

Da Vinci Smart Manufacturing

BRD S06.01 Reports Raw Material Consumption

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1.0	Leopoldo Rivera Sahana Badal	S06.01 First draft	6/06/2025

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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.
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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**
 - If a previously selected KPI (from a variant) is now unauthorized:
 - It will not be visible

The screenshot shows the 'Material Consumption Report' interface. On the left is a sidebar with icons for Home, Variant, Filters, KPIs, and Help. The main area has a header 'Material Consumption Report' with a refresh icon. Below it is a 'Variant Name' dropdown set to 'New Report'. The 'Filters' section contains five input fields: 'Furnace ID*' (with 'Select Furnace ID' and a '1 x' count), 'Material Type*' (with 'Select Material Ty...' and a '3 x' count), 'Material ID*' (with 'Select Material ID' and a '3 x' count), 'Date Range*' (with '13/09/2023 → 17/10/2023' and a calendar icon), and 'Granularity*' (set to 'Daily'). The 'KPIs' section has three toggle buttons: 'Material Consumption (ton)' (selected, orange circle), 'Material Variance (\$)' (gray circle), and 'Material Variance (Qty)' (gray circle). At the bottom right is a 'Generate' button.

- **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.

The screenshot shows the 'Material Consumption Report' interface. On the left is a sidebar with icons for Home, Variant, Filters, Supplier, and KPIs. The main area has the title 'Material Consumption Report'. It includes a 'Variant Name' dropdown, a 'Filters' section with dropdowns for 'Furnace ID*', 'Material Type*', 'Material ID*', 'Date Range*', and 'Granularity*', and a 'Supplier ID' dropdown. Below these are sections for 'KPIs' with three radio buttons: 'Material Consumption (ton)', 'Material Variance (\$)', and 'Material Variance (Qty)'. A 'Generate' button is located at the bottom right.

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

The screenshot shows the Material Consumption Report interface. On the left is a sidebar with icons for Home, Filters, Reports, and Help. The main area has a header "Material Consumption Report" with a back arrow and a user dropdown "SB Sahana Badal". Below the header are three sections: "Filters", "KPIs", and "Report".

Filters:

Variant Name	Furnace ID	Material Type	Material ID	Date Range
Untitled	2	Charcoal	CDB0001_OP216 Cdb Carbonex	01/05/2025 – 31/05/2025
Granularity	Supplier ID	Executed by	Executed on	
Monthly	--	Sahana Badal	30/09/2025 09:27 AM	

KPIs:

Material Consumption (ton)	Material Variance (\$)	Material Variance (Qty)
5,429.04	6,675.81	5,849.73

Report:

Date	Material Type	Material ID	Furnace ID	Supplier ID	Total Material Consumption	Add
2025-09-30	Charcoal	CDB0001_OP216 Cdb	2	Sahana Badal	5,429.04	+/-

3.2 KPI Visualization Section

- KPIs selected are shown in graphical format.

Features:

- KPIs can be **removed** via a close (x) 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 (Card, Gauge, Bar Chart, Line Chart and Pie Chart).
- If the user does not have permission to view a particular KPI at the time of generating the report, it will not be visible on the report generated screen
- 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.

The screenshot shows a dashboard titled "Material Consumption Report". On the left is a sidebar with various icons. The main area has a header with a user profile (SB Sahana Badal) and several export/print icons. Below the header is a "Filters" section containing the following data:

Variant Name	Furnace ID	Material Type	Material ID	Date Range
New Report	1	Charcoal, Coal, Coke	CDB00001_OP216 Cdb Carbonex...	13/09/2023 – 17/10/2023

Below the filters is a "KPIs" section with a card showing "Material Consumption (ton)" with the value **8,444.48**. To the right of the card is a small icon. Further down is a "Report" section with a table:

Date	Material Type	Material ID	Furnace ID	Supplier ID	Total Material Consumption	Add
10/09/2023	Oil	CDB00001_OP216 Cdb	1	SUP-CL-003	8,444.48	+/-

