

Best Practices Using Photoionization Detection in CIPP Installation





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Topics

- What does PID mean?
- How many different types are available?
- What is a PID?
- How does this technology operate?
- How can this be used in the CIPP industry?
- Understanding best practices



Measuring Devices for CIPP Industry



What is a PID?



PID = Photo-Ionization Detector



Detects VOCs (volatile organic compounds) in low concentrations of 0.1 to 2000 ppm



A PID is a very sensitive broad spectrum monitor



What does the PID do?

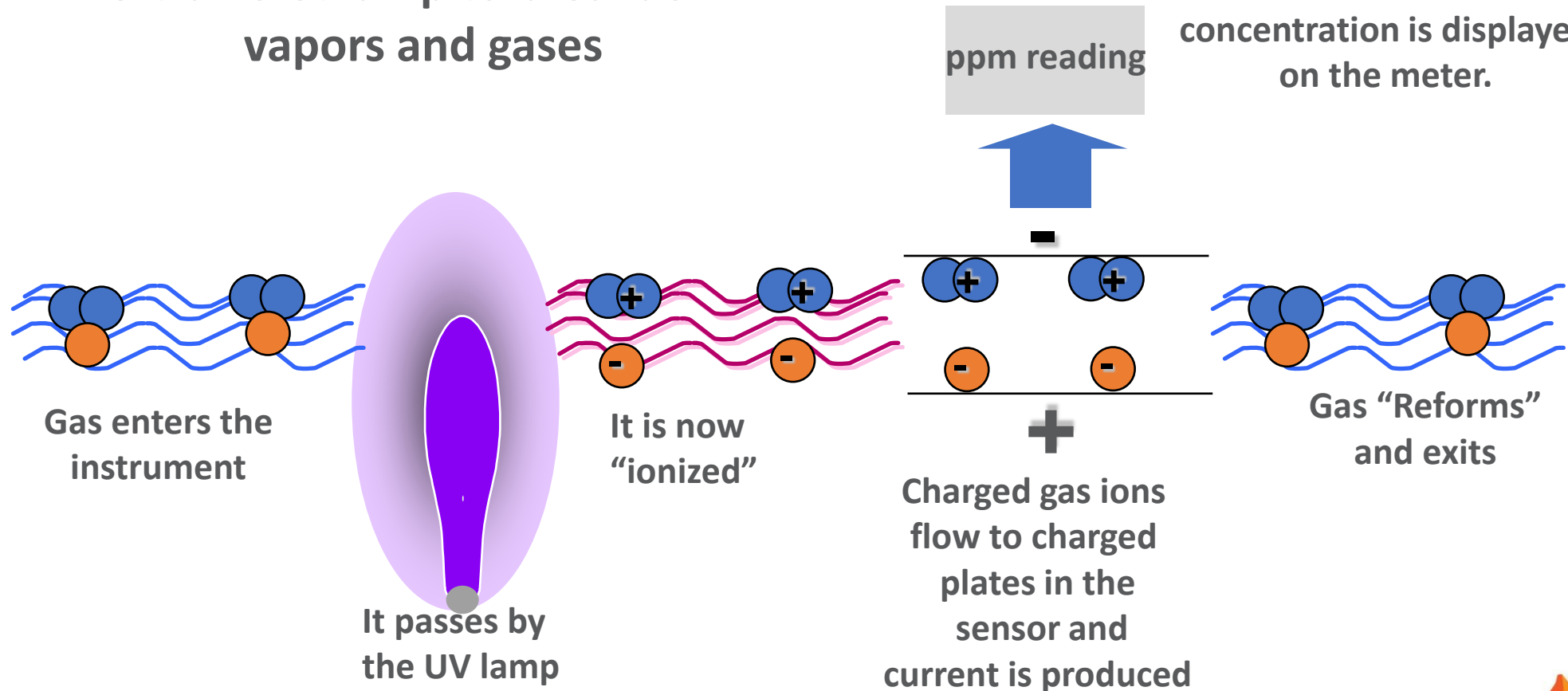


- Monitors for Volatile Organic Compounds
- For Example:
 - Gasoline
 - Styrene
 - Acetone

