CATEGORY: **CAPACITY**

MATCON®

POWDERS, HANDLED.

CASE STUDY

INCREASING EFFICIENCY, FLEXIBILITY AND POWDER HANDLING CAPABILITIES

with a Matcon System

RAINnutrience LIMITED

"Without a Matcon System we would not have achieved the significant business growth experienced in the last few years."

Rupert O'Connell, Owner and Director of RAIN Nutrience

THE POWDER HANDLING EXPERTS

www.matconibc.com

Discover how RAIN Nutrience, industry leaders in nutraceutical products, doubled production rates and future-proofed their manufacturing facility without additional resource overheads or factory space.

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About RAIN Nutrience

RAIN Nutrience is today a full-service contract manufacturer of dietary supplements, focussing on business to business (B2B) supply.

RAIN Nutrience Ltd was formed in 2004 by Rupert O'Connell and brothers Alan and Ian Andreasen, having previously worked together in the dietary supplement industry from the early 1990s.

Having experienced significant growth over the years, RAIN Nutrience is today a full-service contract manufacturer of dietary supplements, focussing on business to business supply. With modern production facilities located in the South West of England.

RAIN Nutrience manufacture and distribute products for companies throughout the UK and Europe, whilst also supplying products via their sister company in Canada to North American customers.

The need

At the outset RAIN Nutrience had product manufactured by third parties, but by 2007 growth in sales of encapsulated products prompted RAIN to buy an encapsulator and start their own small-scale manufacturing plant.

A lot of blending was required, resulting in many batch changeovers daily. With the current equipment that meant a lot of manual handling, open processing and cleaning.

This required blended powders, so a small blender was also added to the process, allowing RAIN to manufacture innovative products and enter different market areas taking the business on a new route.

By 2016 RAIN had grown, and had moved into new premises. To meet with order demand and growth ambitions, they were operating three ribbon blenders, two powder filling lines and three encapsulators.

As RAIN is involved in the nutraceutical market, growth came from three distinct areas - capsule products (hard shell capsules), tablets and bulk powders. Each of these could then be seperated further, however the bulk powder business was increasing from meal replacement products, sports nutrition products such as proteins as well as other more complex powder blends. As most of these products contain powders, a lot of blending was required, resulting in many batch changeovers daily. With the current equipment that meant plenty of manual handling, open processing and cleaning.

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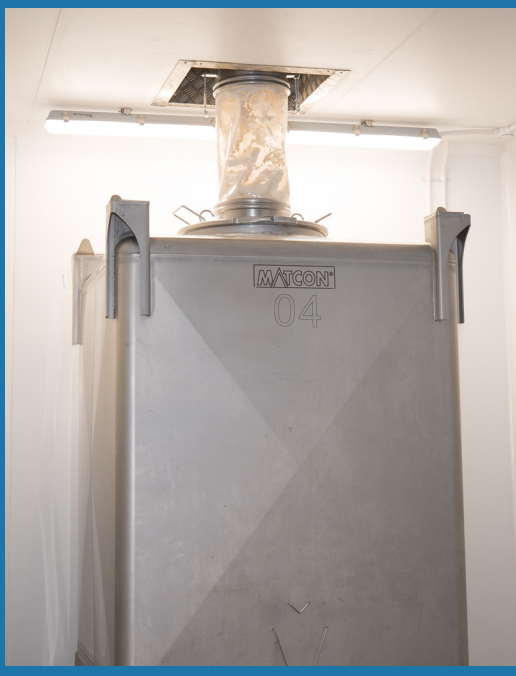
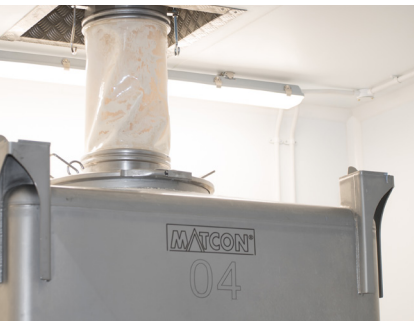
The need (cont.)

