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Processing

SOLUTIONS FOR THE PROCESS INDUSTRIES

FOCUS instruments p6

Easy-to-use, affordable on-line sodium monitor

Rugged and affordable, the on-line sodium monitor is built to withstand the demands of continuous on-line use in severe conditions. Ideally suited for sodium measurements in a variety of applications around the plant, including low-range boiler feedwater analysis, monitoring ion exchange breakthrough or high acid measurements, the unit's expandable platform offers a new level of flexibility for a plant's operation. Benefits include protection against the costly effects of corrosion with sensitive, selective, reliable and verifiable measurements that provide early warning detection of sodium. Unit also features extreme ease of usability while maximizing uptime—simple step-by-step scrolling instructions for set-up, calibration, operation and diagnostics. Orion 2111XP.

Thermo Fisher Scientific
www.thermo.com/water
Write In 710

feature article

In recent years, the world of powder processing has undergone significant changes. With more stringent regulations, rising labor costs and international pressures, there has never been a greater emphasis on production efficiency. Mixing is often the most critical aspect of a powder process, and is the step where the manufacturer is adding the most value. With so many different mixing technologies and methodologies available (batch or continuous, high shear, low shear or no shear, horizontal or vertical, etc.), users may have hard time determining what is the best path for lean powder processing? Dan Ruble of MATCON takes a look at the various mixing technologies and how companies can maximize mixer effectiveness in modern powder processing. To read this *Processing* exclusive article, turn to **page 22**.

New software for calibration asset management

The easy-to-use CMX Light calibration software, designed for a single workstation, is suitable for companies that require an advanced and efficient calibration system that meets demanding and specific requirements (ISO 17025, cGMP and 21 CFR Part 11). With any of the CMX products, a company can manage various different calibration quantities such as pressure, temperature, electrical, indicators, recorders, mass, pH, length and flow. **For more information on Plant Automation, go to page 30.**

Beamex, Inc.
800-888-9892, www.beamex.com
Write In 711

Laser shaft/coupling alignment system

Laser shaft/coupling alignment system is designed for quick, accurate and reliable maintenance work on rotating equipment. Its modular concept allows the user to design their own shaft alignment system, acquiring the exact features they need, and simply adding more capabilities as job demands grow. Its intuitive alphanumeric keyboard with navigation, menu keys and help text produce an easily understood screen picture of measurement results and thus makes the unit a user-friendly and high performing alignment system. OPTALIGN® smart. **For more information on Plant Maintenance & Safety, go to page 14.**

LUDECA, INC.
305-591-8935, www.ludeca.com
Write In 712

New horizontal vacuum paddle blender

The recently shipped horizontal paddle blender was designed with a 100 cubic-foot working and a 110 cubic-foot full holding capacity. Designed for operation under vacuum to 29.5" hg, the blender will be used to mix and deaerate a viscous paste. All wetted parts of the blender are of type 304 stainless steel and are polished to a 120-grit finish to assist in the ease of cleaning between mixes and color changes. A special pneumatically operated flush type plug valve was also supplied to eliminate dead spaces within the mix zone. **For more information on Mixing & Size Reduction, go to page 24.**

Charles Ross and Son Company
800-243-ROSS, www.mixers.com
Write In 713

the key ingredient to mixing's future

Maximizing mixer effectiveness in modern powder processing

In recent years, the world of powder processing has undergone significant changes. With more stringent regulations, rising labor costs and international pressures, there has never been a greater emphasis on production efficiency. Whoever can produce faster and cheaper without compromising quality will be the companies that thrive in the early 21st century.

Not only does a process need to be efficient, it also needs to be flexible. More and more markets are demanding that manufacturers produce smaller volumes of more diversified products. Companies cannot simply afford to overproduce products and hold excess inventories to meet this demand. As a result, philosophies such as 'lean manufacturing' are being viewed as more than just a fad. Companies are now implementing lean manufacturing principals to separate themselves from competition or to simply survive.

Mixing is a prime example of where these principals can apply. Often the most critical aspect of a powder process, mixing is the step where the manufacturer is adding the most value. With so many different mixing technologies and methodologies available (batch or continuous, high shear, low shear or no shear, horizontal or vertical, etc.), what is best path for lean powder processing?

