

The background of the slide is a photograph of a chef in a kitchen. The chef is wearing a white hat and is captured in the middle of a 'flame throw' technique, where a large, intense flame is erupting from a pan. The chef's hand is visible, holding the handle of the pan. The scene is set in a professional kitchen with various cooking tools and ingredients visible in the background.

HANDLING TEMPERATURE-SENSITIVE INGREDIENTS

5 ADVANCED TECHNIQUES

1. CONTROLLED COLD CHAIN LOGISTICS



Utilize **walk-in cold rooms, blast chillers, and deep freezers** to maintain strict temperature control during storage

Implement **multi-temperature storage zones with automated climate control** to ensure precise conditions for different ingredients

Use **refrigerated trucks, insulated containers, and phase-change material (PCM) packs** to maintain product integrity during transit

Utilize **thermocouple sensors and data loggers** in storage and transit to track real-time temperature fluctuations

2. HYGIENIC & LOW-TEMPERATURE CONVEYOR SYSTEMS



Use **food-grade stainless steel or polyurethane belts** that resist moisture absorption and microbial growth

Implement **low-temperature air-blown conveyors** to prevent heat exposure during material transfer

Use **vibratory, bucket, or tubular conveyors** to prevent mechanical stress on delicate ingredients like dairy powders or frozen fruits

Equip conveyor lines with **dehumidifiers and anti-condensation coatings** to avoid ice buildup and microbial contamination

3. VACUUM & PNEUMATIC TRANSFER SOLUTIONS



Utilize **cold-air-assisted pneumatic systems** to transfer sensitive powders and granules while maintaining temperature stability

Implement **vacuum transfer systems** for powders like milk proteins or cocoa, preventing exposure to heat and humidity

Use **inert gas blanketing (nitrogen flushing)** to prevent oxidation and moisture absorption in sensitive ingredients

Equip pneumatic lines with **HEPA and cyclone separators** to eliminate airborne contaminants and preserve ingredient quality

4. SPECIALIZED BULK STORAGE & HANDLING SOLUTIONS



Use **insulated bulk storage units with active cooling or temperature monitoring** for perishable ingredients like dairy powders or chocolate

Implement **jacketed tanks with cooling coils** to maintain temperature stability in bulk liquid handling

Utilize **low-friction screw conveyors with temperature control** for sensitive powders and grains

Use **desiccant-based humidity control** to protect moisture-sensitive materials like freeze-dried fruits or enzymes

5. SMART PACKAGING & INSULATED CONTAINMENT SOLUTIONS



Use **temperature-stabilizing PCM inserts** to maintain optimal conditions for ingredients in transit

Employ **vacuum-insulated or reflective foil liners** to minimize thermal fluctuations in bulk ingredient transport

Implement **gas-flushed packaging** to extend the shelf life of temperature-sensitive food products

Use **vacuum testing and ultrasonic seal integrity checks** to ensure packaging maintains the required thermal protection

OUR EXPERTISE

- PMG Engineering delivers end-to-end engineering design and project management services for the food manufacturing facilities globally
- We provide valuable assistance in the development and implementation of a Storage and Warehousing Plan for solutions
- We facilitate stakeholder coordination, requirements gathering, design and layout, process optimization, equipment and technology selection, safety and compliance, documentation and reporting, and performance monitoring

**PARTNER WITH PMG TO BUILD WORLD-CLASS FOOD
FACTORIES THAT MEET GLOBAL STANDARD**

ABOUT PMG

BUILD **WORLD CLASS** FOOD FACTORIES

At PMG, we offer complete solutions from design to commissioning, specializing in food factory construction that meets global standards.

NEW DESIGN

EXPAND

UPGRADE

CORE VALUES

Safe-by-Choice

Objectivity

First-time Quality

Ownership

Maximize Value

Reliable & Trustworthy Business

KEY CLIENTS



MARS



SEPOY&C^o

REACH US AT

PMG ENGINEERING PRIVATE LIMITED



1504, Office Tower, Logix City Center, Sector 32,
Noida U.P. 201301



www.pmg.engineering

SCAN HERE