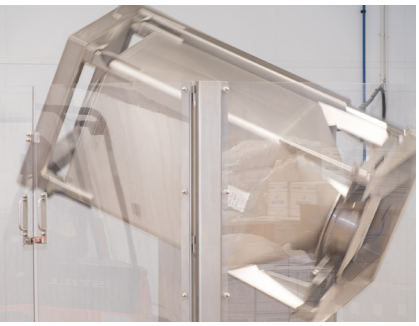
RAIN Nutrience first contacted Matcon in 2016, which at that time, the largest growth industry for RAIN was sports nutrition. With a demand on a high number of recipes and SKUs, RAIN was about to embark on a production efficiency and flexibility improvement exercise. This was prompted following the recruitment of a Production Manager with vast experience in the principles of lean manufacturing, having spent 25 years in the pharmaceutical industry.

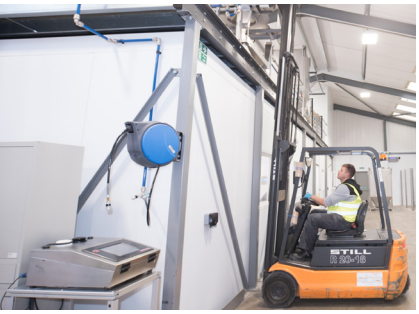
RAIN had been operating a 1000L twin screw fixed mixer with a decoupled semi-automatic Auger Filler packing line and two other smaller ribbon blenders. Blended powders from the Mixer was collected into multiple plastic receiving vessels and transported to the opposite end of the production area. This process required up to three operators at the blender with a further six operators to manage the semi-automatic filling line, depending on the running speeds.

An added complication was that the RAIN operation was spread over three separate manufacturing units on the same industrial estate.









The right solution

The existing process that RAIN had in place incorporated significant elements of double and in some cases triple handling of materials along with extensive cleaning times when changing recipes.

To eliminate these labor-intensive activities, the Matcon team worked closely with RAIN to develop a system tailored to their needs that would increase flexibility, efficiency and safety.

From the first conversation between RAIN and Matcon, it was clear that the following key areas needed to be addressed:

- Reduce manual handling
- Implement a system that enabled scalable growth potential
- Reduce times with off-line cleaning
- Managing design restraints
- Rapid recipe changeovers
- Packing refill
- Future proofing (to handle a wider range of ingredients)

The right solution (cont.)

REDUCE MANUAL HANDLING

Whilst RAIN operated in a clean environment with well-trained staff, the majority of operator's time was spent moving materials by hand and cleaning. By freeing up this valuable time, operators could be used in other parts of the business.

IMPLEMENT A SYSTEM THAT ENABLE SCALABLE GROWTH POTENTIAL

RAIN felt that by investing in new equipment it would enable growth in other areas of the business. Having the ability to manufacture new product types was essential for the growth of the business, therefore whatever systems were put in place needed to be able to deliver a range of products efficiently and future proof the manufacturing process. By using a Matcon IBC system, which RAIN considers a 'modular' system, new modules can be added and capacity increased by simply adding more IBCs and other pieces of equipment when the business reached a certain level in line with growth ambitions.

To continually improve manufacturing flexibility and OEE, RAIN wanted to plan their process 'downstream' of blending. Future plans, include connecting IBC's to feed the encapsulators and tablet presses. By reducing double handling and enabling one operator to supervise several automated machines, the business can continue to increase the efficiency of the production lines.

Any future additions that are made, will be further automation of powder packing lines, including automated jar filling, automated pre-formed pouch filling and automated sachet filling. All this equipment will be added to the existing system and fed by Matcon IBCs.

REDUCE CLEANING TIMES

Intermediate Bulk Containers provide contained materials transfer and dust free blending, as the IBC becomes the blending vessel. The IBC can then be used to deliver powders directly to packing.

Matcon worked with RAIN to determine the correct IBC size to ensure that they could meet their current demands as well as future-proof their predicted growth over the next five years. Consideration also had to be made to how products containing allergens were being handled.

