Da Vinci Smart Manufacturing

BRD S06.01_Reports_Raw Material Consumption

Version	Created/Modified by	Description	Date
1.0	Leopoldo Rivera Sahana Badal	S06.01 First draft	6/06/2025
2.0	Leopoldo Rivera Sahana Badal	S06.01 Second draft	30/07/2025

1. Overview 3
2. Report Configuration Interface (Setup View) 3
2.1 Variant Name Selection 3
2.2 Report Filters (Mandatory fields marked with *) 4
2.3 KPI Selection 5
2.4 Action Buttons 6
3. Report Output View 6
3.1. Header Section 6
3.2. Filters Summary Section 7
3.2 KPI Visualization Section 8
3.3 Report Data (Tabular Format) 9
3.4 Notes Section 9
3.5 Navigation – Back to Configuration 10
4. User Flows and Report Actions 10
Flow 1: No Variant Selected 10
Flow 2: User Selects Own Variant 12
Flow 3: User Selects Public Variant Shared by Another User 15
5. Edge Cases & Validations 18

This document describes the functional behaviour of the **Raw Material Consumption Report** module. It outlines how users can configure reports using filters and KPIs, save their configurations as variants, and generate detailed visual and tabular outputs. The system supports flexible workflows depending on whether the report is being generated from scratch, from a user's own saved variant, or from a public variant shared by another user.

1. Overview

The Material Consumption Report is designed to help users track and analyze the usage of raw materials across furnaces. Users can apply filters, select KPIs, and visualize key metrics. The interface supports saving report setups as **variants**, sharing them with others, exporting data, and printing insights.

The Raw Material Consumption Report module consists of:

- **Report Configuration Interface** – where filters and KPIs are selected.
- **Report Output View** – where the results are displayed and further actions can be taken.

2. Report Configuration Interface (Setup View)

When entering the configuration interface, users can optionally choose from previously saved report setups known as **variants**. These variants can either be **created by the user**, or **public variants shared by others**.

2.1 Variant Name Selection

- A dropdown labelled **"Variant Name"** is provided at the top.

- User selects the Variant ID from a single select dropdown
- Mandatory - No
- Default value - No
- Field Type - Single Select Dropdown Values: All Variants saved (Public and Private). **Dropdown Structure:**
  - **My Variants**
    - Private
    - Public (shared icon)
  - **Public Variants** (created by others)
- Validation - No
- **Permissions:**
  - Only the creator can edit, delete, or update their variant.
  - Other users can view or clone public variants.

- If no variant is selected, configuration starts blank.
- On selecting a variant, filters and KPIs are auto-populated.
- Only the creator of a variant can edit or delete it.

*2.2 Report Filters (Mandatory fields marked with *)*

Filter	Type	Description
Furnace ID*	Multi-select dropdown	Lists all furnaces assigned to user or organization.
Material Type*	Multi-select dropdown	Options: Quartz, Coal, Charcoal, Wood, Coke.
Material ID*	Multi-select dropdown	Dependent on Material Type. Lists valid material IDs.
Date Range*	Calendar picker	From and To date selectors.
Granularity*	Single-select dropdown	Options: Daily, Weekly, Monthly, Quarterly. No dependency between Date Range and Granularity field.

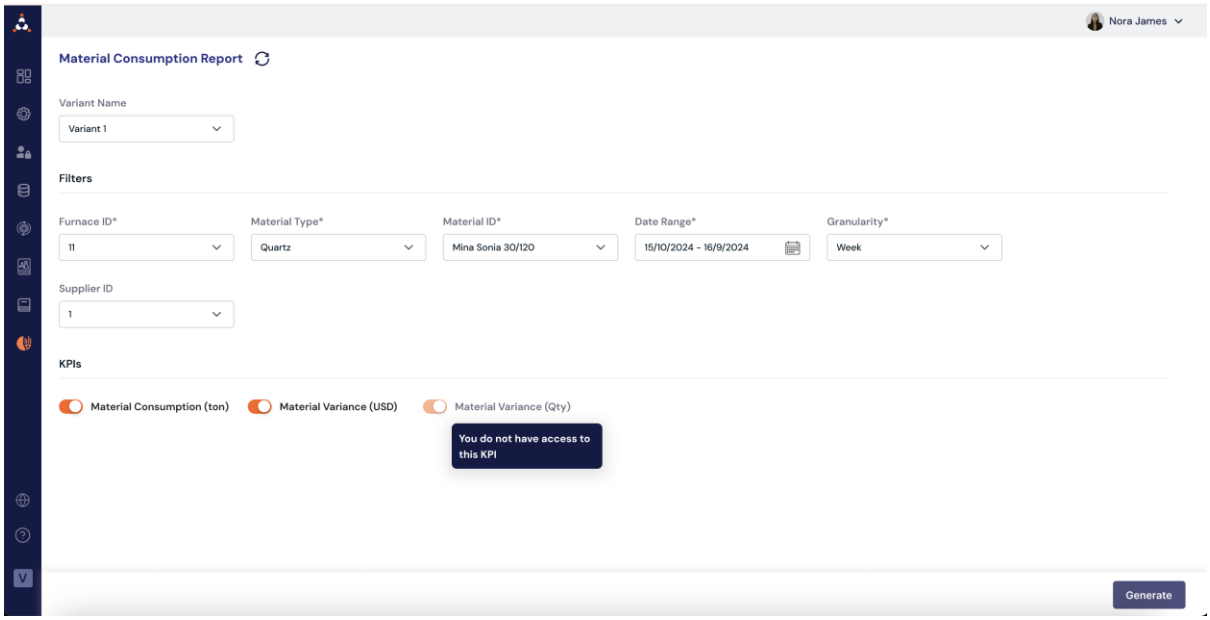
Supplier ID	Multi-select dropdown	Suppliers associated with selected Material ID.

Filter Behaviour:

- Filters cascade based on prior selections (e.g., Material Type → Material ID).
- Default values are empty; required fields must be selected to proceed.
- All Filter drop downs should be sorted alphabetically / numerically
- Filters are editable unless restricted via variant behaviour

