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F FOOD & BEVERAGE TECHNOLOGY REVIEW

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Food Automation
& MANUFACTURING
EDITION

Charles Alack,
Founder,
CEO & COO

SEMI-BULK SYSTEMS

PROFESSIONAL
MIXING
SOLUTIONS FOR
EFFICIENT FOOD
MANUFACTURING

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SEMI-BULK SYSTEMS

PROFESSIONAL MIXING SOLUTIONS FOR EFFICIENT FOOD MANUFACTURING

By Kevin Lobo

Food manufacturing has a long and diverse history. From small cottages that make jams and jellies in their modest kitchens to multinational corporations that mass-produce condensed milk in cans, the complex processes involved in food manufacturing has undergone a tremendous transformation over the years. Food mixing is a crucial component of this process—"a unit operation that involves the manipulation of a heterogeneous physical system with the intent to make it more homogeneous." Liquid-liquid, solid-solid, liquid-solid, liquid-gas, gas-solid, are the possible permutations and combinations involved in food mixing, and the technological advancements in this

field have been extraordinary in the past few years.

However, even today, many food and beverage manufacturers rely on traditional mixing processes using blenders or dual shaft mixers, which are sold as components of a larger system or mixing equipment, and rarely as a total solution. This can lead to inefficiencies in the process. For example, many food manufacturers lack the ability to handle powder and supply it seamlessly to the liquid side for mixing. This shortcoming prevents them from achieving the key objective of industrial food mixing, which is to have unvarying distribution (homogeneity) in the product while enjoying the benefits of totally automated, high capacity production.

Helping such companies improve their processing and mixing operations is Semi-Bulk Systems, a provider of modular engineered process solutions involving dry ingredient handling and dry/liquid mixing systems for manufacturers of dairy, food, beverage, meat processing, pharmaceutical, and industrial products. Semi-Bulk Systems' "total solution" for both dry side and dry/liquid mixing is revolutionizing the floors of global food manufacturers today.

A Suite of Solutions for Every Need

Semi-Bulk's unique technology offers 21st-century solutions that optimize process efficiencies and provide the lowest

manufacturing costs to compete in today's fiercely competitive environment. The company has developed cutting-edge 'Process XstreamLining'® designs for food manufacturers. "We help food and beverage manufacturers seamlessly upgrade from their existing legacy infrastructures and automate their workflows," says Charles Alack, CEO, and COO of Semi-Bulk Systems. The company's key objective is to provide clients with a process and mixing system that requires only a single push of a button—'XstreamLining'® a slew of functions for shop floor managers. "We have designed several processing methods and options that help complement the products we offer for each respective market," adds Alack.

Semi-Bulk Systems' Total Solution for mixing powders into liquids incorporates a 'wet and dry side'. The solutions are standardized, modular, and skidded process units for automated mixing that can scale up or down with the manufacturers demand.

The company leverages 'dryside' product handling systems to assure efficient and dependable powder flow, automation, environmental, ergonomic and product delivery. The VACUCAM® Ejector Mixer, which effectuates three specific types of mixing processes: single pass, batch recycle, and dynamic continuous steady state provides

the most efficient option to meet customer requirements. The unique features offer food and beverage manufacturers with a fully configured unitized skid to serve all the functional needs of mixing particular powders with various liquids. Combining dry side and wet side choices provides the customer with the TOTAL SOLUTION. In conventional mixing systems, a rotating agitator device is used to move through the liquid mass, which then attempts to wet out, disperse, and shear powder into a liquid. This process is time-consuming and laborious, and does not address automated powder delivery.

On the other hand, VACUCAM® Ejector Mixer—based on the Bernoulli's principle—eliminates the tediousness of traditional processes and ensures an efficient and powerful method of conveying, wetting, functionalizing, and dispersing powders into liquids at much higher mix speeds, resulting in consistent batches time after time. The VACUCAM® Ejector Mixers are available in a broad range of sizes and capacities to meet a plethora of process requirements. It finds great application in the dairy sector, while the VACUCAM® Modular Dynamic Beverage Batching Stations offer the total solution to meet the mix room needs of all beverage manufacturers.

The solution helps handle changing ingredients that cannot be mixed efficiently with traditional mixing methods. It can utilize bulk bags and small packages for the addition of ingredients for dry and liquid minors. It can also address the changing needs for sweeteners and the addition of new ingredients

as well. "Semi-Bulk Systems also excels in carrying out sugar liquefaction processes via VACUCAM® Ejector Mixer technology, where our systems receive the material from trucks, rail, or direct from silos in bulk," states Alack. The company's modular processes for sugar liquefaction are well-equipped to manage large capacities of sucrose that vary from nine to 28 tons per hour.

The solution can increase plant capacity and reduce shifts and labor costs per unit output. It also helps boost process efficiencies and product yields.

It can also bring total automation, eliminating all possible errors and ensuring greater accuracy while confirming batch addition per individual batch menu. The solution fosters environmental benefits as well, including reduced energy requirements and reduced maintenance/replacements while improving overall safety, ergonomics, and GMP.