The initial phase of the new process equipment included:

- 2000L stainless steel IBCs
- Sack tipping to fill IBCs
- IBC blending
- Feed to the existing Auger Filler
- Feed to a newly proposed second Auger Filler
- IBC wet wash (washing lance)

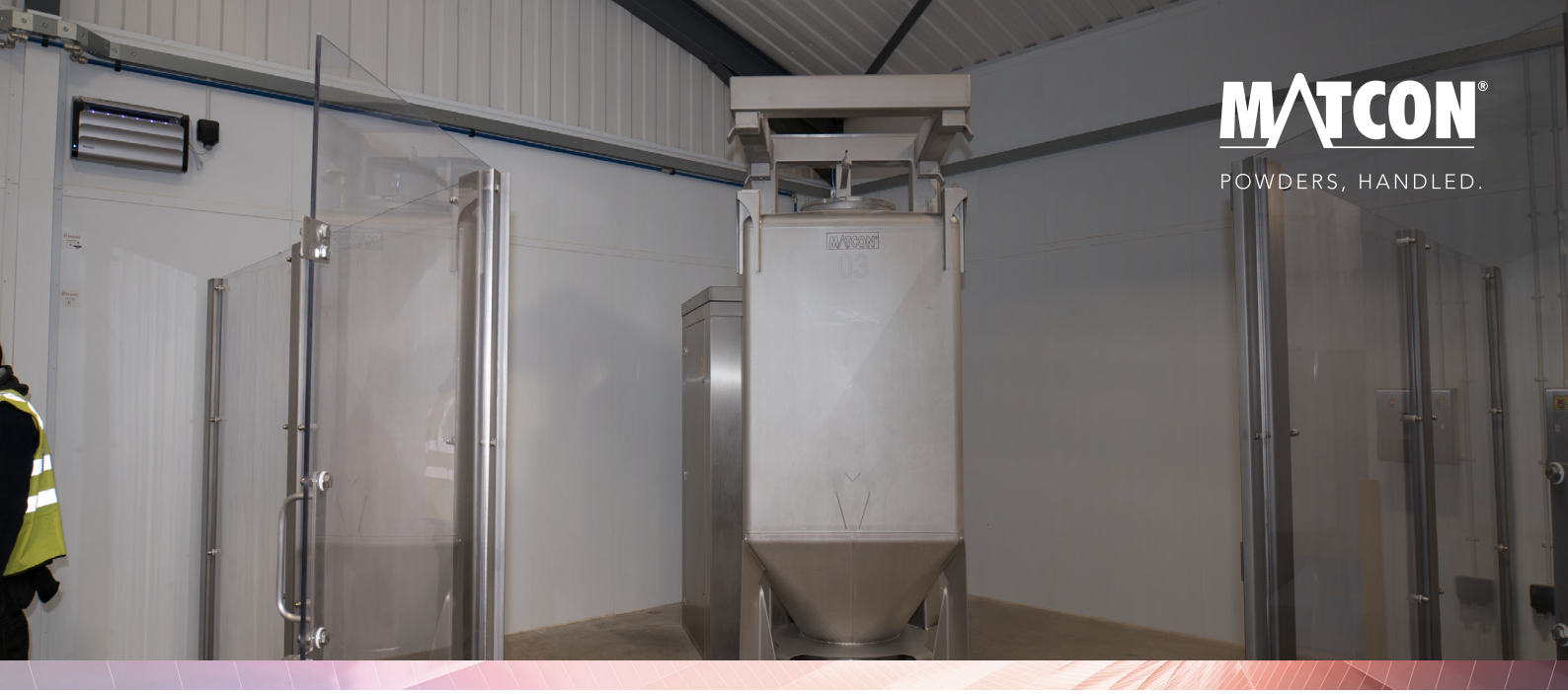
The right solution (cont.)

