



COLD 101

AgCold University

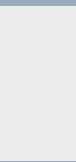
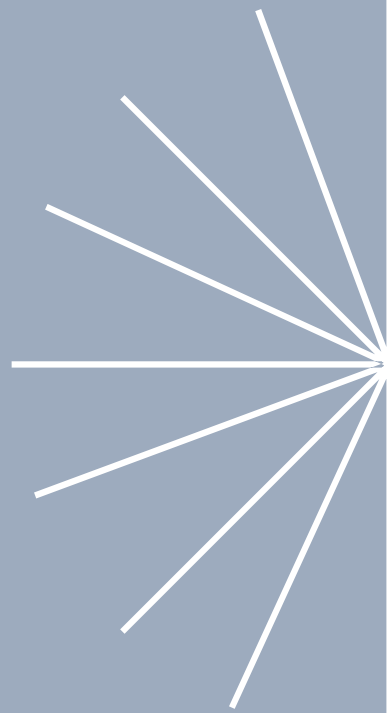


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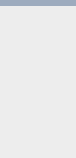
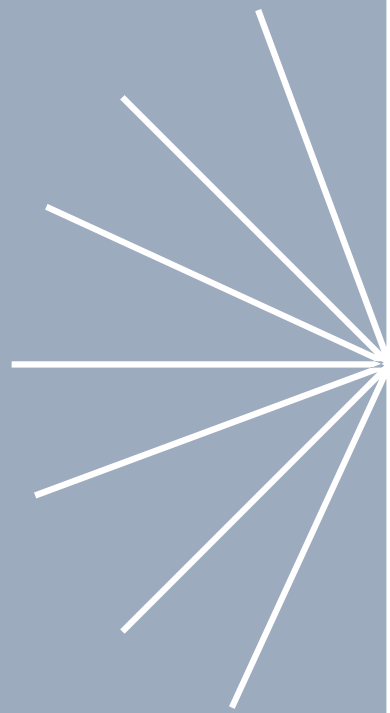


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WHAT IS COLD STORAGE?

Cold storage refers to a specialized method of preserving and storing items, typically perishable goods or sensitive materials, at consistently low temperatures to maintain their quality, integrity, and longevity. It involves the use of refrigeration or freezing techniques to create a controlled environment that slows down or inhibits chemical and biological processes, effectively extending the shelf life and preventing spoilage or degradation of the stored items.

Cold storage is commonly employed in various industries, including food and beverage, pharmaceuticals, biotechnology, and scientific research. It serves as a crucial component of supply chains and logistics, ensuring the safekeeping of temperature-sensitive products from production or procurement to distribution or utilization.

The facilities used for cold storage, known as cold storage warehouses, are equipped with specialized cooling systems, insulation, and monitoring devices to maintain the desired low temperatures. These environments can range from moderately chilled conditions, such as refrigeration, to extremely cold settings, such as freezing or deep freezing, depending on the specific requirements of the items being stored.

By effectively slowing down chemical reactions and microbial growth, cold storage mitigates the risks of spoilage, contamination, and quality deterioration. It helps preserve the nutritional value, taste, texture, and overall characteristics of perishable goods, pharmaceuticals, and biological materials.

In summary, cold storage is a controlled storage method that utilizes low temperatures to extend the lifespan and maintain the quality of perishable items and sensitive materials, enabling their safe storage, transport, and utilization.

WHAT DOES AGCOLD DO?

AgCold plays a crucial role in the peanut food cycle by providing a controlled environment for the storage of peanuts and tree nuts at low temperatures. Our cold storage facilities are positioned at strategic points within the peanut food cycle to ensure optimal storage conditions and maintain the quality and freshness of peanuts. Here's where our facilities fall within the peanut food cycle:

1. Growing and Harvesting: Peanuts are grown in coastal areas with warm climates and well-drained, sandy, soils. Peanuts are typically planted in late spring and harvested in mid fall. Peanuts are a legume which means that they grow on the root of their plant under the soil. When they are harvested, they are pulled to the surface and laid out to dry for a couple of weeks. Once dry, a combine will pick the peanuts, discard most of the plant material, and deposit the peanuts into a large hopper which will dump the peanuts into trailers to be sent to a buying point.

