Certified in Planning and Inventory Management

Inventory Types and Classifications

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Inventory Types and Classifications

1. Raw Materials Inventory

Raw materials are the basic inputs used in production processes. They can be purchased items such as metals, chemicals, lumber, fabrics, or components that have not yet undergone processing. Managing raw materials involves maintaining the right quantity to prevent stockouts while minimizing holding costs. CPIM requires understanding demand variability, lead times, and supplier reliability. Effective raw material planning reduces manufacturing delays, stabilizes production flow, and supports cost-efficient procurement strategies.

2. Work-in-Process (WIP) Inventory

Work-in-process includes items that are currently going through production but are not yet finished goods. High levels of WIP often indicate inefficiencies, bottlenecks, or poor production scheduling. CPIM stresses the importance of lean techniques, Little's Law, and throughput analysis to reduce unnecessary WIP. Controlling WIP improves flow, reduces lead time, and lowers inventory carrying costs.

3. Finished Goods Inventory

Finished goods are completed items ready for sale or distribution. They directly affect customer service levels and replenishment planning. CPIM emphasizes forecasting accuracy, safety stock management, and demand planning methods for finished goods. Excess finished goods increase storage cost and risk of obsolescence; too little results in stockouts and lost sales.

4. Maintenance, Repair, and Operating (MRO) Inventory
MRO items support operations but are not used in the final product. Examples include lubricants, tools, cleaning supplies, and spare parts. Although low in unit value, MRO shortages can cause machine downtime or safety issues. CPIM requires understanding how to classify, manage, and forecast MRO inventory to balance cost and availability.

5. Cycle Stock
Cycle stock is the portion of inventory required to meet regular demand during replenishment cycles. It depends on order quantity, EOQ, and batch sizes. CPIM focuses on minimizing cycle stock through better lot sizing, reducing variability, and applying lean principles. Lower cycle stock reduces carrying costs while maintaining service levels.

6. Safety Stock
Safety stock protects against uncertainty in demand or supply. CPIM stresses statistical methods for calculation—considering variability, desired service levels, and lead time. Too much safety stock inflates carrying costs; too little increases risk of stockouts. Understanding when and how to adjust safety stock is critical for stable operations.

7. Anticipation Inventory
Anticipation inventory is built ahead of expected seasonal peaks, promotions, or price increases. CPIM requires understanding demand patterns, capacity constraints, and cost-benefit analysis of pre-building inventory. This inventory smooths production, reduces overtime, and improves service readiness during predictable spikes.

8. Fluctuation (Buffer) Inventory
Fluctuation inventory is used to handle random demand variations that cannot be predicted with accuracy. It differs from safety stock because it specifically addresses short-term, immediate fluctuations. CPIM highlights methods to buffer variability using statistical forecasting and lead-time analysis.

9. Pipeline (Transit) Inventory
Pipeline inventory refers to items in transit between locations—supplier to plant, plant to warehouse, or warehouse to customer. Lead time, transportation modes, and global sourcing influence pipeline levels. CPIM focuses on optimizing transit times and reducing international supply chain delays to lower pipeline inventory costs.

10. Hedge Inventory
Hedge inventory is held as a precaution against uncertain events such as strikes, currency fluctuations, geopolitical risks, or market volatility. CPIM emphasizes evaluating risk probability, cost trade-offs, and contingency planning before building hedge stock.

11. Decoupling Inventory
Decoupling inventory allows different work centers or processes to operate independently. It protects production flow from disruptions or variability in upstream processes. CPIM highlights the importance of decoupling points, particularly in make-to-order and assemble-to-order systems.

12. Dead Stock or Obsolete Inventory

Dead stock includes items that can no longer be sold or used. Causes include poor forecasting, engineering changes, or product life cycle completion. CPIM requires identifying dead stock early through ABC analysis, cycle counting, and inventory turnover metrics to minimize carrying and disposal costs.

13. ABC Inventory Classification

ABC classification ranks items based on annual consumption value: 'A' items are high-value and tightly controlled, 'B' are medium, and 'C' are low-value with simpler control. CPIM emphasizes applying the Pareto Principle (80/20 rule), cycle counting, and differentiated planning policies for each class.

14. VED Classification (Vital, Essential, Desirable)

VED is used primarily for spare parts and MRO items. Vital items are critical to operations and cannot face stockouts; essential items are important but manageable; desirable items are low criticality. CPIM stresses aligning service levels and stocking policies according to operational risk.

15. FSN Classification (Fast, Slow, Non-moving)

FSN classification groups items based on consumption or movement rate. Fast-moving items require tight replenishment; slow-moving items need careful inventory control; non-moving items require review for liquidation or disposal. CPIM uses FSN to optimize warehouse space and inventory turnover.

16. HML Classification (High, Medium, Low Cost)
HML classification evaluates inventory based on unit price rather than consumption value. It helps determine purchasing controls, approval processes, and stocking levels. CPIM highlights using HML in conjunction with other classifications for strategic decision-making.

17. SDE Classification (Scarce, Difficult, Easy to Obtain)
SDE is based on the availability of items from suppliers. Scarce items require long-term planning and buffer stock; difficult items need careful supplier monitoring; easy-to-obtain items require minimal safety stock. CPIM emphasizes aligning procurement strategies with SDE classifications.

18. GOLF Classification (Government, Ordinary, Local, Foreign)
GOLF classification is used in procurement-driven environments. Foreign items tend to have longer lead times; government-supplied items may involve strict compliance; local items are generally more flexible. CPIM focuses on how sourcing origin affects lead time, risk, and inventory levels.

19. SOS Classification (Seasonal, Off-season)
This classification helps manage items with seasonal demand patterns. Seasonal items require anticipation stock and capacity planning, while off-season items may need reduced production or discounted sales. CPIM stresses demand forecasting and inventory balancing throughout the year.

20. Multi-criteria Inventory Classification (MCIC)
MCIC combines multiple attributes—value, velocity, criticality, lead time, risk, cost, etc.—to classify inventory with greater precision. CPIM highlights this integrated approach for complex supply chains where single-parameter methods (like ABC or FSN) are insufficient.

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www.Fhyzics.net

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XEFHYZ88

Certifications@Fhyzics.net

+91-900-304-9000

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