MANAGING DESIGN RESTRAINTS

To meet with RAIN's five-year plan, IBC filling and discharge had to be located within the highest part of the building. 2000L IBCs were the largest (tallest) containers that could safely and effectively work in the existing space.

RAPID RECIPE CHANGEOVERS

As the IBCs were capped at 2000L, Matcon had to determine the comparable throughputs at blending against RAIN's current mixed mixer. Fixed mixers generally produce a homogenized product quicker than tumble blending, however, given the focus on cross contamination of allergens, the existing fixed mixer had to be cleaned and was therefore subject to significant downtime. This was a serious issue. The blender in an IBC system is a non-contact part, the IBC itself contains all the powders. The result of a non-contact blender is that recipe changeovers at blending are immediate. When the Overall Equipment Effectiveness (OEE) was calculated, an IBC system offered far higher OEEs than the traditional fixed method.



The right solution (cont.)

"The Matcon system allows us to increase production without the additional resource overheads or factory space. We can run larger batches and multiple recipes in one day, we are now future-proofed to take on various new contracts".

Anthony Chatwin,
Operations Manager

PACKING REFILL

The Matcon Discharge Station is capable of interfacing with any number of packing systems on the market. On this occasion, an auger filler machine was to be fed. Inputs and outputs on the Matcon system allow product to be discharged when called for by the auger filler machine. Extra lines can now be added easily and all linked to Matcon's control system.

By delivering IBCs (used for blending the powders) directly to a discharge position above the filler, there is a total elimination of double and triple handling during the transition from blending to packing.

FUTURE PROOFING

The most significant difference between Matcon IBCs and our competitors is the Cone Valve. Renowned for its ability to discharge difficult powders, RAIN has future-proofed itself against the unknown. With an ever-evolving marketplace, it is becoming increasingly more difficult to forecast the types of recipes and ingredients manufacturers will be handling in the future. RAIN has taken this step and are now set up to handle anything their customers request.

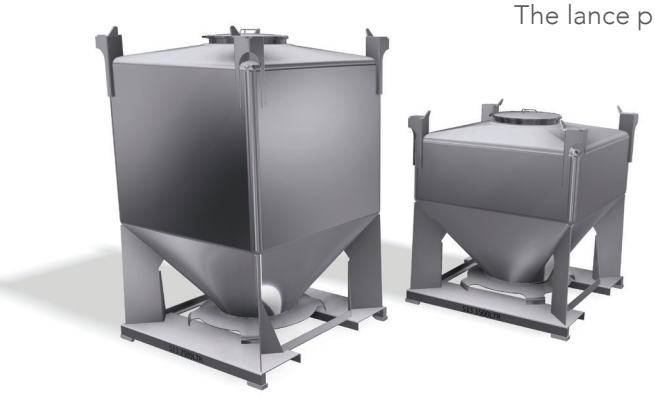
The right solution (cont.)

