BERGHOF

PRODUCTS +
INSTRUMENTS

CASE STUDY

BERGHOF-SYSTEM

→ SA-203 BR-500 reactor custom model with BR-300 heating attachement
→ BR-500 reactor set with special lid
→ BR-500 with PTFE-lining and PTFE-inset in custom model with thicker wall

---

USER: MICROPRO GMBH

MicroPro GmbH
Microbiological Laboratories

MicroPro GmbH is a microbiological laboratory whose many years of experience and technical expertise in the special fields of geomicrobiology and technical microbiology are in demand throughout Germany and internationally. MicroPro GmbH currently employs nine people and has been operating in modern laboratories on an area of 600 m² since moving in 2003. The expansion of space and equipment offers the opportunity to open up new research and business areas.

Modern laboratories, committed employees, extensive equipment and established and modern examination methods enable the processing of a wide range of microbiological problems. From microscopy to classic and molecular biological detection methods and fermentation technology to chemical analysis, a wide range of different methods is available. Individual examination programs are coordinated with each customer for specific requirements.

BERGHOF

PRODUCTS + INSTRUMENTS

CASE STUDY

MicroPro GmbH also sees itself as a research institution. In addition to publicly and industrially funded research, investments are made in our own developments in order to be able to offer customers new processes and methods.

„Thick-walled PTFE inserts allow working with hydrogen with very good tightness values and very low pressure losses.“

- Guido Nowak, Engineer (Process technology – MicroPro GmbH)

APPLICATION / CHALLENGES

MicroPro GmbH analyzes microbial processes in connection with the underground storage of hydrogen and methane in caverns and former deposits. For this purpose, underground storage technologies are examined and evaluated with regard to microbial influence. Laboratory tests under real gas storage conditions show the extent to which hydrogen can stimulate microbial processes and what effects can be expected. For these model tests, the pressure and temperature conditions of a gas storage facility are simulated and the influence on microorganisms is examined. The reactors are used at pressures of up to 160 bar and at temperatures of up to 120°C. You have to ensure stable conditions over the test period of 4-10 weeks. A particular challenge is the tightness requirement when using hydrogen.Real layer water is used in the experiments, some of which is highly concentrated and corrosive salt solutions. In the course of the microbial processes, organic acids and hydrogen sulfide can be formed, which could adversely affect the integrity of the materials used and the analysis results. The high demands on the material resistance are ensured by an appropriate metal alloy and an additional PTFE lining of the reactors.

TESTIMONIAL

Guido Nowak, Engineer (Process technology – MicroPro GmbH) says:

„The following main criteria was crucial for our purchase and fully convinced us:

→ Complete PTFE lining of the reactor allows working with corrosive liquids and gases

→ Possibility of mixing the reactors content

→ Sampling of gas and liquid phase while largely maintaining the reactor pressure “

BERGHOF

PRODUCTS +
INSTRUMENTS

CASE STUDY

FURTHER BENEFITS:

→ full PTFE lining of the reaction chamber and the temperature sensor...
...reduces the risk of corrosion when working with highly saline solutions / sodium chloride-saturated solutions
...ensures that contact of microbially formed hydrogen sulphide with metal container surface is excluded, only then is the analysis of sulphides in the liquid and gas phase possible and sensible

→ Thick-walled PTFE inserts allow working under hydrogen with very good tightness values and very low pressure losses

→ The reactor system can be sterilized in-situ or in an autoclave

→ Changed / central arrangement of the liquid sampler allows sampling even when using thick-walled PTFE inserts

→ Handiness and easy handling of the reactors

„The use of an almost identical system for over 9 years promises the longevity of this reactor design - an important factor in terms of sustainability “

- Guido Nowak, Engineer (Process technology – MicroPro GmbH)

→ Accessibility of the reactor space via 7 sockets for sensors, gas inlet and outlet, gas and liquid sampling

→ Possibility to homogenize the test matrix under pressure (stirring possibility)

CONTACT US
info.bpi@berghof.com
+49 7121 894-266