2.3 KPI Selection

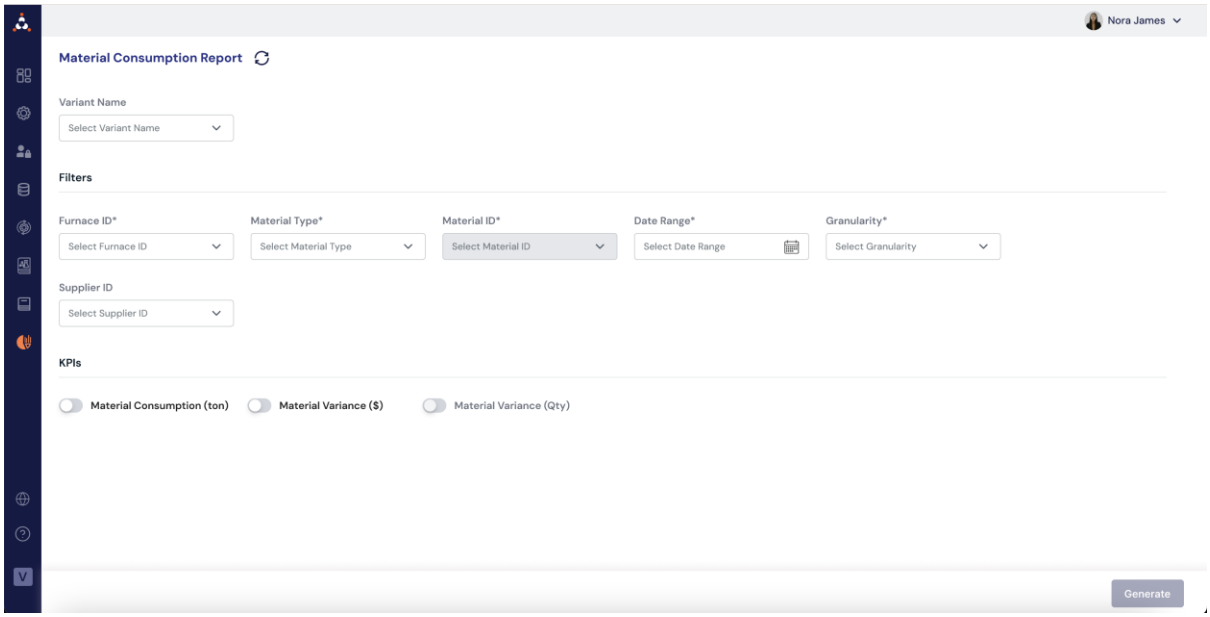
- KPI checkboxes/toggles are listed for selection.
- Backend provides the available KPIs per report.
- KPIs are not mandatory and report can be generated without selecting any.
- KPI Permissions Logic
    - **Selectable KPIs**: A user can only **select** KPIs for which their role has explicit **permission**.
    - **Visible but Disabled**: KPIs outside the user's permission scope will still be **visible** in the interface but will appear **disabled with a tooltip** (e.g., greyed out) and **cannot be selected**
        - Tooltip: "You do not have access to this KPI"
    - If a previously selected KPI (from a variant) is now unauthorized:
        - It remains selected but is **greyed out and locked with a tooltip**
            - Tooltip: "You do not have access to this KPI"



- **Max 3 KPIs can be selected.**
    - If a user selects more than 3, an inline validation appears: *"You can select up to 3 KPIs only."*
- Each KPI has a **default chart type** (bar, line, pie, etc.) configured by backend.
- In the **generated report screen**, users can change the chart type per KPI using a dropdown.

2.4 Action Buttons

Button	Function
Generate Report	Validates inputs and transitions to Report Output View.
Reset	Clears all filters and KPI selections to default state.



3. Report Output View

Upon clicking **Generate Report**, the system transitions to a new screen with the following sections:

3.1. Header Section

- Format: Material Consumption Report : <Variant Name>
- **Untitled** if no variant is selected

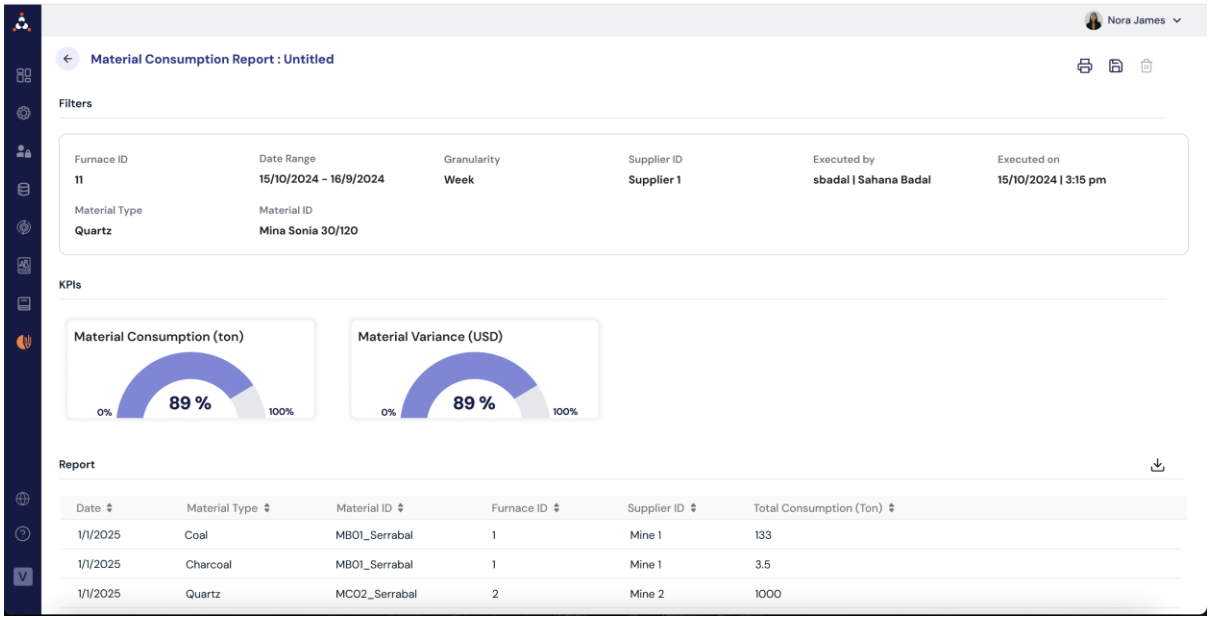
- Variant Name (default: *Untitled* until saved)
    - Min - 1 and Max - 30 characters, alphanumeric, Only '-' and '_' is allowed, Single space is allowed in between the words, No leading spaces allowed.
    - **Edit Icon (✎):**
        - **Visible** only if the variant belongs to the current user
        - **Hidden** for public variants not owned by the user
        - Enables inline editing of Variant Name and Access Modifier (Private/Public).
        - A **Save** button confirms updates.

3.2. Filters Summary Section

- Displays all selected filters and metadata

Fields include:

1. Furnace ID - view only
2. Date Range (From - To) - view only
3. Granularity - view only
4. Supplier ID - view only
5. **Executed On** – *Displayed only in print view; not saved in variant*. view only
6. **Executed By** – *Displayed only in print view; not saved in variant*. view only
7. Material Type - view only
8. Material ID – Concatenated – Material ID_Material Name - view only

