



**ISOKINETIC GAS MEASUREMENT &  
CONTAMINANTS ANALYSIS**



SECORP's Global Solutions W.L.L onsite contaminants analysis provides a bespoke and special service for on-line gas contaminant measurement and analysis that caters to our clients in various market segments such as Oil and Gas, Petrochemicals, Power and downstream industries. Secorp has done various projects globally for various clients such as Petronas, Shell, Talisman / Repsol, Petro Thailand Gas Complex, Pertamina Cilacap Indonesia, Kinsale Energy Ireland and more. Our team of specialist comprise of well-trained and competent engineers that have years of experience in filtration and separation systems application in both offshore and onshore environments.

"We have in-house expertise that can perform sole source on-line analysis for gas contaminants and on-site analysis for gas streams including fuels, natural gas, CO<sub>2</sub>, H<sub>2</sub>S, ammonia, etc. SECORP applies field-proven and proprietary test methods at the client's live gas pipeline to identify, measure and quantify major contaminant categories in gas stream; free liquid carryover (slugs, foams, hydrocarbon), aerosols (fine particulate and liquid / hydrocarbon vapor), and solid particles (iron oxide, iron sulphide, elemental sulphur, sand, etc). We apply the isokinetic method of gas sampling which provides the most accurate analysis results. The analysis activities will be performed under the actual, live gas processing condition.

### **SECORP On-Line Analysis Specialty**

1. All filtration and separation systems were designed with a purpose: to remove unwanted species which we refer to as "contaminants". Secorp is often called to do performance verification, measuring contaminants upstream and downstream of filtration and separation systems such as KO vessels, gas scrubbers, slug catchers, mechanical separators, glycol dehydrators, heaters, gas coalescers, and gas conditioning skids.
1. **Process troubleshooting** to determine whether a failure of a system was due to contaminants presence in the gas. To determine the gas cleanliness level upstream of critical rotating equipment and process systems such as turbo compressors, gas turbines, molecular sieve beds, catalysts, fuel gas, dry gas seals and instruments. Secorp is able to understand the species and trace the contaminants source.
2. Provide **technical recommendations** and solutions via troubleshooting request. Our sampling has frequently been used as part of client's RCFA or studies to determine gas quality issues.
3. Normally in vendor-to-end user/client supply process, the "design and supply" of filtration and separation systems ends right after the successful commissioning by supplier. In this situation, Secorp able to assist the end user in planning and carrying out a **performance audit** test for the new installation. This ensures a smoother future operational as the newly installed system performance will be audited within design specifications.
4. Performing on-line gas contaminants measurement and analysis applying isokinetic method of gas sampling will provide the best accurate analysis result. This is because the gas evaluation and analysis will be performed under the actual, live, gas process

condition. Knowing the contaminants loading in gas stream and the gas properties itself varies at different gas pressure, temperature and flow rate etc., gas spot sampling suspected to alter all these process conditions, making the analysis result, especially on liquid carryover and aerosols, questionable and lead to assumptions.

### Test Protocol

Secorp perform single source on line audits for gas contaminants and on-site analysis for gas streams concerning fuels or natural gas, CO<sub>2</sub>, H<sub>2</sub>S, ammonia etc. Secorp applies field-proven and proprietary methods at the client's live gas pipeline or processing facility to identify, measure and quantify main contaminants in gas streams: free liquid carryover (slugs, foams, hydrocarbon, droplets) and solid particles (iron oxide (rust), iron sulfide, elemental sulfur, sand etc).

#### 1. Free Liquid Contaminants Measurement

- As a liquid contaminant increases in volume in gas processing piping, it will start to travel along the sides and bottom of a gas pipeline as a liquid stream. SECORP free liquid measurement protocol utilizes a high efficiency gas Coalescer and gas flow meter / totalizer to sample at isokinetic condition. Our special equipment was designed to collect the free liquid that travels along the pipeline wall as well as the liquid that is entrained in the gas stream. Solid collected on the element can also be qualitatively analysed for size and general content. Expected result from this analysis in term of **PPM wt, gals/MMSCF or Litres/day**.



