



**Dairy Industry
Association
of Australia**

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Sam LiRosi
Business Development Manager
Premier Tech Systems & Automation

THE SCIENCE OF
**MILK POWDER
PACKAGING**



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HANDLING DAIRY POWDER CAN BE COMPLEX



Consulting with customers is the only way to ensure that the product is handled with care and that the packaging process reaches the highest sanitary standards in every country your company does business in.



Avoid Dust Emissions

Control the Environment

Control the Aerated Product

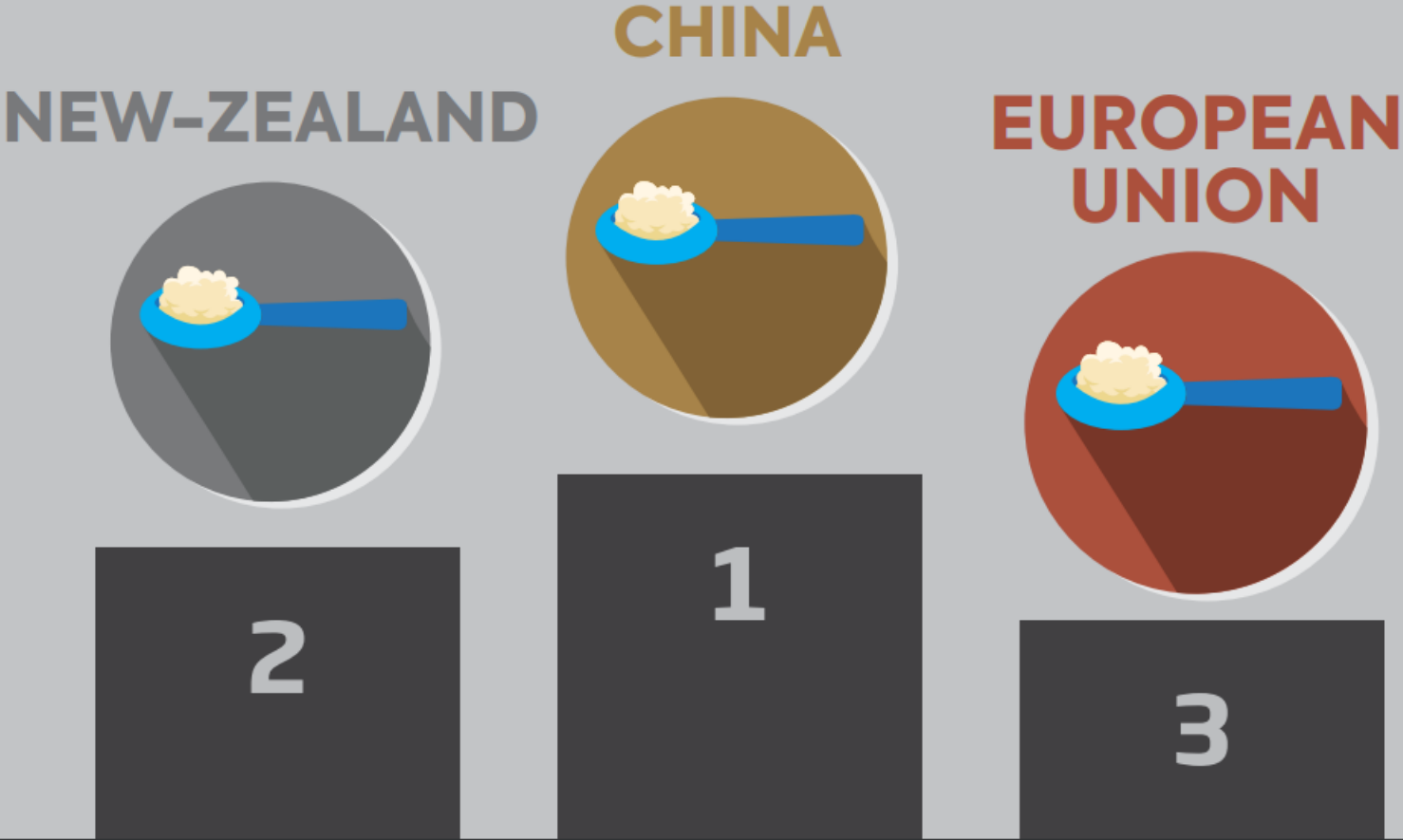
Improve Reliability

5 tips to reach the Highest Sanitary Standards

Prevent Contamination



WHOLE MILK POWDER PRODUCTION



Dust emission can add up to



15 lbs (6.8 kg) of lost product



per 8-hour shift

=

16,245 lb (7,450.3 kg) per year



=

\$130,000

of product loss a year



AVOID DUST EMISSIONS

One of the most important aspects of handling milk powder is avoiding product spill. This is not just for safety reasons (as you know, milk powder dust has the potential to be explosive), this is also for economic reasons. Dust accumulation can cause operational issues and unexpected downtime that costs a lot of money. Keep in mind that dust emission is a direct product loss that adds up at the end of the year.