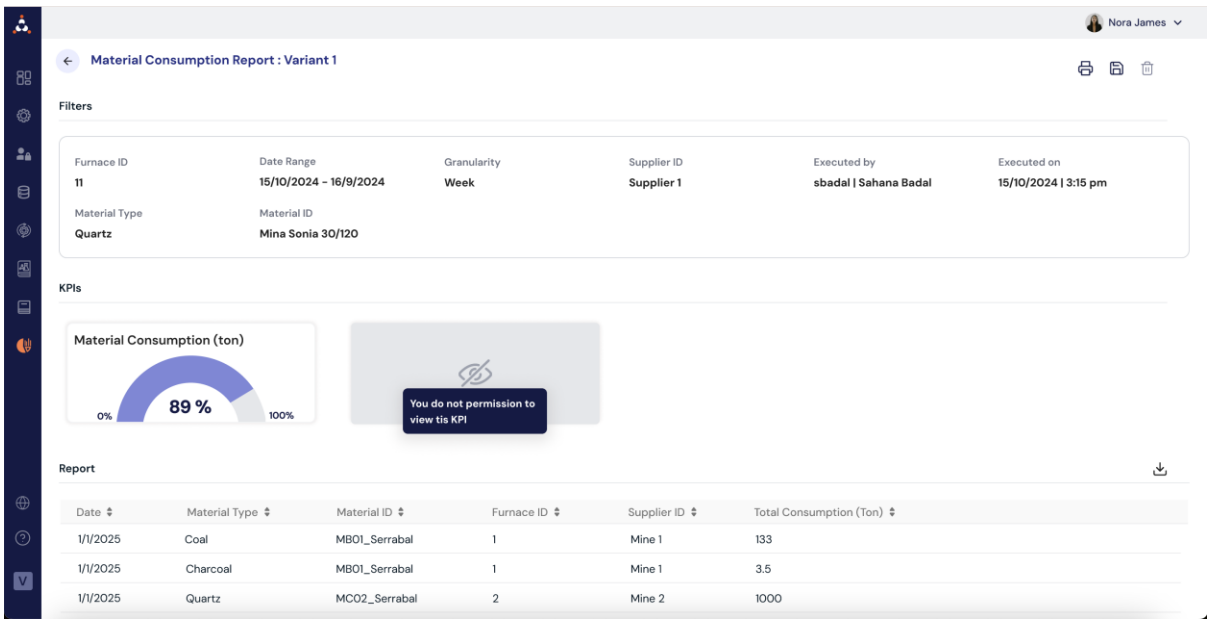


3.2 KPI Visualization Section

- KPIs selected are shown in graphical format.

Features:

- KPIs can be **removed** via a close (×) button on hover.
- KPIs can be **reordered** via drag-and-drop.
- KPI metadata and units are displayed.
- Users can **change the chart type per KPI** via dropdown. Chart types are dynamic based on the KPI.
- **If the user does not have permission to view a particular KPI at the time of generating the report, a placeholder will be shown in its place with a tooltip indicating lack of access. The KPI's details (value, chart, and metadata) will not be visible.**
- Focus
    - On clicking the three-dots menu of a chart, a menu opens with "Focus" as one of the options.
    - When Focus is selected, the chosen chart opens in a zoomed-in mode for better visibility and analysis of data.
    - Supported chart types (Focus enabled): Line, Pie, and Bar charts.
    - Unsupported chart types (Focus disabled): Card, Gauge, and cases where no data is available.
-

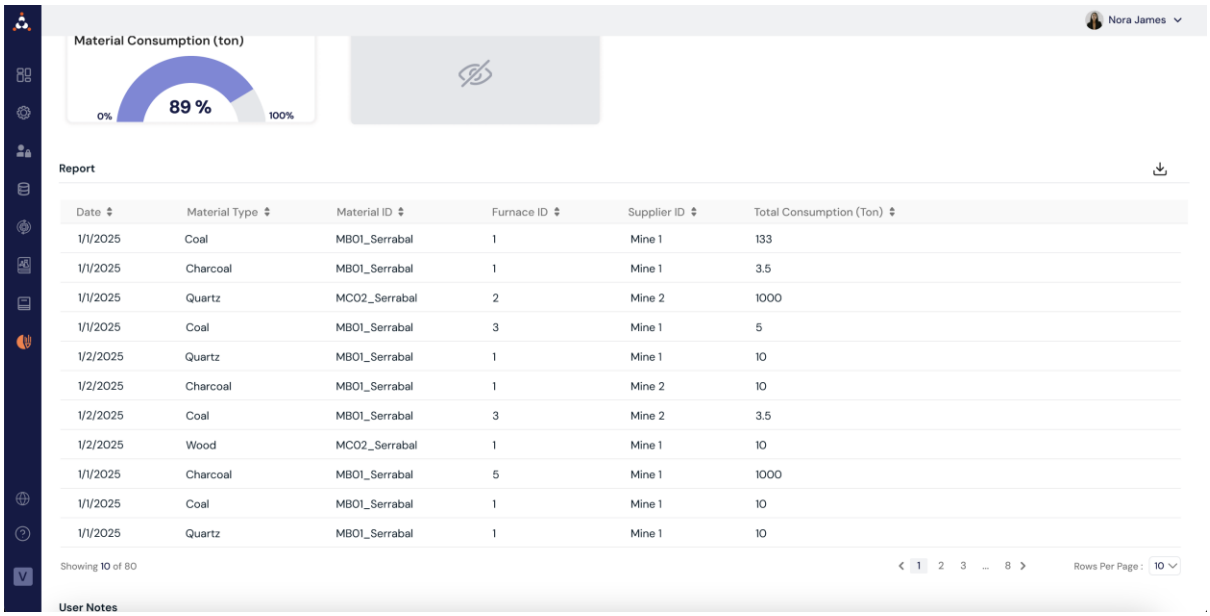


3.3 Report Data (Tabular Format)

- Data displayed based on filters and granularity.
- It will have the following columns
    - Date
    - Material Type
    - Material ID
    - Furnace ID
    - Supplier ID
    - Total Consumption (Ton)

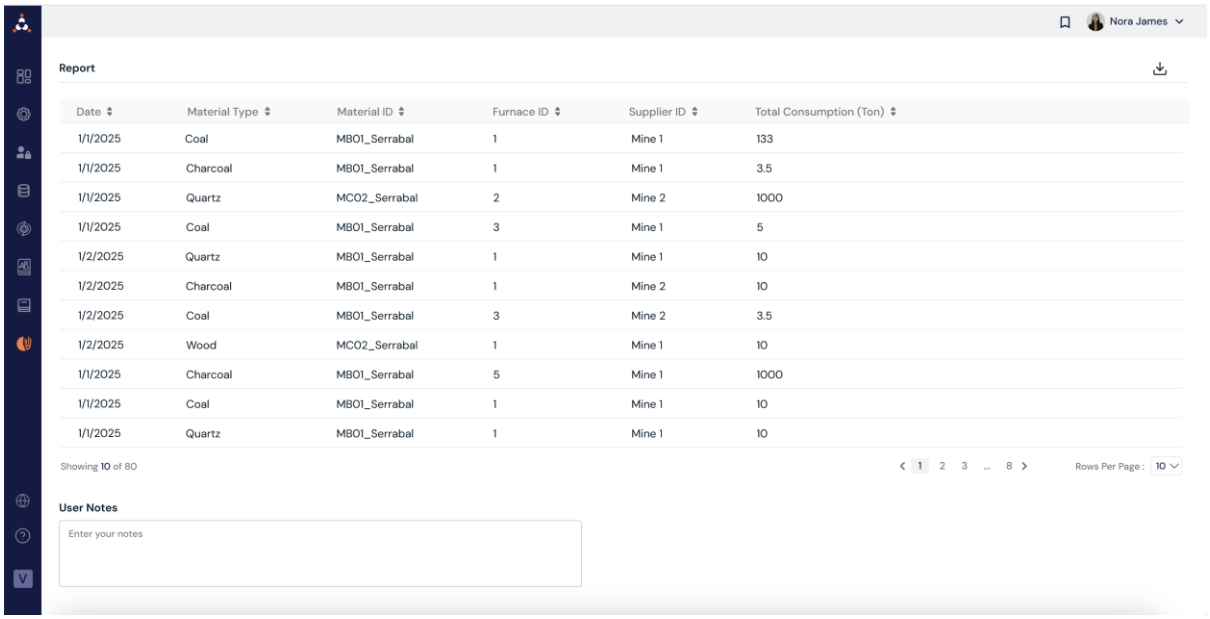
Table Features:

- Configurable columns via “Add Columns” menu
- Sorting and rearranging columns via drag-and-drop
- Pagination for large datasets
- Export to Excel (XLSX) “RawMaterialConsumptionReport_DD-MM-YYYY” using download icon



3.4 Notes Section

- Free-text input area for user insights. All (Including special characters), 100 characters
- Not saved with variant — intended for print inclusion only.