2. Buying Points: Peanut buying points buy peanuts directly from farmers or growers. Farmers bring their harvested peanuts to the buying point, where the peanuts are inspected, graded, and weighed. The buying point determines the quality and quantity of the peanuts and negotiates a price with the farmer based on prevailing market rates and quality factors. Buying points are typically owned by a sheller or a co-op that will sell the peanuts to a sheller. After the peanuts are graded and weighed, they are stored as farm stock until they are pulled to be processed.

3. Processing: When the farm stock is ready to be processed, the sheller will complete a multi-step process to convert the farm stock into raw, ready-for-roasting, product. The shelling process varies depending on if the kernels will be separated from the shell (shelled peanuts) or left in the shell (in-shell peanuts). A general outline is below:

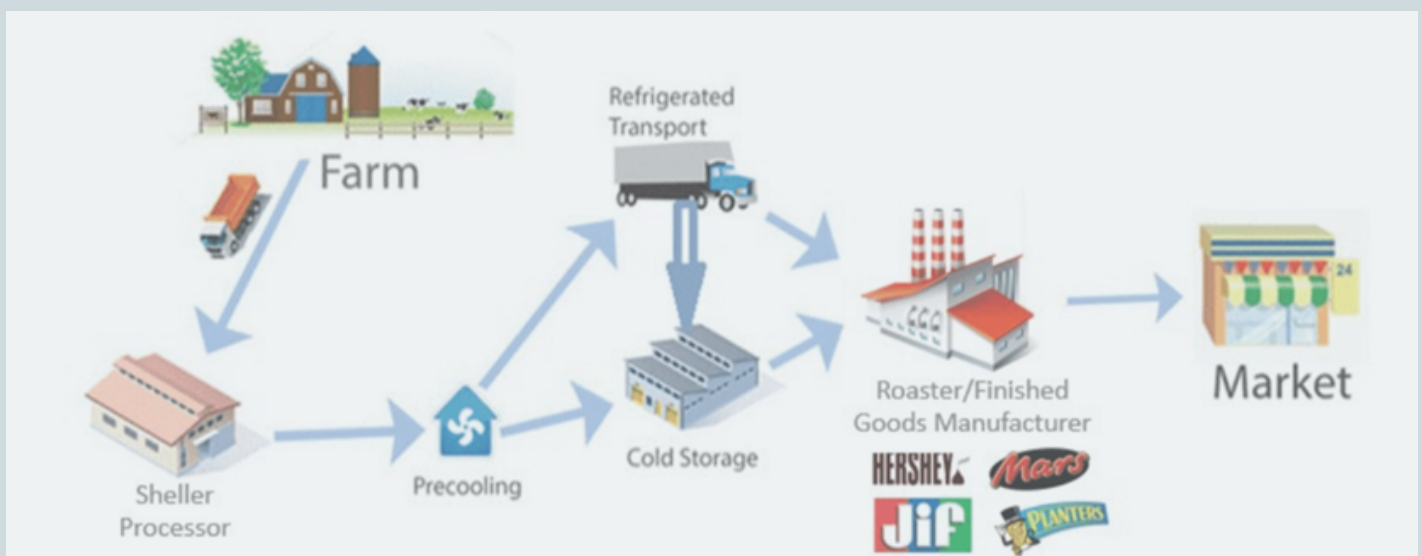
- Pre-Cleaning: The farm stock will undergo pre-cleaning to remove any remaining foreign matter, stones, or oversized peanuts that may be present.
- Shelling: The shelling process involves removing the shells from the in-shell peanuts. There are various methods for shelling peanuts, including mechanical shellers that apply pressure or impact to crack the shells. Once cracked, the shells are separated from the kernels.

