



New Directions in the Activated Carbon Industry

In the last two decades, the price of activated carbon (AC) has fallen 75 percent. Many lower cost varieties have sufficient quality to be useful in many applications. The price reduction, along with maintaining reasonable quality, has created changes in the industry. This article describes how those potentially influence the direction of the industry.

Twenty years ago, the large full-service AC companies had professional staff assigned to help customers solve problems. The companies had the latest analytical equipment and rapidly helped resolve the customer's technical questions when they had a chance to sell AC. Since AC rapidly has become a commodity material instead of a specialty chemical, these firms cannot keep large professional staffs, the latest analytical equipment and stay profitable at the same time.

Today, if you call your AC supplier or manufacturer and request technical support services to help solve your problems, the safe bet is you will find that they are not as interested in providing technical services. With the U.S. economy slowing and low margins on carbon sales, large AC firms will not be able to afford to have their senior professional staff solving problems.

More Applications, Less Support

Among industry changes due to lower AC prices, there is renewed interest in developing specialized AC applications and increased sales due to improved cost-benefit ratio for end-users. AC now is more competitive against alternative and emerging technologies such as air stripping, biological treatment, phytoremediation, bottled water, new expensive sorbents and membranes. The low-priced AC has forced several firms out of business and reduced the profits of the remaining firms. Many others make AC from renewable agricultural products and waste materials. Meanwhile, university research and government funding for AC development and competing technologies are at an all-time low. Unfortunately, less customer technical



support from suppliers also results in lower AC prices. New sources of technical support need to emerge. There are many quality analytical labs that need additional work. Possibly connecting these labs with the firms having environmental problems is a future solution.

With big firms decreasing technical support services, small firms should have increased demands for their services if they can fill the marketplace needs. The global AC market will grow. However, the need for helping customers solve their problems will not go away. Also, customers still need basic and advanced training on AC. Carbon users still need help to select the best AC for their applications. Customers still need engineering services to design and/or build adsorption vessels to meet their needs and help solve day-to-day operational problems. Laboratory testing services still are needed to help customers solve a wide variety of problems. In the future, carbon users will need to find services from the new players in the industry.

Lower AC prices should help developing countries. They will need training and basic understanding to apply the AC technology. Waterborne diseases and chemical pollution still are major drinking water problems for many countries. However, making AC affordable is only the beginning step to providing high-quality drinking water. In addition, other technical services are required to facilitate high-quality drinking water in addition to lower AC cost. Examples are construction firms to provide plumbed automated vessels to hold granular activated carbon (GAC), testing service to monitor GAC system performance, change out services to remove used GAC and replace with regenerated GAC, regeneration facilities to cycle the used GAC back to useful resource and trainers and consultants who can provide state-of-the-art and practical knowledge. There is a need to work together to get the full benefits of AC to protect the environment and human health.

Surely, used AC regenerators will see increased business as the pool size of

GAC in the marketplace grows. A time lag between the AC sale and generation of used AC is expected. With a larger and more distributed pool size of used AC, we expect additional regeneration service providers to emerge. There should be no need to transport used AC coast-to-coast in the United States or continent-to-continent on a global scale. The technology to regenerate used AC back to a useful resource is about 50 years old. We expect business economics to drive additional regeneration services from established firms toward new players at strategic locations.

The Effects on Potential AC Users

At one time, the large AC firms combined the AC scale with technical services and hardware. It was the one-stop shopping era, and it lasted for years. Large firms prided themselves in providing customers a turnkey solution to their problems. Often the AC user rented the mobile adsorption vessels and received laboratory testing of their influent and effluent from the AC supplier. The large firm helped to determine when the AC needed to be changed based on the system monitoring results and prior experience with many AC adsorption systems. Today, more companies are providing only parts of the total AC service.