3.5 Navigation – Back to Configuration

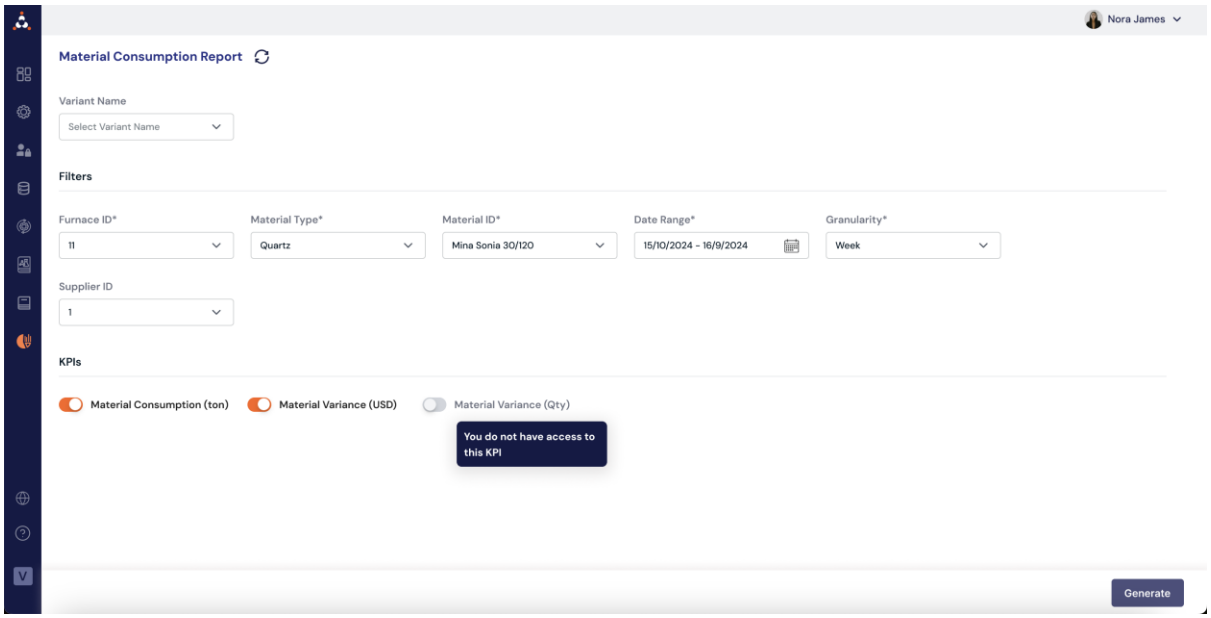
- A **Back** button appears in the report view.
- Clicking it returns the user to the **Setup View**, retaining all previous filter and KPI selections.
- Ensures seamless editing without re-entering data.