- **Cleaning and Sorting:** After shelling, the peanut kernels go through further cleaning to remove any remaining shell fragments, dust, or impurities. They may also undergo sorting processes based on size, color, and quality parameters to ensure uniformity.
- **Additional Processing:** Depending on the intended use of the peanut kernels, they may undergo additional processing steps. This can include roasting, blanching, grinding, or further sorting based on specific product requirements.
- **Packaging:** Processed peanut kernels are packaged into appropriate containers, such as super sacks, bags, or boxes for distribution and sale. Packaging materials and methods are chosen to maintain freshness and protect the quality of the peanuts.

4. **Tempering:** Once processed the peanuts are still raw and will begin to degrade in quality unless they are cooled to a constant temperature of between 38-44 degrees Fahrenheit. The process of cooling from the ambient temperature at processing to the storage temperature is called tempering.

5. **Cold Storage and Transportation:** If the recently processed peanuts are not immediately sold to a roaster or finished goods manufacturer, they will be sent to a cold storage facility, such as AgCold's facilities, to be stored until the product has been sold and is ready to ship. Cold storage facilities will follow a strict set of guidelines to safely handle and store peanuts for up to two years. Although not required, peanuts can be transported in refrigerated trucks known as reefers.

6. **Roaster and finished goods manufacturers:** Peanuts are a versatile crop that can be processed into numerous finished goods. Depending on the desired use, the roaster and finished goods manufacturer will convert the raw peanuts into a ready-to-eat form. This may include roasted peanuts, peanut butter, peanut flour, peanut oil, peanut bars, or they may be incorporated into other products such as candy, ice cream, protein bars, etc.



WHAT DOES AGCOLD STORE?



AgCold, we specialize in the storage of peanuts and tree nuts of various grades and origins. Our state-of-the-art facilities are designed to maintain optimal conditions that preserve the quality and freshness of these nutritious and versatile products. Here's an overview of the peanuts and tree nuts we store:

- Raw peanuts of various types such as: in-shell, shelled, splits, blanched, roasted, and granulated.
- Peanut biproducts such as, butter, oil, paste, flour, and extract
- Tree nuts such as, cashews, almonds, macadamia nuts, Brazil nuts, chia seeds, and pecans.

WHAT IS A PALLET POSITION?

A pallet position refers to a designated area or slot within a warehouse where a single pallet can be stored. It is a standardized unit of storage that allows for efficient organization, handling, and retrieval of goods.

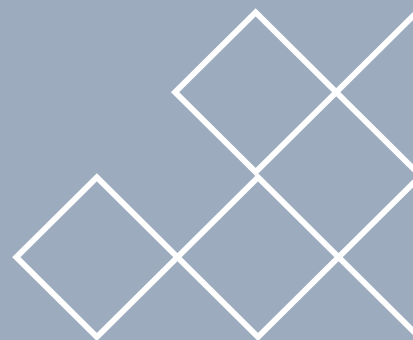
A typical pallet position consists of a horizontal space on which a pallet can be securely placed. It is designed to accommodate the dimensions of standard pallets, typically measuring 48 inches by 40 inches with height varying depending on the product type.

Pallet positions are strategically arranged within the warehouse to maximize storage capacity and facilitate smooth operations. They are often organized in rows and columns, forming aisles that enable easy access for forklifts or other material handling equipment.

Each pallet position is assigned a unique location identifier or label, which aids in inventory management and tracking. This identifier may include location details such as the specific aisle, rack or shelving level, and position within the aisle.

Efficient pallet position utilization is crucial for optimizing warehouse space and ensuring streamlined operations. Factors such as weight capacity, stacking limitations, and compatibility with the handling equipment are considered when determining the layout and design of pallet positions.

By utilizing pallet positions, warehouses can effectively store and organize goods, improve inventory control, and enhance the overall efficiency of their operations.



