

Da Vinci Smart Manufacturing

BRD S06.02 Reports Raw Material Analysis

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This document outlines the detailed specifications for the **Raw Material Element 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 Group	Single-select dropdown	Lists the element groups, such as Chemical, Physical etc

Element ID	Multi-select dropdown	Lists the materials that belong to the groups selected
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Filter Behaviour:

- Filters cascade based on prior selections (e.g., Material Type → Material ID, Element Group - Element 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 the 'Raw Material Element Analysis' interface. At the top right, there is a user profile for 'Nora James'. On the left, a vertical sidebar contains icons for navigation and system functions. The main area has a header 'Raw Material Element Analysis' with a refresh icon. Below the header are two sections: 'Variant Name' and 'Filters'. The 'Variant Name' section has a dropdown labeled 'Select Variant Name'. The 'Filters' section contains several groups of dropdowns and input fields:

- Furnace ID***: 'Select Furnace ID'
- Material Category***: 'Select Material Category'
- Material Type***: 'Select Material Type'
- Material ID***: 'Select Material ID'
- Date Range***: 'Select Date Range' with a calendar icon
- Granularity***: 'Select Granularity'
- Client ID**: 'Select Client ID'
- Supplier ID**: 'Select Supplier ID'
- Element Group***: 'Select Element Group'
- Element ID***: 'Select Element ID'

At the bottom right of the main area is a '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 Group - view only
10. Element ID - view only
11. **Executed On** – *Displayed only in print view; not saved in variant.* - view only

12. **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 Concentration (%)

Table Features:

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

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.

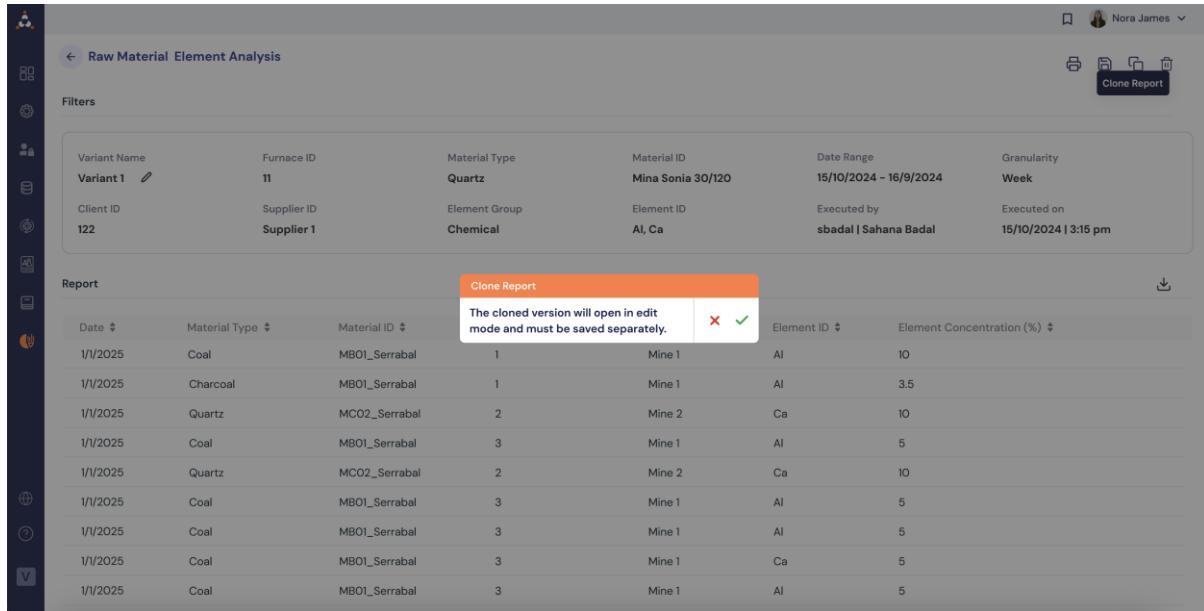
The screenshot shows a software application window titled "Raw Material Element Analysis". At the top right, there is a user profile for "Nora James" and several icons for file operations like print, save, and refresh. Below the title bar is a "Filters" section containing various input fields and dropdown menus for setting search criteria. The main area is divided into two main sections: "Report" and "Save Report Variant". The "Report" section displays a table of data with columns for Date, Material Type, Material ID, Element ID, and Element Concentration (%). The "Save Report Variant" section has a form where the user can enter a "Variant Name" (set to "Untitled"), select "Public" (unchecked), and choose between "X" and "✓" options. The "Element ID" and "Element Concentration (%)" columns from the report table are also present here. The overall interface is clean and modern, using a light grey color scheme with blue and orange highlights for interactive elements.