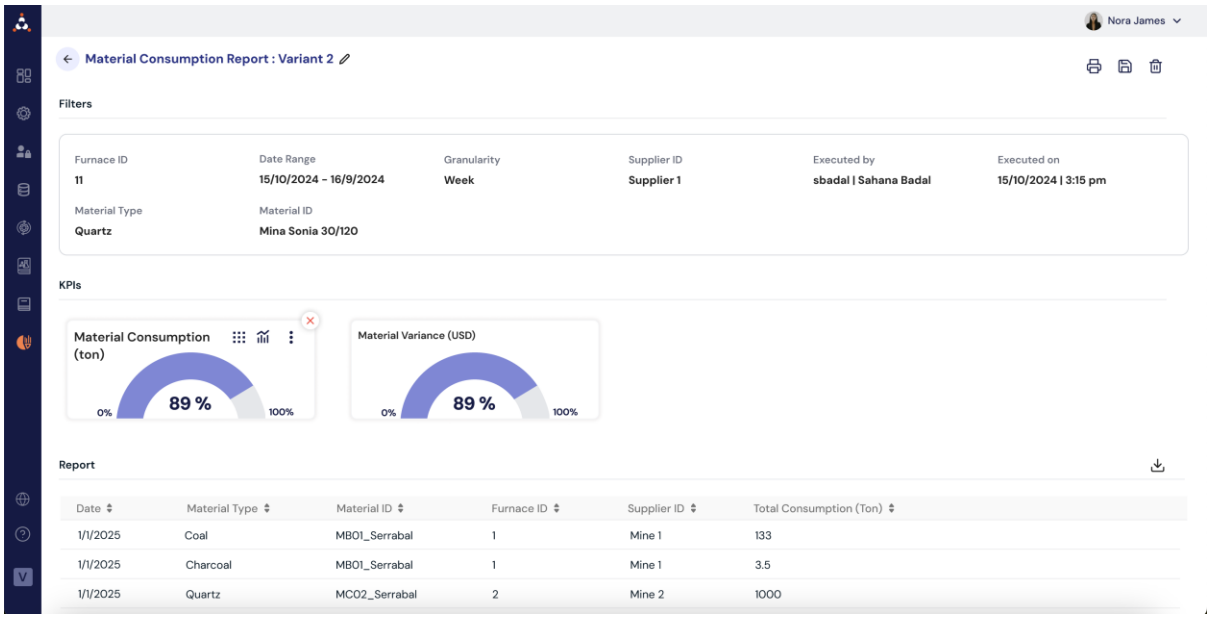
4. User Flows and Report Actions

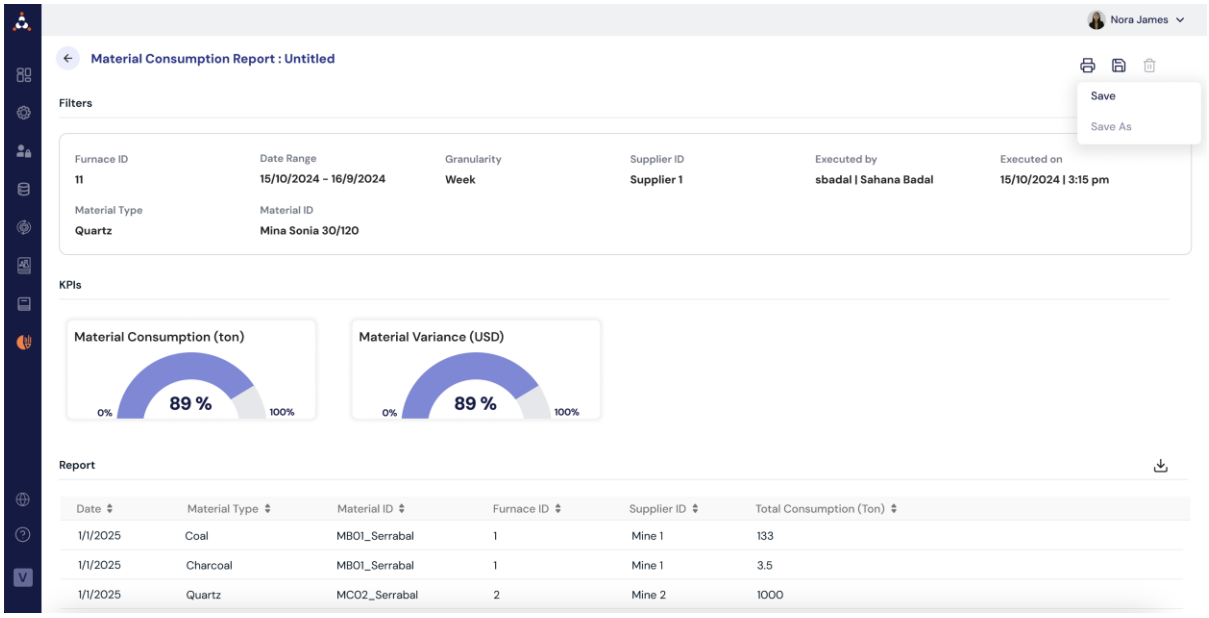
Flow 1: No Variant Selected

- User starts with no variant; variant name field remains empty.
- Filters and KPIs are manually selected.
- Report is generated from scratch.
- Output view shows report as **“Untitled”**.
- The following report actions are enabled
    - **Print**
        - Exports the entire report as PDF.
        - **Save**
            - Saves current report configuration, including all filters and KPI settings
            - Required fields:
                - Report Variant Name
                - Access Modifier (Private/Public)
            - Only the creator can edit or delete saved variants.
- **Save As** and **Delete** are disabled.

- KPIs can be
    - Reordered
    - Removed
    - Change chart type
    - Focus
        - On clicking the three-dots menu of a chart, a menu opens with “Focus” as one of the options.
        - When Focus is selected, the chosen chart opens in a zoomed-in mode for better visibility and analysis of data.
        - Supported chart types (Focus enabled): Line, Pie, and Bar charts.
        - Unsupported chart types (Focus disabled): Card, Gauge, and cases where no data is available.

