

# **Da Vinci Smart Manufacturing**

## **BRD S06.03 Reports Raw Material Size Analysis**

<b>Version</b>	<b>Created/Modified by</b>	<b>Description</b>	<b>Date</b>
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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
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#### 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.

The screenshot shows a user interface titled "Raw Material Size Analysis". On the left is a vertical sidebar with icons for navigation. The main area has a header "Variant Name" with a dropdown menu. Below it is a section titled "Filters" containing several input fields: "Furnace ID\*", "Material Type\*", "Material ID\*", "Date Range\*", and "Granularity\*". Each of these has a dropdown menu labeled "Select [Field] ID". There are also sections for "Client ID", "Supplier ID", "Element ID\*", and "Material Category\*", each with its own dropdown menu. At the bottom right is a blue "Generate" button.

### 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 (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 (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”

**Raw Material Size Analysis**

**Filters**

Variant Name <b>Untitled</b>	Furnace ID <b>11</b>	Material Type <b>Quartz</b>	Material ID <b>Mina Sonia 30/120</b>	Date Range <b>15/10/2024 – 16/9/2024</b>	Granularity <b>Week</b>
Client ID <b>122</b>	Supplier ID <b>Supplier 1</b>	Element ID <b>2 mm, 4mm</b>	Executed by <b>sbadal   Sahana Badal</b>	Executed on <b>15/10/2024   3:15 pm</b>	

**Report**

Date	Material Type	Material ID	Furnace ID	Supplier ID	Element ID	Element Size Distribution (%)
1/1/2025	Coal	MBO1_Serrabal	1	Mine 1	2mm	10
1/1/2025	Charcoal	MBO1_Serrabal	1	Mine 1	4mm	3.5
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2	2mm	10
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1	2mm	5
1/2/2025	Quartz	MBO1_Serrabal	1	Mine 1	6mm	10
1/2/2025	Charcoal	MBO1_Serrabal	1	Mine 2	4mm	10
1/2/2025	Coal	MBO1_Serrabal	3	Mine 2	2mm	3.5
1/2/2025	Coal	MCO2_Serrabal	1	Mine 1	4mm	10
1/1/2025	Charcoal	MBO1_Serrabal	5	Mine 1	1mm	20

### 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.

**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. 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.

The screenshot shows a software application window titled "Raw Material Size Analysis". At the top right, there is a user profile for "Nora James" and several icons for file operations like print, save, and refresh. Below the title bar is a "Filters" section containing various input fields for variant name, furnace ID, material type, material ID, date range, and granularity. A "Save Variant" button is located in this section. The main area is divided into two tabs: "Report" and "Data". The "Report" tab is active, displaying a table of data with columns for Date, Material Type, Material ID, Element ID, and Element Size Distribution (%). An orange overlay box labeled "Save Report Variant" is positioned over the report table. Inside this overlay, there is a text input field "Enter Variant Name" with a placeholder "Untitled", a "Public" checkbox (unchecked), and a "Save" button with a green checkmark icon. The "Data" tab shows a detailed table of raw material data with columns for Date, Material Type, Material ID, Element ID, and Element Size Distribution (%).

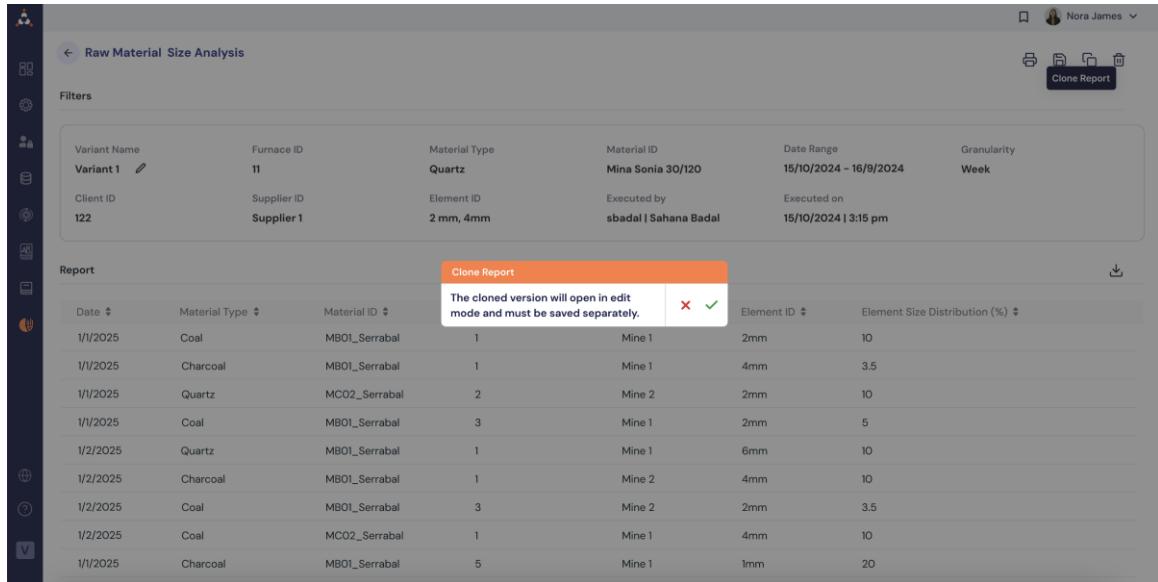
Date	Material Type	Material ID	Element ID	Element Size Distribution (%)
1/1/2025	Coal	MBO1_Serrabal	1	Mine 1 2mm 10
1/1/2025	Charcoal	MBO1_Serrabal	1	Mine 1 4mm 3.5
1/1/2025	Quartz	MC02_Serrabal	2	Mine 2 2mm 10
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1 2mm 5
1/2/2025	Quartz	MBO1_Serrabal	1	Mine 1 6mm 10
1/2/2025	Charcoal	MBO1_Serrabal	1	Mine 2 4mm 10
1/2/2025	Coal	MBO1_Serrabal	3	Mine 2 2mm 3.5
1/2/2025	Coal	MC02_Serrabal	1	Mine 1 4mm 10
1/1/2025	Charcoal	MBO1_Serrabal	5	Mine 1 1mm 20

### 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*.



The screenshot shows a report titled "Raw Material Size Analysis" with the following details:

Variant Name	Furnace ID	Material Type	Material ID	Date Range	Granularity
Variant 1	11	Quartz	Mina Sonia 30/120	15/10/2024 - 16/9/2024	Week
Client ID	Supplier ID	Element ID	Executed by	Executed on	
122	Supplier 1	2 mm, 4mm	sbadal   Sahana Badal	15/10/2024   3:15 pm	

**Report**

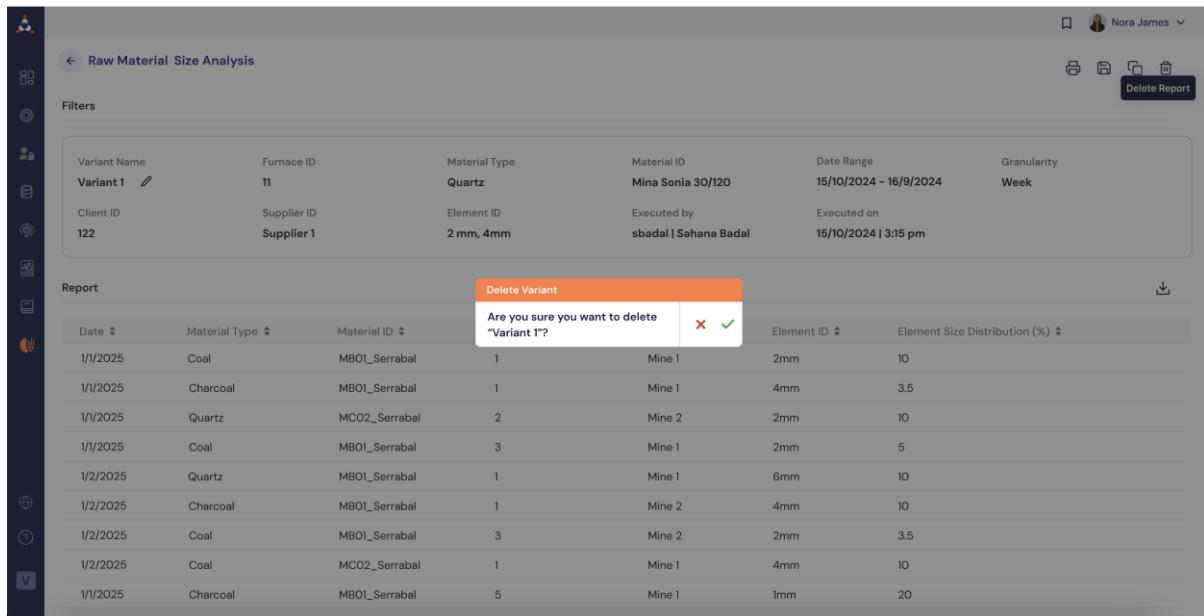
**Clone Report**

The report table displays data from October 1st to October 2nd, 2025, with the following rows:

Date	Material Type	Material ID	Element ID	Element Size Distribution (%)
1/1/2025	Coal	MBO1_Serrabal	1	Mine 1 2mm 10
1/1/2025	Charcoal	MBO1_Serrabal	1	Mine 1 4mm 3.5
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2 2mm 10
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1 2mm 5
1/2/2025	Quartz	MBO1_Serrabal	1	Mine 1 6mm 10
1/2/2025	Charcoal	MBO1_Serrabal	1	Mine 2 4mm 10
1/2/2025	Coal	MBO1_Serrabal	3	Mine 2 2mm 3.5
1/2/2025	Coal	MCO2_Serrabal	1	Mine 1 4mm 10
1/1/2025	Charcoal	MBO1_Serrabal	5	Mine 1 1mm 20

#### 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”?



The screenshot shows a report titled "Raw Material Size Analysis" with the following details:

Variant Name	Furnace ID	Material Type	Material ID	Date Range	Granularity
Variant 1	11	Quartz	Mina Sonia 30/120	15/10/2024 - 16/9/2024	Week
Client ID	Supplier ID	Element ID	Executed by	Executed on	
122	Supplier 1	2 mm, 4mm	sbadal   Sahana Badal	15/10/2024   3:15 pm	

**Report**

**Delete Variant**

The report table displays data from October 1st to October 2nd, 2025, with the following rows:

Date	Material Type	Material ID	Element ID	Element Size Distribution (%)
1/1/2025	Coal	MBO1_Serrabal	1	Mine 1 2mm 10
1/1/2025	Charcoal	MBO1_Serrabal	1	Mine 1 4mm 3.5
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2 2mm 10
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1 2mm 5
1/2/2025	Quartz	MBO1_Serrabal	1	Mine 1 6mm 10
1/2/2025	Charcoal	MBO1_Serrabal	1	Mine 2 4mm 10
1/2/2025	Coal	MBO1_Serrabal	3	Mine 2 2mm 3.5
1/2/2025	Coal	MCO2_Serrabal	1	Mine 1 4mm 10
1/1/2025	Charcoal	MBO1_Serrabal	5	Mine 1 1mm 20

## 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