



Inside Premix

—Definition, Advantages, and Scientific Usage

JKP Nutrition
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CONTENTS

01

Definition and Significance

- The *Chip* of Modern Food Industry
- Diverse Categories & System

02

Core Advantages

Streamlining Production and Ensuring Quality

03

Scientific Usage and Precautions

Whole Process Guide: From Formulation to Storage

01. Definition of Premix: The *Chip* of Modern Food Industry

Definition

Premixes refer to homogeneous mixtures formulated by blending two or more additive raw materials (such as minerals, vitamins, amino acids, etc.) with auxiliary materials in specific proportions.

Core Function

Through scientific processes, various trace, highly concentrated nutritional or non-nutritional additives are uniformly dispersed into a large amount of carrier or diluent, ensuring that these trace ingredients achieve precise and homogeneous distribution in the final complete compounded product.

In Simple Terms

Pre-mixed “Nutritional Essence” for Production.

01. Definition of Premix: Development History

Before 1990

- Food enterprises use individual ingredients requiring multiple processes, including calculation, weighing, and verification.
- **Disadvantages**
 - Managing multiple suppliers
 - Requiring engineer calculations
 - Dedicated weighing and verification
 - Inventory losses and quality risks from residue storage



In 1990

- Emergence of the premix industry: fixed formulations, simply add and mix.
- **Advantages**
 - Reduces management costs and mitigates quality risks for manufacturers.
- **Disadvantages**
 - Inconsistent homogeneity for a few trace ingredients.
 - Potential loss of certain components.



In 2010

- The premix industry entered the era of precision processing, marked by the emergence of numerous diluents and microencapsulated raw materials.
- **Advantages**
 - Reduces management costs and mitigates quality risks for manufacturers.
 - Significantly improves mixing homogeneity for trace ingredients.
 - Enhances the stability of components prone to loss.

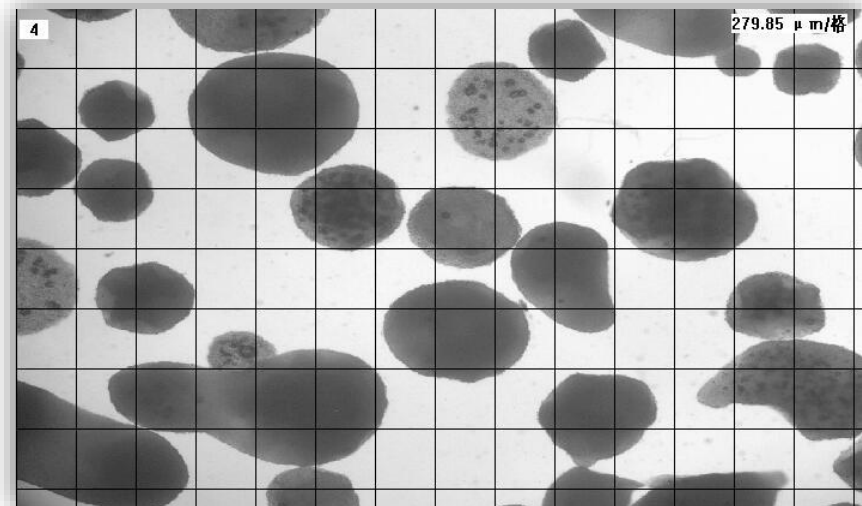
01. Premix Categories

Diluents and Microencapsulation Materials

Definition: A homogeneous blend of a single additive with a carrier or diluent, prepared via processes such as spray drying or granulation.

Purpose: Primarily used for producing more complex compound premixes, or for supplementing specific single nutrients in targeted scenarios.

Examples: Microencapsulated Vitamins A, D, and E; dilutions such as Sodium Selenite, Vitamin B12, and Ferrous Sulfate.



01. Categorized by Application

- **Infant Food Premixes**

Precisely matches nutritional requirements according to the specific needs of various infant foods. It represents the earliest application of premixes for food fortification.

- **Beverage Premixes**

Specially designed to meet the needs of various functional beverages, available in both solid and liquid forms.