Milk powder is one of the most expensive products in the industry and even if these losses seem minimal, they can make a huge difference.

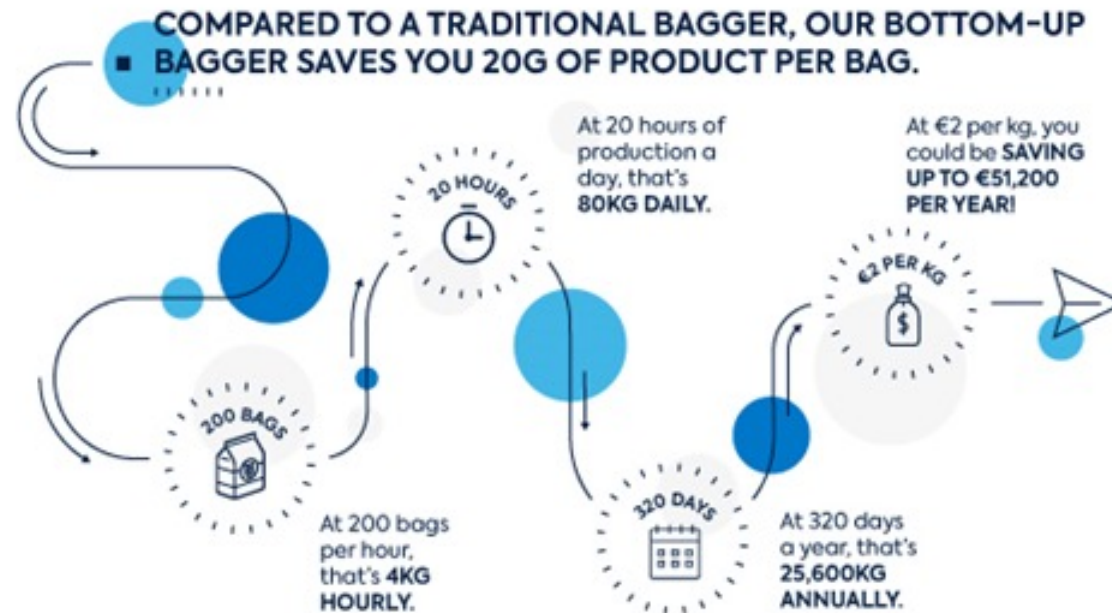


CONTROL THE ENVIRONMENT OF THE BAGGING ROOM



The properties of milk powder make it very stable, even more so than fresh milk. However, you still need very precise conditions to maintain its quality. Many factors, like oxygen and moisture levels and light can negatively affect milk powder. Here's just one example: contact with too much moisture in the air can lead to lumping and caking as well as a loss in quality.

If you don't allow for these factors, you may end up with irregular bag filling issues, and the product may even stick to surfaces, and that will cost you money. How? Your line will require more frequent housekeeping and your annual product giveaway may take a turn for the worse.