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*.

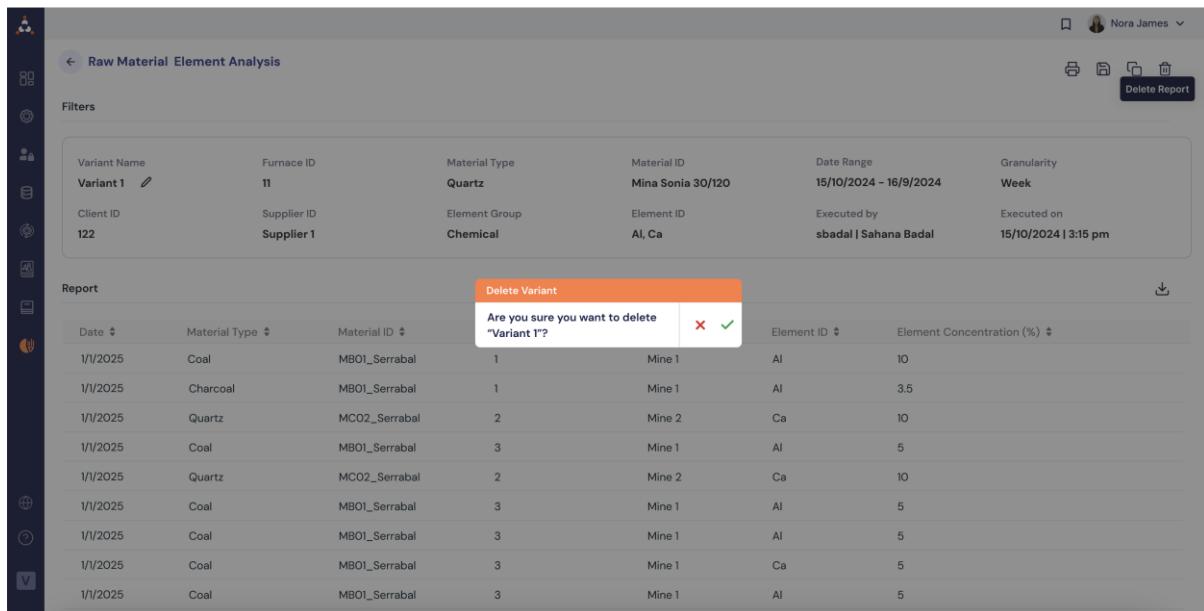


The screenshot shows the 'Raw Material Element Analysis' page. At the top right, there is a 'Clone Report' button. Below it, the report table has a modal overlay titled 'Clone Report' containing the message: 'The cloned version will open in edit mode and must be saved separately.' with a red 'X' and a green checkmark icon.

Date	Material Type	Material ID	Element ID	Element Concentration (%)
1/1/2025	Coal	MBO1_Serrabal	1	Mine 1
1/1/2025	Charcoal	MBO1_Serrabal	1	Mine 1
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1

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 the 'Raw Material Element Analysis' page. At the top right, there is a 'Delete Report' button. Below it, the report table has a modal overlay titled 'Delete Variant' containing the message: 'Are you sure you want to delete "Variant 1"?' with a red 'X' and a green checkmark icon.

Date	Material Type	Material ID	Element ID	Element Concentration (%)
1/1/2025	Coal	MBO1_Serrabal	1	Mine 1
1/1/2025	Charcoal	MBO1_Serrabal	1	Mine 1
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Quartz	MCO2_Serrabal	2	Mine 2
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1
1/1/2025	Coal	MBO1_Serrabal	3	Mine 1

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