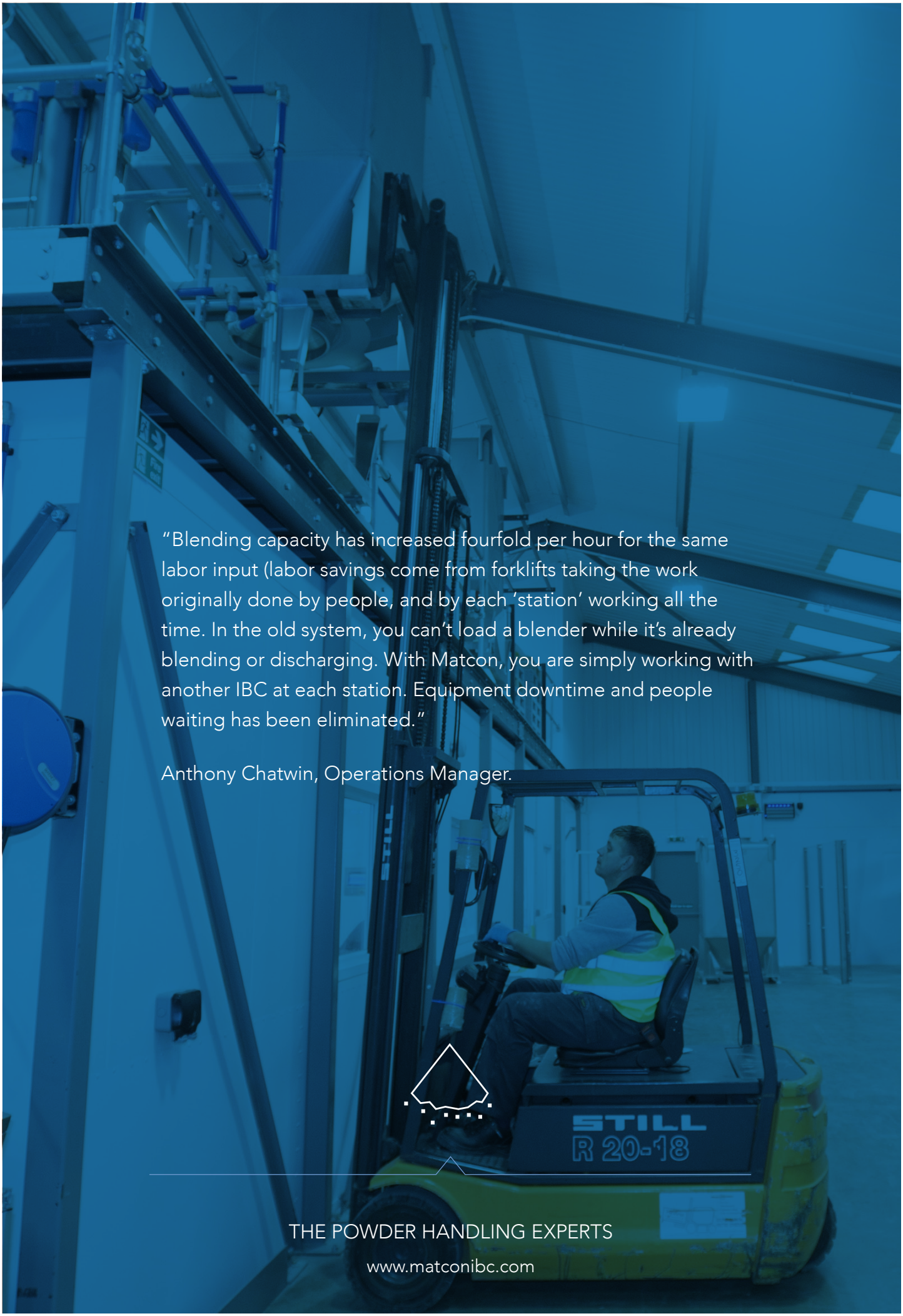
OFF-LINE CLEANING

Product changeovers are now much quicker than with their ribbon blenders. Previously the blender would have to be taken apart, washed and then dried, leaving the manufacturing team without a blender for at least 24 hours. By using IBCs, cleaning critical equipment and product contact parts is done 'off-line' and therefore it is possible to significantly minimise equipment down time. RAIN Nutrience purchased a wash lid and lance for cleaning the internal surfaces of the IBCs. The lance provides a 360-degree washing coverage to ensure all internal surfaces are clean prior to being put back into circulation.

Matcon's equipment is designed so that all product contact parts can be removed for cleaning without the use of tools. 'Change out' parts are offered as a means of reducing downtime to the bare minimum. This means that RAIN Nutrience no longer have to wait 24 hours before they can blend powders again.

Matcon's equipment is designed so that all product contact parts can be removed for cleaning without the use of tools.





"Blending capacity has increased fourfold per hour for the same labor input (labor savings come from forklifts taking the work originally done by people, and by each 'station' working all the time. In the old system, you can't load a blender while it's already blending or discharging. With Matcon, you are simply working with another IBC at each station. Equipment downtime and people waiting has been eliminated."

Anthony Chatwin, Operations Manager.

