A NEW MODEL FOR INFANT FORMULA TESTING

Infant formula manufacturing is a complex process involving global raw material supply chains. In this competitive marketplace with many variables, brand protection is of utmost importance. Below, an improved model for infant formula testing is introduced that outlines cost-effective solutions to improve brand protection and increase productivity.

Unique challenges for infant formula manufacturers

In a recent study, nearly three-quarters of all infants received at least a portion of their diet from infant formula. For many infants, it is used as their sole source of nutrition. To ensure that these end products are unquestionably safe and consistent, infant formula is the most highly regulated food in the world.

Infant formula manufacturing is a competitive industry, and the demands are always increasing for more efficient production and distribution on a global scale. Managing regional differences in the global supply chain, maintaining consistency through seasonal variability and refining processes for efficient production are only a few of the many challenges involved.

Use only validated testing methods

To ensure maximum brand protection, all testing laboratories and all testing methods throughout the manufacturing process must be qualified. No matter where testing occurs, it is important that only approved testing methods such as AOAC, ISO, CEN or Codex are utilized.

Five Steps to Improving Supply Chain Management

Most manufacturers test only their end products for adherence to regulatory standards. This approach is inefficient, however, since errors discovered at the end of production can be costly and there can be no remediation for recurring problems. An improved model for infant formula testing includes screening of raw materials to detect problems early in the production process.

1. Conserve resources with early nutrient testing

Many nutrient deficiencies can be identified early in the manufacturing process by a raw materials testing program. The nutrient content in dairy products, for example, can be very inconsistent due to seasonal variability and geographical differences. A raw materials nutrient testing program can also be helpful in later stages of fortification planning, especially in regions that require product labels to include total levels of vitamins and minerals.
2. Mitigate risk with prompt microbiological eradication

An undetected pathogen can contaminate large quantities of ingredient and end product. To help prevent contamination, all raw materials should be isolated upon arrival and should enter the manufacturing process only after being screened for major pathogens.

HCAAP and other safety protocols must be standardized and implemented. In addition, new process validations under the FDA Food Safety Modernization Act for low-moisture materials need to be considered. After screening raw materials for potential pathogens, consistent routine protocols should be followed to ensure all materials are stored and dispensed aseptically.

3. Start and end with chemical-free raw materials

Pesticides are commonly used in every geographic region. Chlorinated insecticides, organophosphates, carbamates, dioxins and PCBS are the most common. The presence of these compounds in raw materials needs to be quantified to the sub-parts per billion level.

Mycotoxins are toxic at very low concentrations and veterinary drug residues are a rising concern. Tests for melamine and other protein adulterants should be conducted in raw materials, as well as residual solvents, PAHs, hormones, MCPDs, dyes, plasticizers and anions.

Heavy metals are cumulative toxins with long-term residual effects and any detectable quantity is unacceptable in the supply chain. At a minimum, raw materials testing should detect the most common heavy metals.

4. Gain efficiencies by using a risk-based protocol

One way to reduce costs is by combining targeted and non-targeted analysis. A non-targeted testing program can screen for thousands of potential contaminants at once. Comprehensive testing is only needed to confirm the presence of potential contaminants identified by this screening process.

By partnering with a testing laboratory that is educated about the risks of each potential contaminant, a testing program can be designed that achieves superior quality and safety levels in an efficient, cost-effective manner.

5. Secure the future by building relationships with suppliers

It is important to be informed about suppliers and their testing laboratories in order to optimize a risk-based approach to testing. All raw materials from new vendors should be tested and quality agreement contracts should be developed. For qualified vendors, a blind testing program may be considered for ongoing surveillance.

A statistically sound sampling program should be used to determine which materials or suppliers require more thorough testing and which qualify for a reduced testing scheme. An experienced laboratory testing partner can assist in developing a statistical model that works for each manufacturer’s unique situation.
Choose an Experienced Testing Partner

It is important to understand that supplier labs may not be reliable. At the same time, in-house labs can be inefficient and expensive to maintain, since all testing methods require full validation and documentation. For many manufacturers, an independent third-party lab is the best choice.

Even third-party testing laboratories should be qualified before use and they should be able to provide assistance beyond the lab. The best labs partner with the manufacturer and offer scientific expertise and resources to implement all of these important elements of supply chain management. To truly maximize brand protection, the help of experienced professionals is the best choice.