- **Premixes for FSMP & Special Dietary Uses**

Designed for Foods for Special Medical Purposes (FSMP), meeting precise requirements for categories such as complete nutrition, oncology support, and enteral nutrition. Also covers nutritional supplements for diverse population groups.

- **Other Food Premixes**

Applications include meat products, seafood, and convenience foods.

- **Animal Feed Premixes**

Precisely matches the nutritional needs of different animals at various physiological stages to promote growth and ensure reproductive performance.

02. Core Advantages



Streamline production, reduce costs

Streamlines operations by removing the complexity of sourcing, testing, and storing numerous trace additives. Significantly reduces entry barriers for new facilities and cuts day-to-day operating costs.



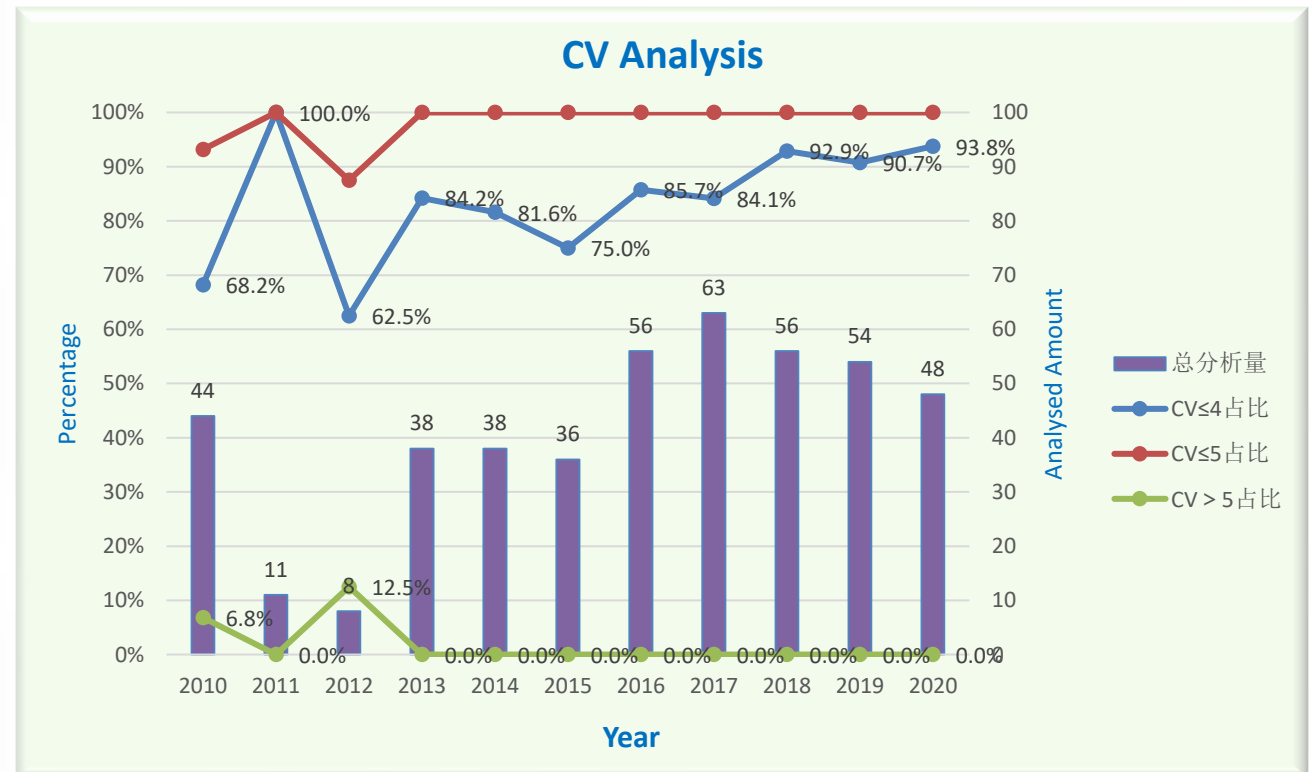
Ensuring blending homogeneity and safety

By optimizing raw material selection and modifying equipment, mixing homogeneity ($CV \leq 5\%$) is ensured and dosage errors are prevented. Regulatory compliance and production safety are also secured through the standardization of additive usage.



