UPSTREAM OIL & GAS APPLICATIONS

OndaVia™

Definitive results. Decisive actions.

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The OndaVia Story

OndaVia was founded in 2009 with a mission of making laboratory-grade chemical analysis fast and easy. Our early work focused on environmental applications, leveraging research grants and government funding to build our early products. This work formed the basis for the industrial process control test methods we provide today.

As we approach our tenth year, we continue help our customers world-wide perform measurements in complex samples across industries as diverse as oil & gas, food & beverage, environmental, and drinking water.

Our unique, powerful products measure contaminants in the most complex sample matrices. When you need to optimize a process, protect as asset, or make a decision about material quality, time counts. Why wait for the lab? Get the definitive results you need to take decisive action.

This document provides an overview of applications, but our system can do much more. If you have a specific need, just ask.

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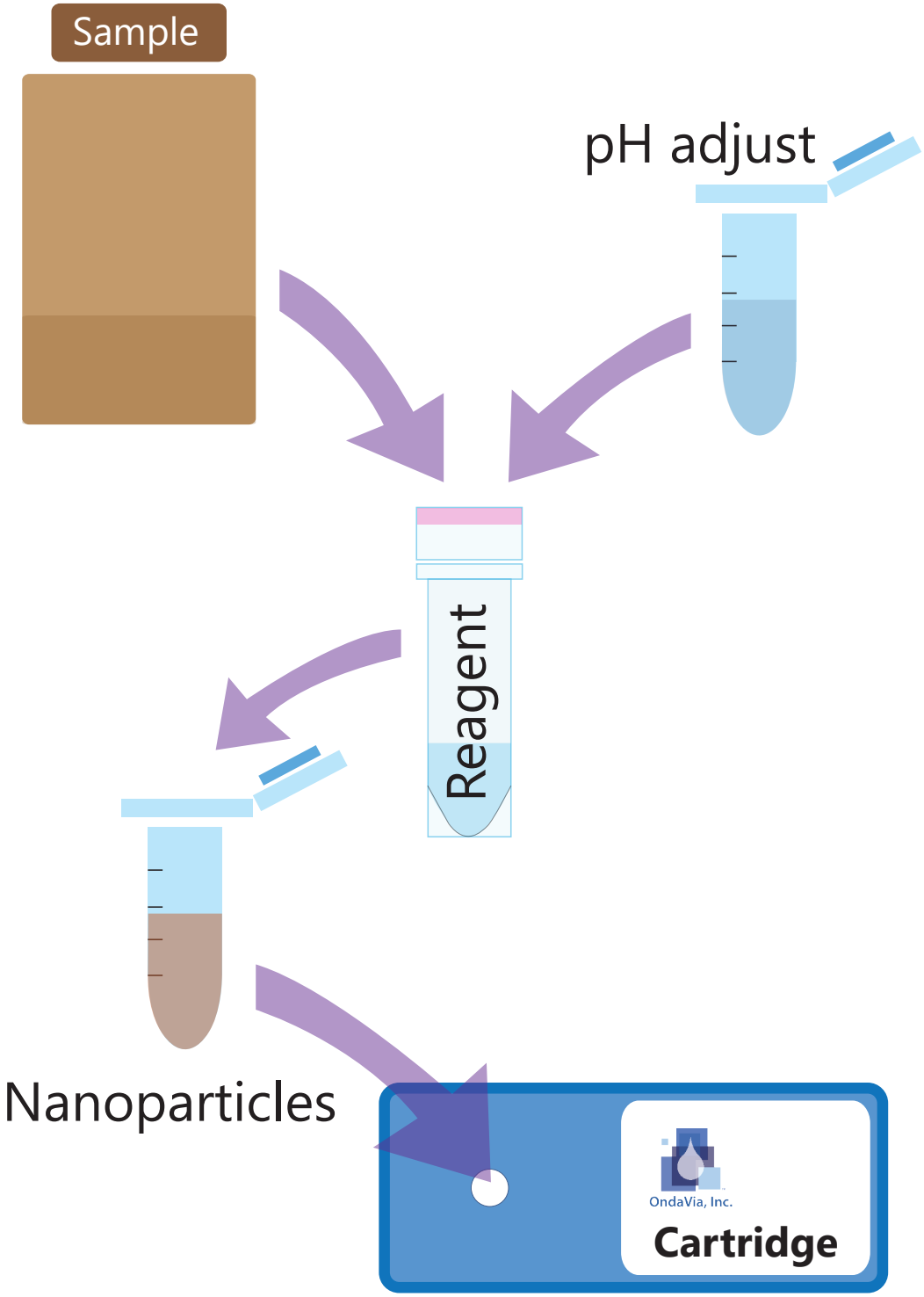
The OndaVia Method