WHAT IS A SUPERSACK

A peanut supersack, also known as a peanut bulk bag or peanut tote, is a large, flexible container used for the transportation and storage of peanuts. It is a specialized type of industrial bag designed to hold a significant volume of peanuts in a convenient and efficient manner.

Here are some key features and characteristics of a peanut supersack:

- **Size and Capacity:** A peanut supersack typically varies in size ranging from 2200 lbs. for shelled domestic and up to 2700 lbs. for shelled import peanuts depending on the specific requirements of the industry and the quantity of peanuts to be transported or stored.
- **Construction and Material:** Peanut supersacks are made from durable and tear-resistant woven polypropylene fabric. The fabric is chosen for its strength and ability to withstand the weight and pressure exerted by the peanuts during transportation and storage. It provides protection against moisture, pests, and contaminants.
- **Design and Handling:** They are designed with lifting loops or straps on the top, allowing for easy handling and transportation using forklifts or other material handling equipment. These loops are typically designed to withstand the weight of the fully loaded bag and ensure secure lifting and maneuvering.
- **Safety and Containment:** They are constructed to prevent the leakage or spillage of peanuts during transportation. They feature reinforced seams and closures to securely contain the peanuts inside the bag, reducing the risk of product loss or contamination.
- **Reusability and Recyclability:** They are often designed for multiple uses. They can be reused for multiple cycles of transportation and storage, minimizing waste and environmental impact. Additionally, the woven polypropylene fabric used in their construction is recyclable, contributing to sustainability initiatives.

Peanut supersacks provide a practical and efficient solution for the peanut industry, facilitating the handling, storage, and transportation of peanuts in large quantities. They offer benefits such as cost savings, improved logistics, and product protection, making them a preferred choice for many peanut processors, distributors, and retailers.

WHAT IS RACKING?

Warehouse racking refers to a system of vertical shelves designed to store and organize pallet positions in a warehouse. It provides a structured and efficient storage solution that maximizes space utilization while allowing for easy access and retrieval of items. By utilizing vertical space effectively, racking systems allow for higher storage capacity within a given floor area. Racking reduces aisle space thus minimizing wasted space and allowing for the maximum utilization of the warehouse's cubic footage.

Racking systems contribute to improved inventory control and organization. With clear and designated storage locations, it becomes easier to categorize, label, and track products. This streamlines inventory management processes, reduces errors, and enables faster stock identification and replenishment.





WHAT IS BULK STACKING

Bulk stacking refers to a storage method where goods or products are stacked directly on top of each other without the use of racking. It involves placing the first pallet position row directly on the warehouse floor with vertical pallets stacked directly on the bottom row. When stacking domestic peanut sacks, 4 pallet positions is the highest level to safely bulk stack.

WHAT IS SLIP SHEETING

Slipsheeting is a method commonly used in warehousing and logistics to handle and transport goods. It involves the use of a thin, flat, and rigid sheet of material, typically made of corrugated cardboard, which is inserted between layers of products or between the products and the pallet. Here's how it works:

- **Placement:** A slipsheet is initially positioned on a pallet or on the floor.
- **Loading:** Products are loaded onto the slipsheet either manually or using a forklift or other material handling equipment. The products are placed directly on top of the slipsheet, and the slipsheet acts as a stable base for the goods.
- **Stacking:** Multiple layers of products can be stacked on top of each other, with slipsheets inserted between each layer. This allows for efficient use of vertical space and helps prevent product damage by providing stability and preventing shifting during transport.
- **Handling:** Forklifts or other material handling equipment can lift the entire stack of products by inserting the forks underneath the slipsheet, which supports the load. The slipsheet acts as a rigid platform, allowing for easy movement, loading, unloading, and storage of the goods.

WHAT ARE THE ACCESSORIAL SERVICES WE PROVIDE?