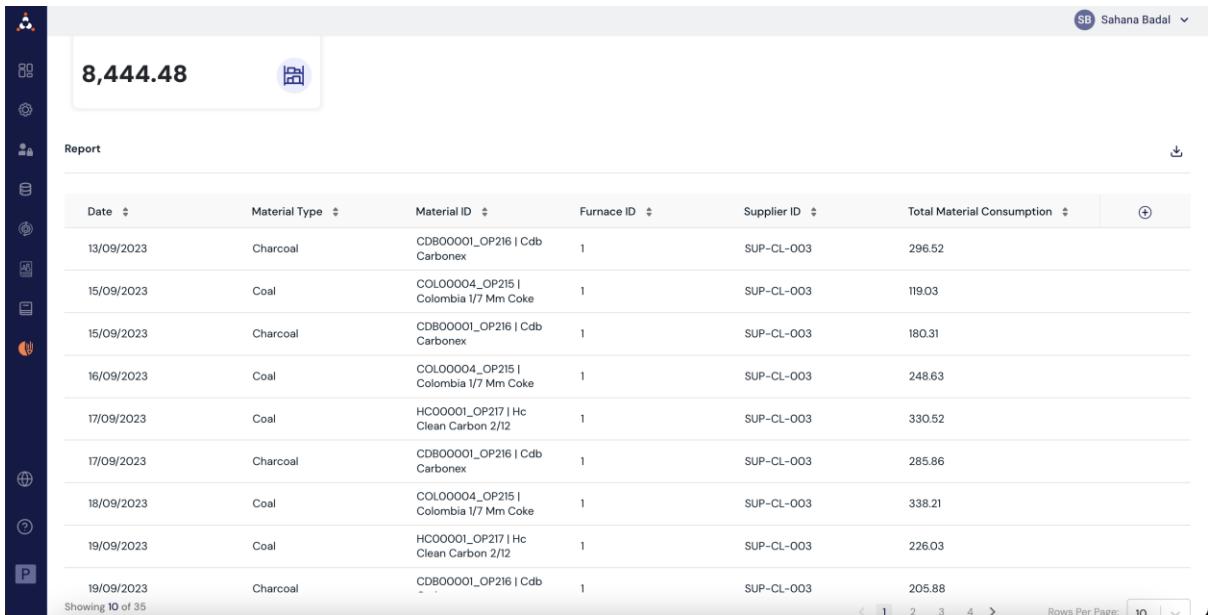
3.3 Report Data (Tabular Format)

