1. Data Preparation

Before building the visuals, ensure your dataset includes the following columns:

- **Dimensions:** material_number, product, plant, business_unit, and calendar_month.
- **Metrics:**
  - unrestricted_stock: The actual physical inventory on hand.
  - safety_stock: The current buffer value stored in your ERP/APO system

2. Dashboard Filter Configuration

Set up a "Global Filter" panel. These filters must be linked so that selecting a business_unit narrows down the product and material_number lists.

- **Material Number Filter:** Use a "Searchable Dropdown" or "List" format. This is your primary driver.
- **Product Filter:** Allows users to filter by specific chemical or hardware names (e.g., IONX Arsine).
- **Plant Filter:** Critical for viewing stock at specific locations (e.g., Plant KRB8).
- **Business Unit Filter:** To group by "Specialty Gases" or "Thin Film Materials" as defined in your logic.

3. Visualization A: Current Stock Levels (Bar Chart)

This chart provides a snapshot of your physical liquidity.

- Chart Type: Bar Chart.
- X-Axis: calendar_month.
- Y-Axis: unrestricted_stock.
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4. Visualization B: Statistical Comparison (Line Chart)

This is the core "Optimization" visual. It compares your "as-is" state with the "should-be" state.

- **Chart Type:** Line Chart (Dual Line).
- **X-Axis:** calendar_month.
- **Y-Axis:** Values.
- **Series 1 (Current SS):** Map to safety_stock.
- **Series 2 (Recommended SS):** Map to king_ss.

5. Interaction & Dynamic Behavior

To make this dashboard effective, implement the following interactions:

- **Material Selection Trigger:** When a material_number is selected, both the Bar Chart and the Line Chart must instantly filter to show only the 19 months of data for that specific item.

Example: