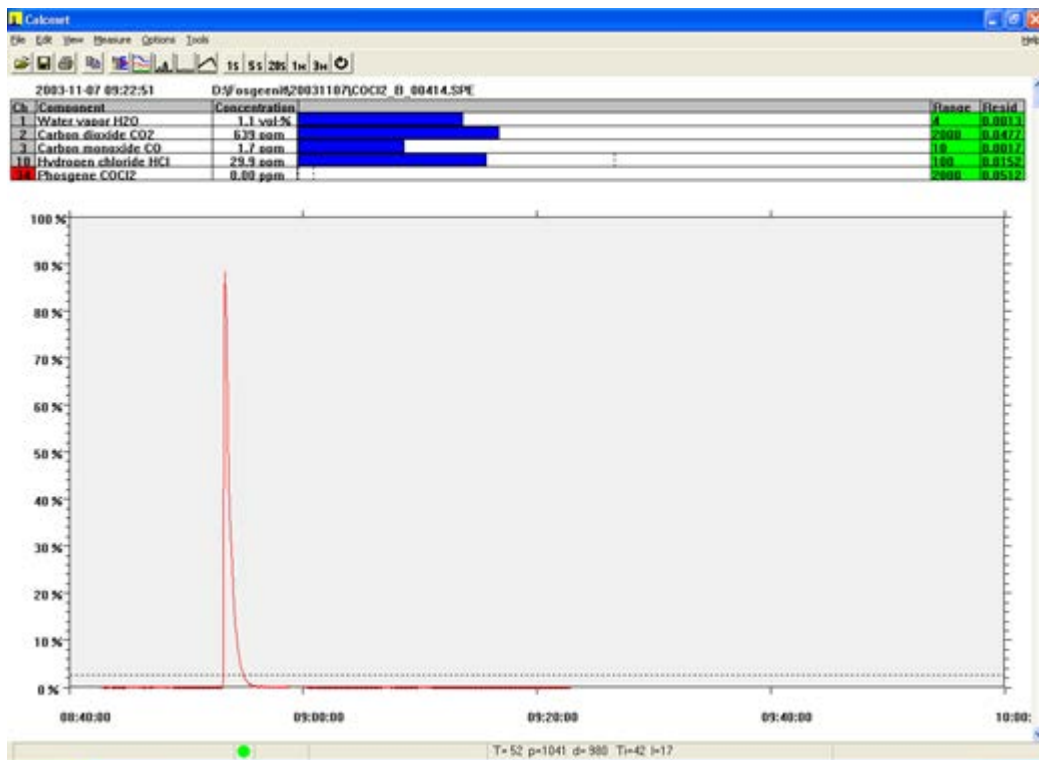
#### Gasmeter™ DX4015:

Portable analyzer for short-term measurements at different locations.



### APPLICATION EXAMPLE:

Phosgene monitoring during equipment service shut-down. The gas supply equipment was placed in an air-tight cabinet. During replacement of gas line parts, however, there is always a risk that some gas is still left inside the parts. The sampling line leading to **Gasmeter™** DX4015 was placed very close to potential leak points during operation. The concentrations of  $\text{COCl}_2$  increased dramatically for a short period of time. The continuous concentration trend measured by **Gasmeter™** DX4015 helps to determine when it is safe to continue service.



This application note is meant to be an informative example of typical application where Gasmeter analyzers could be used. This is not a technical specification sheet. Information in this document is subject to change without prior notice. Optimal product configuration is application dependent, and exact application details such as detection limits, components included in the application, etc depend on process and/or measurement site details and may vary. Please, contact your local Gasmeter sales representative to get information specific to your needs.

**Gasmeter Technologies Oy**  
 Helsinki, Finland  
 TEL : +358 (9) 7590 0400  
 EMAIL : [contact@gasmet.fi](mailto:contact@gasmet.fi)  
 WEB : [www.gasmet.fi](http://www.gasmet.fi)

**Gasmeter Technologies Inc**  
 North America  
 TEL : +1 866 685-0050,  
 EMAIL : [sales@gasmet.com](mailto:sales@gasmet.com)  
 WEB : [www.gasmet.com](http://www.gasmet.com)

**Gasmeter Technologies (Asia) Ltd**  
 Hong Kong  
 TEL: +852 3568-7586  
 EMAIL: [sales@gasmet.com.hk](mailto:sales@gasmet.com.hk)  
 WEB: [www.gasmet.fi](http://www.gasmet.fi)