



**Da Vinci**  
LABORATORY SOLUTIONS

## DVLS Impurities in Ethylene Analyzer complies with ASTM D2504 & D8098

### Introduction

Detecting impurities in light hydrocarbon feedstocks is essential for producing high quality polymers. Da Vinci Laboratory Solutions offers an Impurities in Ethylene Analyzer that complies with ASTM D2504 and D8098 to determine traces of permanent gases and hydrocarbons in Ethylene.

### Application Range

The DVLS Trace Impurities Analyzer determines:

- C1 – C5 hydrocarbons
- C6+ analysis (Optional)
- Permanent gases: Hydrogen, Oxygen, Nitrogen, Carbon Monoxide and Carbon Dioxide

in Ethylene samples.

| ASTM Method | Analysis of                                         |
|-------------|-----------------------------------------------------|
| ASTM D2504  | Noncondensable Gases in C2 and Lighter Hydrocarbons |
| ASTM D8098  | Permanent Gases in C2 and C3 Hydrocarbons           |

*Table One: The Application range of the DVLS Impurities Analyzer*

The DVLS Impurities system uses an Agilent 8890 Series GC with built-in intelligence and electronic pneumatic control (EPC) and is subdivided into two separate channels. One channel determines the permanent gases Hydrogen, Oxygen, Nitrogen, Carbon Monoxide and Carbon Dioxide. All hydrocarbons are measured on the second channel.



*Figure One: the DVLS Impurities in Ethylene Analyzer*

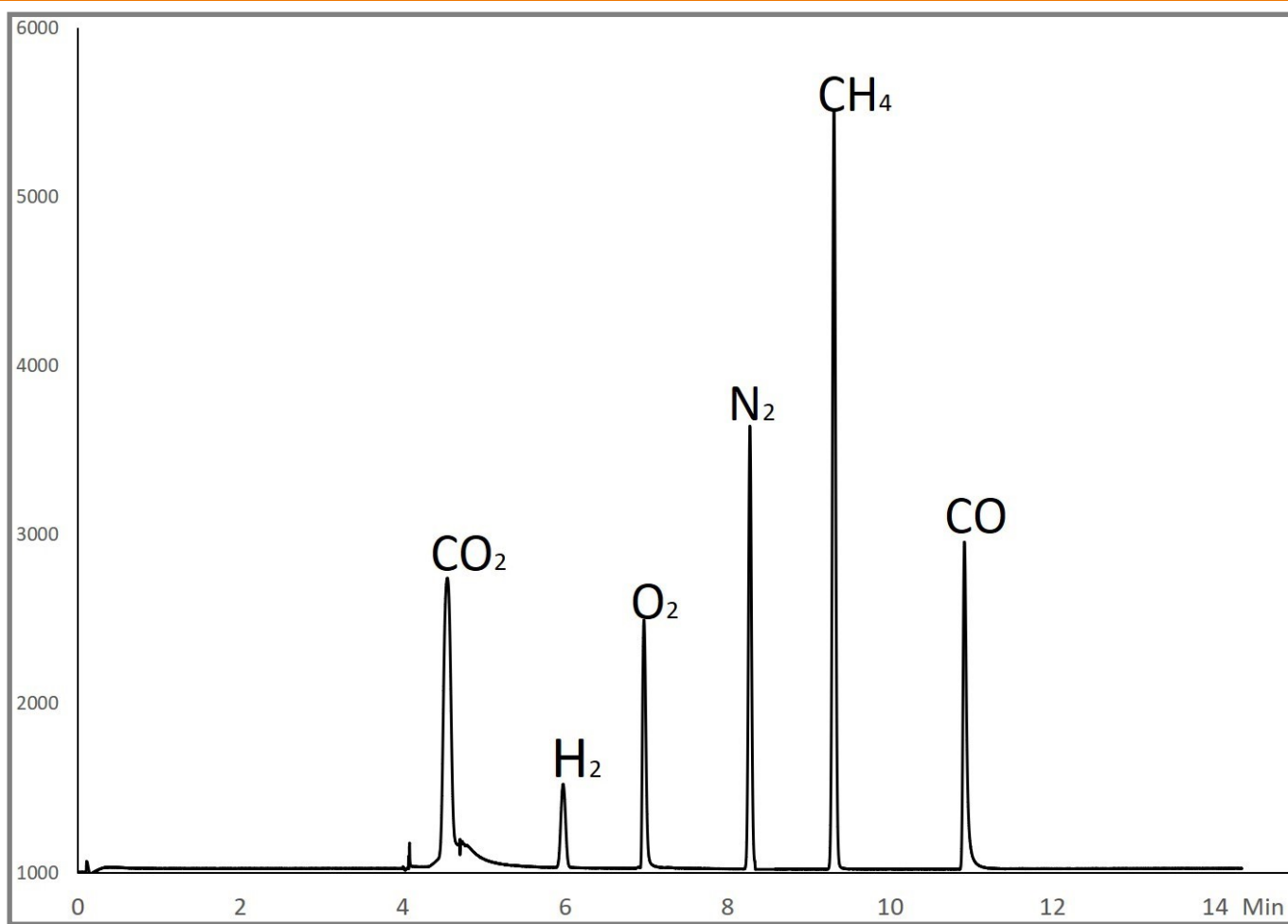
Both channels operate simultaneously to provide a fast analysis. Between injections, the sample loops are flushed with inert gas to ensure fast and accurate analysis of the permanent gases at (sub) ppm levels.

### Multiple Channel Configuration

The DVLS Impurities Analyzer consists of an Agilent 8890 gas chromatograph configured with two channels containing:

- One Flame Ionization Detectors (FID) with Electronic Pressure/Flow control
- One Pulsed Discharge Helium Ionization Detector (PDHID) with EPC
- One DVLS Side Carrier with heated zones containing the valves
- Helium Purged Valves
- Helium flushed sample loops
- One Pressure Station (optional)

**Boosting laboratory efficiency**



*Figure Two: Trace analysis of permanent gases & Hydrocarbons by the DVLS Impurities in Ethylene Analyzer*

## High level of automation

The DVLS Impurities Analyzer uses Agilent OpenLab, OpenLab Chemstation or EZChrom to control all hardware including all valves, data acquisition and reporting.

## Performance Specifications

| Components      | Lower Detection Limit |
|-----------------|-----------------------|
| Permanent gases | < 0.5 ppm             |
| Hydrocarbons    | 1 ppm                 |

## Factory Tested Application

Each analyzer is tested according to the inhouse testing procedures to check the system performance and to verify the analyzer specification by a reference sample test. Factory Acceptance Test will be scheduled upon request. Each DVLS Analyzer will be supplied with a final test report and verification sheet.

## Key Benefits

- Dedicated trace analysis of permanent gases and Hydrocarbons in one GC system
- Excellent performance specifications
- High level of automation through the OpenLab software
- Factory tested application

Publication number DVE.29.01