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THE RESULTS
at a glance

Reduced Cleaning Time

Increased Capacity

Improved OEE rates

Lean Working

Increased Product Flexibility

Effective Allergen Handling

The results

Using lean manufacturing principles, RAIN could calculate the effectiveness of their old process using a Ribbon blender and compare it to the new Matcon IBC system:

	USING A RIBBON BLENDER	USING A MATCON IBC TUMBLE BLENDER
QUALITY	92%	98%
AVAILABILITY	50%	92%
PRODUCTIVITY	70%	95%
OVERALL OEE	32% (92 X 50 X 70)	86% (99 X 90 X 95)

⇧ Increase of 54%

Due to the increase in effectiveness, RAIN can now blend and pack into finished packaging up to 3,000kgs per hour. Previously this would have been a quarter of that amount.

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Additional Benefits

RAIN makes a point of inviting customers to view their facility. There is a 'wow factor' that wins business, and gives customers a reassurance that their product is made efficiently and correctly.

"Matcon has enabled us to become more responsive to new business and deliver new contracts. As our production is four times more efficient, we have the time to focus on other areas of the business."

RAIN has a QA team of four, operating under strict quality procedures. Product integrity and security are of paramount importance, and the QA Manager was involved in evaluating the Matcon system before the decision to purchase.

"At RAIN, we understand the importance of having a clear, safe and effective approach to ingredient handling, especially when using potential allergens. We take every step to make sure the products we manufacture meet the highest consumer and regulatory standards."

"Using our Powder Handling System, we can take steps such as password protect blending programmes, perform fast but affective cleaning, trace ingredients and batches to each IBC and fully validate the cleaning cycle."

"Our well-trained team and manufacturing setup also mean that we can provide additional services and enhanced peace of mind for our customers. Our decoupled but contained manufacturing system, delivers consistent and accurate formulation, blending and packing of powder products. This means that we can ensure batch integrity and additional customer assurance."

"Matcon's equipment has helped us to achieve further accreditations. The system is straightforward and visually flows so auditors can see how we process powders, perform regular testing and achieve accurate and safe production. We work to GMP standards ensuring customer's products are of the highest quality ISO 9001 compliant. We are British Retail Consortium (BRC) Grade A accredited and certified organic and coeliac society (gluten-free) manufacturer and have SALSA (Safe and Local Supplier Approval). RAIN also manufacture Informed Sports products, which means that we must test every batch for a wide variety of WADA banned substances."

"These accreditations not only show our commitment to manufacturing safe, high quality products but ensure that we can confidently deliver a wide range worldwide. Matcon has enabled us to become more responsive to new business and deliver new contracts. As our production is four times more efficient, we have the time to focus on other areas of the business."

Silvia Ferre Padreny, QA Manager.

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We chose Matcon because… as my business has grown, my role has changed. My job is now to ensure that the business has the structure it needs to provide customers with the product they require.

I have a senior management team, and as such, I need to provide them with the correct 'tools' to do their jobs. My senior managers were involved in the decision to invest in Matcon, having looked at alternative solutions on the market. Each step of the way from blend integrity testing, through to layout and installation they were involved.

By doing this, my team got the best equipment on the market, and they have taken it and run with it, increasing the business turnover considerably, and they have driven new efficiencies and principles into the business. I feel RAIN made the right choice, and that we have laid the foundation for considerable future growth.

Rupert O'Connell

Owner and Director of RAIN Nutrience

www.rainuk.com

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WHY CHOOSE MATCON

We understand the challenges faced by manufacturers of beverages and mixes.

YOUR CHALLENGES

Expanding portfolios result in many changeovers which significantly impacts on available production time.

Segregation of the mix is a risk as some powders are notoriously difficult to handle being sticky and poor flowing.

Increasingly, recipes contain Allergens which means even more time spent cleaning to reduce cross contamination.

HOW WE CAN HELP

The unique Cone Valve in each IBC protects the blend during transfer, which produces a great quality product every time and satisfied customers.

Matcon systems optimise production flow. All process steps occur simultaneously for maximum efficiency.

IDEX