

## GEOCHEMICAL SAMPLING SERVICES- Exploration and Production

### Geochemical Sampling in the Geothermal Industry

Each stage of geothermal energy development is dependent on geochemistry data. Samples of water and gas from greenfield exploration, reservoir production, power plant emissions, and reinjection all play a key role in the ultimate goal of geothermal power generation. Each sampling application requires specialized techniques for accurate sample collection and preservation, and trained personnel to perform the sampling.

### Thermochem Geothermal Field Sampling Services

It is impractical for most geothermal exploration firms, developers and operators to maintain the equipment and manpower needed to collect high-quality samples for geochemical analysis. Thermochem provides comprehensive sampling services tailored to fit the needs of all phases of geothermal energy development. Personnel are trained extensively in the specialized techniques and equipment for each sampling application. Thermochem literally “Wrote the Book” on geothermal fluid sampling: ASTM E1675-95a is based on our internal SOP for two-phase geothermal fluid sampling.

#### Exploration Geochemistry Sampling Services

- Gas/water sampling from surface features
- Soil gas sampling surveys
- Thermal feature mapping
- On-site field chemistry analyses

#### Production Well Sampling Services

- Single-phase fluids (ASTM E947-83)
- Dual-phase fluids (ASTM E1675-95a)
- Tracer flow testing (TFT<sup>®</sup>)
- Downhole sampling (single/dual phase)

#### Power Plant Sampling Services

- Isokinetic sampling for steam purity/quality
- Scrubber/steam wash efficiency
- Plant mass balance and enthalpy testing
- Corrosion and scale mitigation testing

#### Environmental Sampling Services

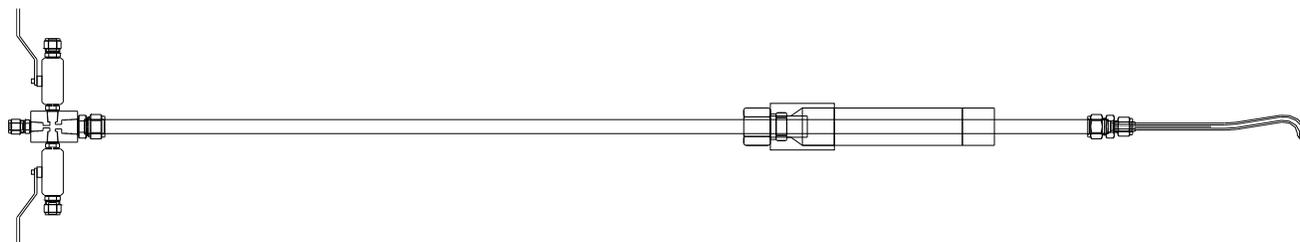
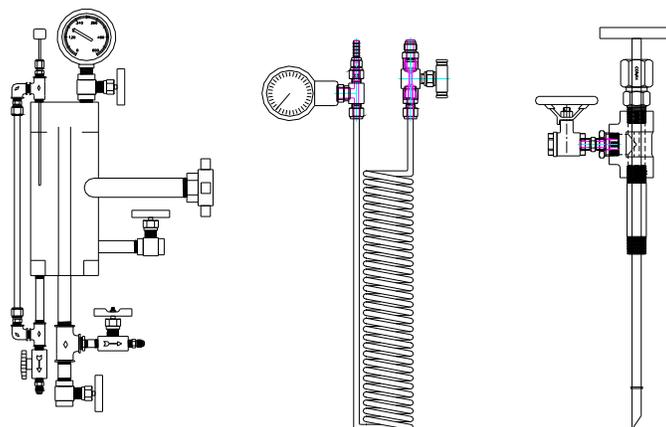
- Clean Development Mechanism (CDM)
- Emissions compliance (CARB)
- Well testing emissions



## Sampling Equipment

Thermochem develops innovative equipment solutions for routine and specialized sampling applications. A tech-forward approach to equipment design draws from technologies at the cutting edge of the industry. All field sampling equipment is engineered, constructed, and tested in house for optimum quality control.

- Exploration Gas Sampling Trains
- Single-Phase Fluid Probes
- Dual-Phase Separators
- Traversing Isokinetic Probes
- Emissions Sampling Equipment



## ABOUT THERMOCHEM

Thermochem is a vertically integrated consultancy, service, and OEM instrument firm empowering energy industries since 1985. Our mission is to protect the assets and resources of our clients, ensuring the most efficient use of equipment and resources, through preventing corrosion and scale damage to valuable equipment and providing early detection and solutions to resource problems. We service clients in more than 30 countries, providing chemical engineering solutions and equipment for geothermal energy, oil and gas, combined cycle, cogeneration, fossil fuel and nuclear power plant projects from our offices and laboratories based in the USA and Indonesia.

We provide solutions to our clients from the ground up: exploration through operations. Our extensive range of products and services includes greenfield exploration, well testing, geochemical modeling, chemical process engineering, analytical chemistry, reservoir engineering, permit support, due diligence and specialized instrumentation such as two-phase wellbore samplers, pH-modification equipment and on-line steam quality and purity meters.