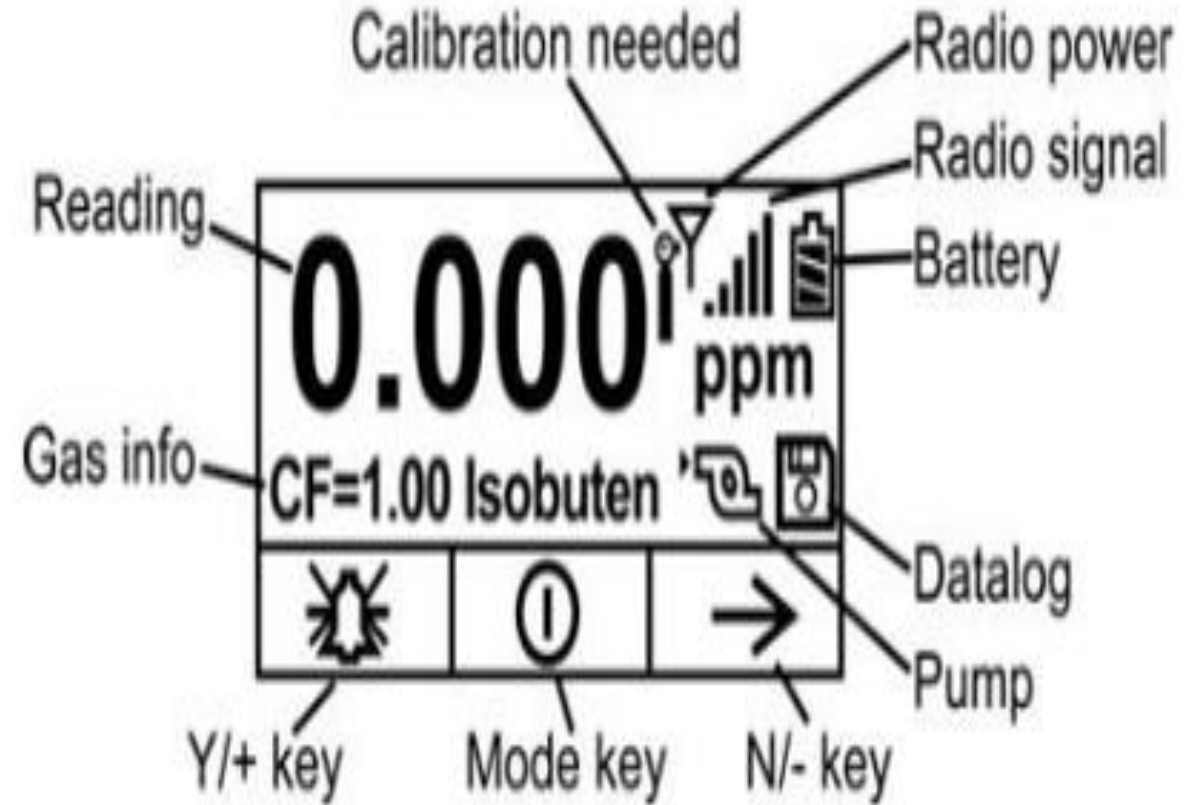
How does a PID work?

Ultraviolet lamp to breakdown
vapors and gases

Current is measured and
concentration is displayed
on the meter.

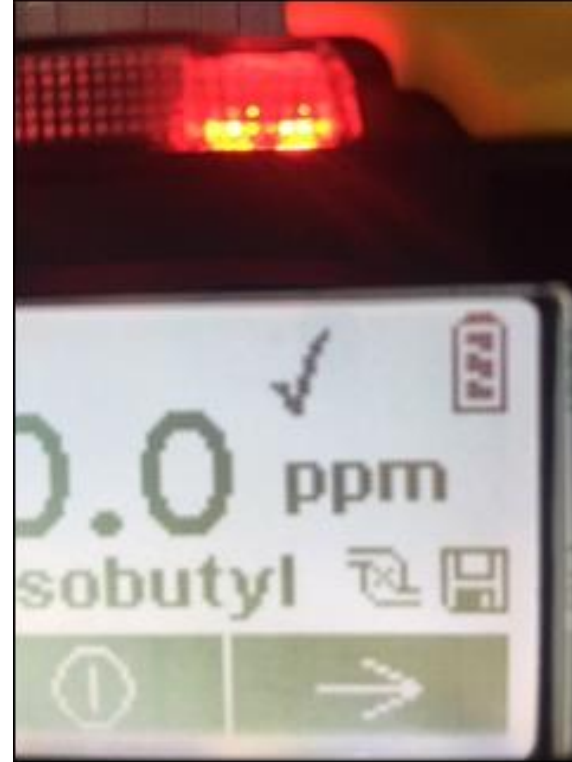


What do the typical screen symbols mean?