When countries such as China introduced low-priced carbon, this eventually changed the market. At first the quality of these low-cost AC were not reliable. With time, their low cost was coupled with competitive quality for the majority of AC applications. All carbons are not equal. Today, there are niches for special AC and associated technologies to command premium prices. Examples would be MTBE, perchlorate, radon, arsenic and nitrate in the liquid-phase and mercury in the vapor-phase at coal electric power plants.

When AC users and consulting engineers discovered low-cost AC had reasonable quality, they began to switch suppliers. Many of the suppliers were new brokers with low operating costs who connected the offshore manufacturers with end-users. The end-users and their engineers

With big firms decreasing technical support services, small firms should have increased demands for their services if they can fill the marketplace needs.

have a need to connect with service providers to accomplish installation, monitoring and management of their AC adsorption systems.

With the Internet, virtual companies have been created that allow several companies to provide the total service historically provided by single AC firms. These virtual firms will form to solve specific problems. After solving the problem, the firms will disband, only to form new team members to solve new problems. One good website that illustrates the virtual company phenomenon is www.activatedcarbon.com. Customers still prefer to get their AC and supporting services from one firm. Someday, we may see some firms doing business like they did 20 years ago, but there is a long way to go. With low AC prices, many of the large U.S. manufacturers now are owned by conglomerate business. However, the demand for AC and supporting services will continue to grow. Firms that can adjust to the present market changes should do well over the long-term. They will need to be innovative and provide new products and services.

Conclusion

In the beginning, if you had an AC application problem, one or two telephone calls got it solved with the aid of a large AC manufacturer. Some large firms now refer their customer's service needs, outside of the AC sale, to service providers who do not sell AC or other competing products but do offer AC application expertise. The large firm still wants to sell you AC and realizes solving your problems will help their initial and follow-up sales and improve user satisfaction. If you call on your AC manufacturer or supplier and they no longer provide technical support, ask for names and numbers of their recommended contacts. They still want to help you but you need to communicate the right questions to get the task done. Thus, low AC price has created business opportunities for entrepreneurs with specialized skills.

You do not learn about the practical applications of AC in college or technical school. U.S. carbon users and engineering firms now must learn the basics and advanced practical knowledge about AC adsorption systems. Today, entrepreneurs are providing training courses, consulting services and lab testing on AC and related sorbent industries. These entrepreneurs actually are helping the new era of AC manufacturers and suppliers. Providing a larger number of knowledgeable individuals for AC manufacturers will increase sales. If the manufacturer/supplier's goal is to sell the best and lowest-priced AC, there is a need for smart AC users who can handle the problems once solved by the large manufacturers. WQP

December 2002

For more information on this subject, write in 1017 on the reader service card.

Acknowledgment

Georgiana Riley, CEO and president of TIGG Corp. of Pittsburgh, gave a "CEOs Speak" discussion at the 9th International Activated Carbon Conference and covered some ideas presented in this article.

About the Authors

Dr. Henry G. Nowicki directs PACS, Inc., of Pittsburgh, a laboratory testing and consulting service. He has published more than 100 articles about environ-

mental issues and activated carbon adsorption and has been an expert witness in more than 30 legal cases. He may be reached at hnpacs@aol.com.

Dr. Mick Greenbank provides special projects, consulting and training at PACS, Inc. He teaches "Selecting the Best Activated Carbon for the Application." He may be reached at mickpacs@aol.com.

Barbara Sherman directs the PACS short course and focused conference programs. She may be reached at Barbpacs@aol.com. PACS provides 57 different one- to three-day courses and four two-day annual focused conferences. Four short courses are on activated carbon. PACS hosts the annual September International Activated Carbon Conference in Pittsburgh. Contact PACS at 724-457-6576; www.pacslabs.com.

The Home PreTreatment System



3 stage system for home or business

- Stage 1 - Filtration
- Stage 2 - Dechlorination
- Stage 3 - Anti-scaling



R.O. UltraTec-USA, Inc. • 541 Industrial Way • Suite 1 • Fallbrook • CA • 92028
Phone: 760.723.5417 • Fax: 728.5062 • Email: info@roultratec.com

Write in 771