Da Vinci Smart Manufacturing

BRD S06.03_Reports_Raw Material Size Analysis

Version	Created/Modified by	Description	Date
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This document outlines the detailed specifications for the **Raw Material Sizing Analysis** module. The module enables users to configure, generate, manage, and share reports that analyze raw material elements across furnaces. This supports decision-making, efficiency tracking, and auditing through dynamic filters, KPI selection, and export capabilities.

1. Overview

The Report module consists of:

- Report Configuration Interface (Setup View)
- Report Output View (Generated Report)
- Variant Management System (for saved configurations)
- Export and Print functionalities

2. Report Configuration Interface (Setup View)

2.1 Variant Name Selection

- A dropdown labeled **"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.
- Upon selecting a variant, previously saved filters and KPI selections are auto-populated.

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

Filter	Type	Description
Furnace ID*	Multi-select dropdown	Lists all active 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.
Client ID	Multi-select dropdown	Clients associated with selected Furnace.
Supplier ID	Multi-select dropdown	Suppliers associated with selected Material ID.

Element ID	Multi-select dropdown	Lists the sizes that belong to the groups selected

Filter Behavior:

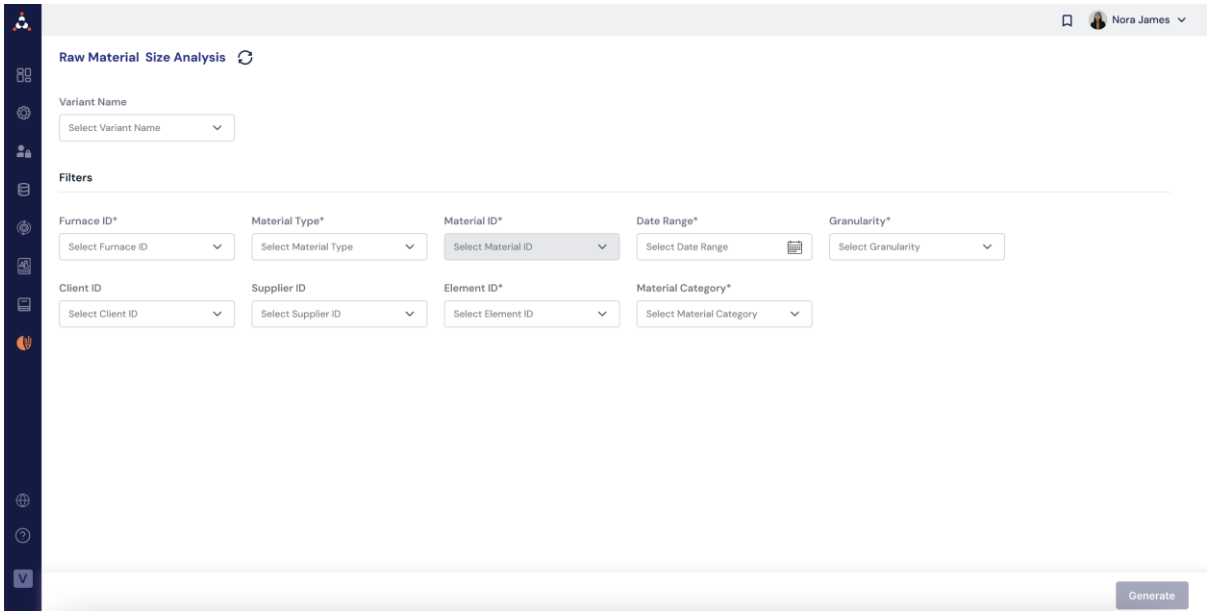
- Filters cascade based on prior selections (e.g., Material Type → Material ID).
- Default values are empty; required fields must be selected to proceed.
- All Filter drop downs should be sorted alphabetically / numerically

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** (e.g., grayed out) and **cannot be selected**.
- **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 Filters Summary Section

- Displays all selected filters and metadata.

Fields include:

1. Variant Name (default: *Untitled* until saved)
    a. Min - 1 and Max - 30 characters, alphanumeric, Only '-' and '_' is allowed, Single space is allowed in between the words, No leading spaces allowed
    b. **Edit Icon (✎):** Appears for saved variants created by the user.
    c. Enables inline editing of Variant Name and Access Modifier (Private/Public).
    d. A **Save** button confirms updates.
2. Furnace ID - view only
3. Material Type - view only
4. Material ID - view only
5. Date Range (From - To) - view only
6. Granularity - view only
7. Client ID - view only
8. Supplier ID - view only
9. Element ID - view only
10. **Executed On** – *Displayed only in print view; not saved in variant.* - view only
11. **Executed By** – *Displayed only in print view; not saved in variant.* - view only

3.2 KPI Visualization Section

- KPIs selected are shown in graphical format.

