



Level



Pressure



Flow



Temperature



Liquid Analysis



Registration



Systems Components



Services



Solutions

# PMC 71 with Absolute Pressure Measurement in Isocyanate Vacuum Distillation- Chemical

Cerabar S PMC 71 Ceraphire™ pressure transmitters handle high temperature vacuum applications with coatings buildup



Various chemicals are used in the production of Isocyanate



Cerabar S PMC 71 with flange



Typical chemical plant

**Reliable absolute pressure measurement of head space in distillation columns is critical in Isocyanate production.**

#### Customer profile

A major producer of Isocyanate (MDI, TDI, HDI).

#### Application description

Measuring absolute pressure of head space in vacuum distillation column used in Isocyanate production

Process material: Isocyanate vapors  
Temperature: 320°F (160°C)  
Absolute pressure: 2 mmHg

#### Application challenges

The customer previously used absolute pressure transmitters with metal diaphragms to measure head pressure in their vacuum distillation columns. Due to the combination of high temperature and deep vacuum, the metal diaphragms would frequently bulge (jiffy-pop) causing irreparable damage to the transmitter. In addition to bulged diaphragms, the customer also experienced buildup of coating material on the diaphragm which was very difficult to clean without damaging the metal diaphragm.

#### Solution

The customer replaced the metal diaphragm absolute transmitters with PMC71 ceramic absolute pressure transmitters.

#### Instrument description

The Cerabar S PMC71 with Ceraphire ceramic diaphragm technology provides highly accurate and stable pressure measurements in difficult gage or absolute pressure applications. The dry (no fill fluid) ceramic sensor accurately measures deep vacuums at elevated temperatures without damage to the diaphragm. The Ceraphire ceramic material used in the sensor is 99.9% pure aluminum oxide (Al<sub>2</sub>O<sub>3</sub>) for best-in-class chemical compatibility. The physical durability of the ceramic sensor makes it ideal for abrasive slurries or applications requiring frequent cleaning of buildup on the diaphragm. With a wide variety of process connections and materials to choose from, the Cerabar S PMC71 can be customized for almost any application.

#### Results

The customer has been using PMC71 ceramic pressure transmitters in this application for several years with excellent results. The ceramic sensor provides accurate and reliable vacuum pressure measurements with the following benefits:

1. Tighter process control since the vacuum measurements are more accurate and reliable.
2. Cost savings from no longer replacing jiffy-popped metal diaphragm transmitters.
3. Easier cleaning of the diaphragm without damage.
4. Reduced process downtime since the ceramic pressure transmitters last much longer than the metal diaphragm transmitters in the application without failing.

For more information, contact  
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