Conventional wisdom would suggest analyzing all mixing requirements for a process and simply selecting a mixing system that can do everything. This approach is fantastic for successful mixing but may not address process efficiency or flexibility. To maximize efficiency, key pieces of process equipment such as a mixer need to keep running; this is referred to as Overall Equipment Effectiveness (OEE). Simply put, the more the mixer is actually mixing, the higher its OEE.

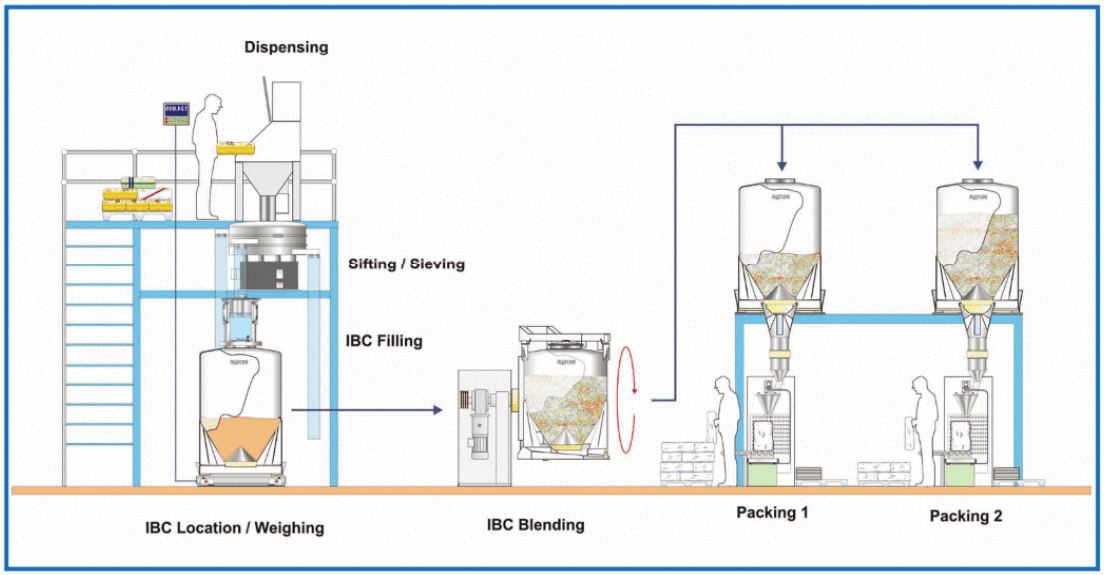
Even if a batch mixing time is only a couple of minutes, it cannot be considered efficient if it takes significant time to fill or empty the mixer. While measures can be made to improve mixer filling and emptying, time required to clean the mixer can make product changeover a time consuming endeavor. This not only reduces the OEE for the mixing system, but it also limits the flexibility required to respond to sudden production schedule changes.

One mixing technology that is capable of achieving a very high OEE is containerized (IBC) blending. By utilizing this type of blending approach, a rigid IBC is a detachable blending vessel. What this means is that formulation (filling), emptying and cleaning of the blending vessel is done separately from the actual blender. When one batch is blended, simply take away the blended IBC and replace it with another IBC filled with an unblended recipe. You can almost immediately begin to mix your next batch.

Although there is a high OEE with IBC Tumble Blending, mixing capability can be the limiting factor on its application. Recent developments in IBC tumble blending (introduction of high shear, liquid injection, etc.), however, are pushing the boundaries of what can be mixed within an IBC.

So what is the best path forward? While there is no single answer for all processes, using multiple blending technologies and applying the 80/20 rule can produce a highly efficient and flexible process. This would suggest using an IBC blending approach where it can be used and using an alternative mixing technology (such as a high shear vertical mixer) where IBC blending may be less effective.

Since fewer products would be used with the high shear vertical mixer, there would be less filling, less emptying and less changeover (cleaning) required. This would mean that both mixing systems would have a high OEE, which is critical in lean powder processing. It is such a shift in thinking that may be required to maximize mixer effectiveness in modern powder processing.



About the author

Dan Ruble is the U.S. Sales Manager for MATCON, a global manufacturer of IBC-based process solutions and turnkey systems with an emphasis on lean powder processing.

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