Features:

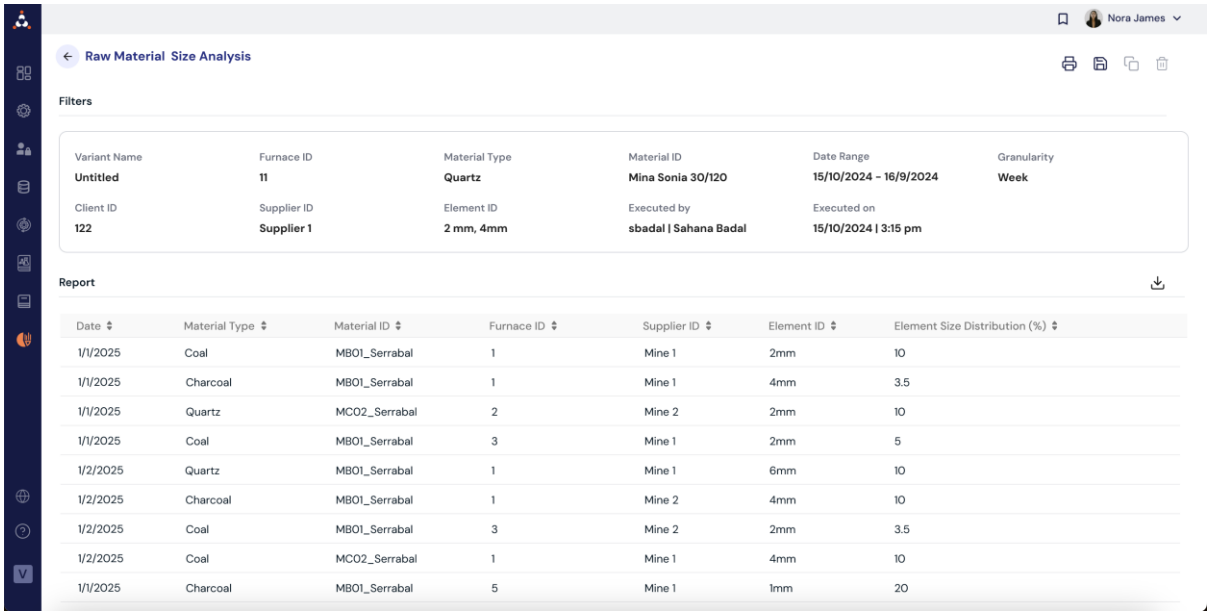
- KPIs can be **removed** via a close (×) button on hover.
- KPIs can be **reordered** via drag-and-drop.
- KPI metadata and units are displayed.
- Users can **change the chart type per KPI** via dropdown (Gauge, Bar Chart, Line Chart and Pie Chart).

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
    - Element ID
    - Element Size Distribution (%)

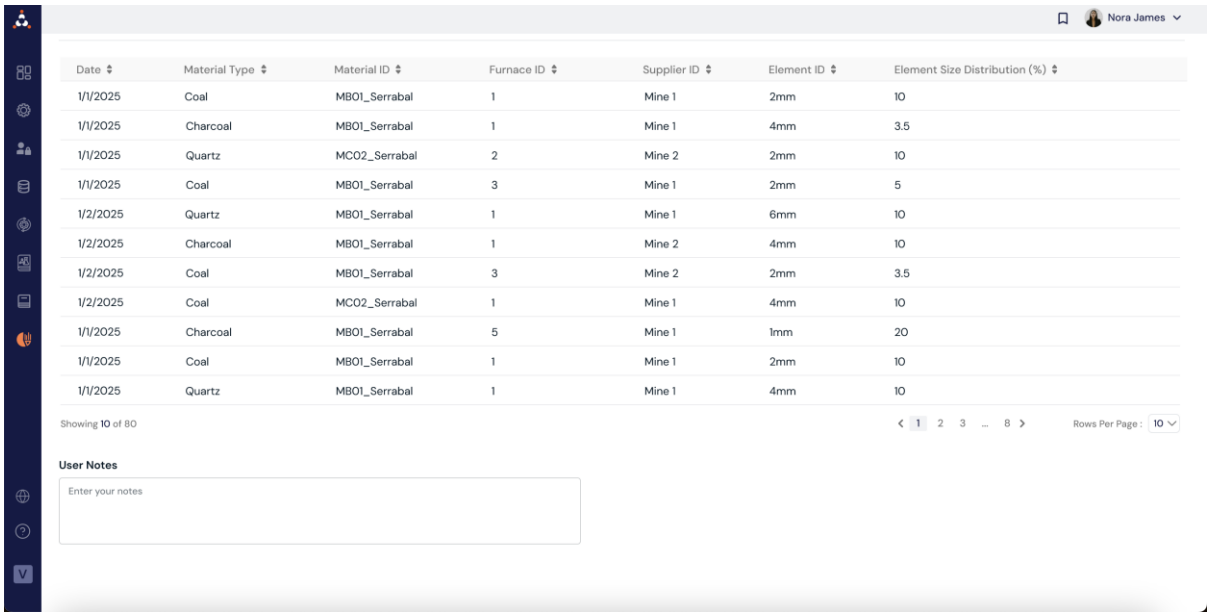
Table Features:

- Configurable columns via “Add Columns” menu
- Sorting and rearranging columns via drag-and-drop
- Pagination for large datasets
- Export to Excel (XLSX) “MMDDYY_RawMaterialSizeReport”



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.

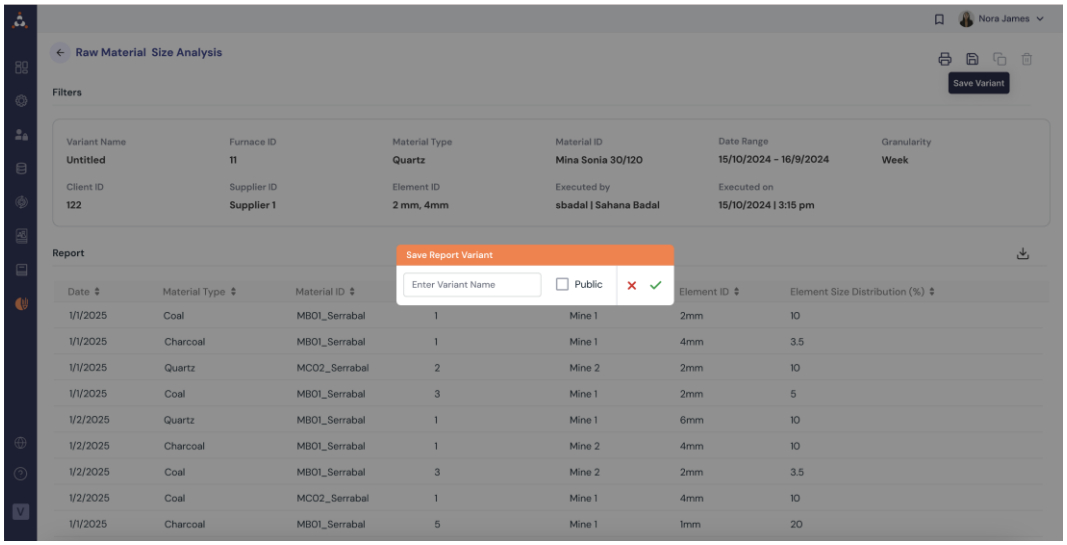
4. Report Actions

4.1 Print

- Exports the entire report as PDF.
- User selects sections to include:
    - Filter section
    - Notes section
    - Specific pages of data

4.2 Save Variant

- Saves current report configuration.
- Required fields:
    - Report Name
    - Access Modifier (Private/Public)
- Only the creator can edit or delete saved variants.