Accessorial services in warehousing refer to additional services provided by warehouse operators beyond the basic storage and handling of goods. These services are often supplementary and can be tailored to meet specific customer requirements. AgCold offers the following accessorial services:

- Palletizing: stacking floor loaded goods onto pallets
- Shrink wrapping: securely wrapping product in a clear cellophane.
- Order fulfillment: Picking, packing, and shipping individual orders to end customers.
- Value-added services: Customization, assembly, labeling, or packaging of products.
- Inventory management: Regular stock checks, cycle counting, and sample pulling.
- Quality control: Inspections, testing, and ensuring product compliance with specifications.
- Cross-docking: Transferring goods directly from inbound to outbound shipments without storage.
- Freight consolidation: Combining multiple smaller shipments into larger ones to optimize transportation efficiency.
- Documentation and paperwork: Processing customs documents, bills of lading, photos, and other shipping-related paperwork.

WHO ARE OUR CUSTOMERS?

AgCold services a wide variety of customers in the food chain. Our primary customers include shellers and importers.

Peanut Shellers: Companies who process farm stock of peanuts into raw products that is ready to be sold to a processor or food manufacturer. The shelling process involves the removal of all foreign material, separation by grade, and placement into packaging such as a super sack. The shelling process does not necessarily involve removal of the peanut's shell. Different shellers have equipment to produce either in-shell peanuts or shelled peanuts for sale.

- **Peanut processors:** Companies involved in processing peanuts into various products such as peanut butter, roasted peanuts, peanut oil, and snack foods. These processors may require cold storage to store raw peanuts before processing or to store finished products.
- **Exporters and importers:** Companies engaged in the international trade of peanuts. Cold storage may be necessary to store peanuts during import/export processes, ensuring proper temperature control to comply with quality and safety standards.
- **Food manufacturers:** Companies that incorporate peanuts into their food products, such as confectioneries, bakeries, and snack food manufacturers. These manufacturers may need cold storage to store peanuts as ingredients or finished products.
- **Wholesalers and distributors:** Businesses involved in the distribution of peanuts to retailers, grocery stores, and foodservice providers. They may use cold storage facilities to store bulk quantities of peanuts before delivering them to customers.



FOOD SAFETY IN THE WAREHOUSE

Food safety in a warehouse is of utmost importance to ensure that the stored food products remain safe, wholesome, and free from contamination throughout the storage and distribution process. Here is a description of food safety practices typically followed in a warehouse setting:

- **Storage Conditions:** The warehouse should provide appropriate storage conditions to maintain the quality and safety of food products. This includes maintaining proper temperature, humidity, and ventilation levels as per the requirements of the specific food items. Temperature-controlled areas, such as cold storage, may be necessary for perishable goods.
- **Pest Control:** Effective pest control measures should be implemented to prevent infestation and contamination of food products. This includes regular inspections, sealing entry points, maintaining cleanliness, and using approved pest control methods to eliminate or deter pests.
- **Sanitation and Hygiene:** Good sanitation practices are essential to prevent cross-contamination and the growth of harmful microorganisms. Regular cleaning and sanitizing of the warehouse, including storage areas, equipment, and containers, should be conducted using appropriate detergents and sanitizers. Proper personal hygiene, such as handwashing, wearing clean uniforms, and using protective gear, should be enforced among warehouse staff.
- **Separation and Segregation:** Food products should be properly segregated based on their type, category, and storage requirements. This prevents cross-contamination between different products and helps in maintaining their quality. Separate storage areas should be designated for allergenic or sensitive products to prevent any inadvertent contact with allergens.