- 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

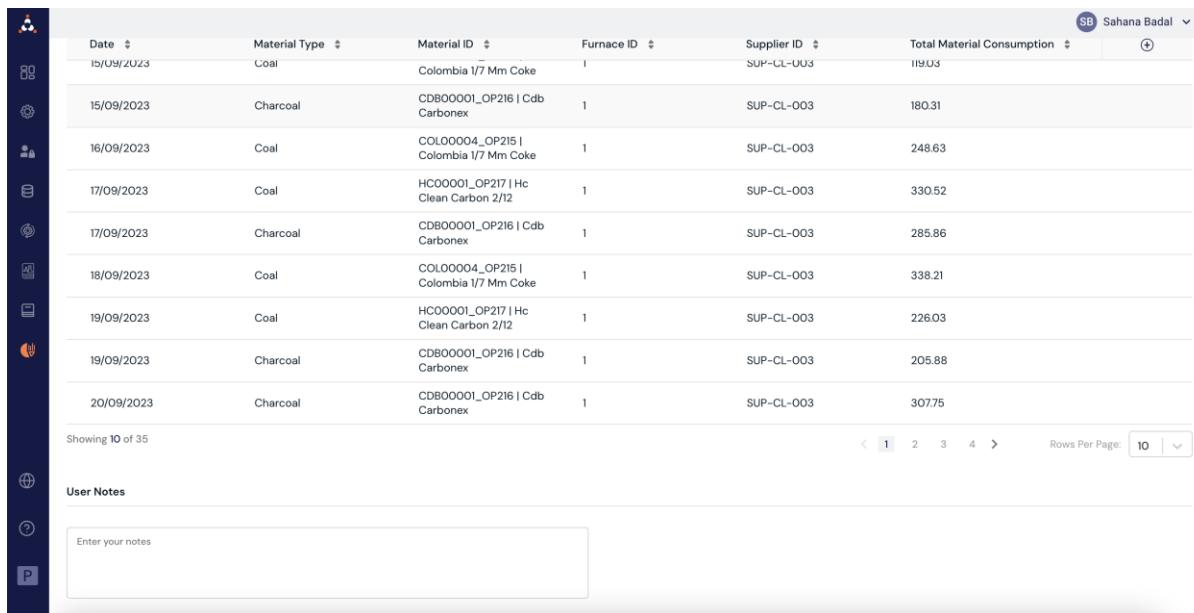


The screenshot shows a data visualization interface. At the top left is a summary value of **8,444.48**. To its right is a small chart icon. Below this is a section titled **Report** with a download icon. The main area displays a table of data with the following columns: Date, Material Type, Material ID, Furnace ID, Supplier ID, and Total Material Consumption. The table contains 10 rows of data, each with a date from 13/09/2023 to 19/09/2023, a material type (Charcoal or Coal), a material ID, a furnace ID (all listed as 1), a supplier ID (all listed as SUP-CL-003), and a total consumption value. The last row shows "Showing 10 of 35". At the bottom right of the table are pagination controls (1, 2, 3, 4, >) and a "Rows Per Page" dropdown set to 10.

Date	Material Type	Material ID	Furnace ID	Supplier ID	Total Material Consumption	
13/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	296.52	
15/09/2023	Coal	COL00004_OP215 Colombia 1/7 Mm Coke	1	SUP-CL-003	119.03	
15/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	180.31	
16/09/2023	Coal	COL00004_OP215 Colombia 1/7 Mm Coke	1	SUP-CL-003	248.63	
17/09/2023	Coal	HC00001_OP217 Hc Clean Carbon 2/12	1	SUP-CL-003	330.52	
17/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	285.86	
18/09/2023	Coal	COL00004_OP215 Colombia 1/7 Mm Coke	1	SUP-CL-003	338.21	
19/09/2023	Coal	HC00001_OP217 Hc Clean Carbon 2/12	1	SUP-CL-003	226.03	
19/09/2023	Charcoal	CDB00001_OP216 Cdb	1	SUP-CL-003	205.88	

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.



The screenshot shows a report interface with a sidebar on the left containing various icons for navigation and configuration. The main area displays a table of data with the following columns: Date, Material Type, Material ID, Furnace ID, Supplier ID, Total Material Consumption, and a plus sign icon. The data rows represent different dates from 15/09/2023 to 20/09/2023, with entries for Coal and Charcoal types, their respective IDs, furnace numbers, supplier codes, and consumption values.

Date	Material Type	Material ID	Furnace ID	Supplier ID	Total Material Consumption	
15/09/2023	Coal	Colombia 1/7 Mm Coke	1	SUP-CL-UU3	119.03	
15/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	180.31	
16/09/2023	Coal	COL00004_OP215 Colombia 1/7 Mm Coke	1	SUP-CL-003	248.63	
17/09/2023	Coal	HC00001_OP217 Hc Clean Carbon 2/12	1	SUP-CL-003	330.52	
17/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	285.86	
18/09/2023	Coal	COL00004_OP215 Colombia 1/7 Mm Coke	1	SUP-CL-003	338.21	
19/09/2023	Coal	HC00001_OP217 Hc Clean Carbon 2/12	1	SUP-CL-003	226.03	
19/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	205.88	
20/09/2023	Charcoal	CDB00001_OP216 Cdb Carbonex	1	SUP-CL-003	307.75	

Showing 10 of 35 Rows Per Page: 10

User Notes

Enter your notes

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.
- **Clone** 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.