Understanding PID Screen

- Common Problems:
 - If it has a pump watch for errors
 - MOISTURE
 - Battery Life
 - Temperature Conditions



Multi Gas Detector with PID



Multi Gas Detector Styrene Challenges

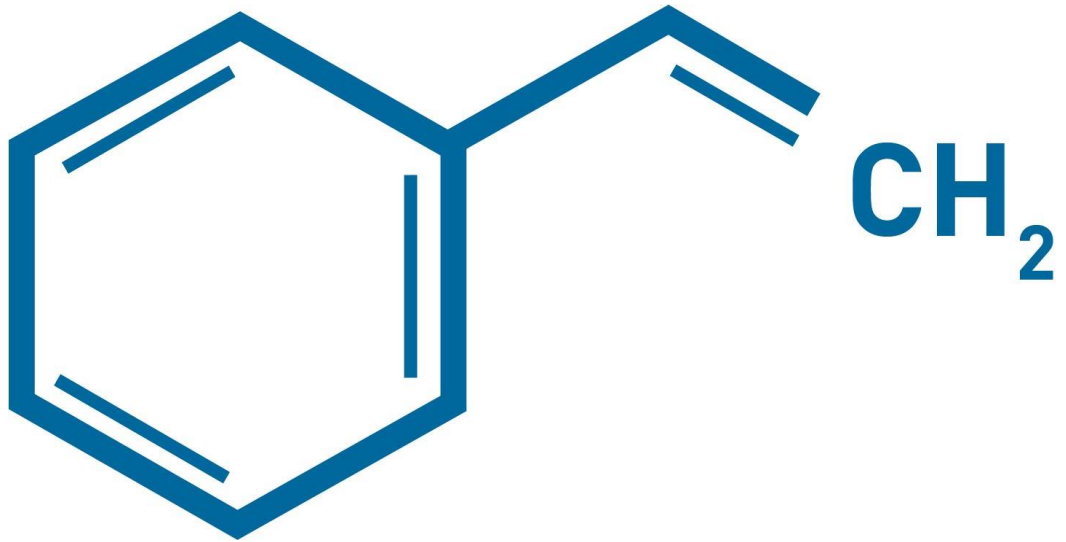


Before using consider what a PID can and cannot do!

- **PID is very sensitive**
- **PID is very Accurate when Calibrated**
- **PID is not very selective**

A ruler cannot tell the difference between yellow and white paper.

How does this Technology relate to CIPP?



Clear, colorless liquid



Smell noticed at very low levels



Used to make thousands of everyday products



Creates strong, flexible and lightweight products



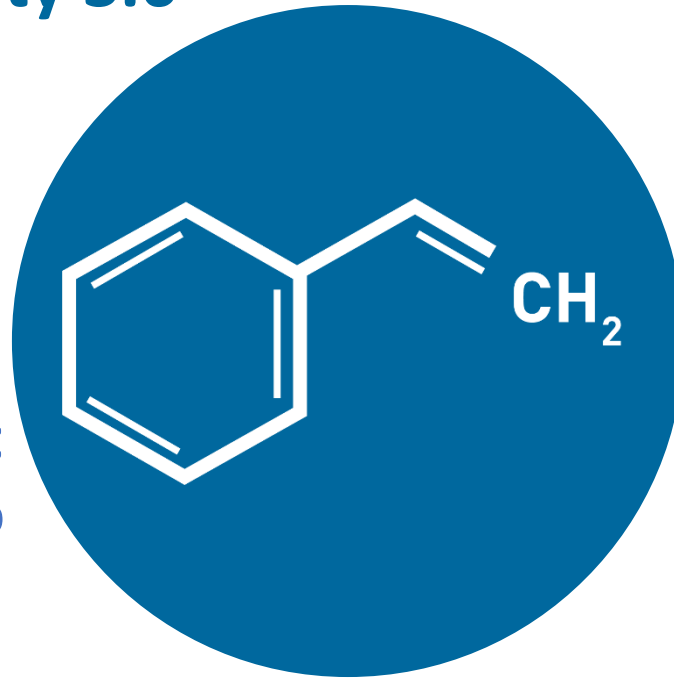
Used in resins for CIPP



Using PID's to measure styrene.