- **FIFO/LIFO Rotation:** The principle of First-In-First-Out (FIFO) or Last-In-First-Out (LIFO) should be followed when storing and retrieving food products. This ensures that older items are used or dispatched before newer ones, reducing the risk of spoilage or expiration.
- **Traceability and Labeling:** Each food product should be appropriately labeled with information such as batch numbers, production dates, expiration dates, and any relevant allergen information. This allows for easy traceability and facilitates the identification and recall of specific products if necessary.
- **Training and Education:** Warehouse staff should receive regular training on food safety practices, including proper handling, storage, and sanitation procedures. They should be knowledgeable about potential hazards, such as allergens, and understand how to prevent contamination and maintain food safety standards.
- **Regulatory Compliance:** Adherence to local, national, and international food safety regulations and standards is crucial. Warehouse operations should comply with relevant regulations, such as those established by food safety authorities or industry-specific certifications.
- **Quality Control and Monitoring:** Regular quality control checks should be conducted to ensure that food products are in compliance with safety and quality standards. This may involve inspections, sampling, and laboratory testing to detect any potential issues or deviations from the required specifications.
- **Supplier Verification:** Proper vetting and selection of suppliers is important to ensure that the food products received by the warehouse are of high quality and meet safety standards. Supplier verification processes should include assessments of their food safety practices, certifications, and track record.

By implementing and maintaining these food safety practices in a warehouse, the risk of foodborne illnesses, contamination, spoilage, and other quality issues can be minimized, thereby safeguarding the integrity and safety of the stored food products.



PERSONAL SAFETY IN THE WAREHOUSE



Personal safety in a warehouse is crucial to protect the well-being of the workers and minimize the risk of accidents and injuries. Here are some key considerations for personal safety in a warehouse setting:

- **Training and Education:** All warehouse personnel should receive comprehensive training on safety procedures, equipment operation, and emergency protocols. They should be aware of potential hazards, such as heavy machinery, forklifts, falling objects, and slippery floors, and know how to mitigate risks and respond to emergencies.
- **Proper Use of Personal Protective Equipment (PPE):** Workers should be provided with and properly trained to use appropriate personal protective equipment, including safety helmets, goggles, gloves, safety shoes, high-visibility vests, and hearing protection.
- **PPE should be inspected regularly and replaced when damaged.**
- **Housekeeping:** Maintaining a clean and organized warehouse environment is essential for personal safety. Clear walkways, unobstructed emergency exits, and proper storage of materials reduce the risk of trips, falls, and collisions. Spills, debris, and any potential hazards should be promptly cleaned up and addressed.

- **Material Handling:** Safe lifting and carrying techniques should be practiced to prevent back strain and other musculoskeletal injuries. Workers should receive training on proper lifting techniques, use mechanical lifting aids whenever possible, and avoid overloading themselves or equipment beyond their capacity.
- **Equipment Safety:** Regular maintenance and inspection of machinery, vehicles, and equipment should be conducted to ensure they are in proper working condition. Safety features, such as guards, emergency stops, and warning signs, should be in place and operational. Only authorized and trained personnel should operate equipment.
- **Forklift Safety:** Forklifts pose specific risks in a warehouse environment. Operators should be trained and certified to handle forklifts safely, following designated traffic patterns and speed limits. Pedestrian and forklift separation should be enforced, and workers should be aware of forklifts in operation, maintaining a safe distance from them.
- **Hazardous Materials:** If the warehouse handles hazardous materials, appropriate safety protocols must be implemented. This includes proper storage, labeling, handling, and disposal procedures in accordance with relevant regulations and industry best practices. Workers should receive specialized training in the handling of hazardous substances.
- **Emergency Preparedness:** Adequate emergency preparedness measures should be in place, including clear evacuation routes, functioning fire extinguishers, first aid kits, and emergency response plans. Regular drills and training should be conducted to ensure workers know how to respond in different emergency situations.
- **Ergonomics:** The design and layout of workstations should prioritize ergonomics to reduce the risk of repetitive strain injuries and promote proper posture and body mechanics. Adjustable workstations, ergonomic tools, and regular breaks can help prevent long-term health issues.
- **Reporting and Communication:** Encouraging a culture of safety where workers feel comfortable reporting safety concerns or near-miss incidents is vital. Communication channels should be established to allow workers to report hazards, injuries, or potential improvements to the safety procedures.

