

More Than 120 Years of Sustainable Business Practices

A Special Report from BUSE

In 1883, Rudolf Ehrenfried Buse began producing mineral water and carbon dioxide from a spring in Gerolstein (Germany, Eifel), laying the foundation for the modern day company bearing his name, BUSE. Today, fourth generation members of the Buse family remain an important part of the BUSE company. With headquarters in Bad Hönningen, Germany, Buse has extended its reach far beyond mineral water and successfully supplies CO₂ plants, related equipment, engineering, and services. More than one hundred and twenty years after its founding, BUSE's competence remains in its CO₂ business that enjoys recognition in international markets. Facilities in Germany and other countries including The Netherlands, Romania, Greece, and Macedonia provide a wide range of products — which started with mineral water and now includes CO₂ — as well as engineering and services for the industrial gases industry.

RECOVERING AND PROCESSING CO₂

BUSE supplies CO₂ recovery plants and storage tanks to customers around the world. Its recovery plants are compact, modular in design, and built in accordance with the latest technical standards and codes. These plants are designed to guarantee the safe and economical production of liquefied carbon dioxide, including to the highest quality level required for the food and beverage industry. CO₂ is collected, purified, compressed and liquefied in a series of steps before being stored and transported, if the customer is off-site, as shown in Figure 1.

BUSE designs and delivers turn-key CO₂ recovery plants to customer specifications, depending on the quality of the raw gas. To ensure economic and ecological viability of BUSE CO₂ plants, each plant is adapted to the local and climatic conditions on-site to optimize economic returns and minimize environmental impacts. BUSE engineers also design CO₂ recovery plants that share or can be combined with the customer's power plant wherever possible, to minimize energy costs and environmental impacts.

For example, interconnections can often be made between cooling and heating systems in breweries that have CO₂ recovery plants or where liquefied CO₂ has to be evaporated. For applications of gaseous CO₂, the liquefied CO₂ at temperatures between -25 °C and -35 °C, has to be evaporated. A German brewery that requires about 2000 kg gaseous CO₂ per hour incorporates a BUSE system for this purpose. The heated Glycol dissolution in the brewery-owned cooling system and the deep-cooled CO₂ are led to a two-step heat exchanger where the Glycol is cooled down and the liquefied CO₂ is heated. The carbon dioxide is expelled as a gas. Energy and its related costs are saved in both systems by using existing resources. An electrically heated evaporator needs approximately 200 kWh for 2000 kg gaseous CO₂ per hour. With interconnections, 30 percent or more of the operating power for the compressor for the cooling system can be saved. The realized advantage has to be calculated according to the energy costs on-site and the actual need of gaseous CO₂. Since this BUSE system links a heating step and a cooling step, the connection saves money in both systems for the cus-

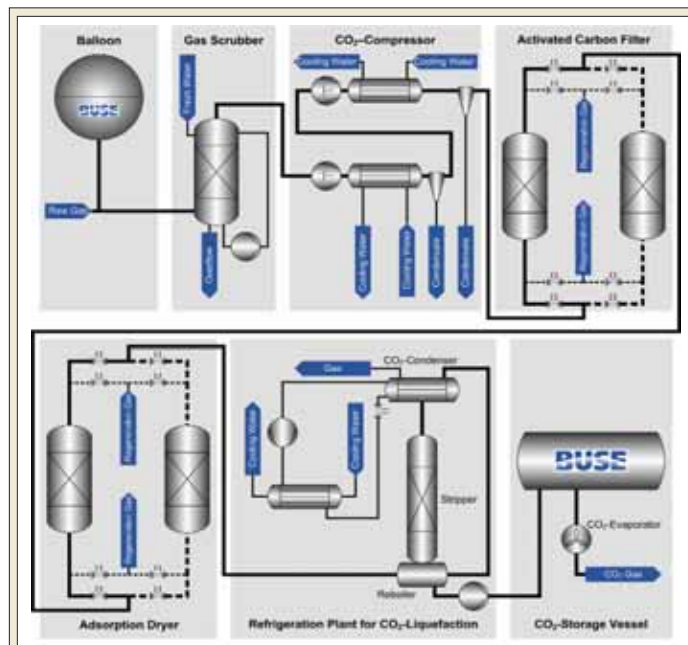


Figure 1

Source: BUSE



Detail of a BUSE CO₂ recovery and sustainable energy operation in a brewery.

tom and protects the environment. This type of heat exchanger can be installed as a customized system and aligned to the customer's plant conditions for other gaseous applications of CO₂, as well.

Other applications for recovered CO₂ that are considered sustainable include its use as an atmospheric fertilizer in greenhouses, as an ecologically friendly fire extinguish agent, as a cryogenic cooling agent in freezers that creates no harmful emissions, and in desalination processes (CO₂ is added back into the water once after desalination).

For more information on BUSE CO₂ systems and related equipment and technology, see us at the DRINKTEC Exhibition in Munich, September 14–19, 2009 or visit our website www.buse-gastek.com. ■