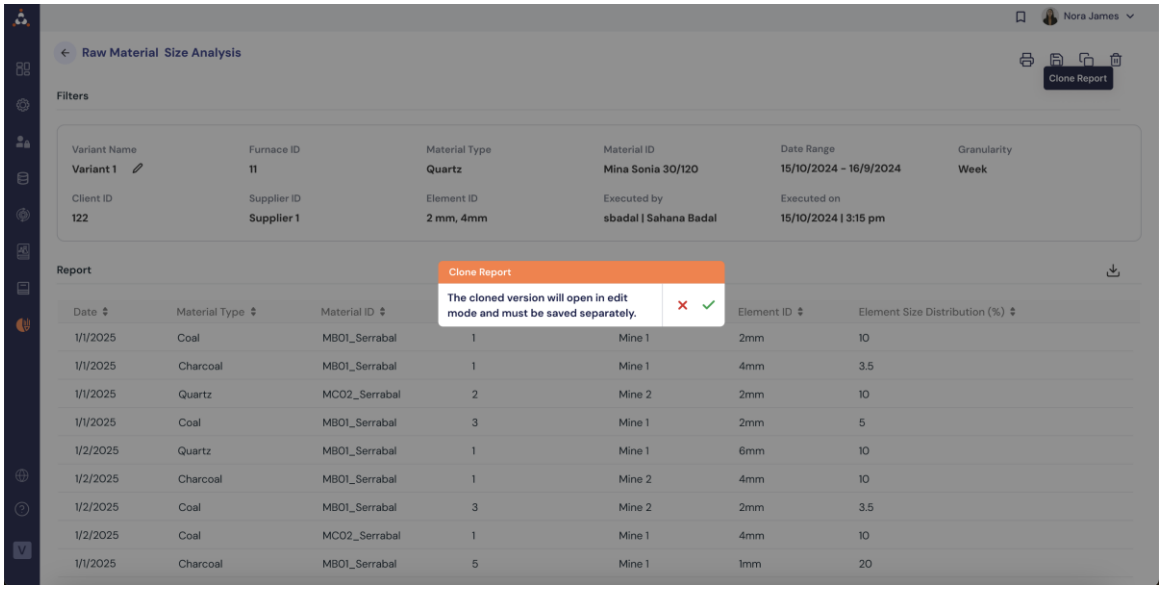


4.3 Clone Variant

- Clones any saved variant (private or public).
- **Confirmation message appears:**

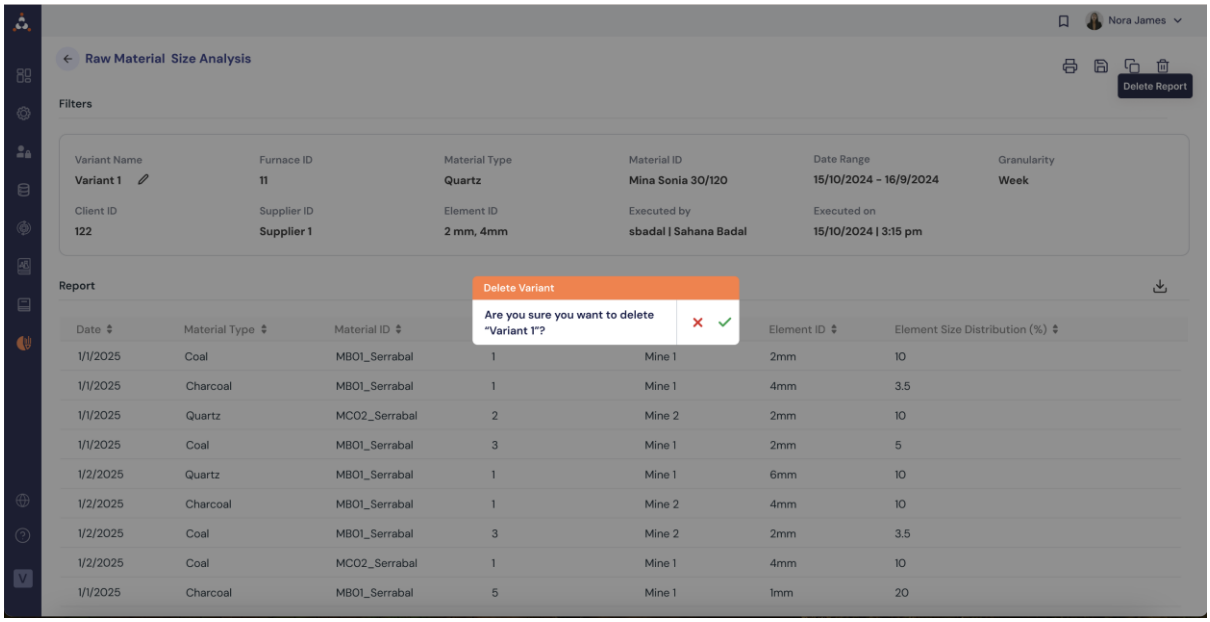
“Are you sure you want to clone this variant? The cloned version will open in edit mode and must be saved separately.”

- Opens the cloned configuration in edit mode with name defaulted to *Untitled*.



4.4 Delete Variant

- 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”?



5. Edge Cases & Validations

Scenario	Expected Behavior
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