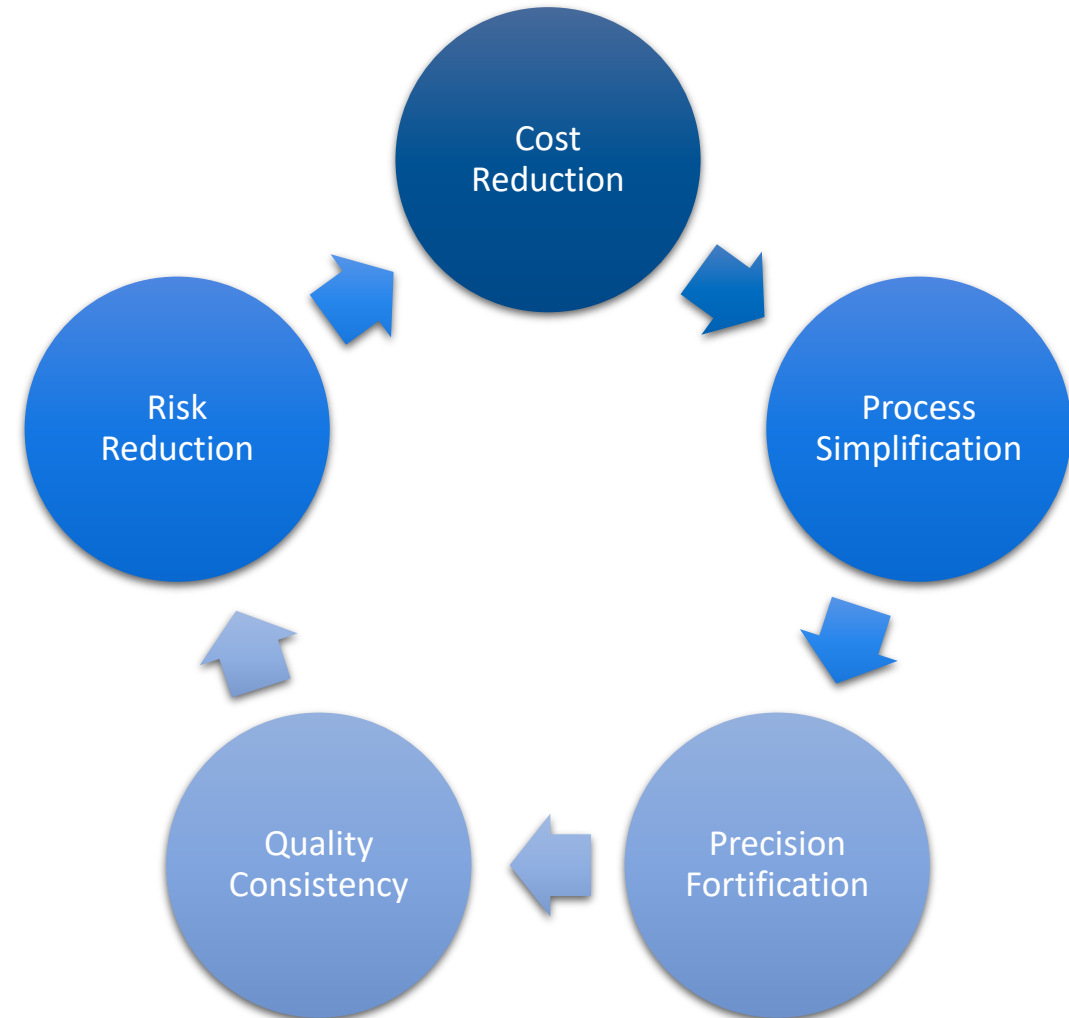
Reduce variability, stabilize quality

Capitalizes on the supply chain and quality control strengths of professional manufacturers to mitigate batch variability risks. This ensures consistent product quality and fosters a steady market reputation.