Material Consumption Report

Filters

Variant Name New Report	Furnace ID 1	Material Type Charcoal, Coal, Coke	Material ID CDB00001_OP216 Cdb Carbonex,...	Date Range 13/09/2023 - 17/10/2023
Granularity Daily	Supplier ID SUP-CL-003	Executed by Sahana Badal	Executed on 30/09/2025 09:27 AM	

KPIs

Material Consumption (ton)
8,444.48

Report

Date	Material Type	Material ID	Furnace ID	Supplier ID	Total Material Consumption
13/09/2023	Charcoal, Coal, Coke	CDB00001_OP216 Cdb	1	SUP-CL-003	8,444.48

Material Consumption Report

Filters

Variant Name New Report	Furnace ID 1	Material Type Charcoal, Coal, Coke	Material ID CDB00001_OP216 Cdb Carbonex,...	Date Range 13/09/2023 - 17/10/2023
Granularity Daily	Supplier ID SUP-CL-003	Executed by Sahana Badal	Executed on 30/09/2025 09:27 AM	

KPIs

Material Consumption (ton)
8,444.48

Report

Date	Material Type	Material ID	Furnace ID	Supplier ID	Total Material Consumption
13/09/2023	Charcoal, Coal, Coke	CDB00001_OP216 Cdb	1	SUP-CL-003	8,444.48

Flow 2: User Selects Own Variant

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

The screenshot shows the 'Material Consumption Report' interface. On the left, there's a sidebar with various icons. In the main area, a dropdown menu titled 'Variant Name' is open, showing a list of variants: 'Variant 1', 'Variant 2', 'Variant 3', 'Variant 4', and 'Variant 5'. Below the dropdown, there are four filter fields: 'Material Type*', 'Material ID*', 'Date Range*', and 'Granularity*'. At the bottom, there are three radio buttons for 'Material Consumption (ton)', 'Material Variance (\$)', and 'Material Variance (Qty)'. A 'Generate' button is located at the bottom right.

- 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.

The screenshot shows the 'Material Consumption Report : Variant 1' view. At the top right, there's a green success message: 'Report saved successfully!'. Below it, there's a 'Filters' section with fields for Furnace ID (11), Date Range (15/10/2024 - 16/9/2024), Granularity (Week), Supplier ID (Supplier 1), Executed by (sbadal | Sahana Badal), and Executed on (15/10/2024 | 3:15 pm). Under the 'KPIs' section, two donut charts show 'Material Consumption (ton)' and 'Material Variance (USD)' both at 89%. The 'Report' section contains a table with columns: Date, Material Type, Material ID, Furnace ID, Supplier ID, and Total Consumption (Ton). The data rows are: 1/I/2025, Coal, MBO1_Serrabal, 1, Mine 1, 133; 1/I/2025, Charcoal, MBO1_Serrabal, 1, Mine 1, 3.5; and 1/I/2025, Quartz, MC02_Serrabal, 2, Mine 2, 1000.

- **Clone**

- Saves current report configuration as a new Variant.
- Required fields:
 - Report Variant Name
 - Access Modifier (Private/Public)

The screenshot shows the 'Material Consumption Report : Variant 1' page. At the top right, there are 'Save' and 'Save As' buttons. A modal window titled 'Save Report Variant' is open, containing a text input field 'Enter Variant Name' with the placeholder 'Variant 1', a checked checkbox 'Public', and a green checkmark button. The main report area displays filters (Furnace ID: 11, Date Range: 15/10/2024 - 16/9/2024, Granularity: Week, Supplier ID: Supplier 1), KPIs (Material Consumption (ton) at 89%, Material Variance at 89%), and a table of consumption data.

○ 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”?