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**WE HELP FOOD AND BEVERAGE
MANUFACTURERS SEAMLESSLY
UPGRADE FROM THEIR EXISTING
LEGACY INFRASTRUCTURES AND
AUTOMATE THEIR WORKFLOWS**
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The History behind the Revolution

Semi-Bulk Systems was established nearly half a century ago by Avrom R. Handleman and Charlie Alack. The company's first commercial offering, the VACUCAM® (VACUUM Convey and Mix) Slurry Processes, was expanded to offer both the food and industrial markets this state-of-the-art technology for mixing powders and liquids. Although systems were previously sold for such processes, the company began to instead focus on more hygienic slurry processes for dry powder handling and powder/liquid mixing. To support and promote the VACUCAM® Slurry Process Technology, Semi-Bulk's product lines were expanded, adding many new products to meet the requirements for

hygienic processes. These new product lines were developed to offer a TOTAL SOLUTION, including dry side modular processes with ACH and powder/liquid mixing modular processes based on the VACUCAM® EJM and full solution standardized modular skidded powder mixing processes. The products developed to focus on conditioned powder feed include bulk bag unload stations, bulk bag unloaders with surge bins, hygienic design Air-Cone® Hoppers, and other new modular products. With the achievement of ISO 9001 and 3-A Certification, Semi-Bulk Systems expanded into new food markets, including dairy, beverage, sugar, and chemical and industrial sectors like power plants, paint, and others, serving both smaller operations as well as Fortune 50 manufacturers.

Defining the Future of Food Manufacturing

The pedigree of innovation has helped Semi-Bulk establish itself as a diverse, multi-industry expert, known for the application of its technology across a wide range of manufacturing scenarios. For instance, working with major international companies in the ice cream manufacturing sector, Semi-Bulk has helped revolutionize the use of thickeners, reducing usage by 20-30%. The company is also a big player in the paint, as well as the pharmaceutical industry. "Once clients try and use our system, they generally become their preferred choice for any expansion. At that point, we're not really competing with traditional products anymore," Alack adds.

Semi-Bulk's products have always supported initiatives



to develop sustainable processes and reduce energy consumption. Beyond the food manufacturing sector, Semi-Bulk Systems has supported fighting wildfires around the world with its Ejector Mixer Slurry Unit and the Air-Pallet® containers, using a fire retardant chemical in the form of a dry powder. The powder is rapidly converted into a solution to be pumped aboard airplanes to bomb forest fires and minimize the impact on the environment. This technology continues to be the primary process of support for fighting forest fires.

With fully developed technology that is market-tested with strong references, Semi-Bulk continues to look for opportunities with different major food ingredients. The company has begun the distribution of products outside the U.S. into Europe, Mexico, China, Asia, Brazil, Japan, and India. The potential for such a solution is huge, and Semi-Bulk expects rapid growth across numerous global market segments and an immediate sales growth with global infrastructure servicing the process industries. They are considering strategic acquisitions to accelerate the commercialization of technology.

Semi-Bulk Systems has grown significantly over the years and has masterfully utilized its 45 years of food and beverage manufacturing experience to cater to the industry with cutting-edge solutions. The company plans to continue its R&D to obtain higher levels of Process XstreamLining® while helping clients increase capacities, process efficiencies, product yields, worker safety, and manufacturing accuracy. 

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Company:
Semi-Bulk Systems

Description:
Semi-Bulk Systems, Inc. is a world-class provider of modular engineered process solutions involving dry ingredient handling and dry/liquid mixing systems

Key Person:
Charles Alack
Founder, CEO and COO

Website:
semi-bulk.com

Top 10 Food Automation and Manufacturing Solution Providers - 2020

The technological evolution in the food and beverage industry has always been impeded by the high cost of automation systems and the lack of skilled workforces. However, the recent developments in computer technology have democratized automation solutions, making them more affordable than ever. The change in industry status quo coupled with increasing consumer expectations, and changing regulations are spurring organizations to integrate robust, automated manufacturing systems. The adoption of automation systems will not only streamline the repetitive and monotonous tasks but also improve the packaging and palletizing of the food products.

In order to assist enterprises in the task of finding accomplished solution providers, we have compiled this issue of Food and Beverages Tech Review. It is

elaborately crafted to assist you in fostering productive partnerships and improving performance. In this edition, we have listed the top 10 food automation and manufacturing solution providers to highlight the companies making significant contributions to the food manufacturing sector. Equipped with innovative technological capabilities, these solution providers are set to transform the landscape. This edition also blends through thought leadership from subject-matter experts, CIOs, and CXOs, with real-life stories on how the technology vendors have enhanced the capabilities of their clients. We hope this issue of Food and Beverages Tech Review helps you build the partnership you and your organization need to foster a workspace driven by robust and efficient technology.

We present to you Food and Beverages Tech Review's "Top 10 Food Automation and Manufacturing Solution Providers - 2020."