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Hydrogen sulfide scavengers

Triazine-based hydrogen sulfide scavengers are inexpensive, effective treatment chemicals for sour oil and gas. These chemicals are widely available, easy-to-produce, commodity materials. Even so, there are many suppliers that produce low-quality material. This low quality is difficult to identify because the measurement of their concentration and quality is a challenging laboratory procedure. Poor quality triazine will result in poor scavenging capabilities, increased risk for scale formation, and higher chemical costs.

Our Raman spectroscopy based approach requires one pipette step and takes less than three minutes to determine %-level triazine concentrations. This approach enables in-field and at-manufacturing quality control checks for triazine concentration so that you may be confident in your scavenger supply.

Case Study

A chemical manufacturer was ramping up production of a high-concentration, triazine-based H_2S scavenger. They performed the necessary calculations to determine the required components. A total amine measurement indicated correct production, yet the material was not performing as expected in the field. Their target production was 72% MEA-triazine. When OndaVia analyzed the material, we determined the concentration to be 58%. A review of their process discovered an error in their calculations, resulting in 14% excess MEA.

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Hydrogen sulfide in drilling mud

Triazine-based scavengers are frequently used to suppress H_2S during drilling processes. The addition of a scavenger into the drilling mud can capture any H_2S before it reaches the surface. However, if the drill hits a pocket of H_2S, the concentration can increase rapidly, beyond the scavenging capacity. The only indication of this spike is breakthrough of H_2S at the surface, a dangerous situation, not only for workers on the rig, but also for the in-well equipment.

With an OndaVia system, we can monitor triazine and amine concentrations. A decrease in triazine concentration indicates an increase in H_2S concentration. This information can be used to control the triazine dosage, maintaining safe operating conditions. A properly-controlled process can also result in lower chemical use. The dosage can be optimized to actual sulfide concentrations, not the highest level expected.

Spent scavenger analysis

Raman spectroscopy is uniquely capable monitoring the full triazine-based hydrogen sulfide scavenging process. The dithiazine by-product of scavenging is water-insoluble, and viscous as a liquid. It also polymerizes in high concentrations, forming scale inside the contactor tower. This dithiazine scale has even started appearing far downstream in natural gas pipelines as they approach the local utility. By monitoring the triazine and dithiazine levels, an operator can avoid overusing the scavenger to the point where scale forms. At the same time, the operator can use the scavenger more completely, saving money on chemical use while reducing risk to assets.

Case Study

A chemical vendor was supply a triazine-based scavenger for gas well in Oklahoma, but was seeing poor scavenger performance. OndaVia was called in to test the triazine blend. Four samples were taken over time. The first sample showed a small amount of dithiazine in a high triazine concentration with correct mass balance. The second sample, however, showed very high dithiazine concentrations along with an increasing triazine concentration. Additional samples continued to show this trend. The mixing process was performing poorly; water was being removed from the system, creating a more viscous solution at the edge of polymerization.

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Methanol in crude oil

Methanol is frequently used in offshore application due to its low freezing point. If this methanol reaches the refinery, it is washed from the crude and poisons the wastewater treatment process. Crude oil specifications limit the amount of methanol to 50-ppm. Traditional measurements at this level require complex, expensive equipment for which samples must be sent onshore. Even in onshore application, waiting for multidimensional gas chromatography is expensive and time-consuming.

An OndaVia test for methanol takes fifteen minutes with an easy-to-follow instruction set. When couple with the ability to measure other contaminants like hydrogen sulfide scavenging residuals, our Raman-spectroscopy-based approach provides the definitive results you need to take decisive action.

Definitive results. Decisive actions.

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