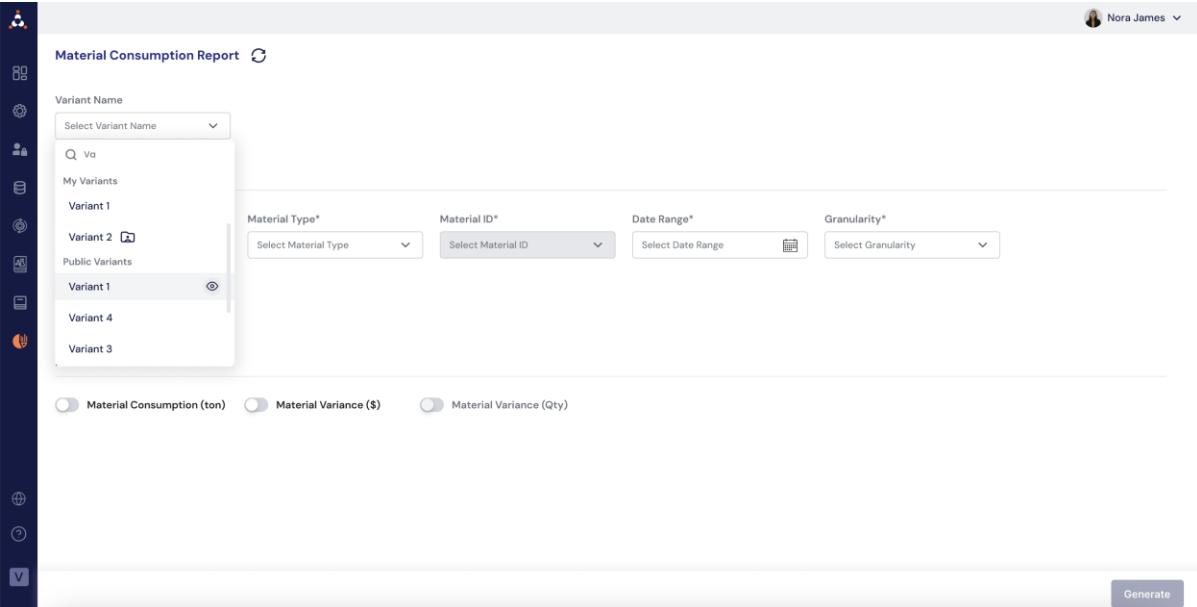
The screenshot shows the 'Material Consumption Report : Variant 1' page. A green success message 'Report saved successfully!' is displayed at the top right. The report area includes filters, KPIs (Material Consumption (ton) and Material Variance (USD) both at 89%), and a table of consumption data.

- 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.
 - Unsupported chart types (Focus disabled): Card, Gauge, and cases where no data is available.

Flow 3: User Selects Public Variant Shared by Another User

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



The screenshot shows the 'Material Consumption Report' interface. On the left, there's a sidebar with various icons. The main area has a header 'Material Consumption Report' with a refresh icon. Below the header, there's a 'Variant Name' section with a dropdown menu open, showing 'Select Variant Name' and a search bar with 'Q_ Va'. To the right of this is a 'My Variants' section with a list: 'Variant 1', 'Variant 2 (selected)', 'Public Variants', 'Variant 1', 'Variant 4', and 'Variant 3'. Further right are sections for 'Material Type*', 'Material ID*', 'Date Range*', and 'Granularity*'. At the bottom, there are three radio buttons for 'Material Consumption (ton)', 'Material Variance (\$)', and 'Material Variance (Qty)'. A 'Generate' button is at the bottom right. The top right corner shows a user profile for 'Nora James'.

The screenshot shows the configuration page for a 'Material Consumption Report'. On the left is a vertical toolbar with icons for Home, Recent, Dashboards, Reports, Data, Analytics, and Help. The main area has a header 'Material Consumption Report' with a refresh icon. Below the header are sections for 'Variant Name' (set to 'Variant 1'), 'Filters' (including 'Furnace ID*' (1), 'Material Type*' (Quartz), 'Material ID*' (Mina Sonia 30/I20), 'Date Range*' (15/10/2024 - 16/9/2024), and 'Granularity*' (Week)), and 'Supplier ID' (1). Under 'KPIs', there are three toggle buttons: 'Material Consumption (ton)' (selected), 'Material Variance (USD)', and 'Material Variance (Qty)'. At the bottom right is a 'Generate' button.

- Output view shows the variant name **without edit icon**.
- The following report actions are enabled
 - **Print**
 - Exports the entire report as PDF.
 - User selects sections to include:
 - Filter section
 - Notes section
 - Specific pages of data
 - **Clone**
 - 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 cloned
No KPIs selected	Section remains empty; no validation error
Selecting > 3 KPIs	Show inline warning and prevent further selections

