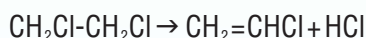


Extrel® MAX300-IG™ process mass spectrometers provide fast, sensitive and selective measurements of vinyl chloride monomer, dichloroethane (EDC) and other harmful VOCs in ambient air.

- The **MAX30-IG** detects VCM and EDC down to 20 parts per billion (ppb) compared to current OSHA time weighted average limits of 1 ppm and 50 ppm respectively.
- Extrel's **Questor 5** software accurately compensates for interferences between VCM and EDC eliminating false readings and false alarms.
- The **MAX300-IG** analyzes a single stream in less than 10 seconds; 80 sample points can be monitored in less than 15 minutes.

Around 35 million tons of VCM are produced annually, most of which is used to manufacture polyvinyl chloride (PVC). VCM is produced by cracking 1,2 dichloroethane (also known as ethylene dichloride, EDC) at high temperature and pressure:



Vinyl chloride is flammable, toxic and carcinogenic; VCM manufacturers and users therefore need to monitor both VCM and EDC in the workplace. The OSHA limit for VCM is 1 ppm (8 hour basis); the equivalent limit for EDC is 50 ppm.

Extrel's large 19 mm diameter rod quadrupole mass spectrometer gives unrivaled sensitivity compared to smaller quadrupoles and magnetic sector mass spectrometers. This ensures trace levels of VOCs can be monitored with confidence, avoiding costly false alarms. Figure 1 shows trend displays of VCM (green) and EDC (blue) during a plant problem. The Extrel system clearly differentiates between the two compounds – high levels of EDC do not trigger false readings for VCM.

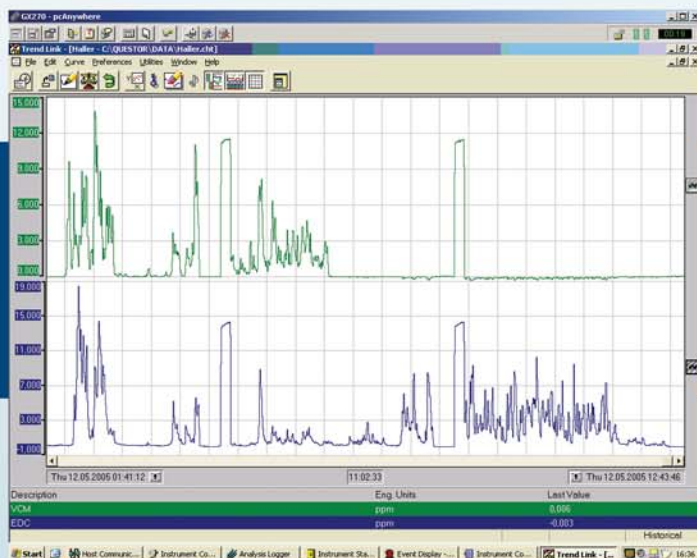


Figure 1: Trend display of VCM & EDC

VINYL CHLORIDE MONOMER (VCM)



The quadrupole Mass Spectrometer provides the fastest possible analysis for VCM; importantly its speed is not compromised or lost in the design of the system's multi-point inlet. Extrel's FASTValve is specifically designed for fast, reliable ambient air monitoring and is available in 40 or 80-sample port configurations. For even greater sample handling capacity, the FASTValve can be doubled which is depicted in Figure 2. This MAX300-IG can handle up to 160 sample streams, providing total plant coverage.

For smaller plants with fewer sample points to monitor, Extrel offers a range of standard rotary valve inlets.

Figure 2: 160-sample port MAX300-IG

As well as providing accurate, reliable analytical data, Questor 5 software offers a variety of industry standard communications including Ethernet, bidirectional MODBUS, MODBUS RTU or TCP/IP, Profibus, OPC and analog and digital communication options. Questor 5 software also offers statistical reports including Time Weighted Average reporting. Data can be reported by sample point or by component, and can be exported to a .xls or as a .csv file. Figure 3 shows an example of a shift report.

Valve	Analysis Count	Min	Max	Level1 Alarms	Level2 Alarms	Level3 Alarms	Level4 Alarms
10:00 AM							
1 Valve 1	79	0.0037	0.0122	0.002040036	0	0	0
2 Valve 2	80	0.0044	0.0091	0.00121005	0	0	0
11:00 AM							
1 Valve 1	79	0.0014	0.0061	0.000512007	0	0	0
2 Valve 2	80	0.0017	0.0072	0.000544734	0	0	0
12:00 PM							
1 Valve 1	79	0.0021	0.013	0.001501073	0	0	0
2 Valve 2	80	0.0023	0.01799999	0.002047312	0	0	0
1:00 PM							
1 Valve 1	79	0.0005	0.0038	-5.66669E-05	0	0	0
2 Valve 2	80	0.0005	0.0056	9.91194E-05	0	0	0
2:00 PM							
1 Valve 1	79	0.45209999	0.51999999	0.404732590	0	0	0
2 Valve 2	80	0.456400007	0.523000018	0.407213135	0	0	0
3:00 PM							
1 Valve 1	79	80.41000366	80.47000122	80.43014197	0	0	0
2 Valve 2	80	80.41000366	80.45999908	80.4375	0	0	0
4:00 PM							
1 Valve 1	79	0	0.022	0.00313960	0	0	0
2 Valve 2	80	0	0.023000001	0.003045519	0	0	0
27:00							
1 Valve 1	79	19.53000059	19.59000015	19.56360094	0	0	0
2 Valve 2	80	19.54000001	19.60000015	19.56310731	0	0	0

Figure 3: Typical Shift Report by Component

Key Application Facts

- The Extrel FASTValve is a multi-port high flow, rotary valve specifically designed for ambient air monitoring.
- The Dual Faraday and Electron Multiplier Detector with autoranging enable the MAX300 to achieve a continuous dynamic range of 100% down to ppb levels.
- Extrel's Questor 5 web-based user interface offers a wide variety of statistical reports and can be used to meet 21 CFR Part 11 requirements.

Extrel CMS maintains independent sales and service offices around the world. Please contact us for the office nearest you or visit our web site at <http://www.extrel.com> VCMPROD 122011

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