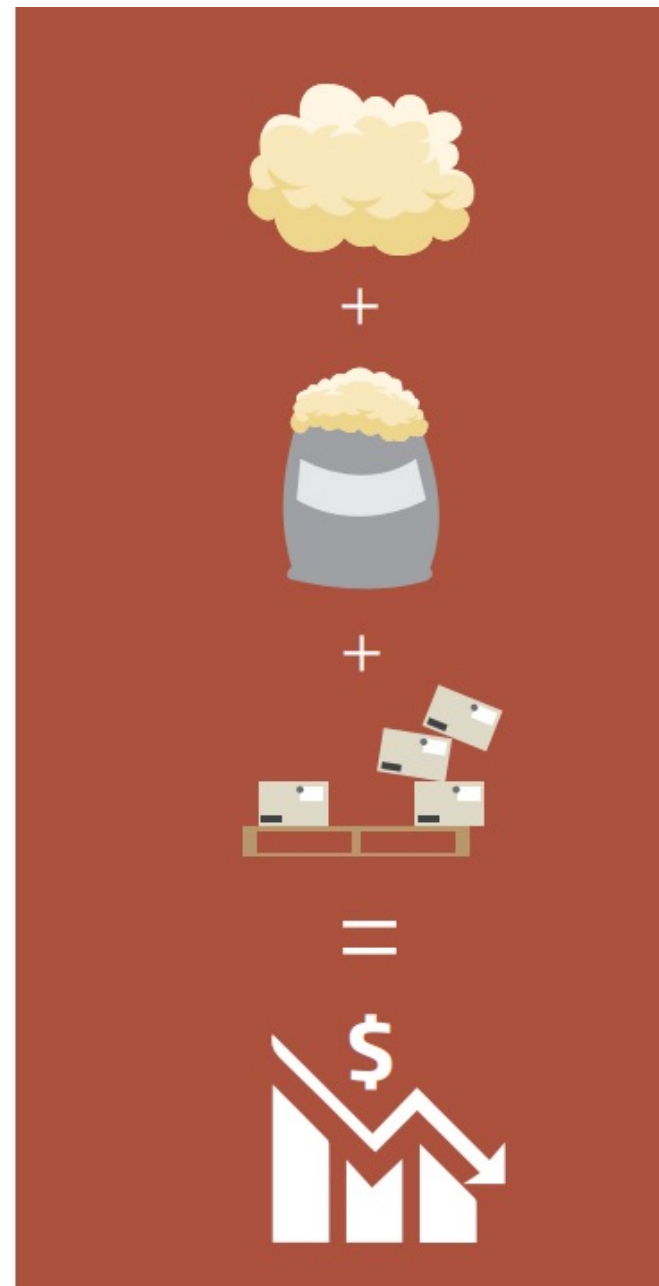


USE THE PROPER FLOW RATE AND SHUT-OFF SYSTEM

TO CONTROL THE AERATED PRODUCT

A constant flow rate and proper shut-off system can help you control aerated product. Again, the composition of the whole milk powder needs to be taken into consideration. Because whole milk powder contains a type of fat that can react on contact with oxygen in the bagging room, the flavour and consistency of the product can be affected.

Inappropriate control of the aerated product may cause dust clouds, overfilled bags, and unstable pallet loads. In addition, too much air in the product may require more de-aeration, resulting in a decrease in output rate. These errors too can cost six-figure amounts of money.



IMPROVE RELIABILITY

BY SELECTING THE BEST HYGIENIC EQUIPMENT WITH FEWER MOVING PARTS



+ The most important factor in packaging milk powder is the total cost of ownership. Choosing simple equipment that has few moving parts and that controls the product perfectly will give you the best reliability and require less supervision and maintenance.

Adopt a long-term vision when you decide the best equipment for your needs. Keep in mind that the right equipment will serve your production line for a generation (30+ years) so make the decision with both your actual and future production needs in view.

Also keep parts replacement in mind: not only will you need to purchase parts over the course of your machine's lifespan, but you'll need a technician to install them. That of course means your line will be down for repairs from time to time.



5 TIPS

TO REACH THE HIGHEST SANITARY STANDARDS IN YOUR PACKAGING EQUIPMENT DESIGN



1

Make sure all components that are directly or indirectly in contact with the product meet all requirements for food-handling equipment. **Metal components must be made of stainless steel (AISI) grade 300, and must have the proper surface finish.** All non-metal parts must have a General Certificate of Conformity guaranteeing their composition is approved for food-handling environments.

2

Choose a design that is simple and easy to disassemble. These features make the inspection process **faster and effective**, in addition to making **cleaning and disinfection procedures easier**.

3

Avoid creating cavities or crevices in your design, as they can make disinfection impossible. Keep in mind that **cleaning is done frequently; any part of the equipment that is difficult to reach must allow quick disassembly for access.**

4

Do not integrate bearings, screws, bolts, keyways and threads inside the product zone. The design must be developed with those parts outside the product zone.

5

Whenever possible, **install sanitary screens above the product zone** to avoid any risk of contamination from outside the equipment.



PREVENT CONTAMINATION

BY SELECTING THE BEST HYGIENIC EQUIPMENT
WITH SEALED-FOR-LIFE CONSTRUCTION

Seal components will also reduce maintenance and parts replacements. This is key to delivering your best annual production numbers. Also, sealed-for-life construction will protect your equipment against any risk of cross-contamination, an important factor in food safety.

Strict hygienic settings for the handling and packaging of milk powder are mandatory in most countries. In the United States, for example, the 3-A Sanitary Standards Inc. has established standards for the installation of milk powder handling and other dairy product processing systems. 3-A sanitary standards set guidelines for equipment design that improve proper hygiene, detail product contact surface finish specifications, and list allowed materials for the construction of bagging equipment. Sealed-for-life components will help you reach those standards. In Europe, EHEDG is an important association that stays at the leading edge of the sanitary design requirements that are close to the 3-A standards.



PACKAGING MILK POWDER IS A SCIENCE

Milk powder is a very highly processed product that requires special treatment during the packaging process. As we said at the beginning, this is a science, not an art. Equipment manufacturers must consider a host of important factors and details to ensure they provide the best solutions on the market and so that milk powder companies get their best return on investment.

Choosing a partner who already has experience in the industry is critical; dealing with such complex conditions can be almost impossible for a company with no experience in this industry. Moreover, by working with a global company that manufactures 3-A designs, you can be sure your factories around the world will meet the latest standards in food safety.

So, select a partner like Premier Tech, who understands that packaging milk powder isn't an art. We know, as do you, that it's a science that needs to be mastered in order to produce equipment that is both efficient and safe.



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