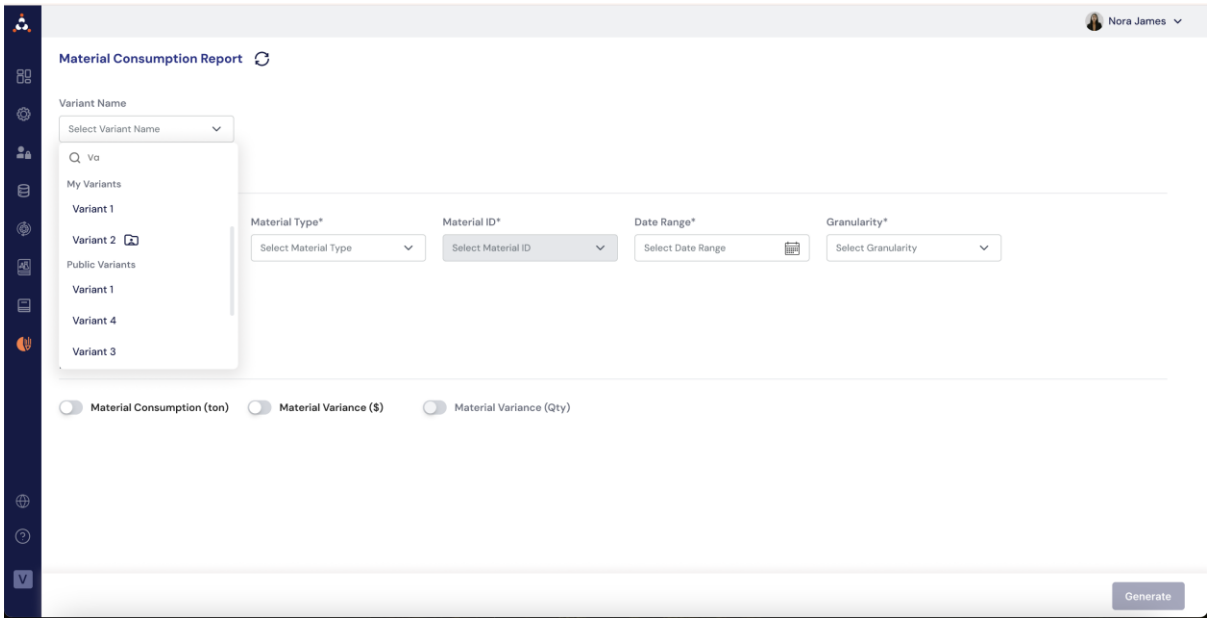




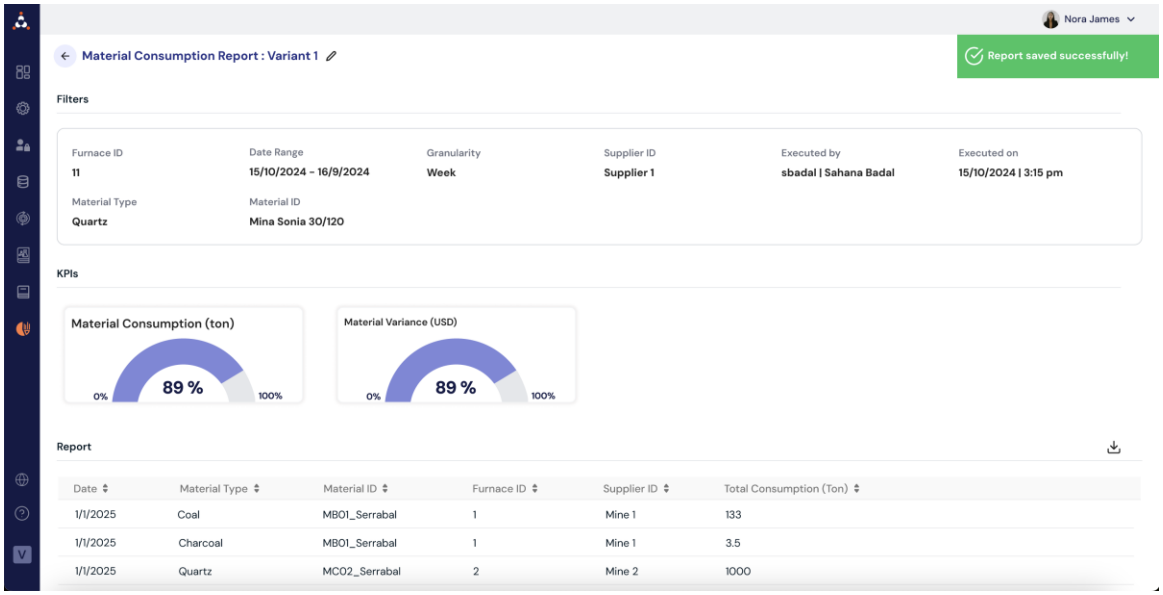


Flow 2: User Selects Own Variant

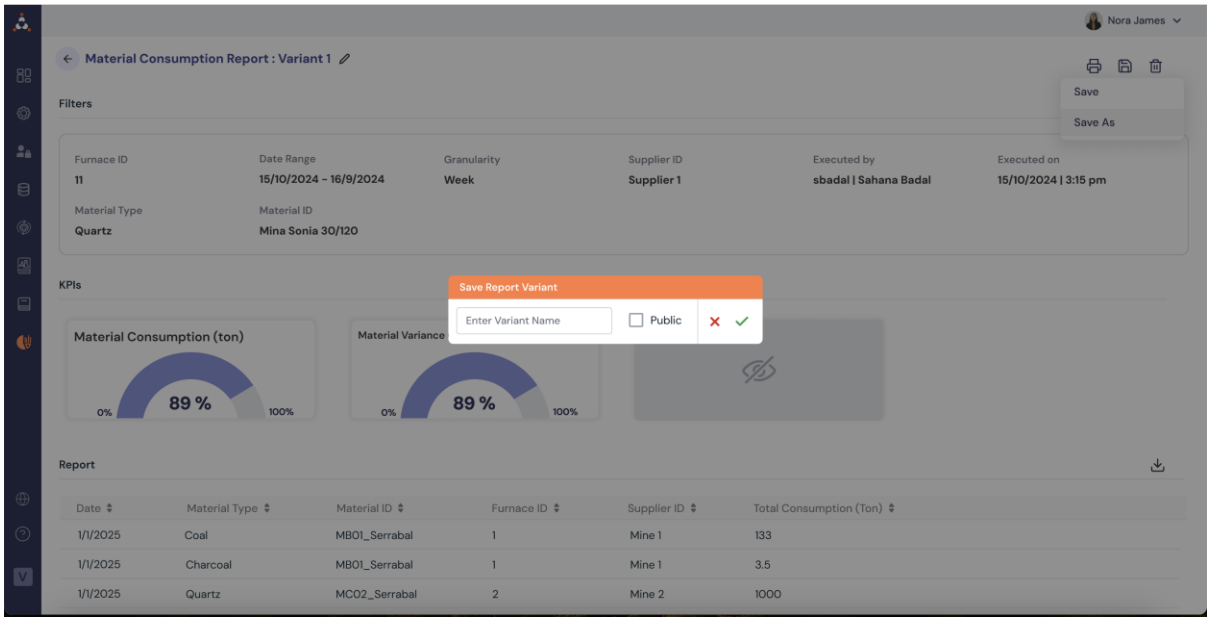
- User selects a self-created variant.
- Filters and KPIs are auto-filled and **fully editable**.



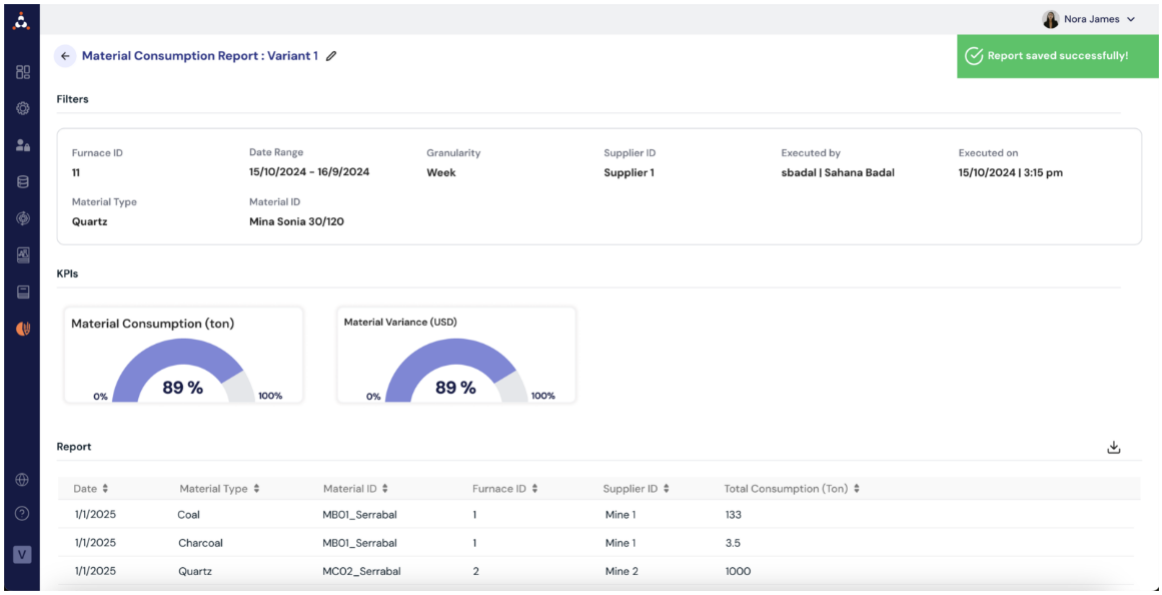
- Output view shows the variant name with an **edit icon**.
- The following report actions are enabled
    - **Print**
        - Exports the entire report as PDF.
    - **Save** – Updates the changes made to the Variant.



- **Save As**
  - ☐ Saves current report configuration as a new Variant.
  - ☐ Required fields:
    - Report Variant Name
    - Access Modifier (Private/Public)
  - ☐ Only the creator can edit or delete saved variants.



- **Delete**
  - ☐ Available for user-created variants.
  - ☐ Delete via dropdown or trash icon with confirmation prompt.
    - “Are you sure you want to delete this variant “Variant Name”?