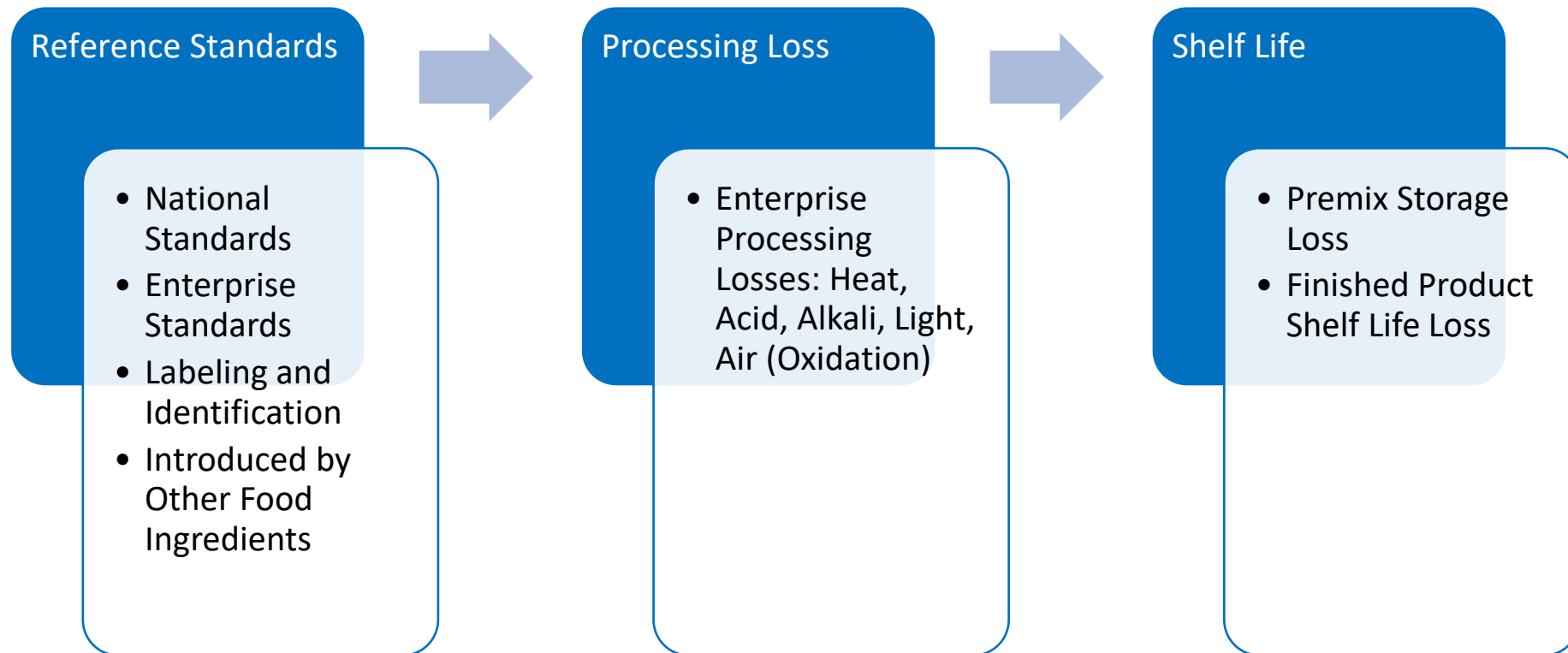


02. Core Advantages

The scientific use of premixes is key to producing high-quality products. It ensures quality from the beginning and reduces management and labour costs.



03. Scientific Usage: Formulation Design Principles



03. Scientific Usage: Raw Material Selection and Pretreatment



Selecting High-Quality Additives

Foundation for guaranteeing the final performance of premix.

- Vitamins: Prefer encapsulated products to significantly improve storage and processing stability.
- Trace Elements: Effectively enhance absorption and bioavailability.



Raw Material Pretreatment Technology

Targeted pretreatment based on the chemical characteristics of different ingredients is a critical step in ensuring premix stability.

- Vitamin Protection: Processes such as microencapsulation and double coating are commonly used to create physical barriers, protecting against heat, moisture, and oxidation damage during the pelleting process.
- Trace Element Modification: Preprocessing is applied to sulfate raw materials that are prone to moisture absorption and caking.



Carrier Selection

Carrier acts as the “skeleton” of the premix, determining physical properties and mixing homogeneity of the product.

Core Principles:

- Chemical Stability
- Similar Particle Size
- Low Moisture
- pH

03. Scientific Usage: Key Points of Production and Processing Technology



High-Precision Metering

Use Mettler high-precision electronic scales or automated batching systems to strictly control the addition amount of each ingredient, ensuring the accuracy and consistency of the formula.



Optimal Mixing Process

- Mixing Time: Use a fully verified mixing time to ensure good uniformity ($CV < 5\%$). Avoid over-mixing, which can damage the structure of raw materials.
- Process Optimization: Employ scientifically validated production processes.



Equipment Management Standards

Establish strict Standard Operating Procedures (SOPs) for equipment cleaning and maintenance. Conduct regular and thorough cleaning to eliminate the risk of cross-contamination between batches.

Selection of Core Equipment

Choosing equipment with high mixing efficiency that ensures the utmost mixing uniformity of materials is the ideal choice for modern and standardized production.



03. Scientific Usage: Precautions for Premix Use

1

Receiving Materials

- Receptor-Warehouse Keeper-Verifier: triple review is recommended based on the production schedule.
- Establish a buffer storage area in front of the feeding zone.
- Designate a dedicated person to collect the required nutrient fortifiers before the batching process.
- Ensure professional on-site guidance and verification are in place before dissolution.

2

Dissolution

- Containers: Nutrient fortifiers with different packaging must be dissolved using separate containers.
- Water Quality: Use treated purified water for dissolution.
- Water Volume: 8 to 10 times the amount of the nutrient fortifier.
- Water Temperature: Warm water at 40–50°C.
- Time: About 10 minutes, or until the nutrient fortifier is completely dissolved..

3

Feeding

- Slow: When adding the nutrient fortifier solution into the batching tank, be sure to proceed slowly to avoid localized reactions.
- Interval: When adding different types of nutrient fortifiers, leave an appropriate interval between additions based on the actual situation.
- Residue: If any residue remains in the container, rinse it with a small amount of water into the batching tank.
- Time: The solution should not be stored for too long after dissolution; add it to the batching tank as soon as possible.
- Sieving: When adding nutrient fortifiers, the solution does not need to be sieved.

4

Feeding

After all nutrient fortifiers have been added, the batching tank should be stirred continuously for more than 10 minutes. This ensures that the nutrient fortifiers and other materials are mixed thoroughly before proceeding to the next process.

03. Scientific Usage: Precautions for Premix Storage and Management



Storage Conditions

Store in a cool, dry, well-ventilated, and light-proof warehouse, away from heat and water sources.



Stacking Method

Avoid direct contact with the ground and walls. It is recommended to use pallets for stacking to ensure air circulation at the bottom.



First-In, First-Out (FIFO)

Strictly adhere to the *First-In, First-Out* management principle. Regularly check product expiration dates to prevent expiration and ineffectiveness.



Package Sealing

After each use, immediately fold and seal the opening of the packaging bag to prevent the product from absorbing moisture, caking, or oxidizing and deteriorating.



Critical Safety Warning: DO NOT INGEST DIRECTLY!

The concentration of various trace elements and additives in the premix is extremely high. Direct ingestion will disrupt the body's metabolic balance and, in severe cases, lead to poisoning or even death.

JKP Nutrition

2004

Establishment

Launched the nutrient fortifier compounding business and established technological R&D capacity.

2017

Global Expansion

Cooperate with international enterprises such as ADM, Nestlé, and Monster.

2018

Premix Supplier for the Global Alliance for Improved Nutrition (GAIN)

2024

Capacity Expansion Milestone

The new factory officially commenced production with the introduction of intelligent production lines

 **NOW**

Industry Leader

Leading position in the premix market, serving over 80% of infant food enterprises in China.

The 30% of the products are for export.

JKP Nutrition

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Thank You