Styrene travels through the air with a vapor density 3.6

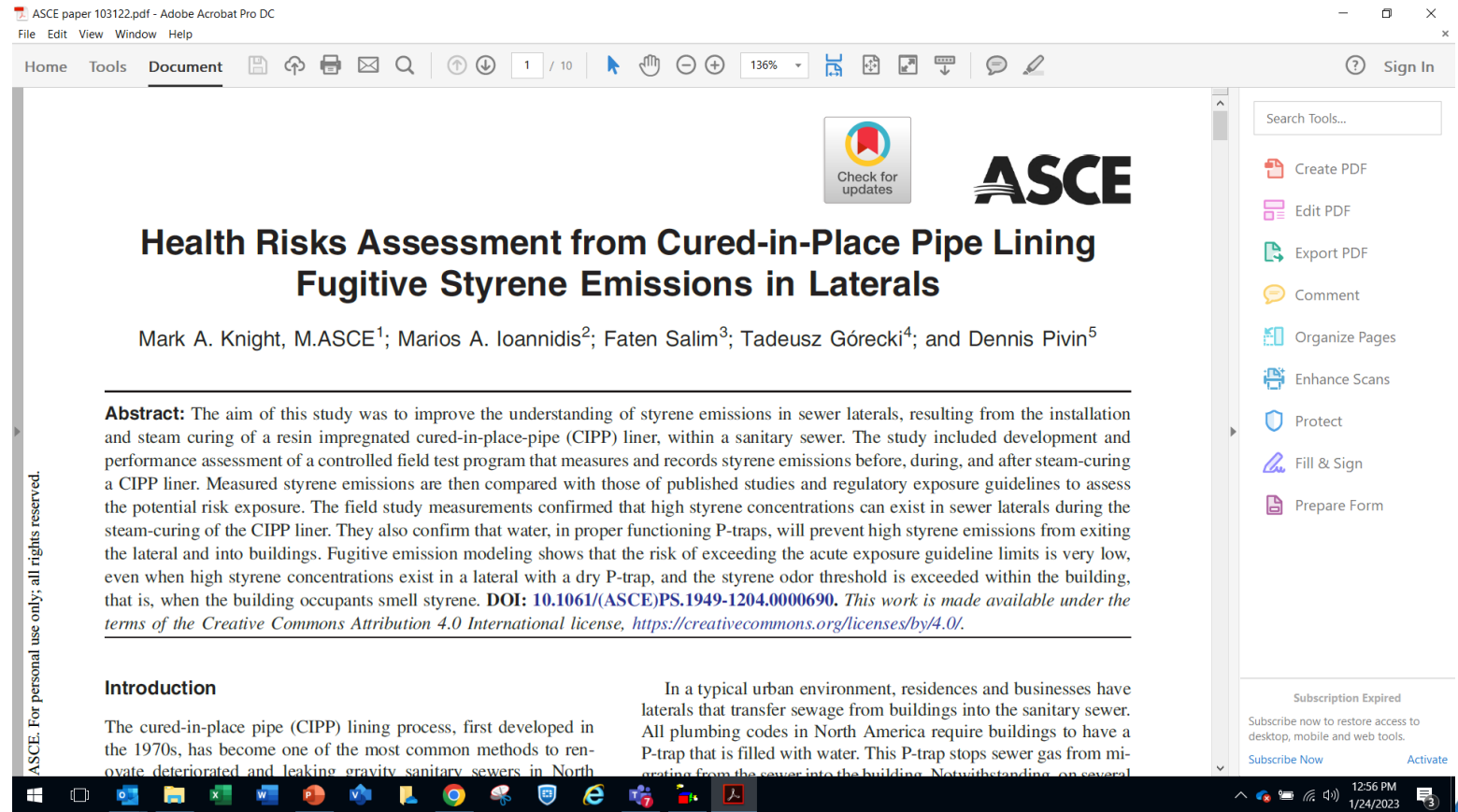
- People are exposed to styrene every day in tiny amounts that may occur naturally in tobacco smoke and food



Detected at extremely low levels (0.1 PPM)

This low level of detection is typically 100 times lower than the worker protection limit

Application Examples - White Paper



lateral monitoring locations



Study objectives

2. Evaluate hand held Photoionization Detector (PID) and Organic Vapor Monitors' (OVM) ability to estimate Styrene levels before, during and after a steam cured CIPP lining project;



RAE PID

Key Findings Using PID sampling

1. PID's measures VOC concentrations
2. Must calibrate and use calibration factor for Styrene



Special Thanks

Waterloo University

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NASSCO

SIRC

ASSP



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Questions?