- KPIs can be
  - Viewed based on permission
  - Reordered
  - Removed
  - Chart types changed
  - Focus
    - On clicking the three-dots menu of a chart, a menu opens with “Focus” as one of the options.
    - When Focus is selected, the chosen chart opens in a zoomed-in mode for better visibility and analysis of data.
    - Supported chart types (Focus enabled): Line, Pie, and Bar charts.
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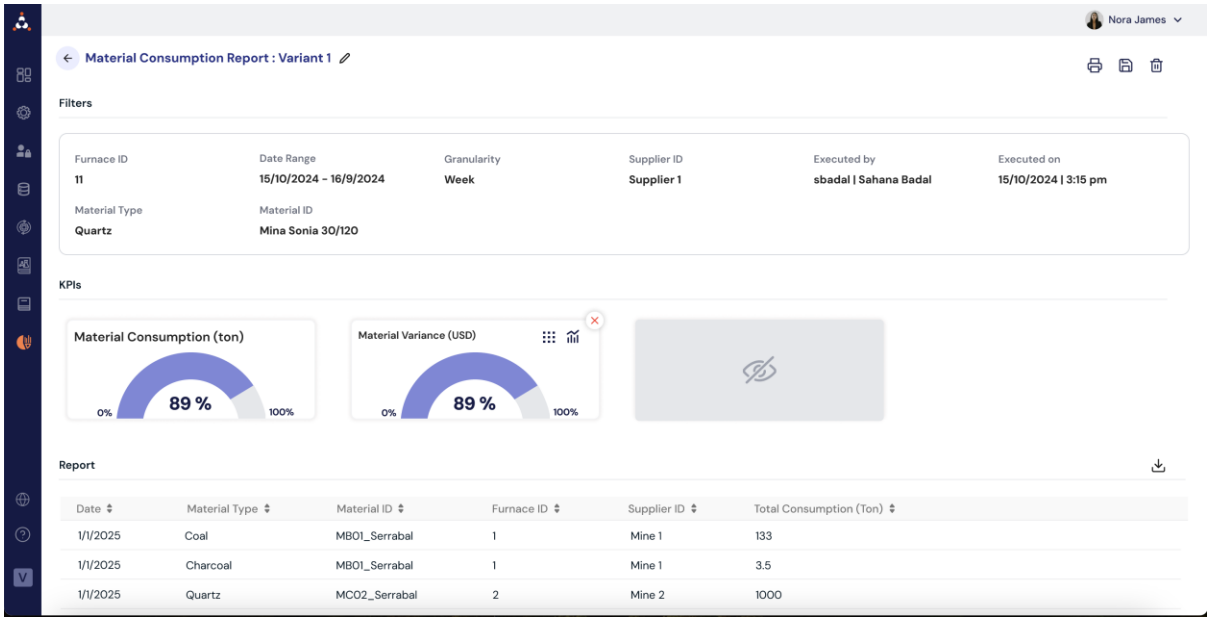
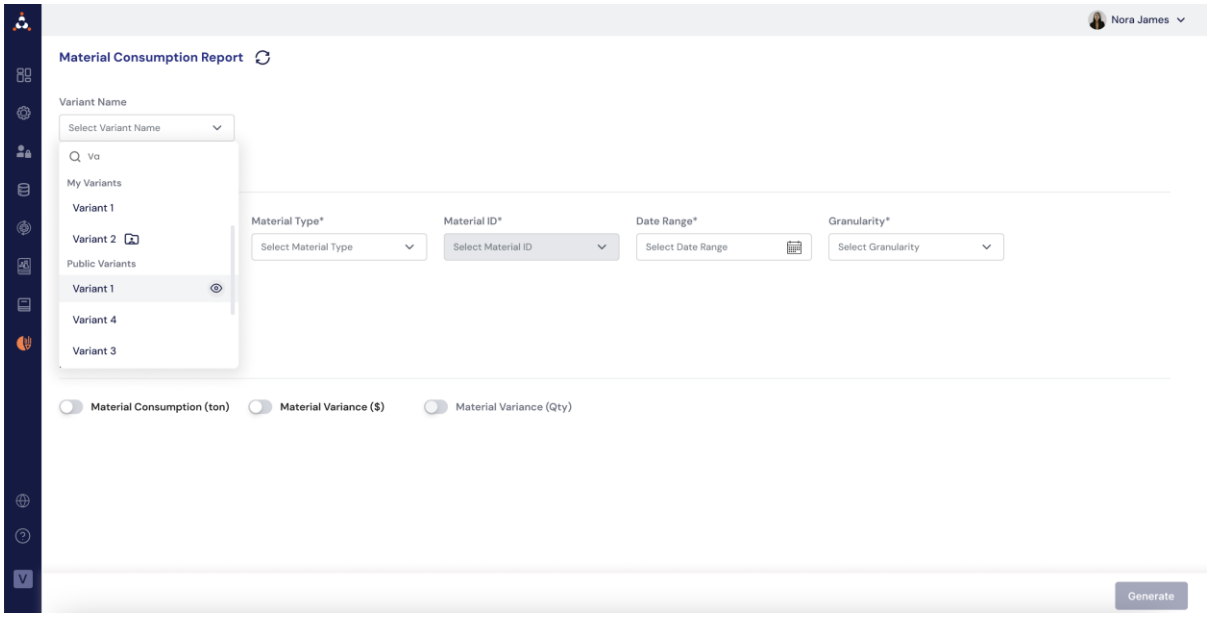
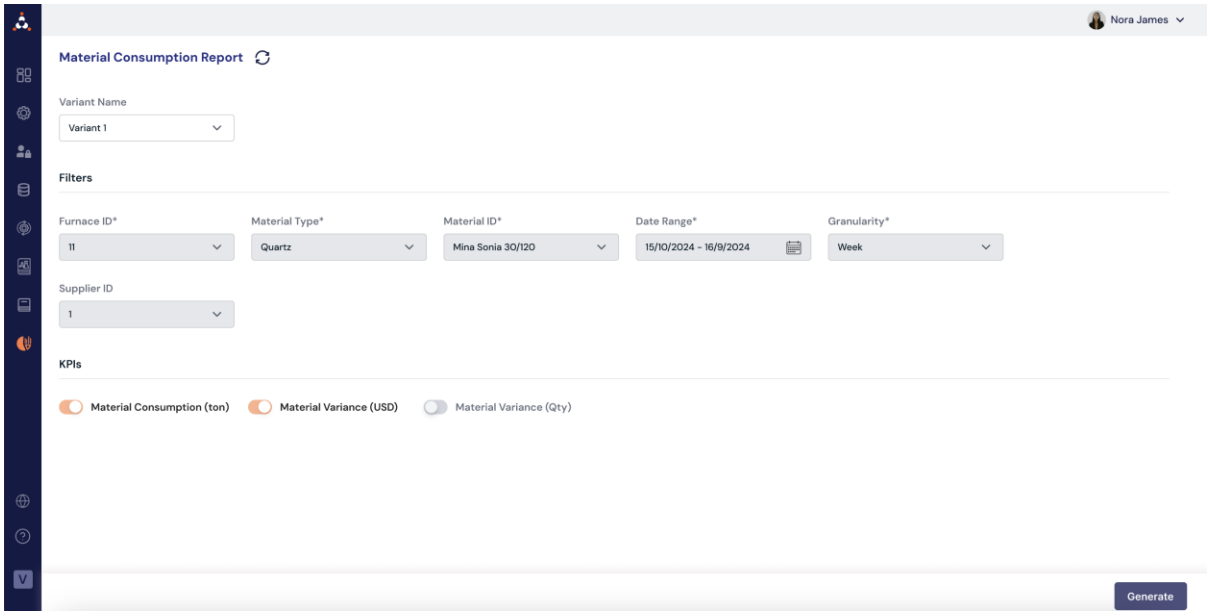