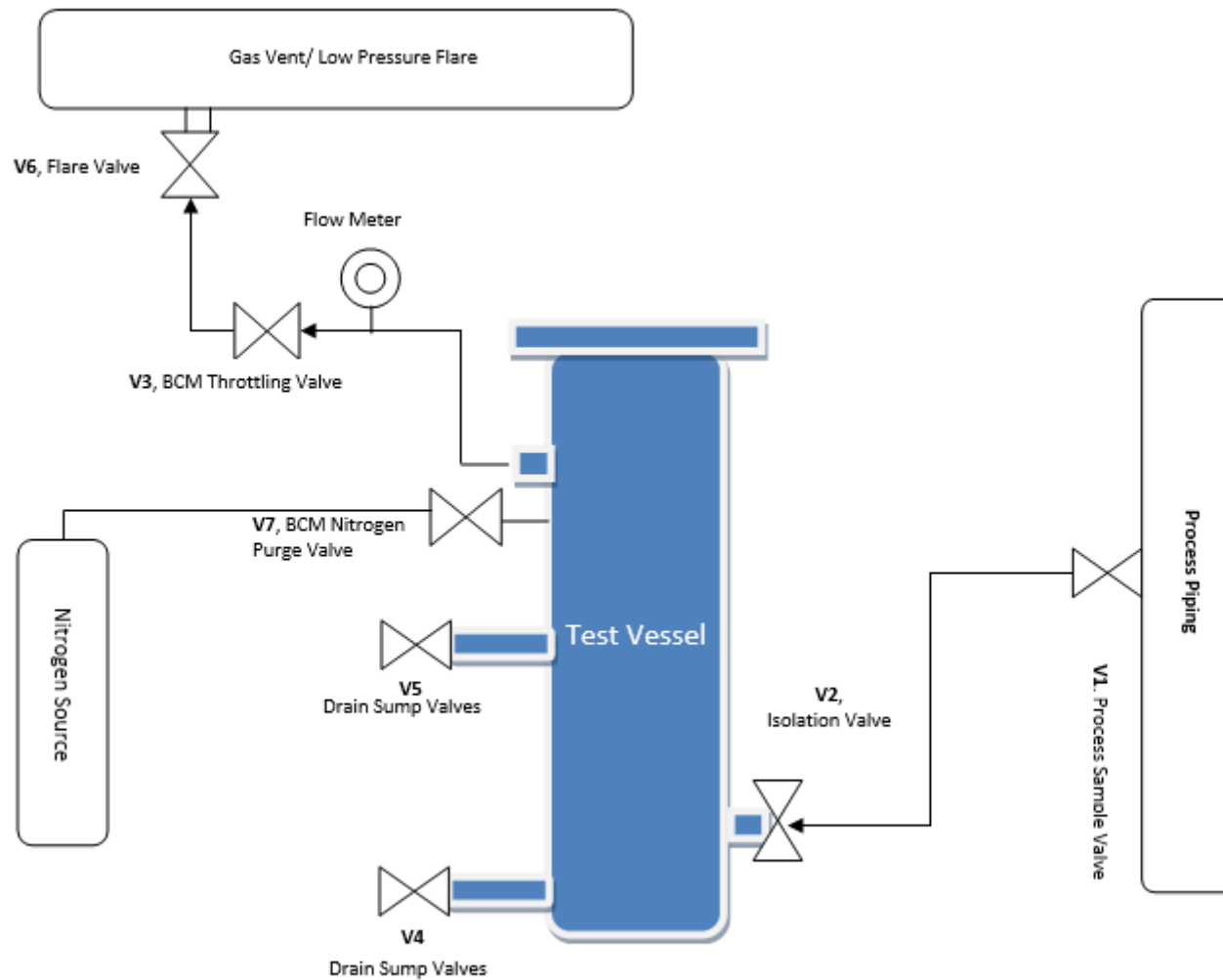


Figure 1: Equipment setup

2. **Solids Analysis.**

- SECORP solid analysis utilizes a high-pressure filter disk holder assembly to isokinetically sample and collect suspended solid contaminant in a midstream of a gas pipeline. Particle collected on the filter disk can be microscopically analysed to provide a particle size distribution. Result gather from this analysis such as **Particle Size Distribution, PPM wt, mg/MMSCF, grams/day.**



Our additional analysis provides:

Laboratory testing for contaminants compositional analysis.

Laboratory test is used to identify the species, type and composition of the liquid and solid contaminants found and collected on site. Some of the main laboratory test procedures are as listed below:

- Laboratory testing for contaminants compositional analysis.
- AAS for mercury detection
- Inductive Couple Plasma (Optical Emission Spectroscopy (ICP-OES))
- GCMS for hydrocarbon (C6-C40, Organic Compound)
- GCMS for glycol screening
- FTIR (Functional Group)
- XRD
- SEM-EDX (in-organic compound / elements)



AAS for Mercury Detection



ICP Equipment



GCMS Equipment

Contact us for more details or to arrange initial meeting



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