



“...the company has seen the dynamics for CO<sub>2</sub> evolve...Advanced Cryogenics has grown both with and ahead of this evolution”

# Advanced Cryogenics

## All about carbon dioxide

### Get in touch

To find means of improving your CO<sub>2</sub> business, and to better understand opportunities available to add revenues to your bottom line, via consulting services of all types, call:

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Advanced Cryogenics Ltd, also found via [www.carbondioxideconsultants.com](http://www.carbondioxideconsultants.com), has provided CO<sub>2</sub> and cryogenic gas consulting solutions for decades to all CO<sub>2</sub> emitters, sources, producers, and application requirements.

Since 1989, Advanced Cryogenics has followed changes in source types, developments in applications and requirements for both CO<sub>2</sub> and cryogenic gases for decades; and is on top of all developments well ahead of the curve.

The very best available consulting and merchant background is made available to foster premium results when working for client companies. Clients emerge with a thorough understanding of dynamics in the oil and gas, chemical, industrial gas, and energy industries; plus much more on the applications end of the business.

This up-to-date information is further supported by decades-long merchant gas expertise; where all phases and forms of the merchant trade are brought to Advanced Cryogenics from the former Amerigas CO<sub>2</sub> Division. Sam Rushing is President of the company, a chemist with vast consulting experience covering everything from the applications of CO<sub>2</sub> and cryogenic gases, to subjects covering processes, recovery, purity and specifications, as well as all markets, business developments and sequestration technologies for carbon dioxide.

Further still, the company also provides new, rebuilt and used process, production plant, storage, and transport equipment to industry.

### Trends

At the inception of the US-based company in 1989, when headquartered in Oklahoma City, a significant level amount of work was dedicated to flue gas recovery from (primarily) natural gas and coal-fired cogeneration plants.

Further, during these years, traditional sources of CO<sub>2</sub> from ammonia, geological sources, and reformer operations were the primary means of producing CO<sub>2</sub> in North America; ethanol was a very small part or perhaps no part at all.

Over the years, however, the company has observed and kept ahead of a number of trends in the market for CO<sub>2</sub> – including a rising focus on

ethanol as a source.

In the 1990s, ethanol began to appear on the US scene and Advanced Cryogenics was in the thick of it with evaluations of CO<sub>2</sub> markets, writing specifications for new CO<sub>2</sub> firms which sprang from the ethanol business. During these years the company presented papers on CO<sub>2</sub> recovery, costs, requirements and markets available, and these papers were presented to the Global Warming Conferences and Power Gen. This was also a key period for the company in terms of location and outreach, as it moved from the Midwest to its current home in South Florida, and expanded the full menu of CO<sub>2</sub> and cryogenic consulting expertise to Latin America, Europe, Africa, and the Middle East.

Significant work was then provided to project developers in Kuwait, with plans to recover huge sums of CO<sub>2</sub> from a large nationalised refinery and market this product throughout the GCC, and beyond.

### Expanding applications

Put simply, Advanced Cryogenics is all about carbon dioxide – and has taken a great deal of pride in seeing the applications for this develop.

In-keeping with these ever-expanding sources and applications of CO<sub>2</sub>, as well as global shifts in policy/direction, the new century has seen Advanced Cryogenics greatly expand its remit.

From food grade specification papers and the ethanol boom of the 1990s, to the expansion of work in the biofuels industry of today, the company has seen the dynamics for CO<sub>2</sub> evolve. This also includes CO<sub>2</sub> sinks, emerging and cutting-edge technologies, and other present-day trends concerning algae, geothermal project enhancement, and CO<sub>2</sub> sequestration in concert with large air storage for wind energy projects.

Advanced Cryogenics has grown both with and ahead of this evolution and has provided expert witness work for CO<sub>2</sub> and industrial gas projects worldwide, covering critical patents and technologies; as well as gas handling standards.

Expertise has taken the company a long way since 1989, and will continue to foster success for its clients in the future. □