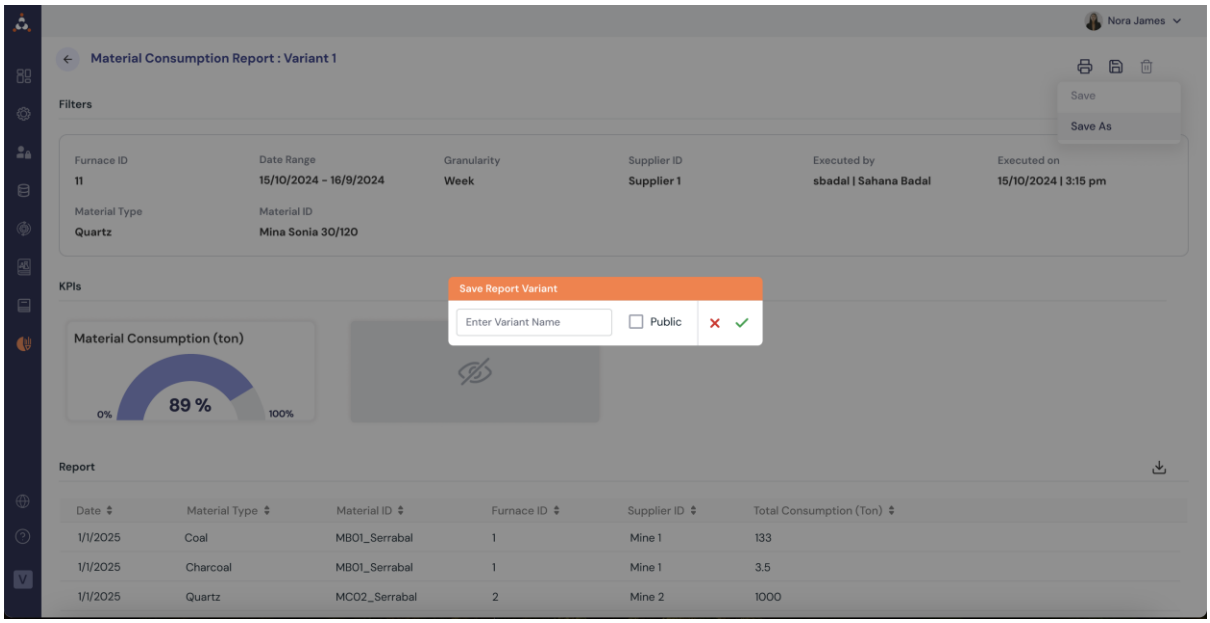
Flow 3: User Selects Public Variant Shared by Another User

- Public variant is selected.
- Filters and KPIs are auto-filled and **locked** (read-only).

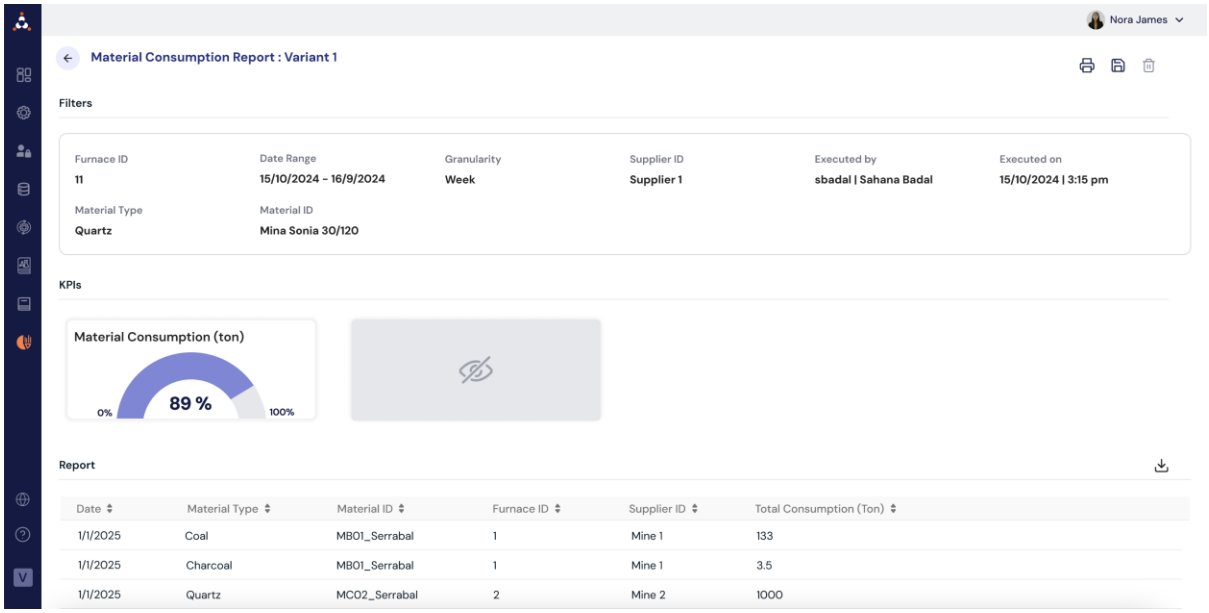




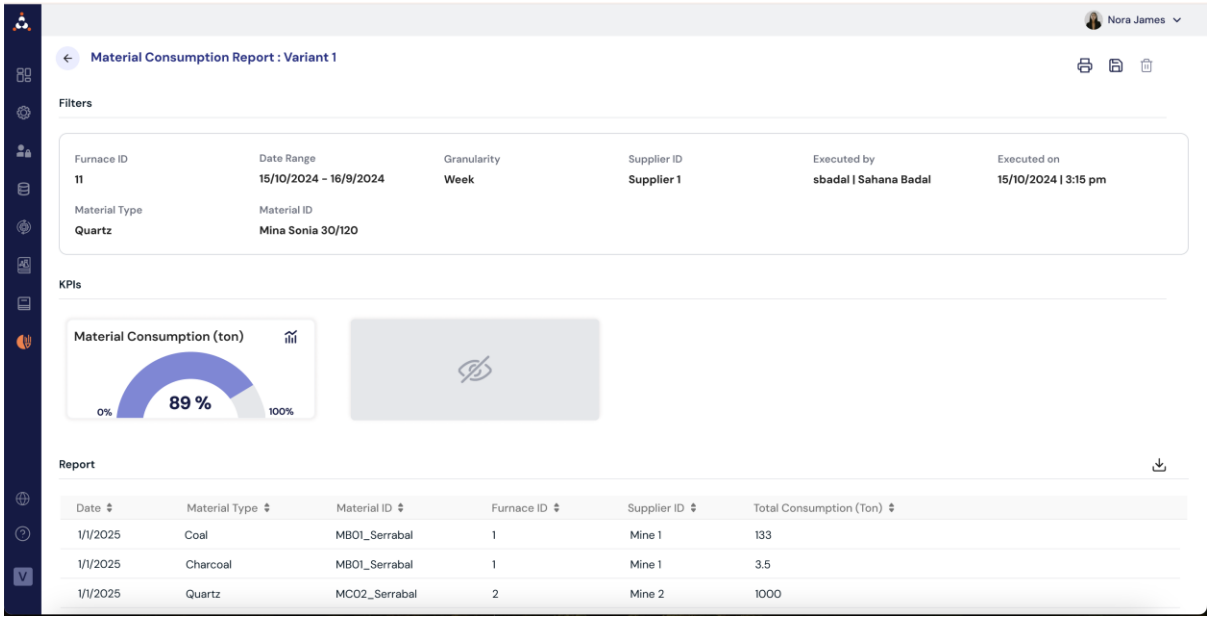
- Output view shows the variant name **without edit icon**.
- The following report actions are enabled
    - **Print**
        - Exports the entire report as PDF.
    - **Save As**
        - Saves current report configuration as a new Variant.
        - Required fields:
            - Report Variant Name
            - Access Modifier (Private/Public)



- **Save** and **Delete** are disabled



- KPIs can be
  - Viewed based on permission
  - Chart types changed. The change is **temporary** and does not affect the original Public Variant configuration.
  - **Cannot be removed**
  - **Cannot be reordered.**



5. Edge Cases & Validations

Scenario	Expected Behaviour
Required filter missing	Prompt user to complete all mandatory fields
Deleting a variant in use	Show confirmation and warn about unsaved changes when traversing to another module
Selecting public variant	Load values in read-only mode unless saved seperately
No KPIs selected	Section remains empty; no validation error
Selecting > 3 KPIs	Show inline warning and prevent further selections